The Flaw in Behavioral Segmentation & Syzen's Fix

Executive Summary

Behavior Segmentation is a time honored technique in marketing; instead of addressing single consumer at a time, a group of them with similar characteristics can be collectively addressed for marketing, merchandising and loyalty programs in Retail Commerce. However, shoppers' behavior can vary based on product category which renders pre-assigned behavior segments inconsistent leading to flawed applications in Merchandising.

Syzen Analytics, Inc.
Seattle, USA

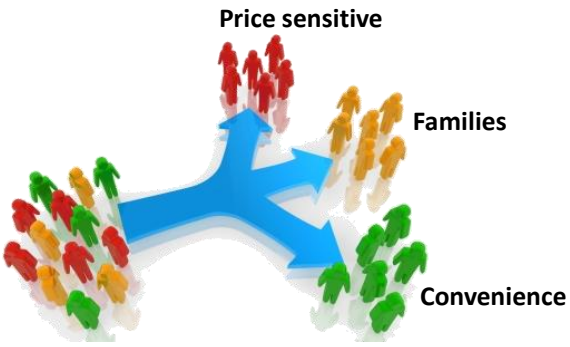
Vendor of a *Prescriptive* Analytics SaaS App

- For retail DEMAND chain
- Unique store-specific & SKU-specific Shopper Preferences

Syzen's method uses machine learning breakthroughs to create data-driven Preference Groups whose number and characteristics are determined entirely by the data. Using this information in product assortment predictions shows that Syzen results are FIVE times better than those using behavioral segmentation!

Flaw in behavioral segmentation

In traditional behavioral segmentation, *the market is divided into segments based on pre-selected characteristics which applies to all product categories across all stores.*



Clearly, *bucketizing* shoppers into convenient segments such as "Price sensitive" or "Families" allows one level of meaningful abstraction. Instead of addressing millions of shoppers individually, one can tailor marketing, merchandising and loyalty efforts to a handful of labelled groups.

However, what is helpful at one level can be a flawed approach for some applications. Consider a case where a particular shopper, per behavioral segmentation, ended up in the Price Sensitive bucket. While this may be true in general for her, she may have specific preferences in certain product categories; for example, while Price Sensitive in general, her wine choice may be the expensive Châteauneuf-du-Pape brand. Such misallocations when multiplied by millions of shoppers lead to flawed product assortment decisions in the case of Behavioral Segmentation applied to Merchandising!

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Syzen's data-driven approach

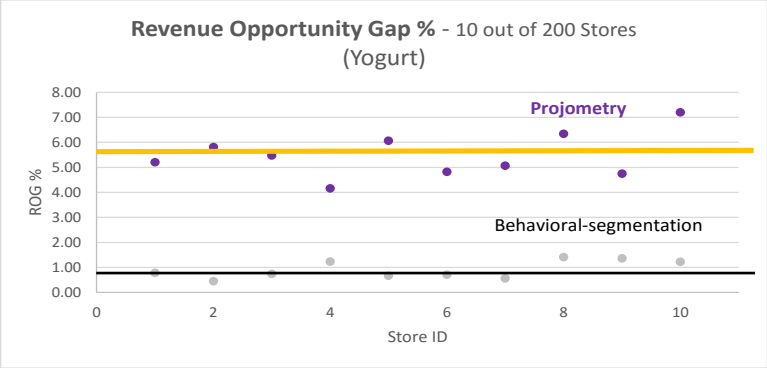
Syzen has developed a breakthrough method (***patent-pending***) using shopper big data and Machine Learning (ML) to create and identify "segments".

In ML segmentation, the shoppers (whatever their behavioral characteristics may be) fall into N Preference Groups based on what they actually buy (actual purchase pattern is a great proxy for product preference!). In essence, each product category is its own unique market.

Traditional behavioral segmentation would have predicted that Brand X will sell more in Store 123 because Price Sensitive shoppers prefer more of Brand X and Store 123 has more Price Sensitive shoppers.

In Syzen's method, we realize that the Store 123 shoppers are well-represented by N Preference Groups for a *particular* product category and the proportion of the N groups that shop at Store 123 ought to determine the assortment for that product category at Store 123! Such finer distinctions made with the aid of shopper data avoids the pitfall of employing the same behavioral groups across all product categories since shoppers' purchase propensities can vary across categories.

Comparing behavioral segmentation and Syzen method to optimize product assortments head-to-head, we obtained the following results. Consider Revenue Opportunity Gap (ROG) as an overall performance measure which indicates better product assortment optimization when they are high.



Assume that the overall revenue for a category (yogurt, in this example) was $100. While Behavioral Segmentation shows an average of 1% or $1 of ROG (improvement possibility), Projometry which is Syzen's method shows a 5% or $5 improvement possibility. In other words, improvement due to Syzen's data-driven method is FIVE times higher than that due to Behavioral Segmentation.

Syzen Results

Looking at more dimensions than just the head-to-head comparison above, it is clear that Syzen's method has several advantages when it comes to Merchandising.

Whenever the data itself determine the clusters rather than being externally imposed, data analysis history has shown that results will be superior. Another nice feature is that human labor and subjectivity for "bucketizing" can be minimized which makes analysis fast, inexpensive and repeatable.

Behavioral Segmentation	Syzen
Simplified model of demand, pre-determined number of segments	Machine determined model of demand
Same across all product categories	Differs by product category
Subjective (behavioral assumptions)	Objective (no behavioral assumptions)
Costly and time consuming to create and maintain	Cheap, fast. No segmentation required.
Based on WHY people purchase	Focused on WHAT people purchase

The fact that separate preference groups are generated for every product category and that our method acts on what people purchase rather than why has led to breakout applications of Syzen's method in Retail Merchandising.

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