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Consumer Insight Consultants

Line Optimization

Topics for Line Optimization

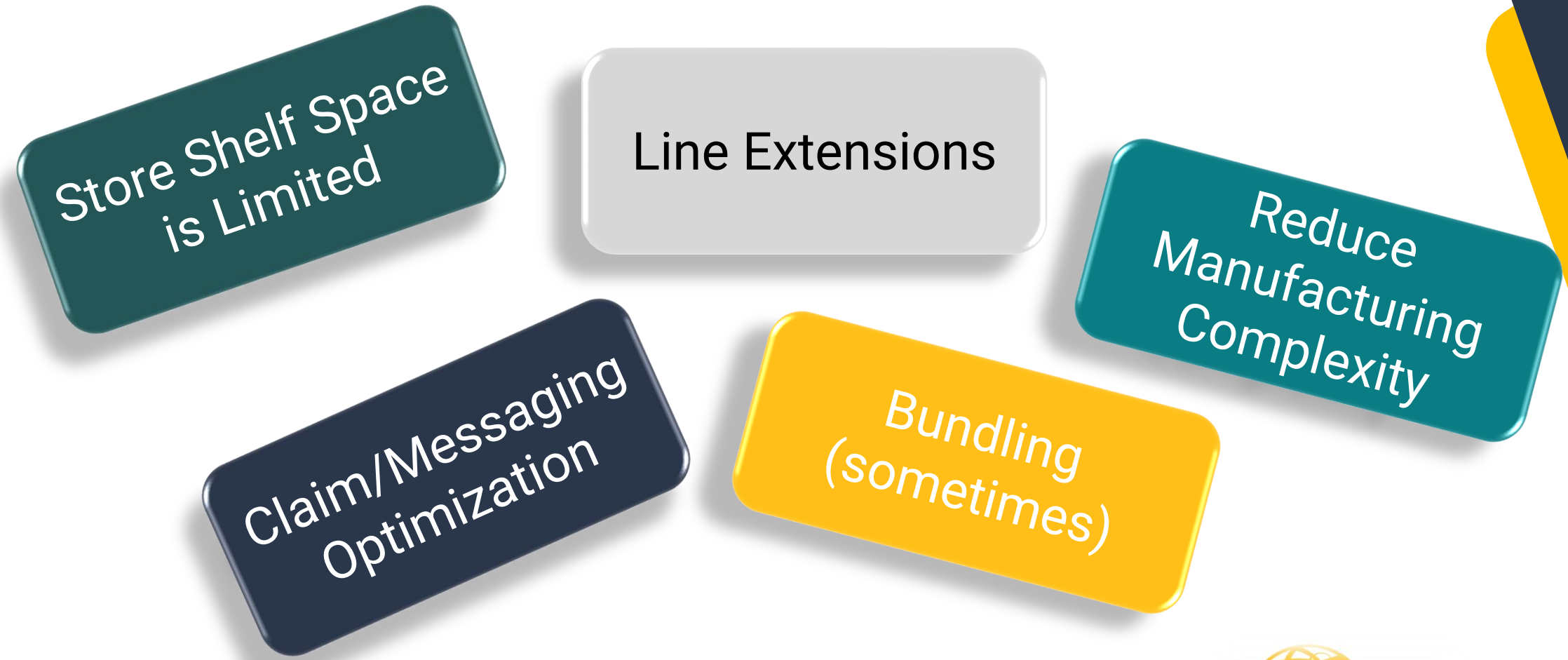
- Some Background
  - When to Use
  - EMS Principles
- Data Collection
  - Ratings
  - Select & Rank
  - Conjoint/Discrete Choice/Maxdiff
  - Internal/secondary data
- Analytics
  - TURF
  - Line Share
  - Shapley value
  - Clusters and Charts

When do I need Line Optimization?

EMS principles

Some Background

When Line Optimization?



