

# Retail Pricing Is about to Get Personal

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Point of View

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# The day is coming when retailers will have to optimize prices at the individual customer level, on the fly and in full view of everyone. Here's a look at what that transition will entail.

Retailers used to set prices for the products in their stores by first understanding the value a product offered a customer. The store would also take into account the product's price at nearby competitors. An analytically advanced store might seek to understand the product's true costs, so that winning the customer's business wouldn't mean sacrificing profits. A store might even adjust a price to serve some bundling strategy, in the manner of a loss leader. For decades, some subset of these steps has informed the best retailers' pricing strategies, including Wal-Mart's "everyday low price." By thinking through these points, a retailer could theoretically feel confident about all the prices on its shelves. The prices satisfied an equation. They also had the advantage of being simple: every customer got the same deal.

All this is changing. Nowadays, it isn't just nearby physical stores that retailers have to match prices against. It's also a spectrum of digital rivals operating on the Web and through mobile commerce. The idea of a perfect price within a category—one that makes sense on the shelf, no matter which customer is looking at it and where the store may be located—is fading. In its place is an understanding that to price effectively, retailers will have to move to a

dynamic approach based on each product's economic value and each customer's buying needs. And they must deploy their analytics at that granular level.

This is a little like saying that someone who has just mastered multiplication should go off and solve a quadratic equation. To accomplish the more advanced work needed for personalized, dynamic pricing, retailers will need a decidedly different mindset. Below, we offer our perspective on how retail pricing will evolve, identify the changes retailers must make to thrive in this shifting landscape and explore the role that analytics will play.

## **Retail pricing today: reliance on competitive matching**

What's behind the imperative for customer-level pricing in retail? The most proximate cause is the transparency consumers have gained with the rise of online retailers and of Web sites offering price comparisons. New mobile technologies such as ShopSavvy are making it easier than ever for customers to scan a product's barcode at a store and find a better price elsewhere. In certain product categories, online-only stores like Amazon have taken a huge chunk of business away from traditional retailers, selling the same products at lower prices while sparing consumers a trip to the store. In Dec 2011, Amazon even launched a controversial promotion to win more

business, offering customers \$5 off on up to three items if they used Amazon's price-checking app at traditional retailers.

All this has dealt a harsh blow to retailers already struggling with a protracted slowdown in consumer spending. Most of them have realized that, to survive, they need to match their online competitors' prices, in addition to their brick and mortar rivals'. But traditional retailers haven't solved the problem of between-channel price differences; nor have they addressed the internal turf battles that multi-channel selling has touched off.

That's because most retailers still rely heavily on competitive matching to set their prices. They peg their pricing at or below their rivals' for frequently purchased items, and they elevate pricing on more unique or less frequently bought items. In part, the rise in store brand variety reflects retailers' attempt to get off the price compare-and-compete merry-go-round. In a retail store with thousands or tens of thousands of SKUs, there may be just a few dozen or a few hundred products whose prices the store takes pains to match by sending managers around town to check rivals' prices. A retailer that's relatively unsophisticated in pricing analytics might rely on gut feel to select products to competitive-match. One that

has reached a more advanced stage might use a regression analysis, starting with the items most often in customers' baskets, to figure out where it shouldn't be undersold. (See sidebar, "Evolution of retail pricing optimization.")

In setting prices for less-elastic products, retailers often use business rules. For example, the price should be 3 percent higher than the price of the same item in a competitor's store two miles away. Some retailers embed these rules in price-optimization systems or software. Such software can get fairly sophisticated, using ARIMA or Bayesian models or neural networks to optimize prices for whole categories.

### **Retail pricing tomorrow: personalized prices, determined dynamically**

We've seen how retail pricing generally works today. Now let's consider what it might look like in the future. We'll use the hypothetical example of George, a customer at a superstore. As George wheels his shopping cart up and down the aisles, the store tracks everything he puts in the cart, through a sensor either in George's possession or built in to the cart – a "personal shopping assistant." The cart's display also makes recommendations based on George's past purchases and on products he tends to buy together (in retail vernacular, his "attachments"). For instance, if George chucks a bottle of ClearHead dandruff shampoo into the cart, the display might flash the message "Don't forget to stock up on ClearHead conditioner too!"

