The new realities of dynamic pricing

By Ajit Kambil and Vipul Agrawal

Frequently varying online prices in response to changing market conditions can maximize returns and create a potential new source of competitive advantage. So why are so few companies putting this strategy to use?
It happens all the time. You walk into your favorite clothing store and discover that the jacket you just paid $155 for is now on sale for $79.99. Or even more painful, you go online and see that your new “state-of-the-art” laptop is not only no longer state of the art, it’s $1,200 cheaper than it was when you bought it six weeks ago.

Nothing brings on buyer’s remorse in consumers faster than the realization that they’ve paid more than they had to. So after being frustrated enough times, some consumers get savvy and change their buying behavior to accommodate the new realities of dynamic pricing—a business strategy in which prices are varied frequently by channel, product, customer and time.

These consumers make judgment calls. For example, they deliberate about whether there is more value in having those wool slacks all winter or just during the season’s last two months, which would leave more money in their pockets.

But have companies become as savvy as their customers? The Internet is reshaping the pricing landscape on the sell side and, because of increased competition and customer segmentation, is also mandating that firms adopt a dynamic pricing strategy. Yet a recent Accenture study of online pricing suggests that not enough companies have integrated dynamic pricing into their online pricing strategies; those that have are not taking full advantage of its potential.

Just think about it. Say that traditional margins are about 10 percent. If your company were to use dynamic pricing, it could add five percentage points to that margin, which would mean a dramatic 50 percent increase in profits. But too often, companies are not choosing the correct dynamic pricing model for their specific business strategy. Indeed, many seem afraid to change their pricing frequently, which would let them respond better to market conditions.

Consider, for example, how three major hotels in midtown Manhattan priced a similar room in April 2001 (see chart, opposite). For a period of time, two of the hotels did not have rooms available for online reservations; meanwhile, the third hotel, which had availability, kept its price constant. By varying prices more frequently in response to changing demand, these hotels could have increased their margins.

**Customized**

The benefits of dynamic pricing are twofold. First, it provides new opportunities for companies to maximize their return per customer. With lower menu costs (that is, the cost of displaying prices to customers), companies can have multiple prices for different channels and product configurations—and can change those prices more frequently.

Companies able to gather information about their competition and about customer needs and willingness to pay can customize their offerings and prices. This enables them to deploy dynamic pricing through the most appropriate of many channels. With dynamic pricing, companies can give their customers exactly what they want, at exactly the price they are willing to bear. Nothing is left on the table.
The second, perhaps less obvious, benefit is that dynamic pricing can also bring better returns on deployed assets. For businesses with high fixed-cost technology infrastructures, periods of low demand and, thus, low utilization are expensive. Conversely, when there are inflexibilities in the supply chain for critical components, periods of high demand can lead to shortages and can both delay purchasing and damage customer relationships. But with dynamic pricing, companies can encourage demand in slow periods and discourage it in busy periods.

Consider how Dell prices its high-end personal computers. Unlike many of its competitors, the computer maker changes its prices frequently, sometimes up and sometimes down. Because of its knowledge of its supply chain and the information it gleans from customer visits to its website, Dell can predict its near-term sales and adjust prices to maximize its revenues. It can also moderate demand so as not to overburden its supply chain, and encourage buyers to purchase systems built to order based on committed supplies.

**Strategic options**
Low menu costs and the online distribution of prices allow companies to use, and sometimes combine, three different dynamic pricing strategies.

- **Time-based pricing**
  Time-based pricing exploits the different prices customers are willing to pay at different times. For example, early buyers are willing to pay more for the latest fashions, computer and electronics innovations, and newly published hardcover books. On the other hand, late buyers—those who

---

**Room to maneuver**
Despite changing demand for rooms and the transparency provided by online reservation systems, three New York hotels did little to vary their rates during a one-month period in early 2001.

**SOURCE:** ACCENTURE ANALYSIS

---

Various dynamic pricing strategies can be combined or used separately, depending on the situation.
Pricing should be aligned with a company's brand strategy.

Like to keep their options open until the last moment—are willing to pay more for airline travel and hotel accommodations.

And some products and services become more valuable as the number of customers increases over time. For example, as AOL attracts more content and more users, it becomes more valuable to all users, and thus it should be able to charge more.

The two most common forms of time-based pricing are peak-load pricing and clearance pricing. 

Peak-load pricing is most appropriate when supply is inflexible, which allows suppliers to systematically increase prices with predictable increases in demand; this can occur with long-distance telephone service or utility usage, for example.

Clearance pricing makes most sense when demand is uncertain and products lose value in the eyes of the customer with time—they simply go out of fashion—or with the change in season. Companies that sell computers or other products with short lifecycles must lower their prices to clear out the excess inventory they built up to cover unpredictable spikes in demand.

