

Price Optimization

The Opportunity and How to Benefit





Executive Summary

Over the past few years there has been renewed focus on the use of price as a merchandising lever. This is due to a number of factors including volatility in commodity prices and the strained consumer purse as a result of wider economic issues.

In both Europe and North America, a number of grocers have focused their marketing on price and value, repositioning themselves in an attempt to gain or retain market share. This focus on price has required significant investment in terms of process and people and in some cases technology.

There are a number of software providers that offer solutions to aid in the process of making price decisions. These range from simple rules-based price planning offerings to highly sophisticated price optimization solutions which determine the best price position in order to achieve specific goals such as maximizing overall margin.

Considering the need to balance the consumer's desire for low price with the retailer's need to maximize value for its shareholders, the adoption of sophisticated solutions has not been as high as some analysts had anticipated.

In this white paper, we will discuss:

- Why pricing is more important than ever for grocery and hardline retailers
- Benefits that can be achieved when using technology to help make price optimization decisions
- Fears or barriers to sophistication—why retailers have been wary of price planning and price optimization solutions
- What to consider when selecting a price planning and price optimization solution



Apart from the wider focus around consumer consciousness of price and increase in commodity costs there are a number of factors that contribute to making price planning and optimization technology an essential piece of retail artillery.

The Opportunity

To every action, there is an equal and opposite reaction: consumers have become more conscious of price and retailers have adjusted their positioning accordingly. What may be seen as a threat for a retailer can be an opportunity which can be enhanced through the use of the right toolset.

Why Now?

Using technology to assist with price recommendations and decisions is more relevant today than ever. Apart from the wider focus around consumer consciousness of price and increase in commodity costs there are a number of factors that contribute to making price planning and optimization technology an essential piece of retail artillery. Over the past 10 years, numerous factors have played a part in influencing this.

Number of Products

Consumers have demanded more and more choice. Categories that did not exist 10 years ago are now represented in abundance. Even within well established categories the choice has widened. Take the category of coffee, where in some cases the number of discrete SKUs that require price decisions has risen by tenfold in recent years. This increased number of items, dramatically increases the workload associated with making price decisions.

Product Complexity

Consumers are demanding more choice; as a result there is an increase in differing sizes of the same product. Shampoo, batteries and soft drinks are examples where this is the case. Without careful management there is a risk of generating unit of measure pricing errors. For example, when the price per battery of a two-pack is cheaper than a four-pack. This sort of error can lead to confusion on the part of the consumer and detract from the price image the retailer.

The Price Aware Consumer

There is a limit to the number of prices a consumer can memorize for comparison between two retailers. But consumers have technology on their side with the rise of online and mobile price comparison. Smartphones allow consumers to carry this information with them and while it may not be practical for a shopper to review every item's price, it does add further pressure on the retailer to closely monitor and align their prices with the competition.

The Rise of Private Label

Attracted by improved margins, grocers in particular, have launched private label products to compete with established national brands. Sometimes multiple private label options exist at the same retailer filling each of the traditional 'good-better-best' price

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ing slots. As private label brand owner, they must ensure that these products are priced in line with those of their retail competitors. In addition the products must be priced appropriately and consistently in order to keep their desired price position within the category relative to the national brands with which they are competing.

Pricing Strategy Consistency or Deliberate Inconsistency

Consistency with private label products in comparison to national brands is needed, but it is also needed between stores and channels. It may be that a localized approach to pricing is adopted by the retailer or differing prices by format or even between store and online. There have been cases where retailers had issues between channels, for example offering a lower price online whereby a consumer looks at the product in store but completes the transaction online. While this may be a deliberate tactic, this is not always the case. Ensuring consistency means that differing prices between channels or stores are known, understood and deliberate—providing ongoing integrity of pricing tactics used by the retailer.

What Can Be Achieved?

