

POI European Promotion Optimization Summit

Collaborate Globally and Execute Locally



Big Data
Pricing TPO
Retail Execution
Mobility TPM

Implementing Predictive Analytics to Generate Big Win's for Trading Partners

Richard Althoff, Founder – Sequoya Analytics & Eric Nordquist, Partner - Sequoya Analytics

This session will focus on TPO learning's garnered from successful CPG engagements:

- Predictive analytics
- TPO
- Data & resources requirements
- Approach & modeling
- Cross functional buy-in
- Collaboration w/retail partners
- Impact of TPO to an organization
- How is it being measured.
- Q&A



ABOUT US



SEQUOYA







SEQUOYA

 **EY** Building a better
working world

 **POI**
PROMOTION OPTIMIZATION INSTITUTE

Issue:

CPG companies spend ~\$250B on price & promotion

Despite attempts, industry players still struggle to truly understand the impact of their actions in a way that allows them to make better, “actionable” price & promotion decisions that drive greater ROI

Result:

Analysis of ~2,300 promotion events (including everyday price) across 25 food/ beverage/H&PC products and 14 grocery/mass/ drug retailers to provide insight on what drives profitable price & promotion actions

YOU HAVE A PIECE
OF LETTUCE IN
YOUR TEETH.

THANKS.



We have an assumption based upon historical fact.....

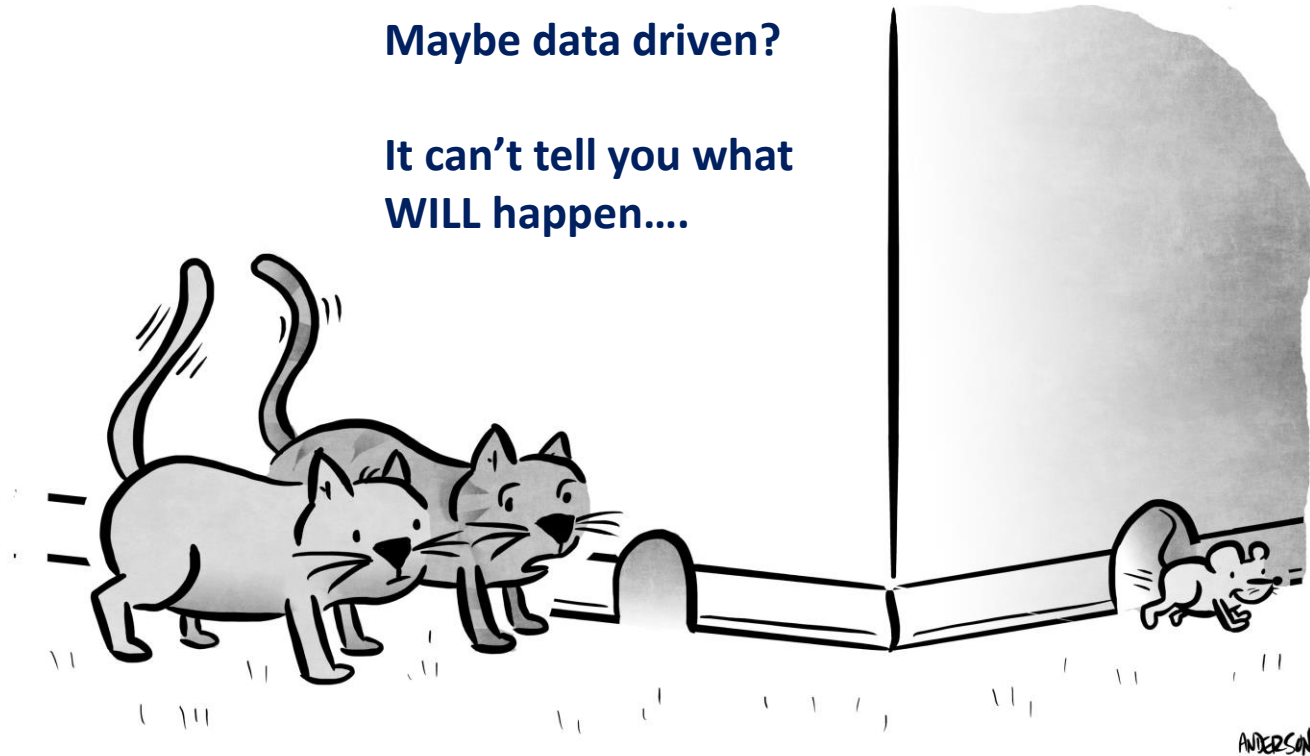
Maybe a pattern emerged?

More educated guess than prediction.

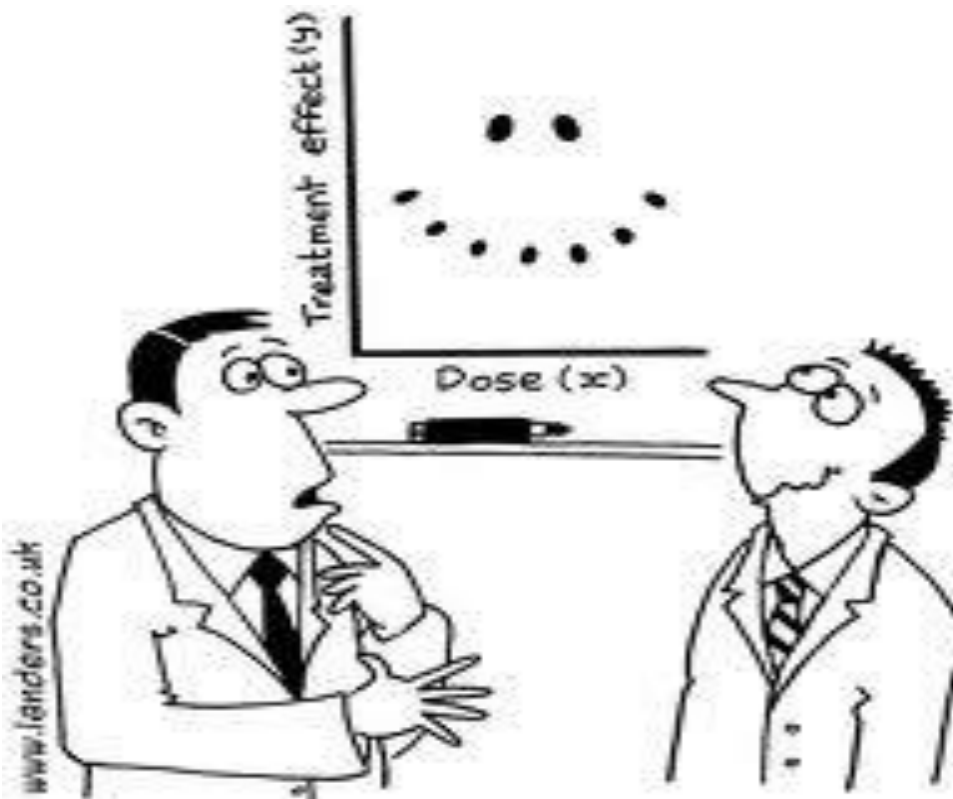
We have a solution?

Maybe data driven?

**It can't tell you what
WILL happen....**



"According to our current predictive analytics solution, the mouse should be exiting from this hole in 3... 2... 1..."



"It's a non-linear pattern with outliers.....but for some reason I'm very happy with the data."

We have data!

We have data plotted in a chart

We have pattern recognition...

Unfortunately its not based on the data but the image portrayed by the data points!

What is Predictive Analytics?

- Predictive analytics is the practice of extracting information from existing data sets in order to determine patterns and predict future outcome and trends
- It does not tell you what will happen in the future
- It **forecasts what might happen** in the future with a acceptable level of reliability, and includes what-if scenarios and risk assessment.