Finally, the store offers George deals based on what's called his economic value. The retailer's analytics system calculates George's economic value from his purchases at the store over time (a year for a grocery store, perhaps two for a clothing store and three for an electronics store). The calculation may also include other data about George that the company has acquired elsewhere. The system then generates special offers based on this calculation. These offers represent investments by the retailer as well as manufacturers with analytics systems linked to the retailer's. (George may or may not know this, depending on the privacy laws the retailer is subject to and on how carefully George has read the disclosures.)

The special offers may come through an app on George's smart phone, through a digital display on the cart he's pushing or in a customized discount he gets when he presents his loyalty card at the cash register. For instance, if he has a high economic value, he may receive a significant discount on the 27 items in his cart. Sophia, the next person in the checkout line, may have the same 27 items in her basket, but her discount will be different, depending on her economic value to the store. (See sidebar, "Every corner of retail faces the same imperative.")

What's happening in this scenario is not some fundamental change in consumers or merchants. George is behaving just as shoppers did one hundred years ago while strolling through a bazaar buying a camel, some goat cheese and a bit of snuff. Now as then, consumers look for what they need, at the best quality they can find and at the lowest price. Merchants, for their part, are still giving their best customers the best deals they can, so they'll keep coming back.

## Pricing analytics: why few retailers use it effectively

Why is pricing analytics relatively undeveloped in retail? Four reasons:

1. Low quality of data and reliability of predictions needed from all over the business—including the supply chain, marketing and sales.
2. Extensive external data that influences prices—namely the economy, competitor actions, actions in competitors' ecosystems, manufacturers' discounts and trade promotions.
3. Different channels for which pricing needs to make sense—brick and mortar stores, e-commerce and, increasingly, mobile commerce. These environments are in a constant state of flux, making it hard to trust the results of any price tests.
4. Retailers' reluctance to increase profits—their share prices may be more tied into same-store sales comparisons. For retailers in this position, pricing analytics still matters, but it should be used to drive top-line growth instead of profits.

What is different today, however, is that consumers now have much more power, thanks to the alternatives offered by the Internet and other technologies. The ShopSavvy factor—customers' using their mobile phone to comparison-shop in a store and buy a product more cheaply somewhere else online—has exposed the limitations of setting retail prices at the category level using standardized business rules. In this brave new world, the only price guaranteed to work is the price set dynamically for each customer. That means establishing prices based on an understanding of what that customer could mean to the retailer and on a split-second analysis of how the retailer can win the customer's loyalty.

### Using pricing to win: five requirements

How can retailers prepare themselves to thrive in a future dominated by personalized, dynamic pricing? We offer the following suggestions.

**Accept that change is inevitable.** Despite the magnitude of the change represented by the Internet, many traditional retailers are still in denial regarding the new realities. Let us put it as plainly as possible: Online retailers are going to keep taking market share away from traditional retailers; the trend is irreversible. You can't change it just by building a better store. The sooner retailers accept this, the sooner they'll concentrate their resources on a fight they can win: holding on to individual customers. To keep their best customers, they'll need to reward loyalty with better prices. In a world where rewards for repeated patronage are already routine, customers will understand that this is part

of the compact. And they won't push back at differentiated pricing strategies as long as they are perceived to be fair and transparent.

Accepting change also means staying abreast of emerging pricing models. Individual retailers may be tempted to dismiss Priceline's "name your own price" and Groupon's discount algorithm as not having any direct implications for them. That may be true today, but assuming it will remain true in the future is dangerous.

#### **Embrace a new strategy and tactics.**

Most retailers that have used analytics tools have pointed them at individual items, or categories, on their shelves. But as retailers increasingly focus on the long-term economic value of individual customers, that strategy will have to shift. The analytics will need to optimize prices for individual customers, trips and baskets. Some customers will discover they are on the wrong end of the differential pricing continuum and may complain about unfairness. This will bring retailers to a tricky intersection, where personalized pricing and transparency collide. Companies will have to find their own ways through it. Strategies may include creating different tiers of customers, introducing secondary benefits for less-profitable customers or letting unhappy customers go elsewhere.

**Amass the right data.** Retailers today have no shortage of data. They know what is selling in their stores, and they have the data (even if they don't always have the inclination) to do elasticity analyses. Some are even building bots that crawl rivals' Web sites, feeding competitors' prices back into their own price-optimization systems. These bots aren't part of customer-level pricing systems, but they automate a task that's now largely manual.