If the factors discussed above act as a 'push' towards the adoption of a price optimization solution, the 'pull' is surely the benefits that it can offer. In addition to the financial benefits of implementing a price optimization solution, there are other benefits that are perhaps less direct and more subjective that can have a financial impact.

Direct Financial Benefits

The direct financial benefits associated with a price planning and optimization solution can be attractive. Differing solutions available within the market place offer the ability to focus on different goals, for example margin, sales volume in revenue terms or sales volume in units. Often the sales velocity associated with given products is very high meaning that just a small percentage increase in sales or a small increase in margin equates to significant currency values over a year.

It may be that by optimizing prices, overall sales volume in a given category reduces whereas the overall margin impact is positive. A retailer that Oracle has worked with extensively in this area has seen overall margins increase 17-25% with a small (3-4%) reduction in sales volume.

Alignment with Category Strategies

The classical approach to category management has been to determine specific strategies in order to ensure that the role and goal of each individual category is met. These strategies tend to focus on inventory, assortment, promotion and price. The use of a price planning and optimization solution allows the pricing elements of these strategies to be mapped to specific pricing approaches and automatically applied. This ensures consistency and integrity of the price strategy thus assisting the overall category management process.



This increase in speed offers the ability to review and compare with competitor prices much more frequently, for example giving the ability to review and re-price key items on a weekly basis if required rather than monthly.

Automation Benefits

Using a price solution to assist with pricing decisions reduces the manual effort required. This opens up the ability for the team responsible for price to spend their time on other value-add activities.

A secondary benefit is the reduction of pricing decision errors, which can have a negative impact for a retailer if a price is marked either unrealistically too high or too low.

Ensuring Consistency

Price consistency issues can be avoided. Many issues can take the form of either unit of measure errors, as discussed previously, or differences in prices between similar products, for example different colors / flavors of the same product.

Consistency in terms of price differentials between private label and national brands can be maintained. By ensuring price consistency, consumer confusion is avoided thus cementing the overall price perception of the retailer.

Speed of Decision Making

Using a price planning and optimization solution can dramatically increase the speed of decision making within a retailer. By automating and making recommendations systematically a solution frees price planning personnel to spend time on the 10% of products which are most challenging to price.

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Typically the ability to run multiple 'what-if' simulations with differing goals is something that can be applied prior to making overall pricing decisions thus further speeding the decision process.

Barriers to Sophistication

In any business change, there are always barriers which create fear and risk and can potentially dilute the anticipated benefit that can be harvested from the change. When contemplating using a sophisticated price optimization solution, we have found that retailers face similar concerns that must be overcome in order to have an effective pricing strategy.

Faith and Understanding

Price is a crucial element for any retailer's merchandising strategy. Getting it wrong can



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have significant adverse impacts. Too high and the result could be poor customer price perception or adverse media coverage. Too low risks lost opportunity due to reduced margin. These risks alone can create significant concerns in the eyes of the Chief Merchant responsible for price.

Typically, sophisticated price optimization solutions will utilize complex mathematical formulas and concepts such as price elasticity and cross-item elasticity. The way in which these and other factors interoperate within a solution may be easily understood by retail colleagues with a strong statistical background, typically there are few people within a retailer's merchandising team who have this level of expertise.

Often there are two sides to the mathematics, or science, within a price optimization solution:

- **Upfront analysis** which involves looking at a retailers historical data using a form of data mining in order to derive essential price elasticity data used by the solution on an ongoing basis in order to operate. Sometimes this upfront analysis is required to be re-run annually.
- **Ongoing optimization** which is the regular ongoing price optimization methodology that utilizes the output from the upfront analysis.

There are different approaches to the upfront analysis with some software providers taking an extract of data from the customer and producing a set of inputs to be used by the ongoing optimization. The output of the upfront analysis may not be visible to the retailer which in turn can lead to suspicion and the perception that the solution is essentially a 'black box' where the retailer has no real knowledge of how the output is being determined.

Putting faith into something that is not easily understood rarely comes naturally. This lack of faith can be the single biggest barrier to considering the use of a sophisticated price optimization solution.