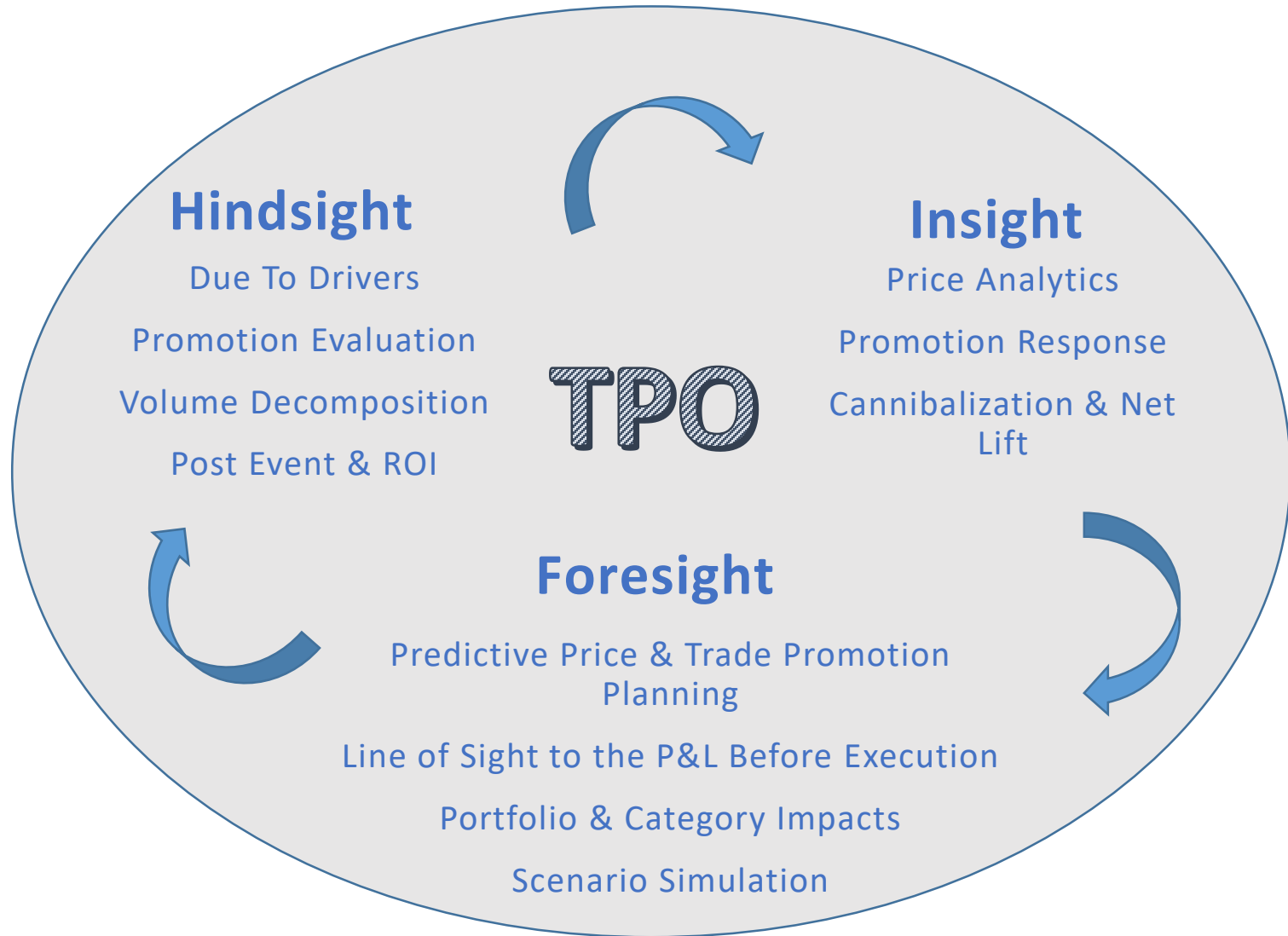
Identify potential pricing and promotion scenarios





Gartner Analytic Ascendancy Model







How important are the following currently to your predictive analytics efforts?

	1	2	3	4	5
Data Integration					4.42
Operationalizing It					4.18
Ease of Use					4.17
Model Management				3.99	
Data Governance				3.98	
Accessibility To All Analysts				3.86	
In-database Analytics				3.69	
Analytics Sandbox				3.69	
In-Memory Analytics				3.53	
Text Analytics			3.03		
Open Source Analytics			2.83		
Mobile Delivery			2.82		
Public Cloud Services			2.56		



- Data assumptions
 - Dynamic
 - Full Category or all customer trading area/markets
- Consumption
 - UPC/EAN level
 - IRI, Nielsen or Retailer direct POS
- History
 - 104 up to 156 weeks
 - UPC or PPG level
- Product Hierarchy:
 - Levels based on desired view of analytics
 - PPG mapping to EAN/UPC's.



- Additional data not captured through syndicated data
 - Couponing
 - Loyalty
 - Shopper Marketing
 - Economic
 - Weather Trends
 - Data that will increase model accuracy or isolate additional data points
- Financials
 - UPC/EAN level cost of goods sold (COGS)
 - UPC/EAN level pricing data



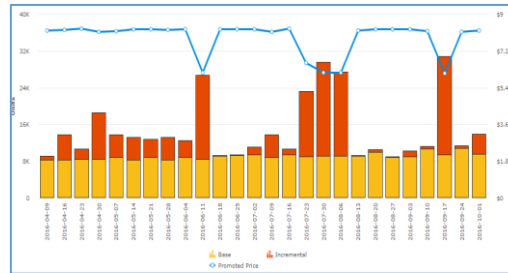
Trade ROI

- TPM (trade spend) extract
- TPM-Syndicated market conversion table
- TPM-Syndicated product conversion table
- Product Specs
 - List Price (by cust, if varies)
 - COGS (by cust, if varies)
 - Units per Case (if necessary)
 - Customer specific rebates/incentives/fees
- EDLC/EDLP Pass-Through Rates
- Any other relevant spend source



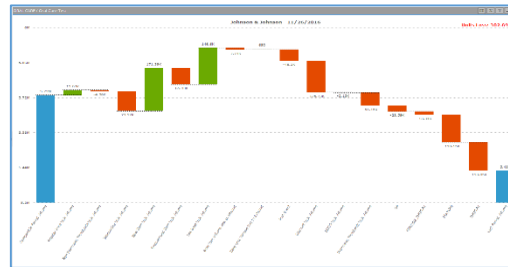
Illustrative inputs and outputs

1 Compile data for modeling, generate coefficients



Syndicated data

2 Analyze performance and develop insights



Performance analysis

3 Simulation, Identify opportunities and benefits

A table titled 'Scenario Simulation' showing financial metrics for three scenarios. The columns are 'Volume', 'Revenue', and 'Margin'. The rows are 'Base', 'Promotional', and 'Total'.

Scenario	Volume	Revenue	Margin
Scenario 1 (Promoted)	691	\$123,000	87.2%
Scenario 2 (Promoted)	472	\$100,000	85.7%
Scenario 3 (Promoted)	472	\$100,000	85.7%
Scenario 4 (Promoted)	1,447	\$263,000	87.2%
Scenario 5 (Promoted)	456	\$81,685	85.7%

Scenario Simulation

Two tables: 'PRICE AND TRADE' and 'VOLUME AND REVENUE'.

PRICE AND TRADE	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Suggested Retail Price - Regular (Unit)	\$83.73	\$83.28	\$83.28	\$83.30	\$83.22
Suggested Retail Price - Promoted (Unit)	\$62.79			\$51.16	
Discount	31%			40%	
% ACV Any Feature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
% ACV Any Display	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fixed Event					
Scan Down					
Lump Sum					
VOLUME AND REVENUE					
Total Volume (Unit)	691	472	472	1,447	456
Total Revenue \$	\$57,435	\$39,310	\$39,310	\$81,685	\$37,950

Promotion calendar & costs



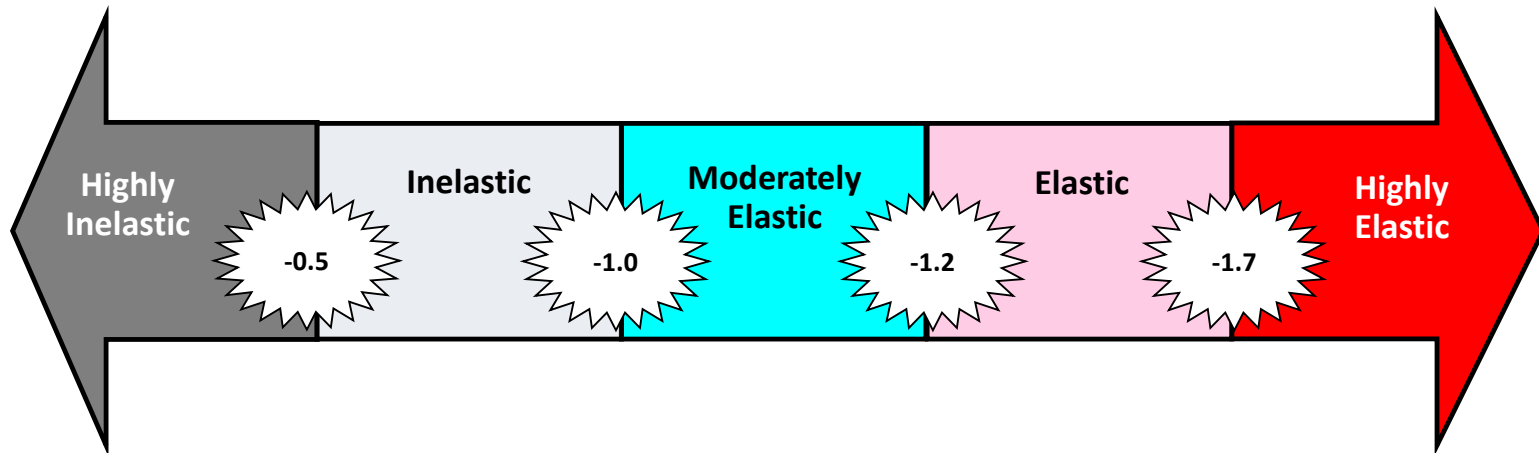
Econometric modeling



€€€ Benefit estimation



Understanding the Category Price Elasticities



Price Increase + Low Elasticity =
Negative Units and **Positive Dollars**

Price Increase + High Elasticity =
Negative Units and **Negative Dollars**

Price Decrease + Low Elasticity =
Positive Units and **Negative Dollars**

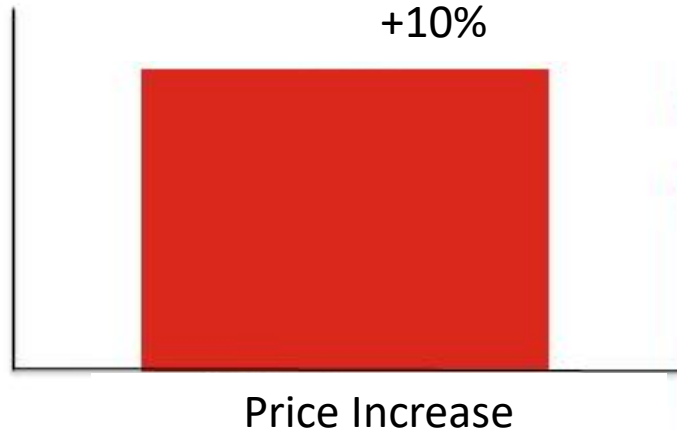
Price Decrease + High Elasticity =
Positive Units and **Positive Dollars**



Understanding the Category Price Elasticities

Suppose we take a 10% price increase.....