EMS Principles

Multiple Lenses	All techniques have strengths and weaknesses. It's important to know what they are and then use the best ones. Because no technique is perfect, a mix of approaches (ensemble) is almost always best
Best Statistics ≠ Best Solution	With line optimization, non-consumer factors like cost and retailer constraints must also be considered
Competitive Context	What your competitors are doing matters, so they should be included in all analyses

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Data Collection

Survey Approaches*

Rating Scale

Select & Rank

Conjoint/
Discrete Choice/
Maxdiff

*Can also use transaction data

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Select & Rank

For the **Select and Rank** approach we show a list of potential “flavors”, including a full listing of competitors, and ask people to identify which they would consider purchasing.

Among the “flavors” chosen, respondents rank (up to 10) based on how frequently they would purchase each one.

Below are many different flavors and brands of ice cream.
Please select those that you would consider buying.

- ☐ Brand A – Chocolate
- ☐ Brand B - Chocolate
- ☐ Brand C - Chocolate
- ☐ Brand A – Strawberry
- ☐ Brand B – Strawberry
- ☐ Brand C - Strawberry
- ☐ Brand A – Vanilla
- ☐ Brand B - Vanilla
- ☐ Brand C - Vanilla

Rankings are converted to share estimates which can be used in a simulator to find the optimal lineup.

You selected the items below as brands/flavors you might consider buying.
Now, please rank them, where 1 is the one you would buy most often, 2 is the one you would buy next most often, and so on (this is capped at 10 to keep you sane).

- __ Brand B - Vanilla
- __ Brand C - Chocolate
- __ Brand A – Strawberry
- __ Brand B - Vanilla
- __ Brand C - Strawberry
- __ Brand B – Strawberry
- __ Brand A – Vanilla

Maximum Difference Scaling (Maxdiff)

Of the products shown below, which one would you buy most often, and which one would you buy least often?

Most Often		Least Often
◯	Variant 12	◯
◯	Variant 6	◯
◯	Variant 2	◯
◯	Variant 10	◯
◯	Variant 3	◯
◯	Variant 9	◯

From the data collected scores can be estimated for each individual.

Analytics

Several Analytic Techniques can be Used

TURF

Clusters and Charts

Shapley Values

Line Share Simulation

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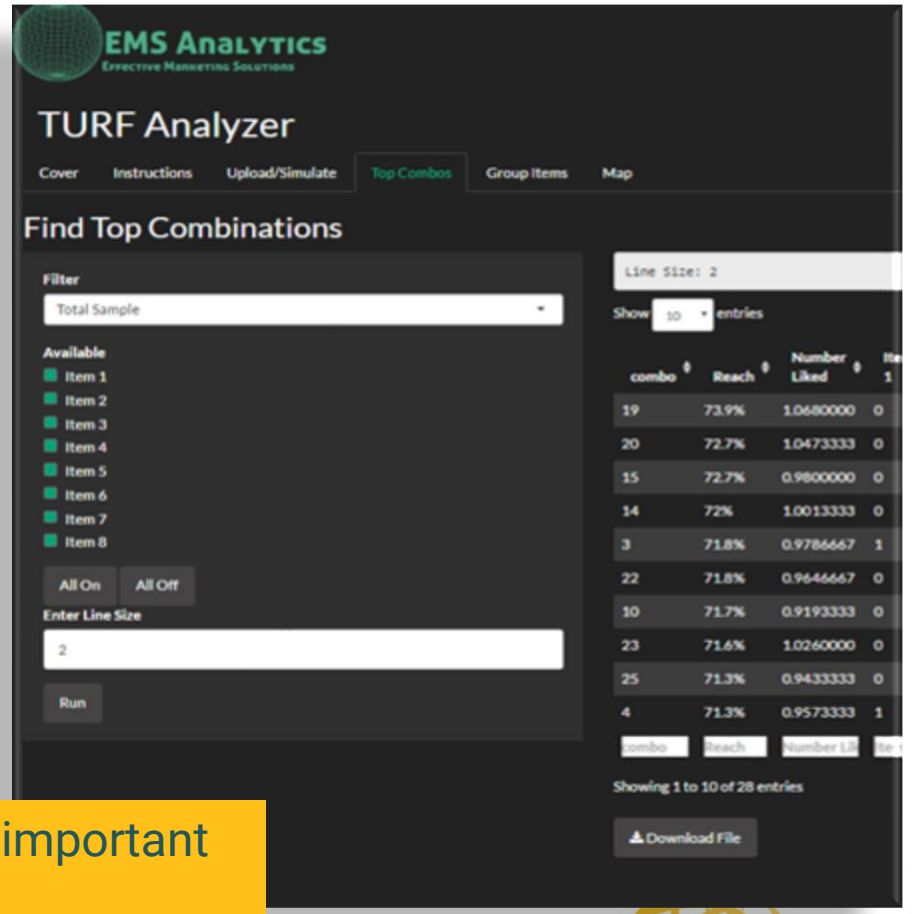
TURF (**T**otal **U**nduplicated **R**each and **F**requency) is the most often used approach