Process and System Interaction

Price it is still only part of the story when it comes the overall merchandising approach. The merchandising levers of assortment, space, inventory and promotion all continue to have a crucial role. Additionally, price changes will have an impact on forecast demand which needs to be understood operationally downstream to ensure appropriate fulfillment from a supply chain planning and execution perspective.

Each of the merchandising levers impact and interact with each other creating a complex mesh of interactions. The complexity of these interactions, or at least the perceived complexity, can create concern. The best practice is to make each merchandising lever aware of the other, but facilitating this from a process interaction and system integra-



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tion perspective can be daunting. Often this involves integrating multiple solutions each based on different technology.

The different pricing solutions and their differing approaches, themselves can become a barrier to this process. A price solution will typically generate a set of price change recommendations based on the rules and objectives that have been set. These recommendations will then be either accepted or rejected by the price planner.

A change in price is likely to result in a change in demand, a concept referred to as 'price elasticity'—which is at the core of sophisticated price solutions. In order to ensure that the downstream supply chain is aligned to the change in demand then the changes need to be reflected in the sales forecast used operationally—often referred to as making the forecast 'price aware'.

A price solution may only yield a recommended price and no anticipated change in demand. In this scenario it is difficult to reflect the likely demand change within the forecasting solution without re-forecasting to account for the changed price. This approach is likely to yield a different answer because the mathematics and inputs in the price solution and the forecasting solution will likely be different.

A better solution is where the price solution yields not only a recommended price but a new demand forecast which can be reflected through integration as an external forecast within the forecasting solution. However, if a given price recommendation is not accepted then it will impact demand of other related halo or cannibal items. The result potentially reduces forecast accuracy for a subset of the merchandise.

Hosted versus In-House

Naturally, price data is very sensitive, corporate data which if revealed to the competition could have significant implications. Pricing solutions are either hosted or in-house.

- **In-house** is where the software and all the data necessary remains within the retailer's IT domain, effectively inside the corporate firewall. This model often involves an upfront license fee plus implementation costs and an ongoing fee for product maintenance.
- **Hosted** or in the cloud is where a solution is either hosted for the customer in a software as a service (SaaS) model or the customer sends data outside their organization on a regular (perhaps weekly) basis in order for results to be computed. Typically, an annual subscription fee is associated with a SaaS model.

Hosted models can be appealing in terms of minimizing infrastructure investment, maintenance and speed to delivery.



Based on the collective experience working with retailers across the world, we compiled the best strategies that retailers have leverage when selecting a price planning or optimization solution.

Data security and service level agreements are common concerns with this model. Data security is a concern due to the perceived risk of exposing planned prices, margin or other sensitive information to inappropriate parties. From a service level hosting agreement, software providers may choose to host the solution themselves as they may have their own data center or rent space from a third party. Where space is rented from a third party and there is some form of outage there may be overly protracted discussions over who is responsible for resolving the outage. Meanwhile pricing recommendations cannot be made.

Implementation Timelines

As with any business investment, speed to value is crucial. After implementing a price optimization solution, a retailer will typically look for benefit inside a six to twelve month period. Delivering results in a given timeframe can be a challenge when you consider the impact on people and process; or it may be that the project is competing for investment with another project with similar anticipated return in less time.

Selecting a Price Planning or Optimization Solution

Based on the collective experience working with retailers across the world, we compiled the best strategies that retailers have leveraged when selecting a price planning or optimization solution.

Crawl-Walk-Run Approach

The saying goes 'it is easiest to crawl before walking'. The same is true of any business change and especially of technology initiatives that enable key business decisions.

When it comes to price optimization, an approach that allows a retailer to move in a stepwise fashion towards full price optimization can often be prudent, avoiding a 'big-bang' type approach. This allows the business to build understanding over time, and ultimately build faith and trust. Plus, the associated costs can be spread over time and investment evaluated at each stage.

