

# Strategic Marketing Analytics

## Session 6 GE Matrix & Resource Allocation

# Today's agenda

- GE Matrix
  - Prioritizing projects, segments, initiatives, etc.
  - Software overview
- Resource allocation
  - Allocating and sizing budget and efforts
  - Software overview



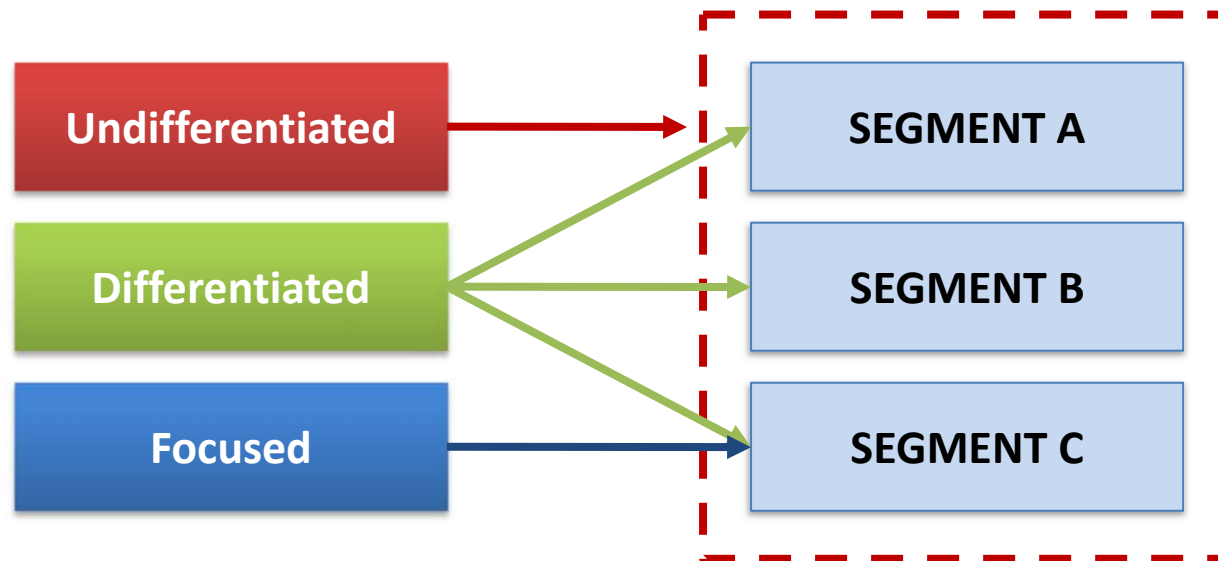
# GE McKINSEY MATRIX

A recurring question...



How to **prioritize** segments,  
projects, initiatives, etc.?

# A firm can follow different targeting strategies



# A quite general approach...

The same approach can be applied to:

- Segments
- R&D projects
- People
- Strategic initiatives
- Business units, divisions (initial use)

# How to measure the appeal of a segment?

- Overall appeal of that segment
  - Size
  - Growth rate
  - Margins, revenues
  - Volumes...

*vs.*

- Relative advantage of the firm to serve this segment
  - Access, channels
  - Brand, reputation
  - Product, service fit
  - Production capabilities...

# How to measure the appeal of a segment?

- Overall appeal of that segment

- Size
- Growth rate
- Margins, revenues
- Volumes...



***“External/objective” strength***

*An attractive segment is equally appealing to all firms competing in that market*

vs.

- Relative advantage of the firm to serve this segment

- Access, channels
- Brand, reputation
- Product, service fit
- Production capabilities...