To do customer-level pricing, retailers will need a few specific types of data that many of them lack. One type is their true

## Every corner of retail faces the same imperative

It isn't just the food retail industry where the new rules about pricing will apply. The concept of the long-term economic value of individual customers will matter in every area of retail—from hairpins sold at Claire's to sofas sold at Pottery Barn—and so will the rigors of pricing analytics. To be sure, some types of retailers may not need, or may not be able, to apply individualized pricing as broadly as other types of retailers. But in the long run, individualized pricing, at the moment when customers are buying, will become measurably more important in every type of retail business. To do it effectively, retailers will need to know more about customers' spending patterns and their potential profitability. And they'll have to gather information on other retailers their customers are buying from.

# The evolution of retail pricing optimization

In the long run, pricing to the individual customer, at the moment of purchase, will become the norm.

**Step 1: Cost plus intuition.** Relying largely on historical data, retailers set line prices using gut judgment or a simple cost-plus calculation.

**Step 2: Competitive rules.** Retailers use current competitor data and comparative marketing heuristics—rules that set a price relative to key competitors', such as "I want to be 0- 10 percent less than the following competitors on these key products."

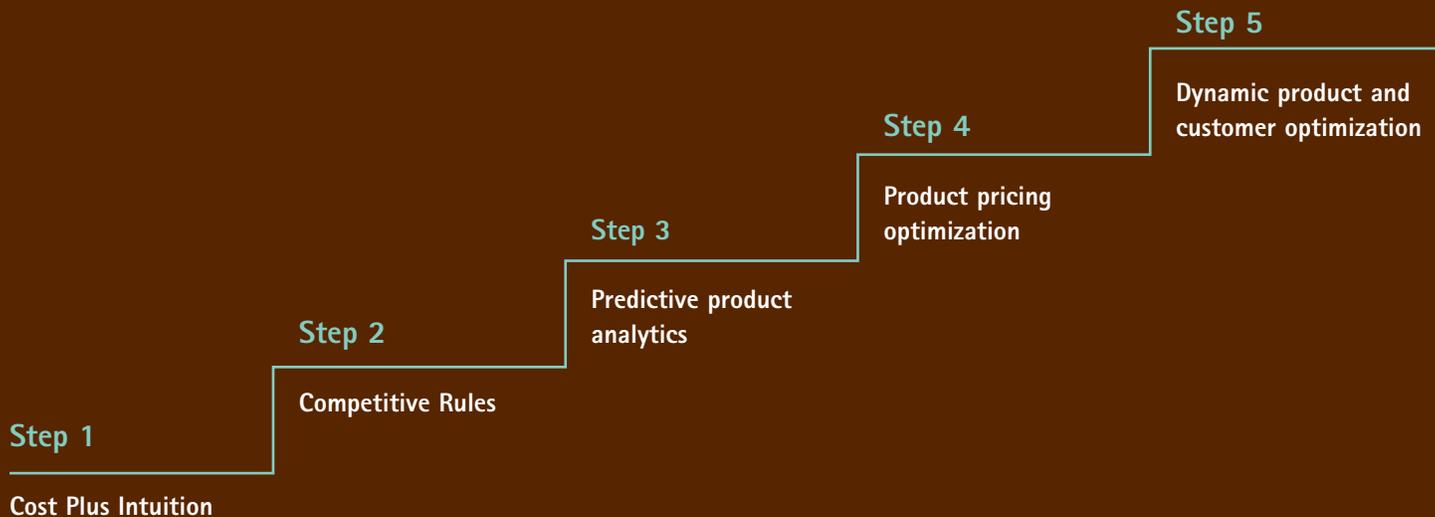
**Step 3: Predictive product analytics.** Retailers utilize models from SAP, DemandTech or other vendors to predict the impact of price changes on product level and sales.

**Step 4: Product pricing optimization.**

Leading retailers use analytics to consider the overall impact of price on both product and customer performance. For example, they might use a simulation model to understand the halo effect on the overall basket at a customer segment level. At a grocer, this might be modeling the impact of a promotional price for turkeys at Thanksgiving to quantify the financial value of attracting customers into the store to buy the rest of their holiday goods. Leading customer-centric retailers (especially those ahead of the pack in loyalty management) are just figuring out how to operationalize this capability instead of employing these techniques on an ad hoc basis. These leaders are moving toward selective 1:1 pricing (although still primarily through promotional activity). Few, if any, retailers have routinely embedded these capabilities in their daily processes.

