STRATEGIC MARKETING DECISIONS

Providing Comprehensive Strategy and Pricing Solutions

Introducing

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What is Reactor™?

Reactor™ is a market simulator developed by Strategic Marketing Decisions to help product managers and pricing decision-makers make better pricing and product line decisions. It uses cutting edge market modeling techniques to forecast the impact of different pricing policies on key performance metrics such as unit sales, market share, revenues and profits by systematically using a combination of customer research, market data and managerial judgment.

Reactor™ also helps product managers develop and test various competitive pricing hypotheses making it possible to reliably predict how competitors will react to price and market changes. This capability enables better forecasts of the long run impacts of changes in prices or other market variables and helps avoid unnecessary price wars. This methodology is superior to "what if" analyses by developing predictions of competitors' responses and the resulting consequences, rather than simply asking what would happen if a competitor were to respond in a particular way.

What Makes Reactor™ Unique?

Reactor™ is superior to traditional preference based market models by 1) specifically accounting for the customer's choice and purchase decision processes and 2) going beyond traditional "what if" analysis by predicting competitor responses to changes in prices and market conditions.

Advanced Customer Choice and Demand Modeling

Traditional preference-driven choice and demand models omit a number of factors that influence a customer's product choice in the real world. As a result, these models often do not fit actual market data well and provide biased estimates of how demand responds to changes in market conditions. Reactor™ addresses the following issues by eliminating biased demand predictions that exist in traditional market models:

- How a customer's product choices are impacted by their choice of resellers and the variations in product availability and pricing across resellers,
- The impact of perceptions of marketing activities such as advertising, sales and service on brand evaluations and purchase likelihood,
- The impact of customer-specific pricing policies (such as quantity or discounts offered exclusively to customers satisfying specific criteria), and
- Psychological factors that influence customer choice processes.

Competitor Response Modeling

Reliably predicting competitor price responses is critical for developing a successful pricing policy in competitive markets. Reactor™ improves predictions about competitor reactions by making it possible to systematically formulate and test hypotheses about competitor behavior. Thus, Reactor™ goes beyond "what if" analyses, which consider what might happen, by enabling a systematic analyses based on what is likely to happen.

Reactor™ automatically generates prices for competitors based on the user's selection from a variety of price decision rules. Prices may be set to maximize an objective that includes a weighted combination of profit, sales, revenues and share or may be based on a decision heuristic such as cost-plus pricing or matching the price of a competitor. The prices that Reactor™ generates for each of the tested rules can be compared with actual competitive pricing behavior to assess how well they predict actual competitive price responses.

Reactor™ is a useful tool in role-playing exercises. The user assumes the role of any or all competitors and implements prices according to the decision rules that Reactor™ calculates or chooses another set of prices based on his or her beliefs of how the competitor will respond.

Is Reactor™ Right for *My* Business?

Pricing decision-makers in variety of industries can use the Reactor™ simulator. It provides the greatest value in competitive industries characterized by either stable demand or predictable growth or decline in one or more segments. Reactor™ can model firms that offer multiple products and services that are sold directly to customers, through intermediaries or both. This capability allows predictions of the impact of a change in the price of one of a company's products on the sales of both the remainder of its product line and the competitors' products offerings.

Reactor™ also offers the capability of adjusting the one or more competitors' product offerings by either changing product attributes or adding or dropping products.
Reactor™ accounts for the fact that various customers may face different sets of alternatives and prices. Firms may offer different products for sale directly or through different resellers implying that a customer's choice set may be influenced by the vendors they use. Customers may also receive different price offers based on volume, revenue or other customer characteristics. Reactor™ captures those effects.

Reactor™ is the leading advanced tool for developing a pricing policy in a variety of industries including:

- Medical supplies and equipment
- Telecommunication services
- Computer software and services
- Consumer packaged goods
- Financial services
- Consumer durable goods
- Production equipment, parts or inputs
- Business services

among many others.

A Case Study

(This case study is based on an actual analysis but the names have been changed and the industry and product offerings have been disguised to protect client confidentiality**)**

Background

Prescott Medical Products, a medical supplies manufacturer, produces an agent that is used in medical testing. Prescott is one of three key competitors in this market. All competitors offer this agent, which is consumed during the testing process, in both single test and bulk packaging. Hospitals and specialty clinics typically purchase this product through group purchasing organizations (GPOs), but may also purchase it directly from the manufacturer. Each GPO carries only one or two manufacturers' brands, so those customers who only purchase through the GPO choose from a limited set of alternatives.

Problem and Solution

These agents are generally considered to be commodities in that the offerings of the three manufacturers are considered to be of comparable quality. As a result, customers were believed to be fairly price sensitive, making price a tempting lever to pull when trying to improve unit sales. The Prescott brand management team wanted to adjust their prices to improve revenues and profits, but were uncertain about the best way to proceed.

The solution was to have a Reactor™ market model built to forecast the impact of different pricing policies on key performance metrics such as unit sales, market share, revenues and profits by systematically using a combination of customer research, market data and managerial judgment.

