

Consumer Products SKU Rationalization

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Introduction

The average food retailer stocking 45,000 SKUs^{1,2} in thousands of categories, and other retail channels are similarly glutted with items, a state of affairs exacerbated by the approximately 10,000 new items introduced at retail every year.³ The sheer mass of items strains inventory management systems for retailers and manufacturers alike, and drives up costs throughout the supply chain, including the retail, backroom, and warehouse levels.⁴

Additionally, recent research indicates that greater variety can actually *decrease* consumer sales.⁵ Some experts estimate that today's supermarkets are over-SKUD by as much as 25-30%.⁶ Therefore, it is no surprise that there has been a decade-long push to reduce the number of items stocked at retail and displayed on retail shelves, while maintaining shopper satisfaction and, if possible, increasing average shopping basket size and shelf productivity.

This whitepaper outlines a best-practice approach to SKU rationalization. Note that we purposely present this as *a* best-practice approach rather than *the* best-practice approach because SKU rationalization and optimization is a complex undertaking. At best, the process uses backwards-looking data in an attempt to create the optimal forward-looking shopping environment. From the retailer's point of view, SKU rationalization should result in the highest satisfaction and maximum shopping basket across the breadth of its customers. The complexity of this task is illustrated by the loyal, large-basket shopper who regularly purchases a niche item. If the niche item, which is in the bottom 10% of its category's sales, is cut will the loyal shopper become less loyal and take some portion of her large basket elsewhere? What about the low-productivity SKU which makes a strong price statement versus competition? Questions like this are beyond the scope of any reasonable analysis undertaken on a recurring basis by retailers and manufacturers.

Therefore, our recommendation is to use *a* best practice approach to SKU rationalization, which we outline here, in conjunction with any loyalty/shopper-card data which may be available and, most importantly, experienced, commons sense.

The target audience for the whitepaper is manufacturers rather than retailers, because manufacturers are in a better position to determine optimal assortment, based on their access to varied SKU stocking data across a wide range of retailers.

When to use SKU Rationalization

Notwithstanding retailers' addiction to determining assortment based on trade funds and slotting fees, there are a number of highly opportunistic situations in which a manufacturer is well advised to undertake a SKU rationalization exercise. These include:

- Making room for innovation – Manufacturers bringing new items to market face the dual challenge of convincing the retailer that the new item is an important addition to the category *and* finding a place for the new item on crowded store shelves. The second challenge can be meliorated by reducing the shelf set's overcrowding *in advance* of introducing the new items. Many sophisticated manufacturers have sold in SKU rationalization plans three-to-six months prior to launching their new items with great success.
- Eliminating competition – Straggling competitive SKUs can take up space and bring down the profitability and productivity of the entire category, lowering the category's utility in the minds of buyers and putting the entire category's space allocation at risk. A proactive SKU rationalization exercise not only introduces the opportunity to eliminate competitive items, but also can enhance the overall vitality of the category.
- Bringing strategic insights to customers – Input into category decisions is still granted to manufacturers who deliver sound, valuable strategic insights. Further, despite the well-documented shift of power from manufacturers to retailers over the past two decades, manufacturers are still in a better position to provide in-depth, insights into specific categories. Manufacturers also have a unique vantage point not available to retailers because of their access to the sales generated by various shelf sets across numerous retailers. For all these reasons, we recommend a SKU rationalization

exercise be part of the “basic toolkit” every manufacturer develop to effectively influence retail conditions.

- Correcting shelf-space inequities – Often the share of shelf space dedicated to a brand or item is poorly aligned to the share of sales commanded by that brand or item. This is most commonly the case for category leaders, whose large share of the category can not be replicated on the shelf. In contrast, small brands and slow-selling items with few substitutes are typically “over-spaced” simply due to the quantum nature of physical item facings. Nevertheless, we have seen egregious misallocation of shelf space addressed very effectively with a SKU rationalization exercise. (Note that we consider SKU rationalization and assortment optimization to be fundamentally the same.)
- Correcting out-of-stock issues – Large size, high volume items can suffer from out-of-stock issues which suppress sales. We have seen this in many different baby-care categories as well as promotion-driven categories where consumers will “sweep” the shelf of a promoted product. SKU rationalization is absolutely critical in these cases to free space for the items going out-of-stock. Not only will the high-velocity item benefit, but the retailer’s entire shopping basket is likely to increase since shoppers are not being forced to other outlets to find the high-demand product.