***“Internal/subjective” strength***

*This dimension is specific to each firm’s competitive situation*



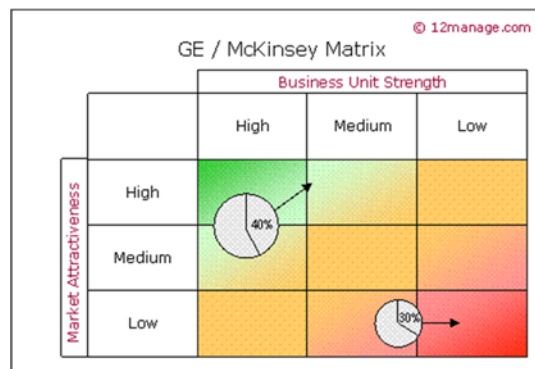
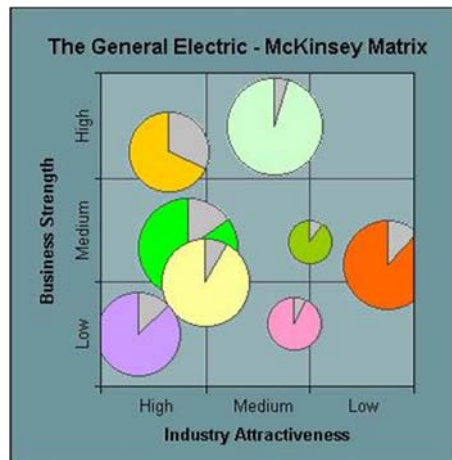
# How to measure the appeal of a segment?

Both dimensions (internal and external strengths) have characteristics that make them difficult to assess

- They are **complex**
  - They have many underlying, sometimes conflicting dimensions
- Different stakeholders within the firm will weight these underlying dimensions **differently**
  - Ex., market share vs. targetability vs. solvability
- They need to be assessed **subjectively**
  - Hard to get hard numbers on “product fit” or “reputation”

# GE/McKinsey Matrix

- The GE McKinsey Matrix has been widely used to measure the relative appeals of business units or divisions
- Assessed by:
  - Market attractiveness (“external” appeal)
  - Business unit strength (“internal” appeal)



