

The background of the slide is a photograph of a group of people sitting around a table, celebrating. They are holding up glasses and cheering. The image is overlaid with a semi-transparent blue-green filter. The text is positioned in the lower-left area of the image.

Grocer Research Guide: Endcap Display Optimization: Beer for the Win

Predicting Sales Lift of Product, Price and Placement
with Advanced Statistical Models

GROCER RESEARCH GUIDE: ENDCAP DISPLAY OPTIMIZATION: BEER FOR THE WIN



Knowing how pairing and pricing items impacts sales and margins changes week to week – even day to day – for grocers. Vast amounts of data, once the enemy, coupled with steady improvements in predictive modeling, take the guesswork out of assortments, pricing and promotional strategies that increase sales and improve margins.

Predicting Sales Lift of Product, Price and Placement with Advanced Statistical Models

32%



Endcap display in an outer aisle can deliver an average 32% lift in sales for that item

As the old saying goes, retail is detail. This is especially true in the grocery sector, where you may be dealing with **300,000 SKUs**, multiple pricing options, periodic co-op promotions with the suppliers, and a great deal of seasonality.

In the midst of this sea of items and choices, there are certain display options that can, for a very small number of items at a time, dramatically increase both sales volume and margin. As we will see, the right choice for an **endcap display in an outer aisle can deliver an average 32% lift in sales** for that item.

The question is, how do you identify the right item for endcap display?



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Retail

How do you identify the right item for endcap display?

Not easily, as it turns out. In a recent Oracle Retail webcast, **Professor Mark Ferguson, Chair, Department of Management Science for the University of South Carolina**, described a recent project in which his team drilled down through a mass of sales data to help decide which particular products could be most effectively featured on an endcap display, during a given period to help drive impulse buys and margin lift.

CLINGING TO THE EDGES: HOW PEOPLE ACTUALLY SHOP

Promotional displays are a major feature of virtually every grocer, certainly every large one. As a shopper, you see displays:

- in the middle of aisles
- at checkout stands
- end-of-aisles
- in the lobby
- small “dump tables” scattered all over the store.

In this guide, Dr. Ferguson focuses on end-of-the-aisle displays, particularly on displays in the outside aisles.

Why? Because that's where the money is.



Shopper Traffic Patterns Point to the Endcap

There have been studies of shopper traffic patterns in which researchers attached RFID tags to shopping carts and recorded their journeys throughout the store. What they learned is that most shoppers enter the store, grab a cart, take a left, take a right at the end wall, and follow the perimeter of the store until they get to the checkout. They don't go into inner aisles, unless they have to, and when they do, they don't linger there long. They do, however, have to go past the ends of all those aisles, which means the endcap displays get a lot of visibility.

One recent study, in fact, shows that **being on an endcap gives an item about a 93% increase in exposure**. What's more, about **62% of grocery store purchases are unplanned**, rendering the endcap as a primary driver for impulse buys.



Deciding on Beer or Soap

The main research question in the study described by Dr. Ferguson was aimed squarely at this point: how can data analysis help grocers plan and schedule their display assortments, given that they have a limited amount of promotional display space?

Retailer Study Methodology:

Who: Large grocer in New England with up to 300,000 SKUs

Total Endcaps: 36

Product Choice for Endcap: Decide between two categories — beer or laundry soap

Endcap Winner: Beer ●

Why Beer? The estimated sales lift from placing beer on an endcap is much larger than with placing laundry detergent.

Next Step: To select, out of all the possibilities, the best single beer SKU for an endcap display

PUTTING IT ALL TOGETHER:

Impulse buys constitute more than 60% of all purchases.





Dr. Ferguson and his cohorts went out and discussed the issue with major retailers and store managers, and they also checked the academic literature. But they didn't find anything. There were a lot of studies that used retail transaction data, some of it even grocery data, to measure the effects of pricing and promotion, but nothing that touched on the display space effect itself.

A Highly Complex Problem

A typical large grocery retail location might have anywhere from **60,000 to 300,000 SKUs in its assortment, but only 36 endcaps**. Choosing the right 36 SKUs out of 300,000—or, really, even figuring out how to start choosing the right 36 SKUs—is a large and complex problem.