An example of a crawl-walk-run approach would be to select a small sub-set of product categories to initially work with and building from there. Then introduce a pricing rules based approach before utilizing more sophisticated price optimization. The ideal would be to combine the two during a roll-out by working on rules based logic for some product categories while using full optimization for others.

The recommendation here is to: *seek a solution that allows a crawl-walk-run implementation approach allowing pricing rules and optimization to be rolled out in a progressive manner across the business.*



An Open Solution

Being 'open' is considered a key criteria for any technology investment. By 'open', we are referring to the ability to bring data, often from multiple sources, into and out of the system easily. 'Open' also as in the 'openness of the science' or the ability to understand what taking place within the solution.

The recommendation here is to: *seek a solution which is open in terms of integration but allows users to see and understand exactly how a price recommendation is derived.*

Flexibility in Deployment

Retailers have differing opinions regarding solutions being hosted or in-house. Which is the best option will vary from project to project. Retailers have shared that it can be useful to have a solution that can initially be deployed, or hosted, externally with the ability to bring it 'in-house' at a later date.

This offers maximum flexibility as it can avoid concerns over data security as well as minimizing hardware and infrastructure investment until the solution has proven itself. This deployment flexibility is appropriate for both the regular ongoing optimization and the upfront analysis parts of the initiative. Having the ability to run the upfront analysis in-house and not having to rely on an external company for 'analytical refreshes' can be a tremendous boon in terms of ongoing cost efficiency, data security and price strategy confidentiality going forward.

The recommendation here is to: *seek a solution which has the maximum flexibility in terms of deployment options for the entire initiative, allowing both in-house and hosted options to be utilized as needed.*

Flexibility in Use

Flexibility in use is essential in order to support a progressive crawl-walk-run approach. As part of the design process, there may be a desire to use optimization for some categories and use a pricing rules only based approach for others.

There may be a desire to run an annual or quarterly review of prices using full optimization with weekly updates based purely on a rules approach.

The recommendation here is to: *seek a solution which has the maximum flexibility in terms of usage options – ensuring that differing levels of sophistication can be applied to different parts of the business at different times.*

Business Case Clarity

To evaluate whether an initiative is a worthwhile investment, a clear business case is required. The business case should include the retailer's investment alongside the likely return based on proof points from similar retailers. If the business case is backed up by



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a detailed study using the retailer's own product and sales data, this can further enhance the value, weight and credibility it has.

The opportunity to do a pilot based on defined scope and investment can be an attractive option in proving value before investing further.

The recommendation here is to: *seek a solution from a software provider who will work with you to provide a solid business case underpinned by a detailed study of your product and sales data. The software provider should be willing to work with you on a defined scope pilot for a modest and limited initial investment in order to determine true value potential and align it to the business case.*

Planning Process Integration

Each merchandising lever; price, promotion, assortment, space and inventory, work best when a common starting demand forecast is used for the planning of each decision. Focusing specifically on price, it makes sense that a solution should not only give an indication of recommended price but the anticipated impact on the demand forecast going forward.

The interaction of merchandising decision levers means that there can be significant business process benefits from the use of a single common technology platform to support these decisions. Business process benefits include process consistency and alignment, single workflow enablement and the automatic recognition of inter-related decisions between processes.

The recommendation here is to: *seek a solution which at the minimum gives a view of the anticipated change in demand alongside the recommended price change. Ideally the solution should enable future expansion to support decision processes associated with other merchandising levers.*



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Conclusion

With the renewed focus on price, the need and potential benefits offered by price planning and price optimization solutions are too significant to be ignored.

Oracle believes that by selecting a solution that is flexible in its approach a retailer can mitigate against the risks.

Flexibility needs to allow progressive deployment and flexible usage whilst being open enough to be easily understood and interpreted. Together these allow a retailer to comprehensively mitigate against perceived risks and uncertainties associated with a solution.

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Hardware and Software, Engineered to Work Together