**Step 5: Dynamic product and customer optimization.**

These analytical pricing pioneers have already mastered predictive analytics in other areas of their business and can accurately predict product cost and supply as well as customer demand, values and behavior. The most analytical retailers are moving toward applying predictive analytics in a sustained, holistic manner, across all products and customers. They're routinely leveraging insights into customer behavior to optimize prices that have been tailored to the individual customer at the transaction level. Long-term, they aim to apply the principles of price elasticity not just to products, but simultaneously to individual customers and circumstances (such as seasonality; for example, overcoats have greater price elasticity in early summer than in late fall). While analytical retailers study the elasticity of each of these factors, none has yet figured out how to use them simultaneously to optimize prices.



costs, including their “cost to serve.” For example, it is considerably more expensive to warehouse and stock paper towels than it is to do the same with bottles of aspirin. Pill bottles are immensely more efficient from a sales-per-cubic-inch-of-bulk perspective. Retailers must take into account thousands (if not tens of thousands) of such variables. The analytics that result may have implications not just for pricing, but also for the range of products a retailer carries and for its inventory forecasting practices.

An even more challenging “must have” data type is detailed information about individual customers’ buying habits and their sensitivities to price changes. In the new game that’s coming, this will be the admission ticket. Indeed, the real advantage may accrue to those with “universal” customer data—those who know what their prospects and customers spend generally, not just at their stores. This information will never be perfect. But third parties, including credit card companies and syndicated data providers, may have enough of it to become sources of near-universal data. And such data can serve as critical inputs in the math that determines prices.

The data a retailer amasses should address these questions:

- What is the economic value of this customer?
- Which products should I offer to this customer? When? Through which channels?
- What does the product actually cost (factoring in expenses like trade promotions and inventory carrying costs)?
- How should the price I charge vary for each channel (in-store, online, over the phone)?

**Build the infrastructure.** The most successful retailers have always been good at two things: marketing and some aspect of infrastructure. In the past, the type of infrastructure that has proven decisive may have involved the supply chain—the ability to get goods in the store quickly and efficiently while limiting the amount of capital tied up in inventory. As pricing becomes more dynamic and personalized, new types of infrastructure will gain importance. These will include wireless networks, integration with manufacturers’ networks (especially since manufacturers will be part of the one-to-one pricing transformation) and analytics systems that can figure out the right prices for different customers and generate offers in microseconds.

**Create a fast, intuitive customer interface for dynamic pricing and promotion.** Amazon.com already excels at this, demonstrating that it is possible to offer bundles and customized prices, dynamically and instantly. Traditional retailers will have to meet this standard in their online operations, and it will not be easy.

Retailers with brick-and-mortar as well as online stores have one big advantage, at least in theory: consumers can choose to transact business with the company in person, as well as virtually. Retailers employing pricing analytics should be able to offer the buyer a tailored price no matter where the transaction happens. For instance, the company could decide to make the in-store price cheaper, or to offer a discount to customers who buy online and then pick up the product at the store versus having it delivered to their homes. In this analytics nirvana, the retailer sets the perfect price regardless of the channel. However, this is hard to pull off, and most retailers are a few years from trying it.

## Adding the customer variable to the pricing equation

We don’t want to imply that retailers shouldn’t focus their pricing strategies on specific products and categories. Product prices powerfully influence customers’ impressions. Thus they’re a key to securing loyalty and ensuring that business keeps coming in the door. Data that prices are based on is more robust than ever. And the analytics that calculate the optimal price points have reached new levels of sophistication. There is no question that some retail operations get a tactical advantage by using analytics to set baseline prices.

But the challenge is changing. Most retailers now have multiple store models to synchronize: physical stores, online and maybe mobile. Focusing on just one of these store models will constrain a retailer’s growth. The best retailers will have to be equally strong in all the channels accessed by their current and prospective customers.

One supermarket used to display a basket of food at its corporate headquarters with a sign reading, “At our store, these goods cost \$10 less than at our competitor’s.” That idea once had a lot of power. But in a world of one-to-one pricing and multiple retail channels, it needs updating. The equation to determine the right price—from a customer’s perspective—has gotten more complex and contains new variables. In the race to survive, retailers who understand this will put themselves one critical step ahead of their rivals.

## About the authors

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