Best-Practice SKU Rationalization Process - Overview

The best practice SKU rationalization process, which is adapted from the process endorsed by the FMI and the GMDC, consists of five steps:

Step 1: Identify the consumer purchase decision hierarchy using primary research and/or syndicated data analysis.

Step 2: Determine the optimal number of items in the category and each major segment by conducting a diminishing returns analysis.

Step 3: Determine brand- and item-level substitutability as an input to the final SKU selection process.

Step 4: Determine sales and profit productivity at the item, sub-segment, segment, brand,

manufacturer and category level as an input to the final SKU selection process.

Step 5: Complete the SKU selection process using overall strategic goals, any loyalty data which may be available, and the inputs from steps 3 and 4.

Step 1: Identify the consumer purchase decision hierarchy.

Purpose

With 30-40,000 items in a typical store it's a wonder any shopper can find or choose *anything*. But of course, consumers don't view the entire store at once, or even an aisle or shelf at once. Humans naturally process the myriad stimuli facing them at every turn by creating groupings of similar content, context or relevance. In a food store, for instance, shoppers aren't overwhelmed by 724 kinds of produce because they don't experience every variety as a separate choice. The exotic fruits are grouped together, as are the potatoes and yams, the lettuce bags, and the apples. Therefore, businesses have strong incentives not just to offer options but to help customers navigate those choices, and the wise vendor starts with an understanding of how consumers group the products in his or her category.⁷

A well-designed purchase decision hierarchy study helps manufacturers uncover unmet consumer needs, determines segmentation, and demonstrates substitutability. The results can also be particularly helpful with shelving decisions since, in theory, the progression of consumer choices can be mirrored at least to some degree by the shelving layout.

Process

Best-practice purchase decision hierarchy research is typically structured as follows:

- A multi-market, central location (i.e. mall intercept) study is conducted in geographically dispersed markets among a representative sample of 100-200 current purchasers of the category.
- If there are known/suspected differences in purchase decision hierarchy within different consumer segments (e.g. geographic preferences, age preferences, etc.), then it may be useful to create separate samples or overquotas for each key consumer segment.
- Qualified respondents are screened and asked to take part in a sorting exercise of a

cross-section of category items representing the presumed segments and primary brands. Consumers are asked to sort the items on the basis of their similarity. Actual products are used or each product is represented by a photograph of the product on a card with its average retail price. We recommend giving the consumer fifty or fewer items to sort. Tests can be designed to accommodate larger categories.

- Each consumer's grouping of items is recorded, and the entire samples' groupings are analyzed to determine the correlation among items. (This is sometimes called zero-order correlations, or interaction coefficients; both of which are simple correlation between two items.)
- After the sorting procedure is performed, substitutability is assessed by having respondents determine brand/item choices under a simulation scenario wherein their chosen brand/item is not available

Data needs

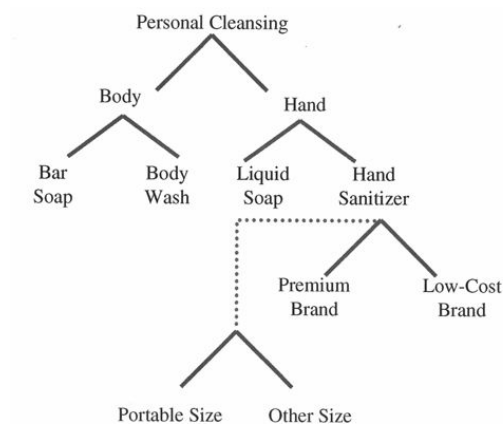
A purchase decision hierarchy can be inferred from syndicated data; however, we believe much more accurate insights into consumers' purchase decisions are obtained through direct, primary research. The needs for this research are as follows:

A representative sample of items in the category, covering all varieties, including sizes, forms, flavors, ingredients, etc. It is generally impossible and of limited value to show every single item in the category; therefore, the items representing the top 60-80% of sales volume are included, and additional items are included to represent the full variety of possible choices. For instance, no trial-size item may be a top seller; however at least one trial-size item should be included to understand whether size is a key factor on which consumers segment the category. Similarly, it is important to include niche items and items which have a unique benefit or attribute.

Ideally, actual product is used; however, in most cases professionally prepared photographs of the products are used instead. This reduces the cost of the research, reduces the likelihood that research stimuli will be taken by participants, and generally makes the research more manageable. When using photographs, caution must be taken to ensure the

key features of the product are clearly visible (sometimes this can only be accomplished by attaching photographs of the front and back of the package) and that the relative sizes of the product are clearly visible.

Results/Output



The output of the primary research is a purchase decision “tree” which shows the most common distinctions consumers make among products. These distinctions represent the major segments and sub-segments of the category. Lack of differentiation among items also gives some indication of potential duplication and opportunities for SKU rationalization. An example of a purchase decision hierarchy is shown below:

Step 2: Identify substitutability

Purpose

The reason SKU rationalization is possible is that there are numerous items on the shelf which, from the consumer’s standpoint, are essentially interchangeable. On the other hand, the reason SKU rationalization stumbles so often is that there are key items on the shelf which, from the consumer’s standpoint, are unique. The purpose of this step, therefore, is to provide insight into which items can be removed without lessening shoppers’ satisfaction and which items will prompt shoppers to visit competitive outlets if they are missing from the shelf.

Process

Substitutability research is usually conducted in conjunction with the purchase decision hierarchy research described in step 1. After the product sorting exercise has taken place consumers are asked to complete a constant-sum allocation exercise:

- Consumers are asked to allocate a certain amount of money or a certain number of “chits” across the category based on what they, themselves, would actually purchased.
- Their preferred product is then removed from the set and consumers are asked to repeat the allocation process, choosing to either not buy any item, go to another outlet for the preferred item, or reallocating the money/chits across the currently available items.
- The switching between items is then compared to the expected “fair share” of switching based on the initial allocation of money/chits.

Data Needs

Since the substitutability research is generally conducted at the same time as the purchase decision hierarchy research, no additional data or materials are required.

Results/Output

- An example of the substitutability output is shown below:

	<i>Original Pur-</i>	<i>New Purchase</i>	<i>Expected</i>	<i>Substitutability</i>
Item A	5 chits	n/a (item re-	-	-
Item B	3 chits	7	6	117
Item C	2 chits	3	4	75

- A substitutability index of 120 or higher generally indicates high substitutability; an index of 80 or lower typically generally indicates low substitutability. Typically there is high substitutability within brands and within key sub-segments defined strongly in

the purchase decision hierarchy research.

Step 3: Determine the optimal number of SKUs (diminishing returns)

Purpose

As mentioned earlier, more SKUs on the shelf does not always translate to more sales to satisfied shoppers. In fact, recent research confirms what category management professionals have known for years: too many SKUs actually reduces sales. Therefore, this step is used to identify how many SKUs in the category overall and in each segment will create the highest level of sales.

It is worth noting that many manufacturers and retailers now skip this step because:

- 1) A thorough analysis can be complex and costly
- 2) The results of the analysis are typically “directional;” i.e. often there is not enough data to create extremely robust findings
- 3) The results can be difficult to implement in the real world, where set sizes vary not only from retailer to retailer, but within retailers.