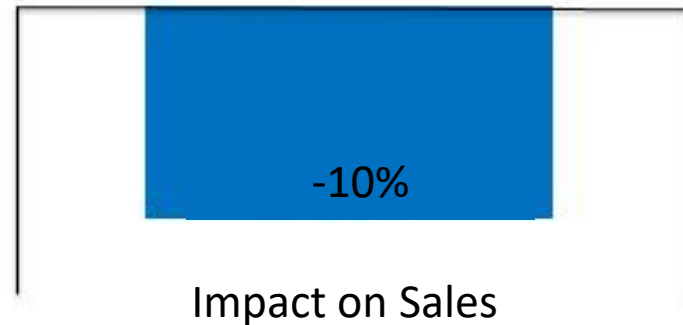
+10%



Price Increase

Elasticity of -1.0

The price increase of 10% results in a 10% loss in sales (-1.0 elasticity means a 1% increase in price resulted in a 1% decrease in sales)



Impact on Sales



ART

Scenarios

Objectives

Constraints

Competition

SCIENCE

Self-Elasticity

Cross-Elasticity

Price Quadrants

Price Thresholds

Trade Promotion Optimization

ART

Scenarios
Objectives
Constraints
Competition

SCIENCE

Self-Elasticity
Cross-Elasticity
Price Quadrants
Price Thresholds





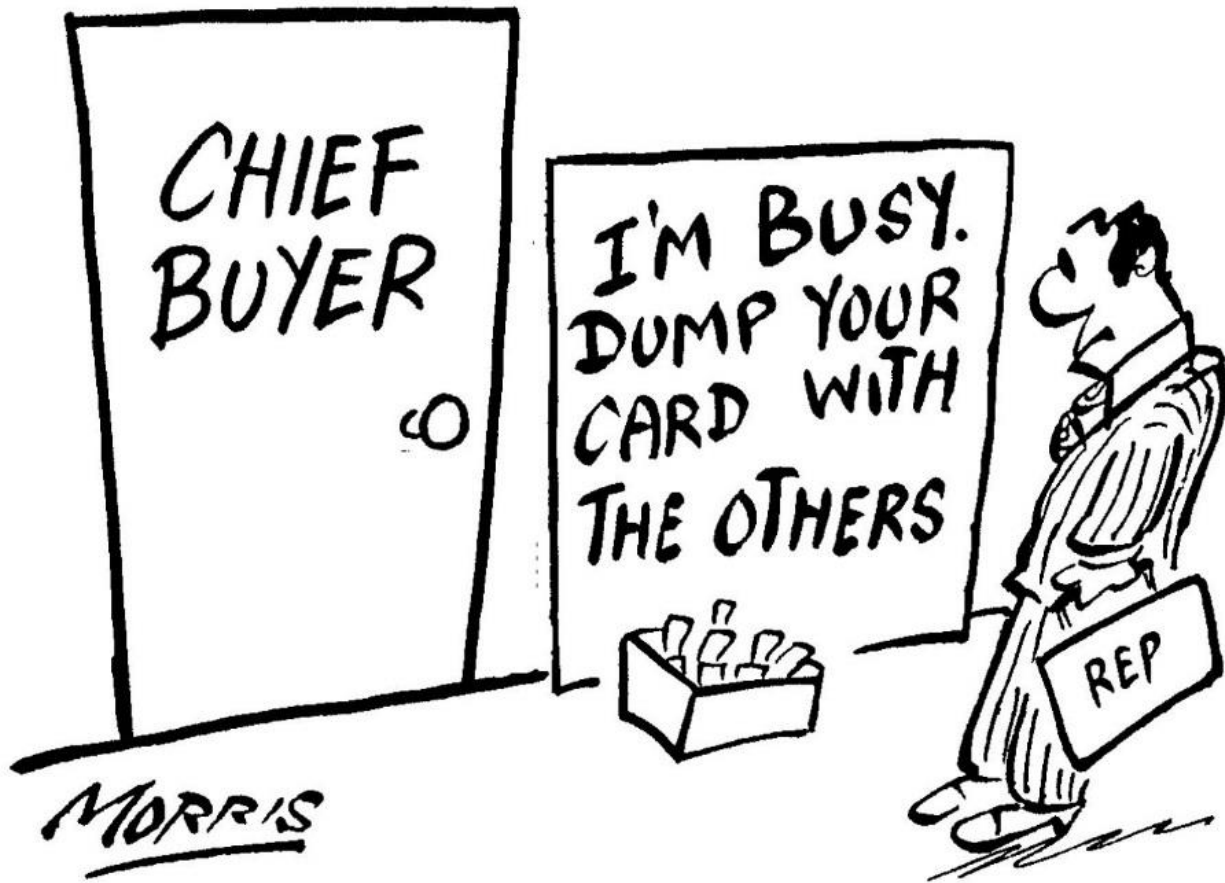
- Supporting the Organizational 3C's
 - Creators
 - Consumers
 - Customer
- Creators **Building Plans/Insight**
 - Analysts
 - Field Sales
 - Brokers, Distributors.
- Consumers **Reporting/Beneficiaries**
 - RGM or SRM
 - Trade
 - Sales Management
 - Demand Planning
 - Brand Management
 - Shopper & Category Management
 - Sales Finance P&L
- Customer: **Beneficiary**
 - PnP category scenario's



- Draw business insights to deliver a competitive advantage
- Make real-time, fact-based decisions
- Drive collaborative promotional planning and execution
- Ability to provide the organization with clear visibility on customer plans & the support required from each functional business unit to support the strategic or customer level plans
- Train your creators to build information
- Teach or Hire your consumers to interpret & apply insights
- Leverage power users
- Be nimble, adjust and course correct, as appropriate

- Differentiate creator requirements from consumer requirements
- Every creator, consumer and beneficiary in your organization must perceive value from the solution; Integrate that into your design.
- Don't confuse being able to use the solution with being able to apply output from the solution to everyday decisions.
- Does the output contain everything you need to know in order to make a decision?





CHIEF
BUYER

I'M BUSY.
DUMP YOUR
CARD WITH
THE OTHERS

REP

MORRIS

Customer Level TPO Needs

- Must be collaborative
- Must know there is HQ cross-functional participation
- Revenue and margin enhancement
- Process improvement
- Cost reduction
- Transparency
- Category Captain?



Return on Investment in TPO

- Everyday price management
- Identifying product interaction
- Increasing the knowledge & curiosity quotient
- Identifying cannibalization
- Identify Thresholds
- Understanding the Category Elasticities
- Margin optimization
- Pantry loading
- Execution Optimization

Return on Investment in TPO

- An accurate & consistent base & incremental decomp is critical to the organization & drives usage through user confidence
- Isolating net base customer revenue changes by item helped identify walk rates or lost volume
- (ROPI) Trade investment justification
- (ROPI) Input discrepancies