Collecting Data for the Reactor™ Model

In preparation for building the model, in-depth interviews were conducted with a small number of representative purchasers in this product category to better understand the factors that influence purchase decisions in this category and their decision processes. Based on these interviews, survey data was collected to identify customers' preferences and attitudes in three market segments. Included in the survey was a conjoint analysis that measured preferences for brand names, package types and other product features. A novel aspect of this study was that it determined how the customers' attitudes toward purchasing a product were influenced by whether or not it was offered by a GPO to which they were a member. Also included in the survey were customer perceptions of the marketing activities of the competitors, including marketing materials, salesforce performance and ongoing customer service. These data were used as inputs into a Reactor™ model designed to predict how the competing products' sales, market shares, revenues and profits were influenced by the changes in the pricing policies of one of the firms. The model allowed the Prescott to specify adjustments in base wholesale prices and quantity discounts.

Preliminary Findings

The first step in step in the process was analyzing and summarizing the survey data. Based on this analysis, several key insights were gained. As originally believed, the overall evaluation of each of the competing brands was similar when aggregated across customers, suggesting that this was indeed a commodity-like market which would be price sensitive. However, there were several findings that suggested that customers might not be as price sensitive as the brand preference data would suggest. Many customers expressed a slight preference for the brand they most often consumed. As a result, while the segment level preference data suggested that on average customers were indifferent toward the competing offerings, many individual customers did prefer the brands that they regularly consumed and that were offered by the GPOs of which they were members.

When these factors were included in the model it turned out that most customers were significantly less price sensitive than the product managers had originally thought and that less then 10% of customers currently using other brands would switch to Prescott's product with less than a 20% price reduction. If Prescott relied solely on a basic preference driven model, they would have seriously overestimated the market's price sensitivity, which would have made them more inclined to try to increase revenue and profit by lowering price, an action that would have triggered a price war.

Model Calibration to Actual Sales Data

The second step in the process was to build a Reactor™ model based on the survey data and calibrate it to actual market sales figures using a maximum likelihood statistical procedure. When the model was calibrated using only the conjoint preference data predicted market shares deviated significantly from the actual market shares, with errors for some of the products exceeding 10%. However when two of the marketing variables were included in the model and the market was calibrated, the predicted shares for all products were within 3% of actual shares. Thus, including the appropriate marketing variables substantially improved Reactor's™ predictive capability.

Market Response to Price Changes

Once Reactor™ was calibrated to the market, it was used to test how effective potential price changes would be in improving performance on the company's key metrics of revenue and profit by generating, saving and comparing scenarios. The first step in using the Reactor™ model involved trying to find if Prescott could charge prices that would better achieve their objectives given the prices currently charged by its competitors. The Reactor™ model revealed that moderate price cuts could increase revenue; however, doing so would reduce the expected profit. Furthermore, it revealed that the price of its single use packaging, which was more expensive than the bulk alternative, was too low and that was hurting profit. Reactor™ revealed that the price of the product packaged for single use tests could be increased and most customers would switch to the less costly bulk packaging without switching brands. A key finding

was that Prescott's focus on revenue rather than profit hurt the bottom line even if competitors did not respond to Prescott's price changes.

Anticipating Competitive Responses

The next analysis determined whether or not the assumption that competitors' prices would remain unchanged was realistic and, if not, what responses could be expected. Reactor™ was used to test several competitive pricing behavior hypotheses. Two pricing rules seemed to comport with the historically observed competitor price behavior. In one rule, that competitor is presumed to charge a price that is a constant fraction of the price of Prescott's comparable product. A second rule viewed competitors as lowering price as needed to maintain a specified level of sales. Under both of these rules, both competitors would be expected to at least partially match a price cut by Prescott. As a result, it became clear that while Prescott could temporarily increase revenue by lowering prices, competitors were very likely to respond by lowering their prices and the net result would be a reduction in both Prescott's revenue and profit after the likely competitive responses. If Prescott did not anticipate the competitors' responses it would've been tempted to lower prices to improve revenue, which ultimately would lead to reduced revenue after competitors responded with their own price cuts.

The analysis of competitive pricing behavior indicated that modest price increases would be partially matched by at least one key competitor. Based on the market model, it did not appear that Prescott could increase profit by raising prices given the competitors current prices. However, a modest price increase became attractive if it was expected that one of the competitors would also raise prices. The expected result was that Prescott could maintain its revenues and increase profit with an increase in average price if the key competitor responded as predicted by partially matching the increase.

Results

As a result of the Reactor™ analysis Prescott decided to:

- Adjust their pricing policy objectives to focus more on profit rather than revenue given their new understanding of how their focus on revenue hurt their bottom line
- Raise the price of their more expensive single test packaging to encourage switching to the less expensive bulk packaging
- Selectively reduce the discounts that were offered to some of its customers, thus raising average prices

The result is an estimated profit improvement of 8 percent relative to what would have been obtained under the pricing policy they had originally planned, with a minimal loss in share and revenue.

Scott Davis is Principal and Founder of Strategic Marketing Decisions