- Respondents evaluate a list of items
  - Items can be
    - Flavors
    - Claims
    - Features
  - Data collection is very flexible
    - Maxdiff
    - Ratings
    - Rankings
    - Checklist
- A simulator is used to identify lineups of different sizes that have the most reach. Can also calculate # items liked (frequency) and Shapley value.

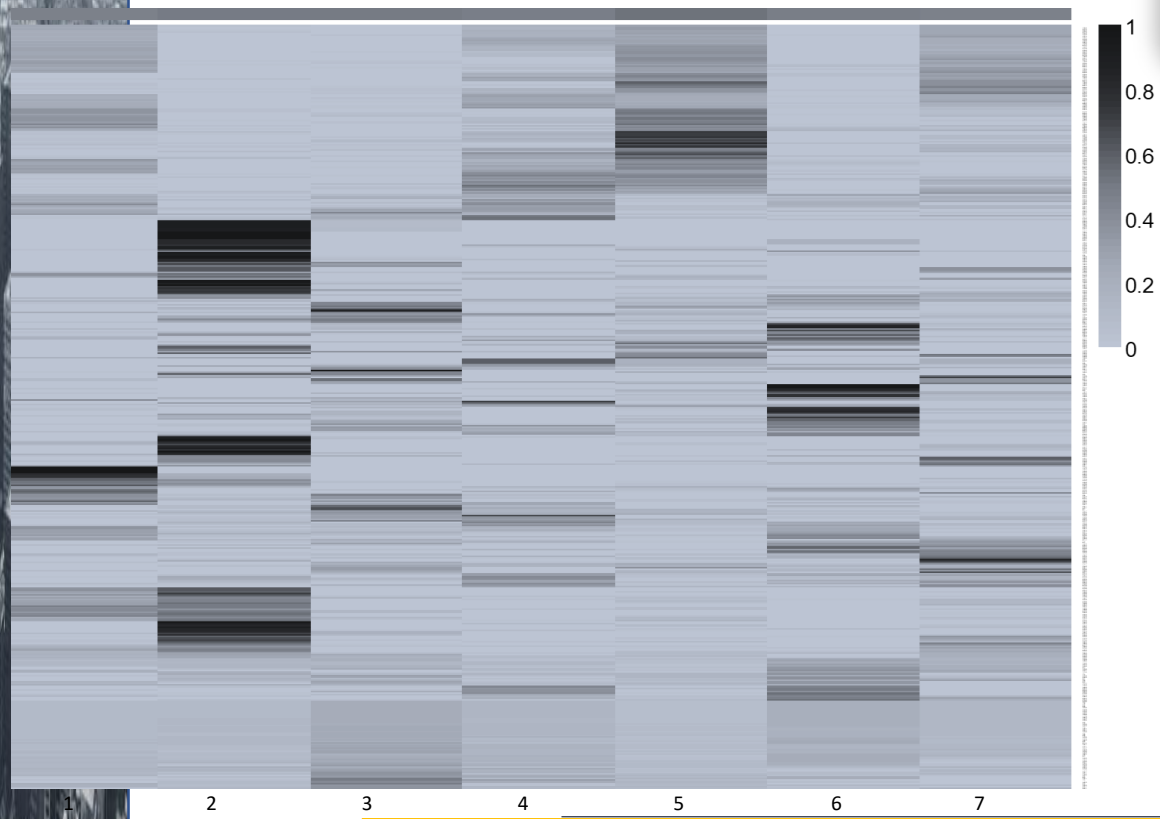


Can be more important than reach!