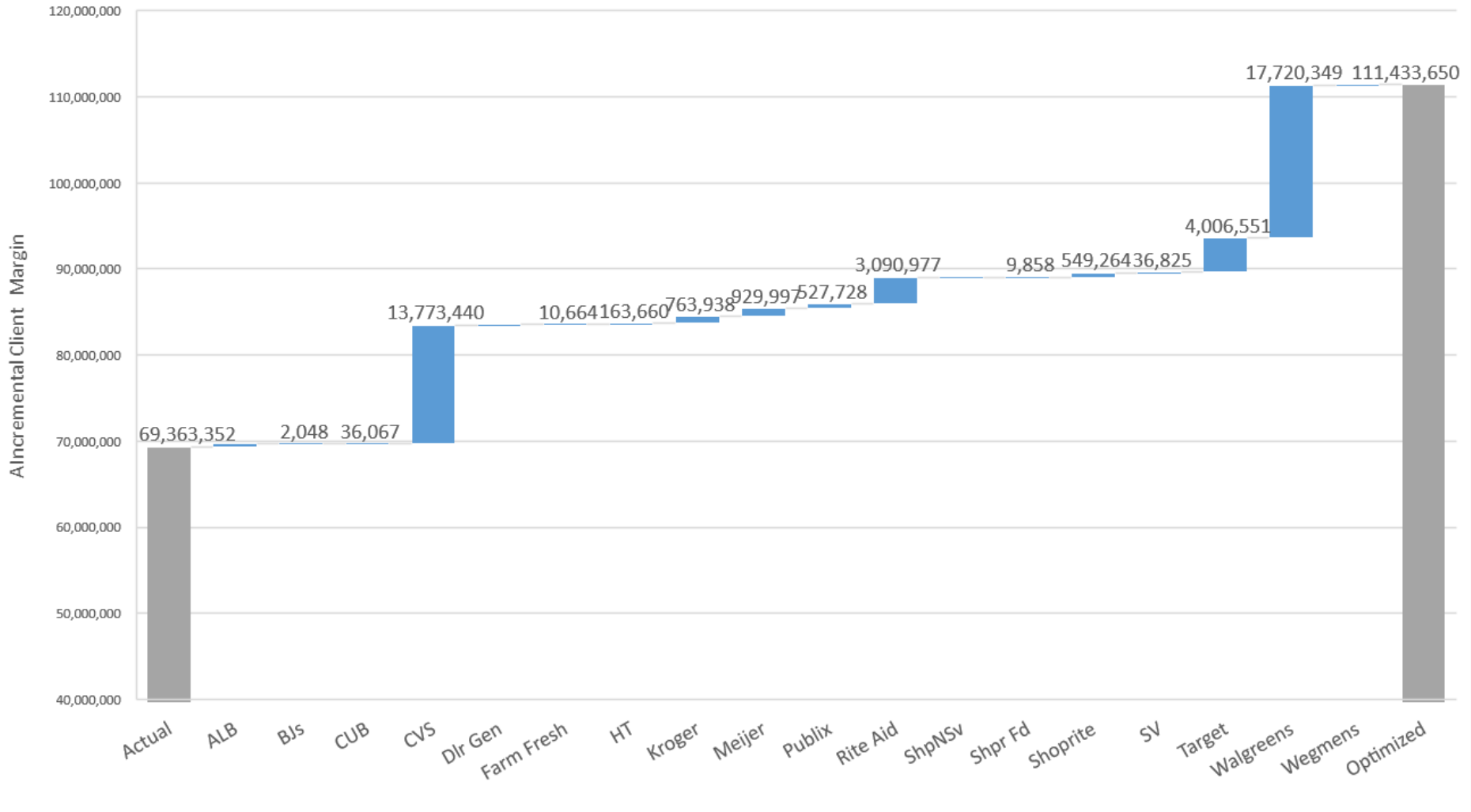


Return on Investment in TPO

- Profit impact of additional one time \$20MM+ on a multi-category retailer
- A 1MM profit improvement opportunity, w/a single category at a large US retailer
- Estimated profit return ratio of 5/1 (ROI versus cost of yearly TPO)
- ROPI Optimization (what is the **Size Of the Prize**)

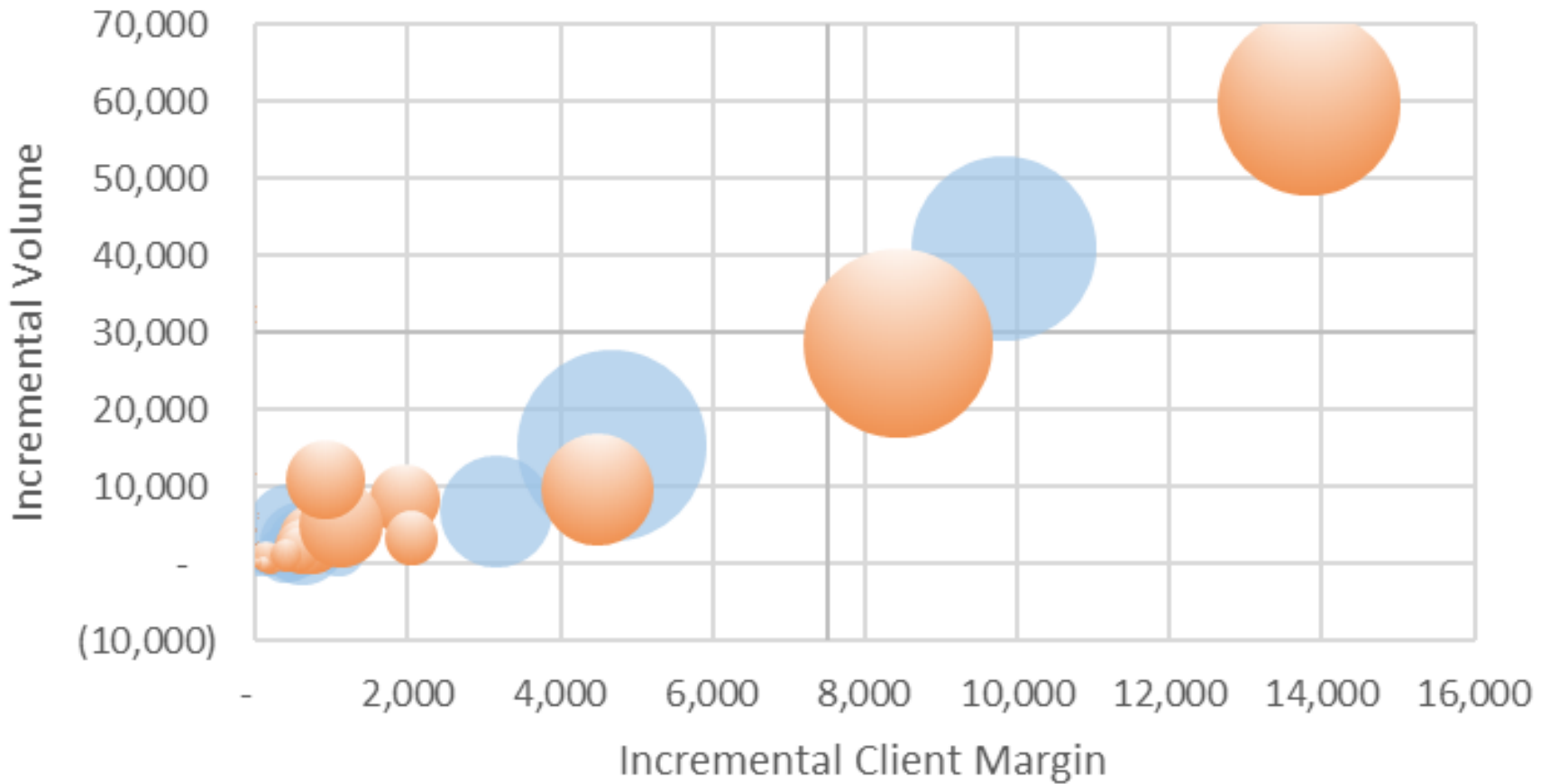


Execution Opportunity
\$42MM Incremental Client Margin
Increase ROI from 1.8 to 3.0





Kroger Dallas





Everyday price management



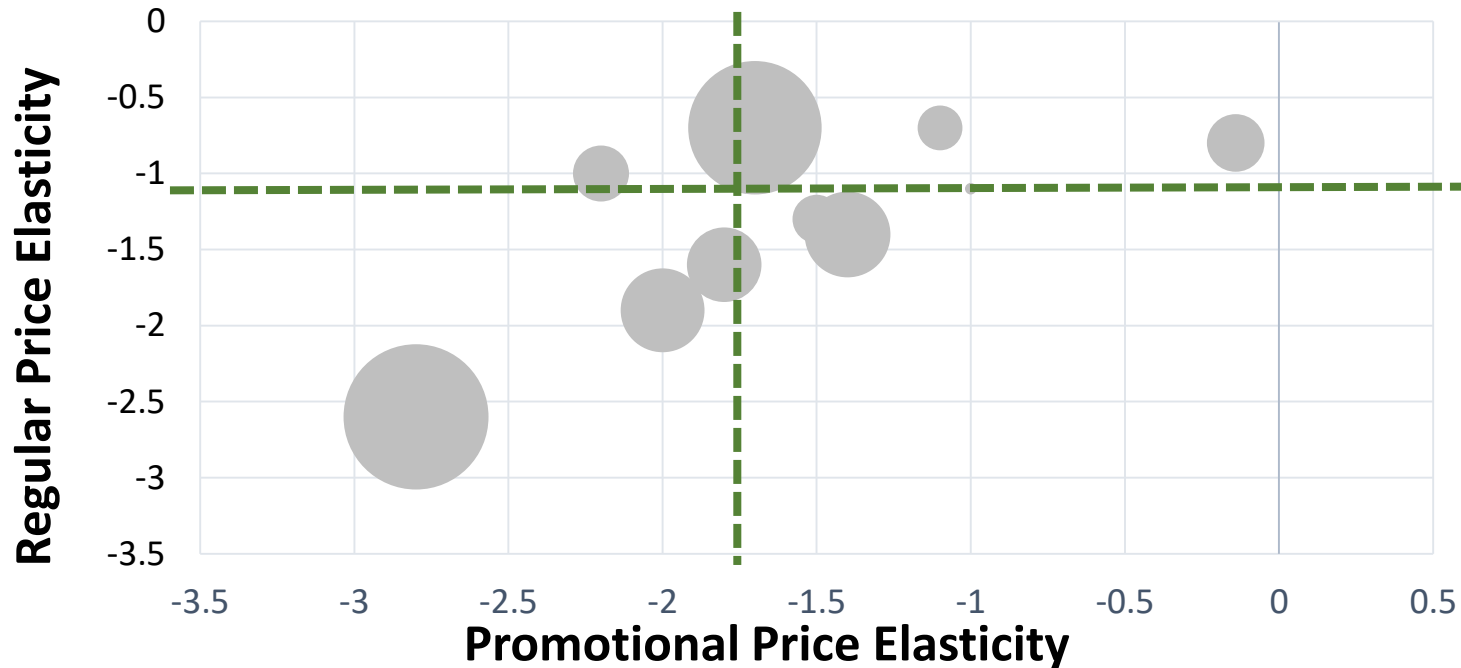
More than 80% of PPGs and retailers we studied could improve volume, revenue or profitability by changing their everyday prices.