JC Penney, one of the largest apparel and home furnishings sellers in the United States, has made clearance pricing the signature feature of its “falling price” website. The Gap uses clearance pricing for seasonal goods, maintaining constant prices for its year-round slim fit jeans while marking down the prices of its sundresses toward the end of summer.

Segmentation and rationing
Segmentation and rationing exploit the difference in the willingness of customers to pay through different channels, at different times and with different levels of effort. To use these strategies, companies must create specialized product service bundles priced according to product configuration, channel, customer type and time.

Consider how segmentation and rationing work in the airline industry. Airlines may have as many as 15 different prices for the same seat, depending on whether it is a restricted or unrestricted fare, when it’s booked (say, a 14-day advance purchase versus a one-week advance purchase) or other factors.

Take, for example, a round-trip flight between New York and Seattle on May 5-8, 2001 (prices were quoted for this trip on April 24, 2001). The ticket cost $2,015.50 (restricted fare; unrestricted fare was $2,447.50) on the American Airlines website, $2,446 on Travelocity.com, $319 on the NetSAAver opt-in e-mail list for special fares, $1,713 on Expedia.com and $263.59 on TWA via a best-fare finder. (The lower the price, of course, the more restrictive the conditions.)

Most airlines ration the number of seats they offer at different prices and across different categories. Airlines analyze demand patterns and refine their pricing strategies to maximize their yields across channels.

Dynamic merchandising
Dynamic merchandising exploits the Internet-enabled capacity to change prices rapidly and frequently to offer customers different products, promotions, delivery options and pricing as supply and inventory change. It allows Internet sellers to clear excess inventories without always having to lower their prices.
and potential profits. For example, Amazon.com makes personalized buying suggestions every time a return customer logs on to its site. That way it can clear inventory and gain sales based on each customer’s particular interests.

These various dynamic pricing strategies can be combined or used separately, depending on the situation. We believe the value and exploitability of these strategies increase as differences in customer willingness to pay and uncertainty about demand increase.

For example, dynamic pricing strategies are least valuable when customer demand for products is predictable and the willingness to pay is similar for all customers. When these conditions exist, the most effective strategy is to use dynamic merchandising to shift customers to alternative products and services as a way to manage supply inflexibilities or drive higher margins.

When different customers place different values on a product or service but patterns of demand seem fixed, companies can deploy a full range of dynamic pricing strategies—dynamic merchandising, segmentation and rationing, and auctions and peak-load pricing—to closely match pricing to a customer’s product or service preferences and willingness to pay. When customers have different values for a product or service and demand is uncertain, all of these strategies, plus clearance pricing, become feasible.

Finally, when customer demand is uncertain but the value of the product or service is similar for all customers, dynamic merchandising and segmentation and rationing may be good strategies to stabilize supply costs and to maximize product and service prices.

Companies should use dynamic pricing selectively. After all, pricing decisions require managerial time and attention, which can be scarce organizational resources. (For a related article, see “Attention!” Outlook, June 1999.) So here’s a guiding principle: Pricing should be aligned with a company’s brand strategy.

Take, for example, Buy.com, a low-price e-tailer. Buy.com sells a lot of handheld products, and it changes their prices frequently. But it rarely changes the prices of its computers. Dell, on the other hand, sells a lot of computers, and so it changes their prices frequently. Handhelds are secondary to Dell’s computer packages, thus it offers handhelds at a rarely changed price. Both Dell and Buy.com, then, closely monitor and frequently change the prices of only their core products.

Competitive pricing in one category can also support higher margins in other categories if customers are

<table>
<thead>
<tr>
<th>Rationing: Best practice from Egghead.com</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Internet makes it possible to use different pricing strategies for different customer segments and needs (see story). In other words, one size, and one price, need not fit all.</td>
</tr>
<tr>
<td>Consider the following case of the auction arm of Egghead.com, an Internet direct marketer of technology and related products. When Egghead.com clears out its excess low-end and refurbished computer equipment, it does not use traditional clearance pricing but rather applies a rationing strategy to its auctions.</td>
</tr>
<tr>
<td>On July 24, 2000, Egghead.com put 15 units of the Agfa SnapScan 1212u color scanner up for auction, with a starting bid of $9. Thirteen bidders made offers ranging up to $45, with a median price of $27. The next day Egghead.com released a virtually identical model, the 1212p scanner (with a parallel rather than a USB port), for auction, but it rationed the number of units to six, with a starting bid of $25.</td>
</tr>
<tr>
<td>The first auction gave Egghead.com an idea of what bidders were willing to pay, thus in the second auction it could raise the starting bid. It also more strictly rationed the number of units available—only 6 instead of 15—to cut out some of the successful lower bids.</td>
</tr>
<tr>
<td>Four days later, Egghead.com released 27 units of the same scanner at the “Smart Deal” fixed price (no auction) of $36.99. Customers were willing to pay a $10 “Smart Deal” premium over the previous median price, perhaps to avoid the effort and uncertainty of bidding at an auction—an example of segmentation based on how customers value their time and involvement.</td>
</tr>
<tr>
<td>Finally, on August 7, Egghead.com auctioned a single Agfa SnapScan 1212u, but this time with a higher suggested minimum bid. The high bid was $54, twice the median price of the units sold on July 24. In short, Egghead.com was able to strategically use auctions to assess customers’ willingness to pay, and then vary prices and supply—to segment and ration—to maximize revenues.</td>
</tr>
</tbody>
</table>
Companies must be able to sense if customers will be responsive to dynamic pricing. Companies that want to use price to their competitive advantage must first develop (as Dell and Buy.com have) sense-and-respond capabilities that will enable them to anticipate future demand patterns and customer willingness to pay for different products and services. Fortunately, current Internet technology provides a number of inexpensive solutions for