Excel4Marketing Toolbox: GE / McKinsey Matrix with Microsoft Excel

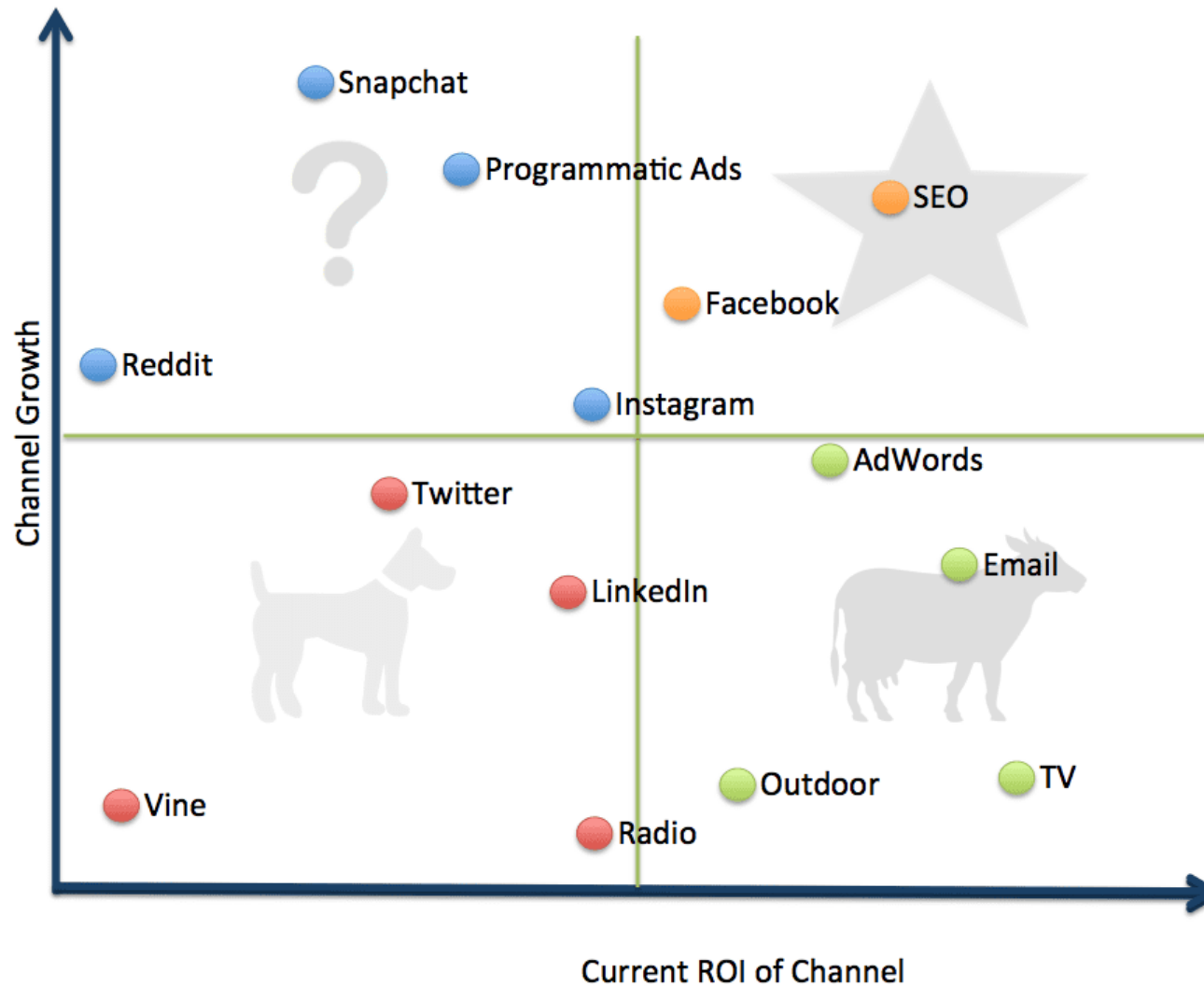


# BCG Matrix

- The GE/McKinsey matrix is a multi-dimensional version of the much more simple BCG Matrix (Boston Consulting Group)



# BCG Matrix



# GE/McKinsey Matrix

The GE/McKinsey matrix in 6 steps:

1. List **segments**, and estimate size of that segment
2. List dimensions that drive **segment attractiveness**
  - Size, volume, growth, margins, current competition...
3. List dimensions that underlie **competitive advantage** of the firm
  - Product fit, access, brand reputation, current penetration...
4. Rate each segment on each dimension (1=worst, 5=best)
  - Forces group discussion, builds consensus
5. Weigh each dimension (1=least important, 5=most important)
  - Again, forces group discussion, builds consensus
6. Compute simple summed multiplications ( $\sum \text{ratings} \times \text{weights}$ ), and plot

# Illustration

Horizontal rating data					
<i>This matrix contains the ratings of each option on each dimension underlying the horizontal, business-strength axis.</i>					
	Office supplies	Furniture	Computers	Software	Ink and Toner
Product Fit	4	4	3	2	5
Brand Reputation	5	3	2	1	4
Market Share	3	2	1	3	3
Competitive Advantage	4	5	3	2	3
Horizontal weights					
<i>Contains the importance weights by which the horizontal ratings will be multiplied by.</i>					
	Weights				
Product Fit	5				
Brand Reputation	5				
Market Share	3				
Competitive Advantage	5				