About 50% could improve profitability by taking their price up, with limited impact on volume or revenue.



Pricing Strategy



High Everyday Price Elasticity: Consumers are sensitive to regular price changes

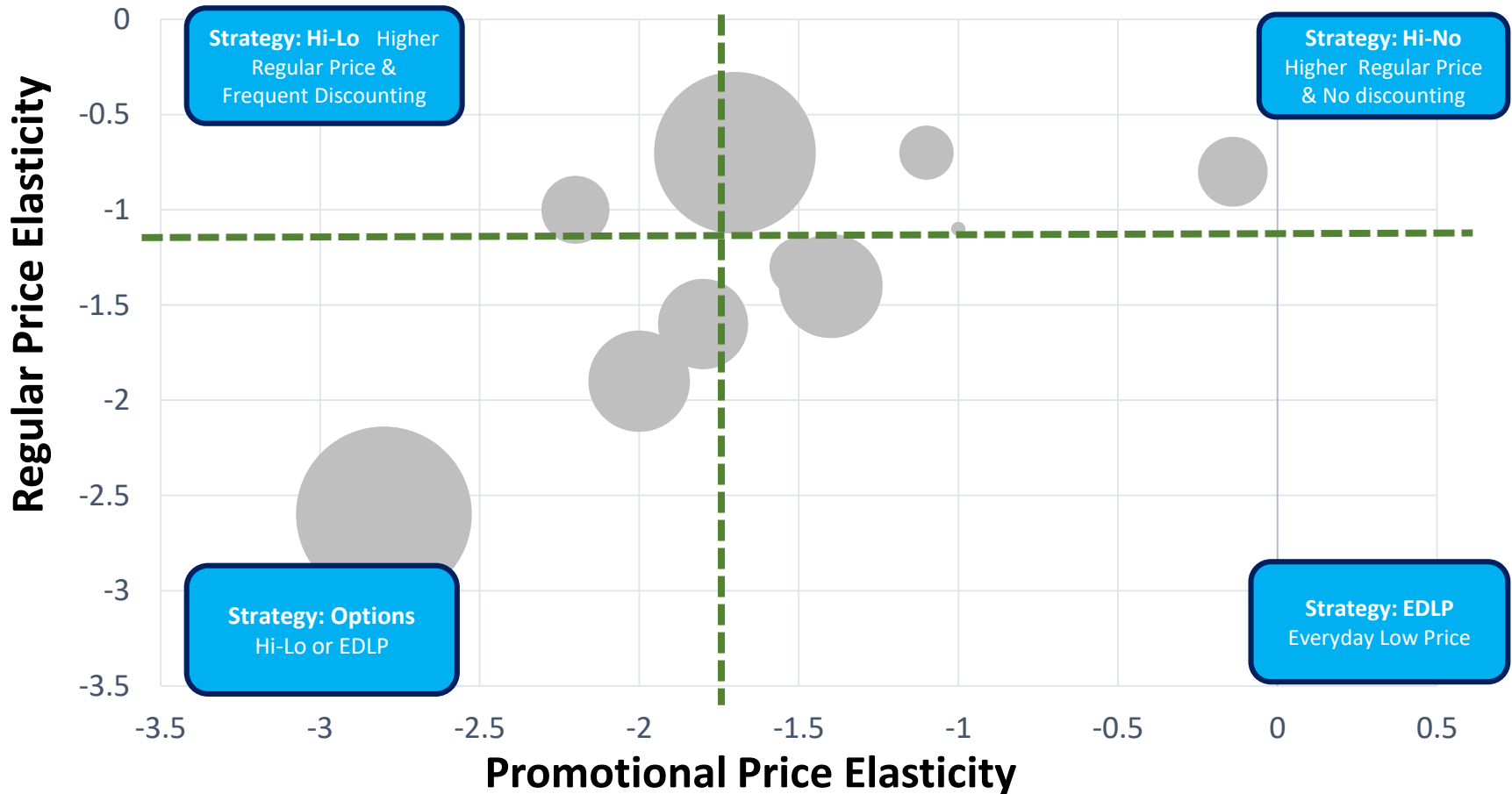
Low Everyday Price Elasticity: Consumers are not as sensitive to regular price changes

High Promo Price Elasticity: Consumers are sensitive to promotion prices/discounts

Low Promo Price Elasticity: Consumers are not as sensitive to promotion prices/discounts



Pricing Strategy

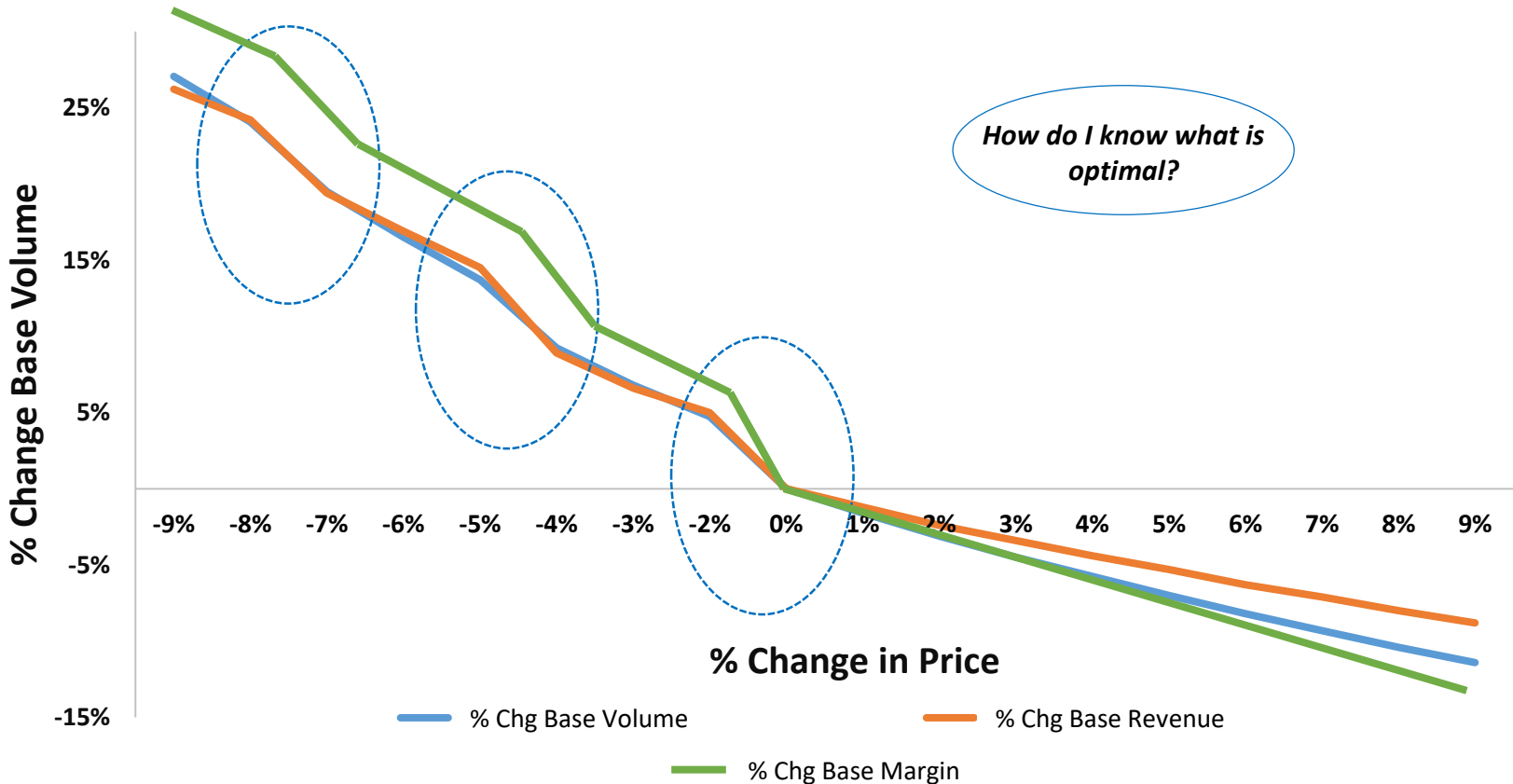


Bubble size denotes volume



Evaluating the Impact and Identifying Price Thresholds

- The specific price point beyond which sales change
- In addition to everyday price elasticities, thresholds can be used to understand unit sales loss





Scenario Simulation

		ROPI Demo - Scenarios Summary - Scenarios		
Groups	Results	Discount + Display + Feature	Discount+Display	Discount Only
Time Periods		1 week promotion on 11/12/2016	1 week promotion on 11/12/2016	1 week promotion on 11/12/2016
Vs Competitive Activity Type		Use Historical Average	Use Historical Average	Use Historical Average
Drug C Total	Total Unit Volume	5,123	3,303	2,916
	Base Unit Volume	1,893	1,884	1,884
	Incremental Unit Volume	3,230	1,419	1,032
	Total Unit Revenue	\$30,140	\$19,226	\$16,958
	Base Unit Revenue	\$13,932	\$13,845	\$13,845
	Incremental Unit Revenue	\$16,208	\$5,381	\$3,113
	Promotion Price	\$5.88	\$5.82	\$5.82
	Retail Price	\$7.36	\$7.35	\$7.35
	List Price	\$5.23	\$5.19	\$5.20
	Discount	20%	21%	21%
	Cost Per Incremental	\$0.93	\$2.11	\$2.91
Drug C - Brand A	Total Unit Volume	5,123	3,303	2,916
	Base Unit Volume	1,893	1,884	1,884
	Incremental Unit Volume	3,230	1,419	1,032
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	Incremental Unit Volume	3,230	1,419	1,032
	Total Unit Revenue	\$30,140	\$19,226	\$16,958
	Base Unit Revenue	\$13,932	\$13,845	\$13,845