---

**By the book**

During the same period, competitive pricing in one category can support higher margins in another, as the experiences of two online booksellers show.

**Best-selling hardcover fiction**

**Specialty text (calculus)**

**SOURCE: ACCENTURE ANALYSIS**
tracking customer behaviors and generating insights, and comparison tools and bots make it possible to monitor competitor pricing automatically in the retail sector.

Second, companies need to develop internal capabilities for dynamic pricing. This includes establishing a baseline performance level that offers insights into critical-parts inventory, and identifying opportunities for clearance pricing or supply inflexibilities that may be addressed through dynamic merchandising or rationing and segmentation. To create such a baseline, companies must integrate their front-end and back-end systems, and set up better data warehousing and integration capabilities across multiple company processes.

Third, many companies that are not familiar with dynamic pricing and that are confronting changing market segmentation will have to build dynamic pricing capabilities. This will require recruiting new expertise and securing an executive commitment to both the use of new pricing models and reassessments of the value of specific customers to the firm. The latter consideration may encounter substantial resistance from sales forces. Implementing dynamic pricing will also require careful and thoughtful consideration of both the merchandise to be priced dynamically and the frequency of price changes.

Dynamic pricing is not without hazard. Because customers do not want to feel cheated, companies must be careful to maintain consistent prices across channels for the same product. The other alternative is to vary the offer substantially.

That is why airlines are better off clearing their excess inventory through Priceline.com or Orbitz rather than directly through their own websites. They can continue to charge a premium to the last-minute traveler yet capture others through the more anonymous clearance channels that do not make excess inventory visible to consumers. (The airline industry also illustrates how people manipulate the system by buying two different return fares to make short trips.)

Companies must also avoid the appearance of price discrimination—the same product should not be sold at the same time to different customers at different prices. One way companies implementing dynamic pricing can stay clear of this pitfall is to vary product service attributes, such as warranty or delivery.

A better balance
Dynamic pricing is not for everyone. Effective dynamic pricing is based on a responsive and adaptive pricing system that values human judgment over automated pricing rules. Companies must be able to sense if customers will be responsive to dynamic pricing. If not, they should move to a stable pricing strategy. Smart pricing organizations will experiment to determine which pricing model works best with their specific customers, and then they should adapt that model accordingly.

Dynamic pricing is an increasingly important strategy as companies begin to use online channels. It creates new opportunities to maximize the returns on both customers and assets. It also creates a potential new source of competitive advantage that is not easily replicated by competitors.

But it requires a high level of executive commitment to implementation and integration throughout an organization, as well as processes and competencies that are difficult to emulate. There may be economies of scale in investments that support dynamic pricing. Effective pricing also requires access to historical data and customer insights generated over time. This makes it difficult for new entrants to replicate dynamic pricing capabilities.

Dynamic pricing creates a balance between buyers and sellers more attuned to the digital age: customized and just in time. It’s less like a speaker lecturing in front of a captive audience and more like two negotiators sitting at a table. Dynamic pricing provides both buyers and sellers with a much broader and more value-creating set of pricing options. And so no one leaves money on the table.

Ajit Kambil is a Boston-based associate partner and a senior research fellow at the Accenture Institute for Strategic Change, where he leads diverse research initiatives in e-commerce, supply chain innovation and venturing. A widely published author and frequent industry speaker, Dr. Kambil also teaches in the executive programs at New York University’s Stern School of Business.

Vipul Agrawal is cofounder and COO of MCA Solutions, a provider of advanced supply chain planning software and benchmarking services. Dr. Agrawal, whose area of expertise includes supply chain strategy, optimization models and pricing strategy, has served as an assistant professor of operations management at New York University’s Stern School of Business, where he continues to hold an adjunct appointment.