Process

The common process for determining the optimal number of items is to analyze the sales results across a wide variety of shelf sets. Ideally, markets and assortments can be controlled to some degree so that the primary variable affecting sales is the number of items. (Of course, number of items and assortment are directly related; however, the core SKUs can be held constant.) The best analysis can be conducted when store-level data is available from a retailer and the shelf-sets in the various stores are well documented. Perfectly suitable analysis can be conducted, however, looking at sales in different retailers with different shelf sets.

The sales of the category and segments are simply compared to the number of items in order to identify where diminishing returns set in. While seemingly simple, the results of SKU optimization need to be scrutinized carefully because the number of items optimal for the individual segments or sub-segments often does not add up to the number of items optimal for the category as a whole. Therefore, judgment must be used to adjust the SKU

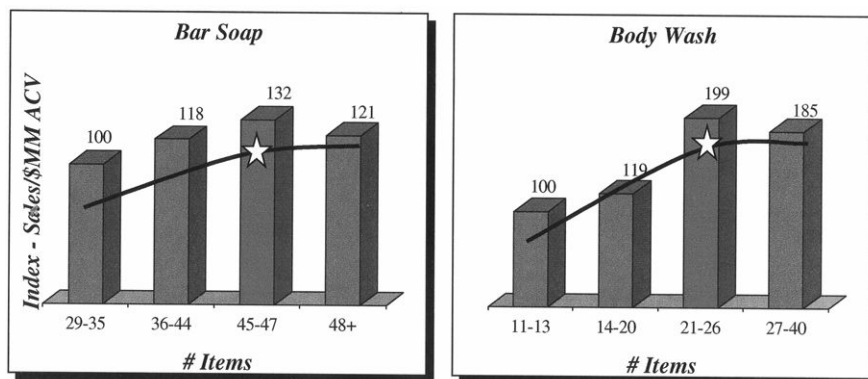
range of sub-segments and segments to create a cohesive picture of the category. Note that the number of brands in the category can be determined using the same process.

Data Needs

- Item-level unit sales data (i.e. Nielsen or IRI). Distribution data (%ACV) is also needed for each item.
- Accurate shelf sets from at least 5 retailers in each class of trade being studied.
- Ideally, store-level data and store-level shelf sets are available since the wide variety of shelf sets within a single retailer can muddy the results. Where store-level data is not available, judgment is used to create a “composite” set for that retailer which represents the weighted average of sets across the chain.

Results/Output

Step 2 results in a diminishing return curve for each level of segmentation identified by the purchase decision hierarchy. In addition, other segmentation approaches can be modeled using the diminishing returns analysis, including price segments (how many private label items?) and brand segments (how many brands should be represented?). An example of this analysis is shown below:



Step 4: Determine sales and profit productivity

Purpose

Simply stated, a primary reason retailers stock most SKUs is because they deliver top-line

sales and profit. Therefore, once the optimal number of SKUs has been determined for the category and each segment, a critical input into selecting the specific items is SKU-level productivity. Furthermore, since each category and segment can play a different strategic role within the shopping experience the retailer is trying to create for its shoppers, the productivity analysis is designed to provide multiple measures on which individual items can be compared to one another.

Process

- Syndicated data is imported into a central database for analysis.
- Data is cleaned to account for a number of anomalies which can skew the results, including:
 - Seasonally driven segments and/or items
 - Items which were introduced partway through the data period being studied.
 - Items which were delisted partway through the data period being studied
 - Items which are in very low distribution
 - Items which experienced an unusual sales surge or decline due to one-off promotions or non-controllable events
 - Separate listing of promotional items (e.g. bonus packs) which should be collapsed into one “master” item
- Item sales are equalized on a sales per point of distribution, or sales per \$million ACV basis.
- Items below a minimum ACV distribution threshold (usually 20-30%) are eliminated from the analysis or else the weighted number of items in the category will appear far in excess of the actual number which appears on an “average” shelf set
- The various productivity measures are calculated (see Output, below)

Data Needs

- Syndicated data, as follows:
 - At least 13 weeks; preferably 52 weeks
 - Item level data