Scenario Simulation Tactical Recommendations

Increase everyday price for ABC PPG/retailer combinations

- At Kroger, increase Base from \$8.59 to \$9.49
- At Walgreens, increase 10ct from \$9.79 to \$10.79
- At Publix, increase 20oz from \$13.99 to \$14.99-\$15.49
- At Wegmans, increase 10ct from \$8.19 to \$8.99

Decrease everyday price for ABC PPG/retailer combinations

- At Kroger, decrease 10ct from \$8.59 to \$8.39
- At Walgreens, decrease Base from \$9.89 to \$9.69
- At Publix, decrease 10ct from \$9.89 to \$9.39

Increase depth of promotion discounts on ABC PPG/retailer combinations

- At Kroger, increase % discounts on Base from \$7.19 to \$7.59* and 10ct from \$7.19 to \$6.29
- At Walgreens, increase % discounts on Base from \$7.59 to \$7.29 and 10ct from \$7.51 to \$7.99*
- At Publix, increase % discount on 20oz from \$11.99 to \$12.99*

Reallocate event spend from TPR Only to TPR + Feature, TPR + Display or TPR + Feature/Display (where possible)

Reallocate underperforming events

- At Kroger, move 10ct promotion from September to December
- At Walgreens, move Base promotion from April and February to December
- At Publix, move 10ct promotion from June to December and September to December
- At Publix, move 20oz promotion from October/November to December
- At Publix, move Base promotion from Feb to Dec, June to Dec, and Sept to December



Summary of KPIs/Metrics

Summary metrics	PPG A	PPG B	PPG C	PPG D	PPG E
# of weeks promoted (1/4/14 – 1/2/16)	ABC Retailer	ABC Retailer	ABC Retailer	ABC Retailer	ABC Retailer
Average duration (weeks)	1.5	1.8	1.2	1.3	1.2
% of events that breakeven	11%	0%	73%	73%	0%
Total event spend ³	\$5,823,692	\$35,758,216	\$38,827,664	\$7,675,040	\$4,504,662
Average spend (per event)	\$83,196	\$308,260	\$329,048	\$147,597	\$70,385
Average event ROI ² (%)	85%	75%	109%	118%	35%
Average event uplift (%)	159%	344%	277%	233%	415%
Average incremental revenue	\$35,513	\$35,570	\$192,530	\$97,241	\$7,150
Average incremental net profit	(\$12,247)	(\$75,797)	\$29,435	\$25,861	(\$45,837)

Break even ROI =100%



Top and bottom performing ROI events (across retailers)

Retailer	PPG	Event Description	Duration (Weeks)	Total Event Cost	Manufacturer Incremental Revenue	Manufacturer Incremental Net Profit	Event ROI
A	PPG 1	2 for X	1	\$ 177,000	\$ 209,335	\$ 104,920	159%
B	PPG 1	BOGO	1	\$ 617,715	\$ 752,531	\$ 336,335	154%
B	PPG 1	2 for X	1	\$ 348,104	\$ 405,993	\$ 176,945	151%
C	PPG 2	1 for Z	1	\$ 140,010	\$ 139,018	\$ 63,605	145%
D	PPG 2	% off	1	\$ 25,923	\$ 34,140	\$ 11,335	144%
D	PPG 4	3 for Y	1	\$ 27,894	\$ (27,797)	\$ (27,826)	0%
D	PPG 5	2 for X	1	\$ 3,834	\$ (3,800)	\$ (3,820)	0%
D	PPG 5	3 for Y	1	\$ 3,803	\$ (3,762)	\$ (3,787)	0%
B	PPG 6	3 for T	1	\$ 136,928	\$ (133,683)	\$ (134,702)	2%
D	PPG 7	2 for X	1	\$ 13,654	\$ (13,112)	\$ (13,377)	2%



Total Scorecard Events	957
Total Events Excluded	220
Total Events Included	737

23% of events
77% of events

Total Events ROI Using Planned Spend	577
Total Events ROI Using Actual Spend	160
Avg Planned Trade Rate	20.1%
Avg Actual Trade Rate	26.1%
Avg Var: Planned vs Actual Spend	510%
Weighted Avg Var: Planned vs Actual	416%

78% of events
22% of events
Ttl Diff: \$5.3 million
weighted by size of investment

Weighted Avg Var: Planned vs Actual	381
-------------------------------------	-----

52% of events

Total % Unit Lift	231%
Avg % Unit Lift	291%

Avg Deal Rate	\$ 0.31
Avg Trade Rate	20.7%
Avg Margin	23%
Avg CPIU	\$ 2.51

MFR Gross Revenue	\$ 84,262,141
Total Trade Spend	\$ 15,539,063
Total Trade Rate	18.4%
Total Trade Rate if Use Actual for all Events	11.7%
Total Trade Rate if Use Planned for all	18.0%
Incremental Gross Margin	\$ 23,253,653
Incremental Net Margin	\$ 7,714,590