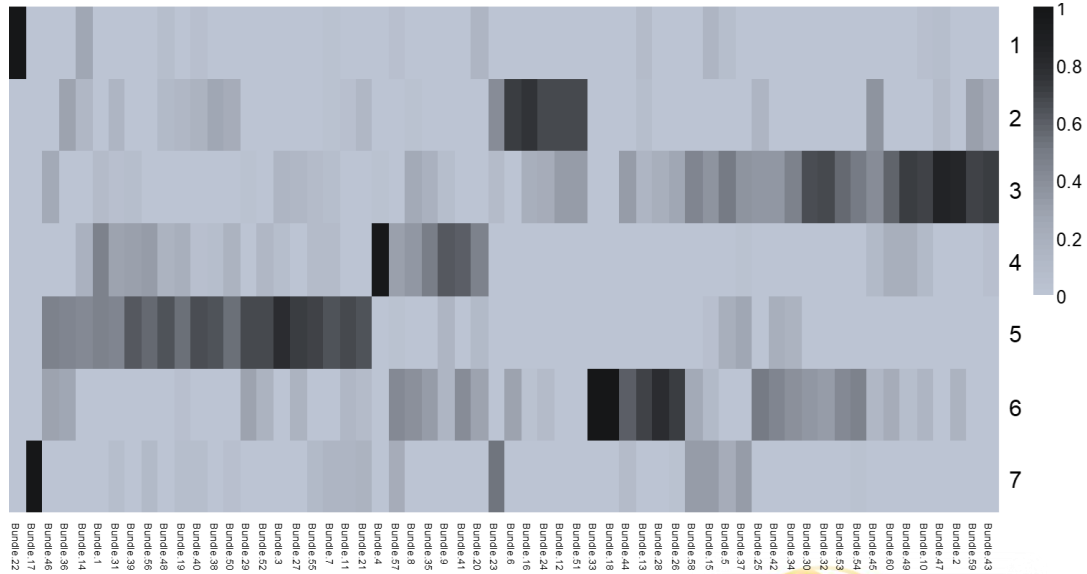
NMF - Respondents and Items can be Grouped Simultaneously

In this example, we identified 7 groups of items that were “liked” by different groups of people. This allows us to identify lines and who those lines appeal to.

Respondent Distribution across Seven Components



Item Distribution across Seven Components



Custom Issues Require Custom Solutions

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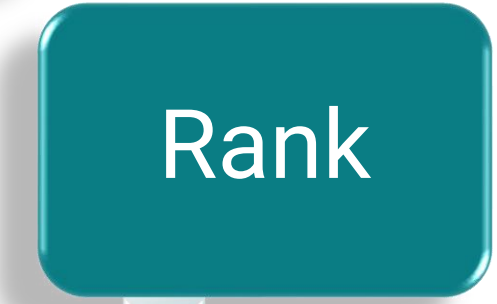
Shapley Values can also be used

- Uses same data as TURF
- Based on Game Theory construct, measures contribution of each item over all line sizes
- “Combines” reach and item liking/choosing
- More robust lineup for out-of-stock conditions
- Tends to provide lines with lower reach but better overall desirability
- In some cases, Shapley Values can be used to estimate sales proportions

Select and Rank, an Alternative to Shapley

"Of the following flavors, which ones would you consider purchasing?"