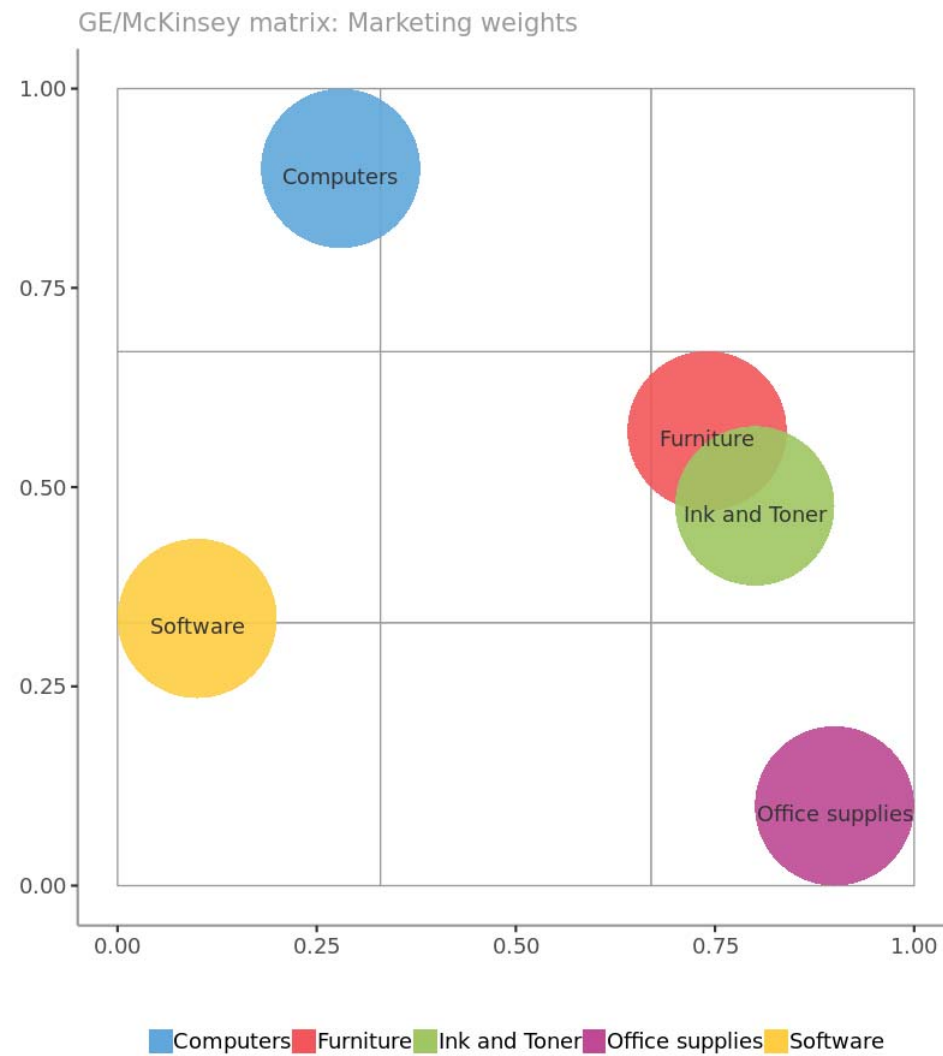
# Illustration

Vertical rating data					
<i>This matrix contains the ratings of each option on each dimension underlying the vertical axis.</i>					
	Office supplies	Furniture	Computers	Software	Ink and Toner
Overall Market Size	4	4	5	3	2
Annual Market Growth Rate	1	2	4	3	4
Competitive Intensity	2	4	5	2	2
Historical Margins	2	2	1	3	4
<b>Vertical weights</b> <i>Contains the importance weights by which the vertical ratings will be multiplied by.</i>					
	Weights				
Overall Market Size	2				
Annual Market Growth Rate	2				
Competitive Intensity	4				
Historical Margins	3				