- Total class-of-trade level data for each COT being studied. Typically, total US is used; however, a separate analysis could be conducted for each retailer if retailer-specific data is available
- Unit sales, \$ sales, %ACV
- Accurate shelf sets from at least 5 retailers in each class of trade being studied. Specific data is needed on:
 - Lineal feet/inch measurements of every item
 - Full-shelf stocking (this can be actual, or an assumption can be used)
- Item-level cost data. The manufacturer conducting the study will naturally have its own cost data. Competitive cost data must be determined from competitive intelligence gathering or assumptions. Category-level assumptions are usually less valuable than segment-level, manufacturer-level and brand-level assumptions. Another important consideration is the role of allowances and promotional funds in item cost. Typically an average promoted cost is used rather than a list cost. Other promotional funds are left out of the productivity analysis.

Results/Output

The productivity analysis produces a raft of data. At every level of analysis (item, brand, sub-segment, segment, manufacturer, category) the following measures are available:

- Volume
 - Unit sales
 - Unit sales/item
 - \$ sales
 - \$ sales/item
- Profit
 - Average price
 - Average cost
 - Profit
 - Profit/unit

- Gross margin \$ (penny profit)
- Gross margin %
- Shelf productivity
 - Unit sales/ft
 - \$ sales/ft
 - Profit/ft
 - Average # items
 - Return on inventory investment (ROI)
 - Turns

Note that all of these outputs are standard, easily calculated metrics for measuring the success of an item, a sub-segment, a segment, a brand, and a category. No regression analysis, logit tools or other advanced modeling is needed to conduct a solid productivity analysis.

Step 5: SKU selection

Purpose

The final step in the exercise is intended to deliver the optimal assortment of items for the retailer's shelf set, based on the analysis conducted in the first four steps as well as strategic considerations and loyalty data. Virtually every factor which will be considered in the SKU selection process has some variability, including strategy and, most importantly, consumer shopping patterns. Therefore, while studies have shown that large categories can be reduced by as much as 25-30% in terms of SKUs without significantly affecting the category's sales, the cross-category affect of SKU rationalization on the consumer's shopping experience must also be considered. In other words, the purpose of this step is to come to an improved assortment of SKUs using a combination of data, analysis, judgment and strong strategic thinking.

Process

The final SKU selection process should take into account a number of factors, including:

- The strategic role of each item, brand, and segment in the category. For instance,
 - Traffic builder
 - Variety-perception creator
 - Niche filler
 - Price statement
- Seasonal and local variations
- “Soft money” contributions from manufacturers
- Market basket implications among loyal shoppers
- Market basket implications among “thought leader” shoppers
- Segmentation, per the purchase decision hierarchy (step 1)
- Substitutability (step 2)
- Optimal number of SKUs (step 3)
- Sales and profit productivity (step 4)

In addition, it is important to note that many of the factors are auto-correlated. For example, if the percentage of shelf space dedicated to an item or brand is increased, the sales of those SKUs may enjoy an additional bump in sales due to the “billboard” effect on the consumer.

Ideally, SKU rationalization is conducted by a combination of manufacturer, retailer, and an independent third party who can balance the many competing interests and factors involved. With the right team in place, an assortment of SKUs can be identified which will create the best shopping experience for the greatest number of shoppers (or, at least the most important shoppers). This, ultimately, should be the goal of both the retailer and the manufacturer involved in the process.

Data Needs

- Output from Steps 1-4 of the SKU rationalization process
- Clear articulation of the strategic objectives and role for the overall retail shopping experience, and for the category, segments, and, where appropriate, individual items
- Customer loyalty data, where available, can be very useful. Particularly if the data has been analyzed to determine the shopping basket of the retailer’s most valuable

shoppers

- Data on regional and seasonal variations is also useful in determining the final assortment