"Of the flavors you just selected, please rank them in order of how frequently you would buy them over the next year." {*max 10*}

- Run TURF on ***Select***
- Grouping based on Select
- Line share simulator on ***Rank***

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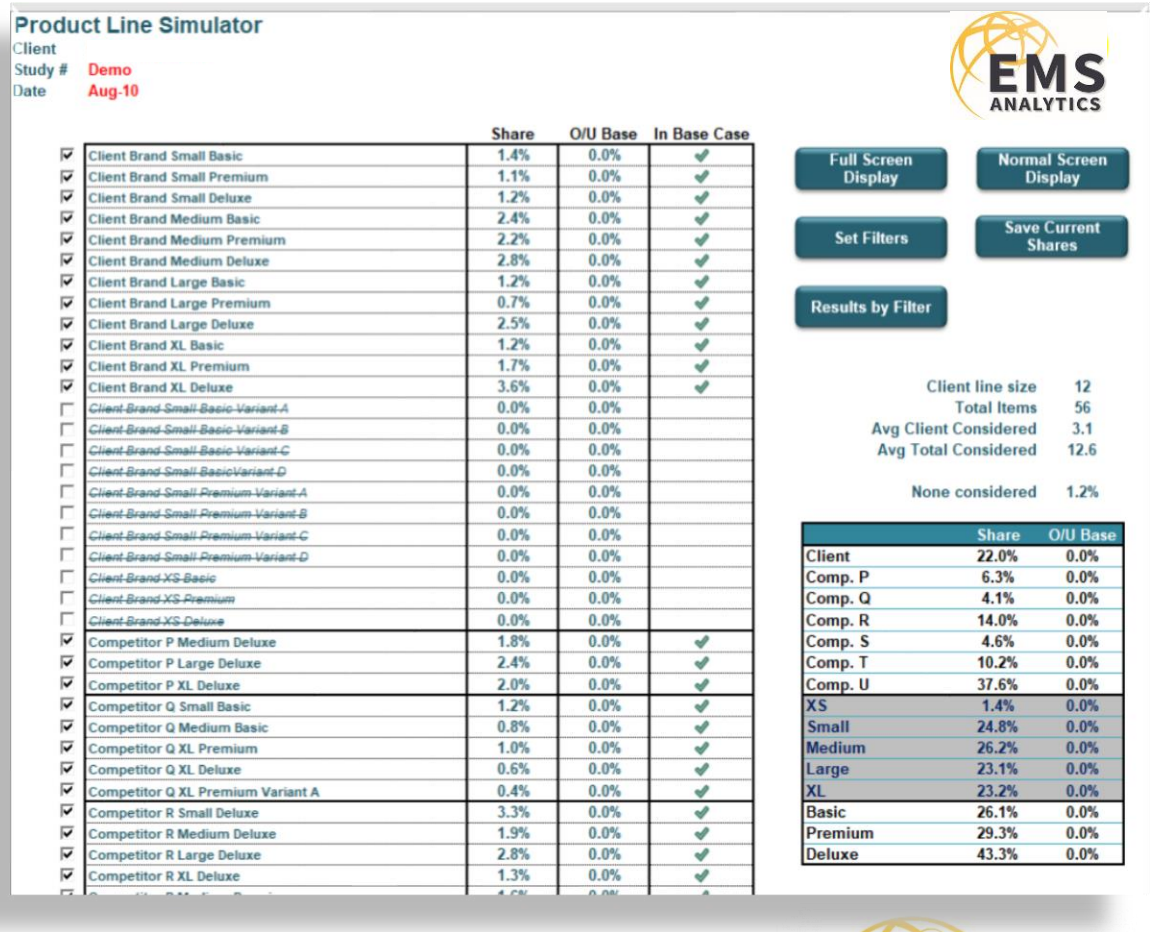
Line Share Simulator

- If products are very similar (e.g. SKUs only differ in size) and you want to consider the effects of competition, a line share simulator may be a better option.
- Respondents select the items they would consider, then rank (up to 10) items in order of preference or frequency of purchase.
- A power-law heuristic is used to calculate individual-level shares.



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Effective Solutions, Grounded Results