

## Understand your Customers and Monitor the Pulse of Shopper Behavior

*KSS Retail Heartbeat® Shopper Insights Platform*

Retailers have access to a massive, underutilized resource for rapid detection and response that carefully inspects your stores every day—your shoppers. If we actively listen to them, shoppers will deliver collective genius. The output of their reconnaissance effort is captured at the POS scanners minute by minute. Each time an item is purchased—or not purchased—there is meaning in the data that you can act upon. Retail Heartbeat® provides the unique ability to hear, understand and act upon what shoppers are telling you, real-time. By intelligently measuring, monitoring and modeling purchases, merchants find clarity and understanding.

### Why Retail Heartbeat

- Real-time store sales behavior modeling
- Promotional Forecasting
- Ready for Purchase and Out of stocks
- Monitor shopper motivations, basket analyses, promotion response

### Scientifically Enables Effective Action

We call this data stream the Retail Heartbeat®, and it flows within the transaction log generated at store checkouts. But merely monitoring sales rates provides limited opportunity unless and until you compare it against an accurate forecast.

This begins with a detailed mathematical model of store specific sales velocity, developed from analysis of historical POS data and other influencing factors, such as promotion data, seasonality, day-of-week, time-of-day, and pricing. A large set of “Poisson” probability models is developed that predict the rates of sales for each item, at each store, at any moment in time. These are blended into a comprehensive model by applying Bayesian classification tree methods that allow for accurate forecasting of item interactions.



### Understand Your Shoppers

**Basket Segmentation:** Regardless of the availability of shopper ID data (such as frequent shopper card data), baskets may be characterized by a collection of useful attributes. These include:

- Number of units
- Total value
- Total profit
- Fraction of promoted items, by promotion type (available from PriceStrat data)
- Total basket discount factor (e.g., percent basket discounted from everyday price)
- Package size and quantity profile
- Subcategory coverage profile (e.g., diverse vs. concentrated)
- Brand preference profile (e.g., premium, national, private label, no consistent pattern)
- Time, day, date

## ABOUT KSS RETAIL

KSS Retail, a dunhumby company, is a leading provider of price optimization and customer insight solutions for the grocery, convenience, chain drug, general and on-line retail industries. Retailers use KSS Retail software and solutions to better understand their customer's needs to improve store selling conditions and to deliver more effective pricing, promotions and merchandising decisions. KSS Retail clients consistently achieve improved market share, sales and profit growth, and enhanced competitive positioning. Current customers include Kroger, 7-Eleven, O'Reilly Auto Parts, Fred's, Brookshire Brothers, McKesson, Sonae, Raley's, United Supermarkets, Continente, dabs.com, ABC Fine Wine and Spirits, and many others. For more information, visit [www.KSSRetail.com](http://www.KSSRetail.com) or email [info@KSSRetail.com](mailto:info@KSSRetail.com).

Baskets then can be clustered into segments based on a distance metric or a probabilistic mixture model. The segments will reflect such semantics as: stock-up shop, fill-in shop, high-profit shop, cherry-picker shop.

**Shopper Segmentation:** When shopper ID's are available in the transaction log (typically from frequent shopper program data), shoppers may be segmented in terms of the characteristics of their baskets as described above. The method uses shopping histories to segment shoppers by value, and also by such factors as shopping category diversity, preferred shopping time, price and brand sensitivity, package size/quantity preferences, and promotion response.

Once these segments are defined and identified, the retailer can utilize the schemes to support a variety of strategies, including more refined pricing and promotional strategies as is supported by our Elasticity Segmentation Analysis.

**Shopper Retention:** By following purchases over time, we can uncover the specific trajectory of defecting shoppers. What changes occur in buying patterns over time, eventually leading to defection? What are the pressure points? Reduced sales in specific subcategories and items? Specific store conditions? Price differentials? What are the impacts of out-of-stocks for the consumer's KVIs? When potential defectors are identified, we can help to develop strategies to regain their commitment.

**Real-Time Store Selling Conditions:** The total data model is updated and refined nightly, and can be accessed minute by minute. Sales in each store are monitored via "trickle feed" every 15 minutes and movement of each item is compared against the rate predicted by the sales velocity model. When an item fails to sell at the rate predicted by the velocity model, the system generates an automated alert that is transmitted immediately to a store manager, clerk or even a vendor or merchandiser.

[www.KSSRetail.com](http://www.KSSRetail.com)

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