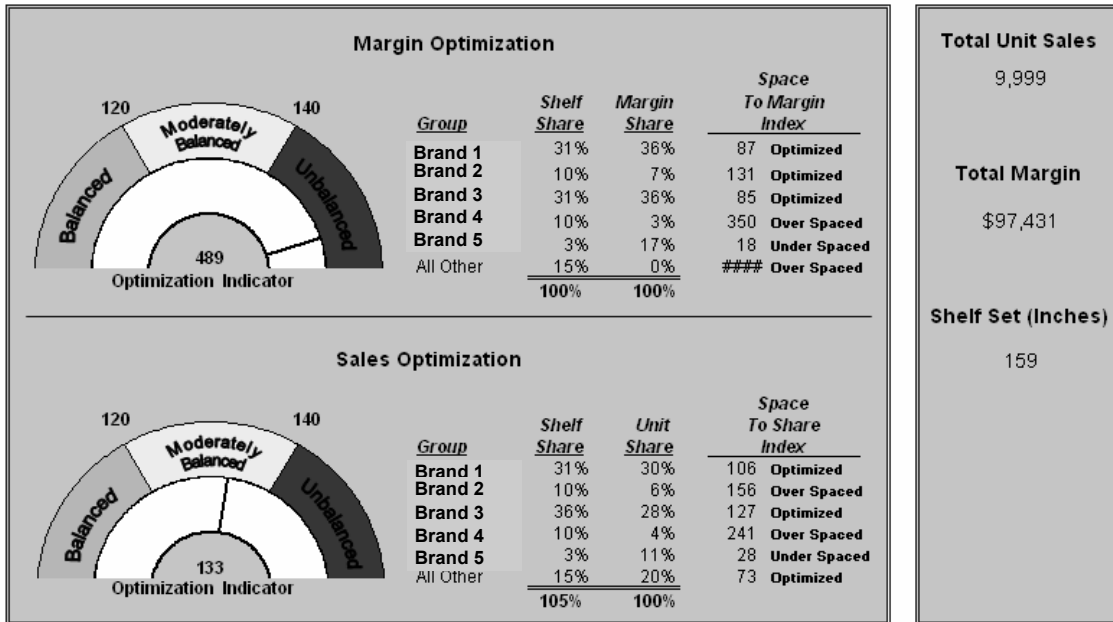
Results/Output

As mentioned in the introduction to this whitepaper, SKU rationalization is not a simple, mechanical process and an “optimal” shelf set can not be produced by any piece of software. Nevertheless, models which give immediate feedback on the effect assortment changes have on key factors such as space utilization, profit and sales contribution, and margin can be very useful in determining and understanding the final SKU assortment. An example of an excellent assortment calculator is shown below. This assortment calculator was designed to allow the SKU rationalization team to adjust assumptions on the fly and also to give live results of changes in SKU selection.

The screenshot shows a software window titled "Overall Analysis Assumptions". It contains several sections for configuring analysis parameters:

- Account:** A text box containing "Any Account".
- Sales Mix:** A slider between "OTC Sales" (20%) and "Rx Sales" (80%).
- Any Account's margin on OTC sales:** Input fields for "Strips" (20%) and "Meters" (20%).
- Incremental Sales From Additional Facings:** A table with columns for "2nd Facing" and "3rd Facing" across five brand categories.
- Optimization Dial Settings:** A button at the bottom of the window.

	2nd Facing	3rd Facing
Brand 1	20 %	10 %
Brand 2	20 %	10 %
Brand 3	20 %	10 %
Brand 4	20 %	10 %
Brand 5	20 %	10 %
Other	20 %	10 %



Conclusion

Few retailers and manufacturers question the need for SKU rationalization. Moreover, as long as manufacturers proliferate their portfolios with marginally valuable line extensions and as long as retailers build larger and larger stores and add items based on the availability of slotting fees, the need for SKU rationalization will continue to increase. The challenge, then, is to use a SKU rationalization process which marries the strategic needs of manufacturers and retailers with rigorous data analysis in order to provide the best scenario for all involved—including consumers. The best practice process outlined in this whitepaper meets that challenge and has been implemented with great success numerous times by scores of major manufacturers.

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