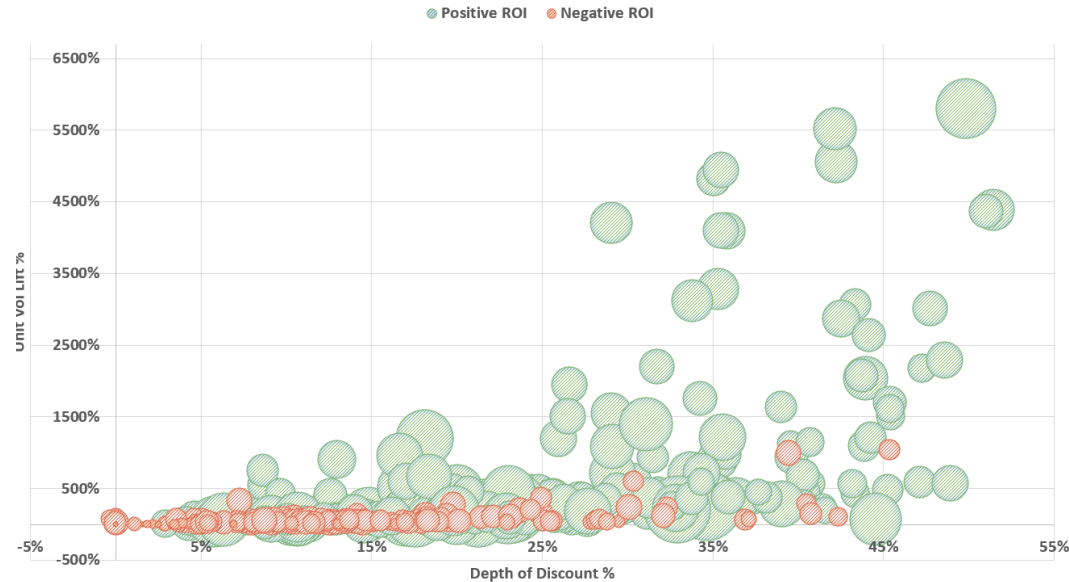
excl Trade Spend

Gain/Loss	\$ 7,714,590
Avg Event ROI	1.34
Ttl ROI	1.50

Manufacturer Wins Events	404
Win-Win Events	348

55% of events
47% of events

EVENT ROI: DISCOUNT & UNIT VOLUME LIFT

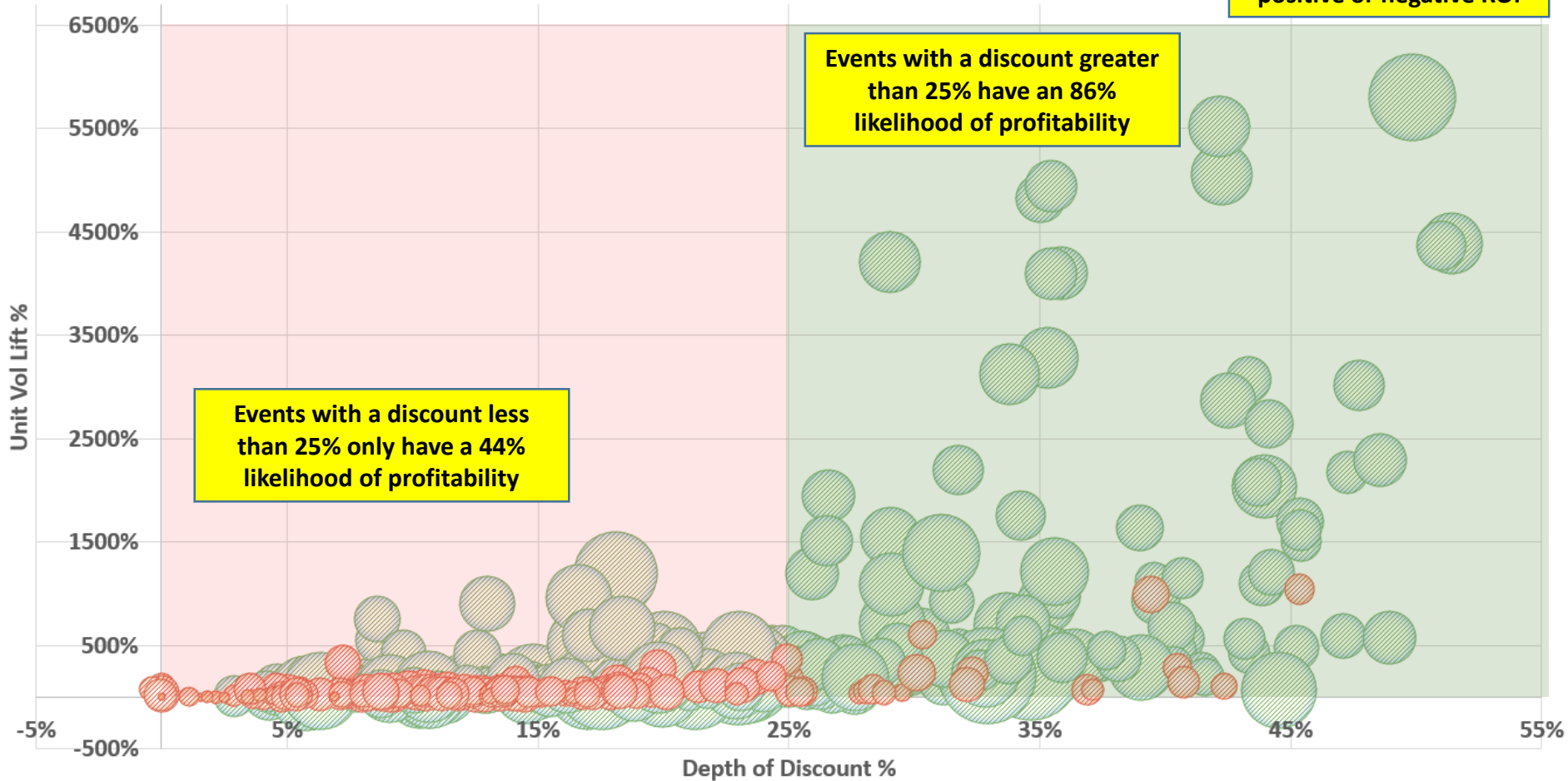




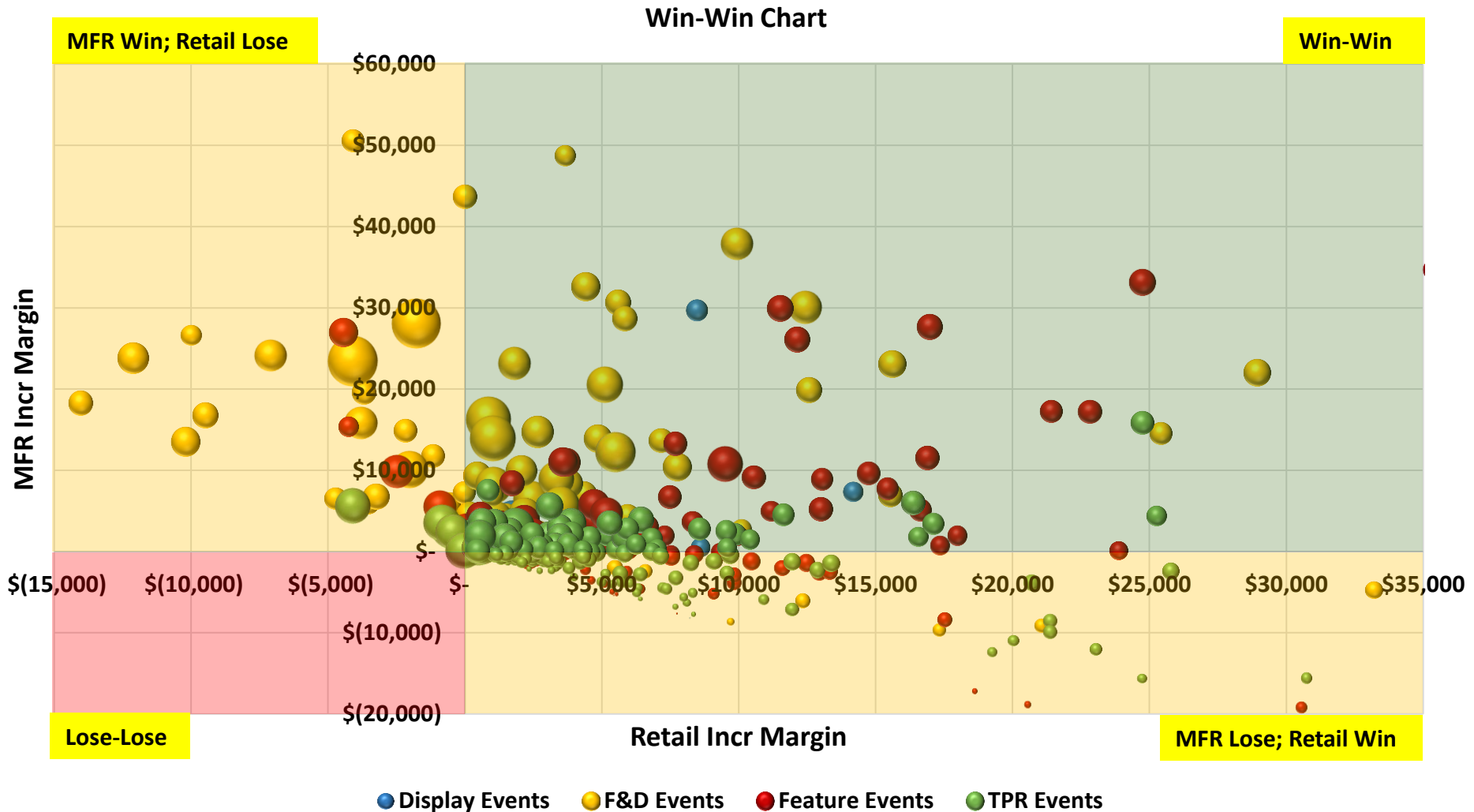
EVENT ROI: DISCOUNT & UNIT VOLUME LIFT

● Positive ROI ● Negative ROI

Color of bubble indicates positive or negative ROI



Double odds of event profitability by eliminating discounts less than 25%

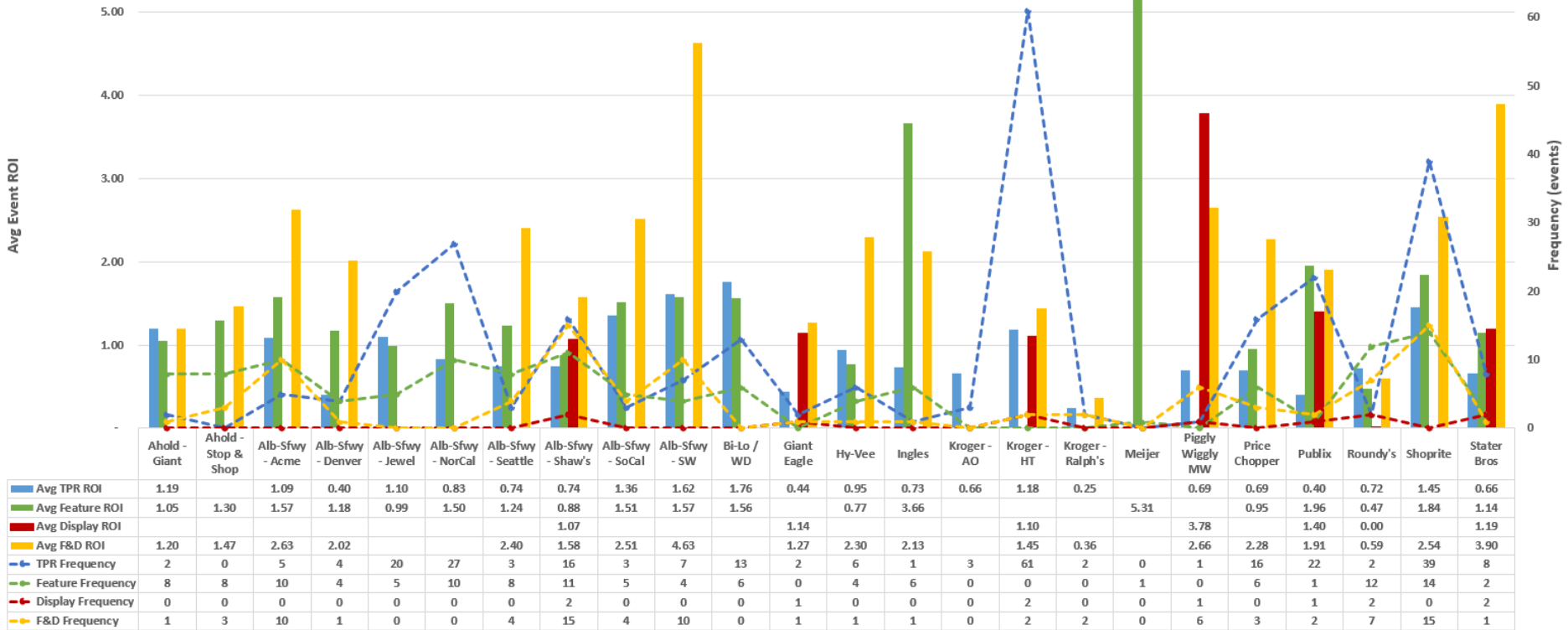


How is it being measured.