Compounding the complexity is that the sales lift from placing a given SKU on an endcap is not necessarily static. It could change from week to week; it could be seasonal; it could diminish over time. Further, your highest sales-generating items might not give you your highest lift. Maybe people would buy that item anyway, even from the middle of the aisle. Which means a lower-selling item, if you put it on the endcap, might actually generate additional profit.

But that's just a matter of numbers-crunching, right? Well, yes and no. First you have to have numbers to crunch. The data necessary to actually solve this problem is not resident in any individual store. Even if you looked at a whole grocery chain's transaction records, you wouldn't be able to measure the lift of having any given 36 out of 300,000 SKUs on an endcap. You'd have to rotate them continuously for hundreds of years to have that kind of information.

**No one has a hundred years
to solve the problem...**

**so the answer is,
you don't do it
that way.**

No One Has a Thousand Years to Solve the Problem

So the answer is, you don't do it that way.



Begin by deciding based on good instinct, which retailers tend to have plenty of: what category are you going to promote? In this case the choice was between beer and laundry detergent. That, as we'll see, didn't exactly make it a simple problem, but it carved it down to something manageable.



Acquire a large enough data set to generate meaningful results. In this case, data was sourced from Information Resources, Incorporated, which captures transaction data from all over the country. The beer data set used in this study consisted of a full year's worth of data (2011, all 52 weeks) in all 50 states, which included almost **eight million observed beer transactions at more than 1,200 grocery stores.**



Narrow down the data set. In this case the team narrowed down to the New England region, which gave the team about **500,000 observed transactions** to work with. These were weighted to reflect the region's consumption patterns. New England, it turns out, has a fairly robust appetite for beer.



On a pints per day per capita basis, in fact, New Hampshire is one of the two heaviest beer-consuming states in the country.

The other is North Dakota; following the two leaders are Texas, Nevada, Nebraska, and Wisconsin.



Space limitations precluded the USC team from describing all the calculations involved in the project, but to work through the mass of data and decide what should go on the endcap, the USC team used a six-step methodology.

6

6-Step Methodology For Deciding Endcap Items:

1. Estimate category-level sales lifts. (This example - beer vs detergent)
2. Solve for the optimal product categories to put on display. (Beer choices - Domestic, Craft, or Premium. The winner was Premium beer)
3. Estimate subcategory sales lift within the chosen category. (Import vs Craft beer)
4. Solve for the optimal product subcategories to put on display. (The winner was import beer)
5. Estimate individual product-level sales lift within the chosen subcategory. (Fosters vs Heineken)
6. Solve for the optimal product to put on display. (The winner was Heineken)

Conclusion

There's an easier way to do this, of course; you could just pick whatever happened to be the best-selling beer for any week and put it on an endcap. You'd get about a **32% lift in sales**, and you'd pick up some incremental profit; it wouldn't be a bad decision. It's also a decision any store manager could make in two minutes from the sales data in front of him.

But, according to Dr. Ferguson and his team, it would be the wrong decision, because displaying the SKU their calculations came up with would give you about a **2X improvement** in that incremental profit over just choosing the top selling item for that week..

Which brings us back to where we started: retail is detail. Our Oracle Retail Science team works closely with academic and research centers like the University of South Carolina, Massachusetts Institute of Technology, and others to develop ways for retailers to winnow through the masses of data they possess—all that detail—and find more productive ways to do what they've always done. **Select assortments. Promote. Mark down. Feature. Display.**

Because the winners
in retail in the
future aren't really
going to be doing
anything different.
They're just going
to be using science to
execute better.



Tips & Takeaways

- 1. The promotional display problem is too important to leave to a store manager's intuition.**
It's worth putting some organizational resources behind.
- 2. An individual store, or even a chain, doesn't have the data to adequately solve this problem.**
You need a big basket of numbers, and you'll have to buy them.
- 3. It's worth it.**
Applying data analytics to the display problem offers significant profit improvement opportunities.



If you're interested in learning more about the Oracle Retail Science Customer Group or working with us on a project, [contact us today](#).



[Watch the replay of the webcast](#)

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