- How do we promote at certain customers?
- Which tactics are the most effective there?
- Where are we more / less profitable?

Customer Tactical Frequency & Avg Event ROI



How is it being measured.

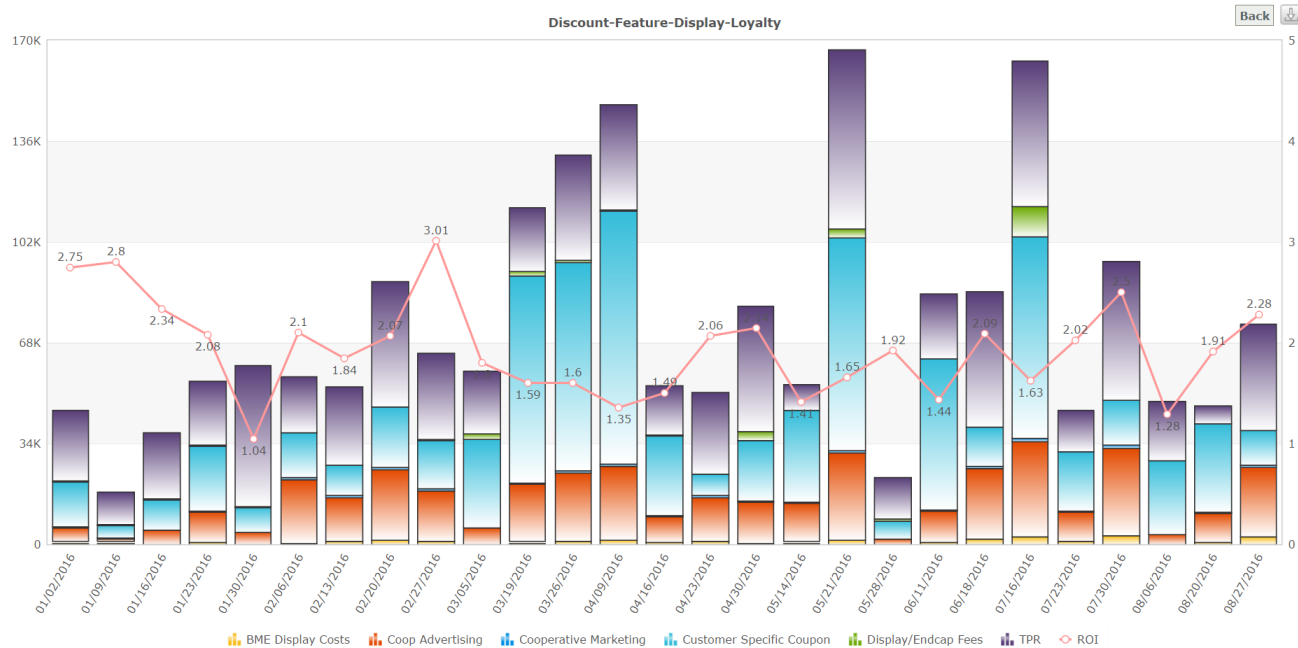


ROPI - Investment By Tactic - Ropi Investment by Tactic

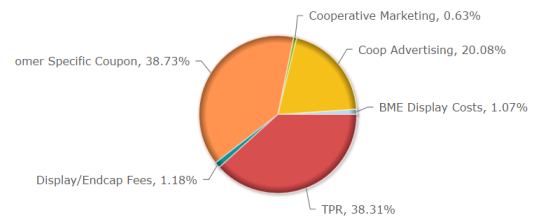
[Drug]
(SEQ_Channel: Drug), (SEQ_ROPI Market: Yes) - (SEQ_Brand: Brand A), (SEQ_Size_Segment: Large,Medium,Regular), (SEQ_Mfr: Mfr A)

ROPI - Investment By Tactic - Ropi Investment by Tactic

[Drug]
(SEQ_Channel: Drug), (SEQ_ROPI Market: Yes) - (SEQ_Brand: Brand A), (SEQ_Size_Segment: Large,Medium,Regular), (SEQ_Mfr: Mfr A)
Showing Year To Date



Total Investment by Type for all periods combined



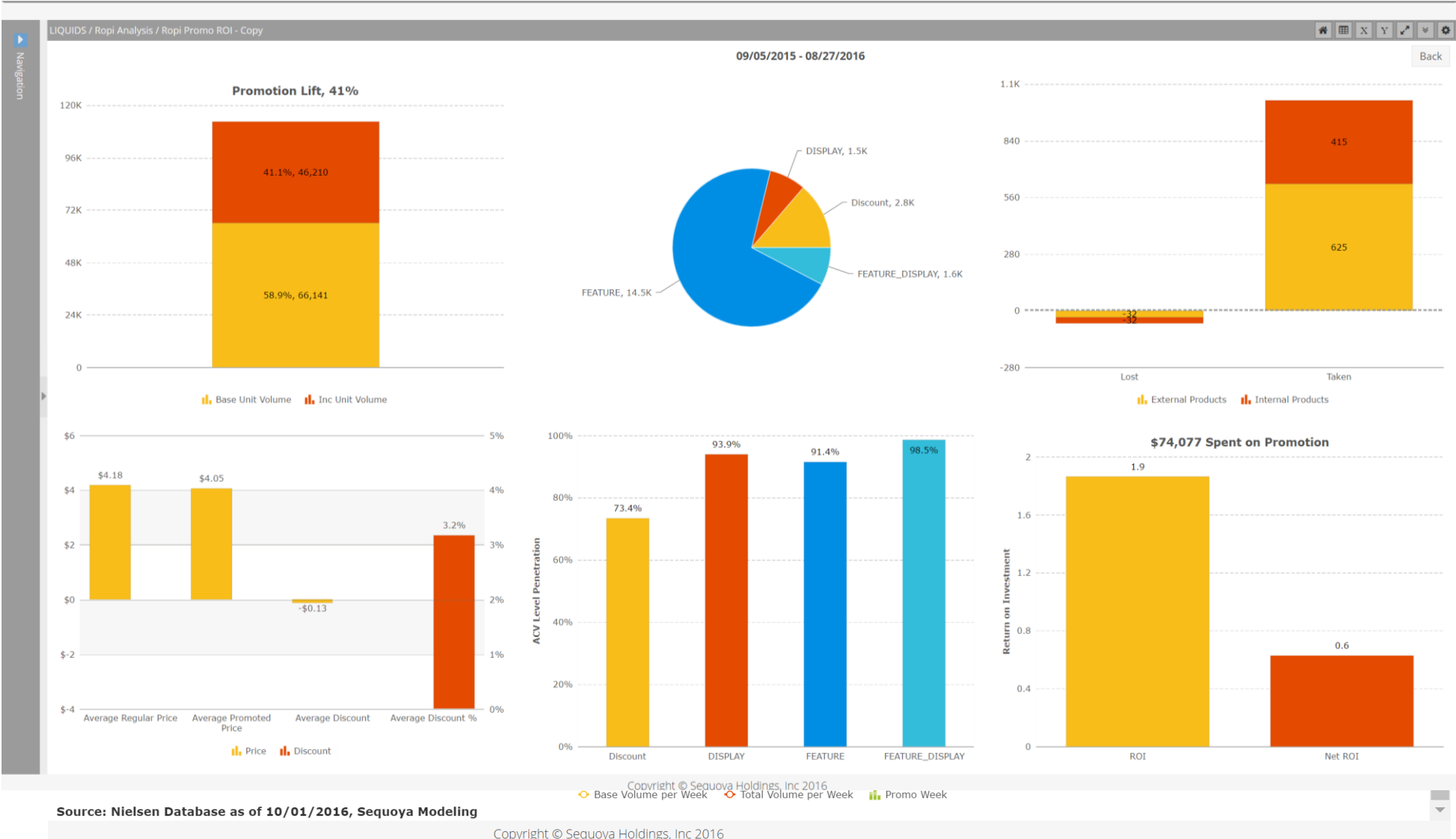
	01/02/2...	01/09/2...	01/16/2...	01/23/2...	01/30/2...	02/06/2...	02/13/2...	02/20/2...	02/27/2...	03/05/2...	03/19/2...	03/26/2...	04/09/2...	04/16/2...	04/23/2...
BME Display Costs	82	13		544		281	1,003	1,215	884		4	1,026	1,293	427	898
Coop Advertising	5,503	2,156	4,631	10,283	3,903	21,531	14,751	23,768	17,206	5,405	20,160	23,002	24,940	8,770	14,800
Cooperative Marketing	247	11		307		773	530	820	514		541	741	799	324	535
Customer Specific Coupon	15,308	4,413	10,450	22,016	8,806	14,855	10,178	20,603	16,168	29,917	69,608	70,203	85,230	27,294	7,400
Display/Endcap Fees	152	189	287	147	76				560	1,741	1,793	637	351	1	
TPR	23,791	10,678	22,307	21,594	47,624	19,200	26,697	42,175	28,932	21,447	21,281	35,584	35,647	16,554	27,500

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Source: Nielsen Database as of 10/01/2016, Sequoya Modeling

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How is it being measured.



Source: Nielsen Database as of 10/01/2016, Sequoia Modeling

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"After careful consideration of all 437 charts, graphs, and metrics, I've decided to throw up my hands, hit the liquor store, and get snockered. Who's with me?!"

enordquist@sequoya.com

Dank je!