Every firm competing in this market should agree on these ratings

But they might disagree on their relative importance

# Illustration

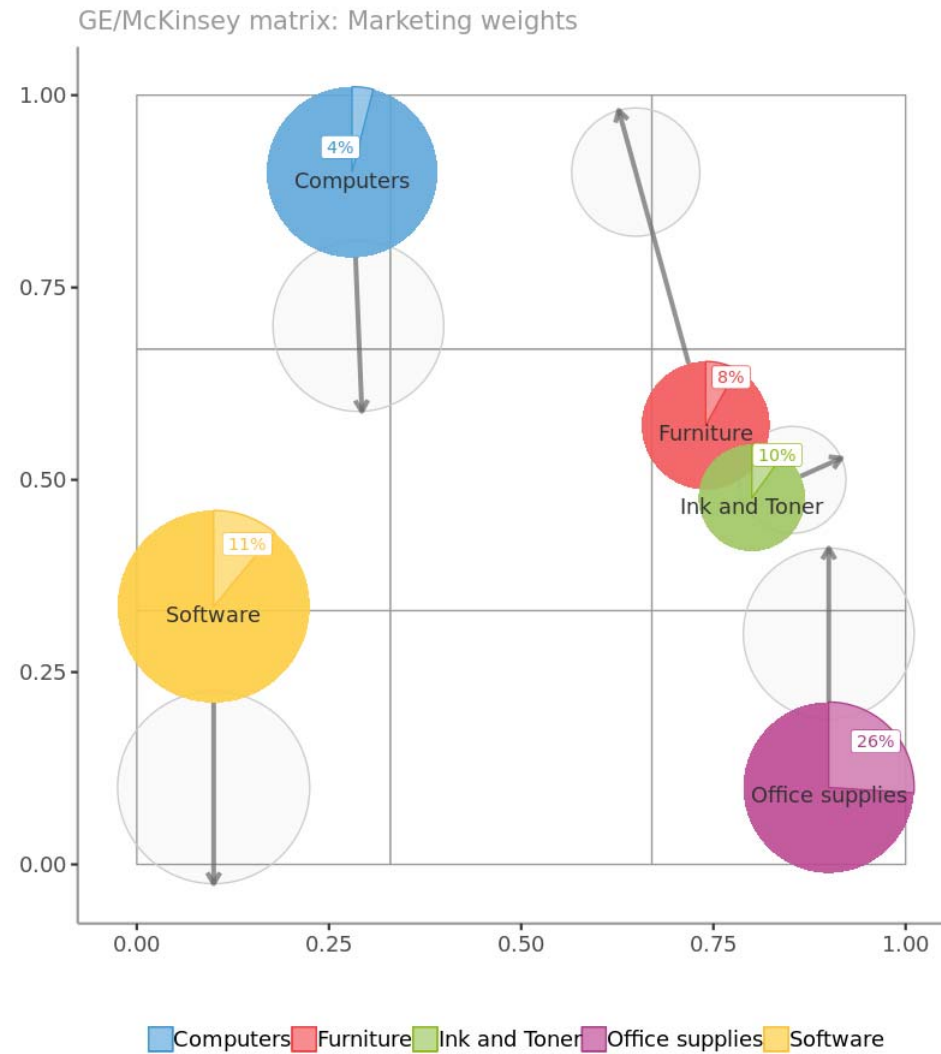




# Refinements

- Different sets of weights
- Display market size
- Display market shares
- Dynamic ratings

# Refinements



# GE/McKinsey Matrix

- How to improve the situation?
  - Look at the weights...
- Why is it useful?
  - A personal story...



GE/McKinsey Matrix

# SOFTWARE OVERVIEW



Allocating and sizing budget and efforts

# RESOURCE ALLOCATION



Half of my marketing budget is spent for **nothing**, the problem is that I don't know **which half**

—Gary J. Skidmore

Yuval Atsmon

## Where, how much, and how: Answering the hardest questions of resource allocation

Strategy & Corporate Finance October 2016

The challenge of resource allocation is determining *where* the resources will bring the most value, *how much* money and talent to redistribute, and *how* to put those shifts effectively into action.

**I recently listened** to a CEO client lament his company's low growth and the difficulty in shifting resources from a mature business to new fast-growing ones. The challenge he faced is all too common: unit presidents protective of legacy businesses, strenuously arguing that reducing resources would endanger the company's biggest cash cows. Would the returns from investing in the new businesses justify this risk? And how much is really needed to get those businesses onto the growth fast track?

# Resource



A **resource** is something that is **valuable** to you (productive), and available in **limited quantity**



# Examples of resources

- Money
  - Marketing budget
  - Promotional budget
  - Annual budget
- People
  - Sales representatives
- Time
  - R&D efforts
  - Studying
- Etc.

# Managerial issues

Managerial issues we will address today:

- How to determine the optimal level of investments/resources?
- How to allocate these investments/resources optimally amongst the different options available?



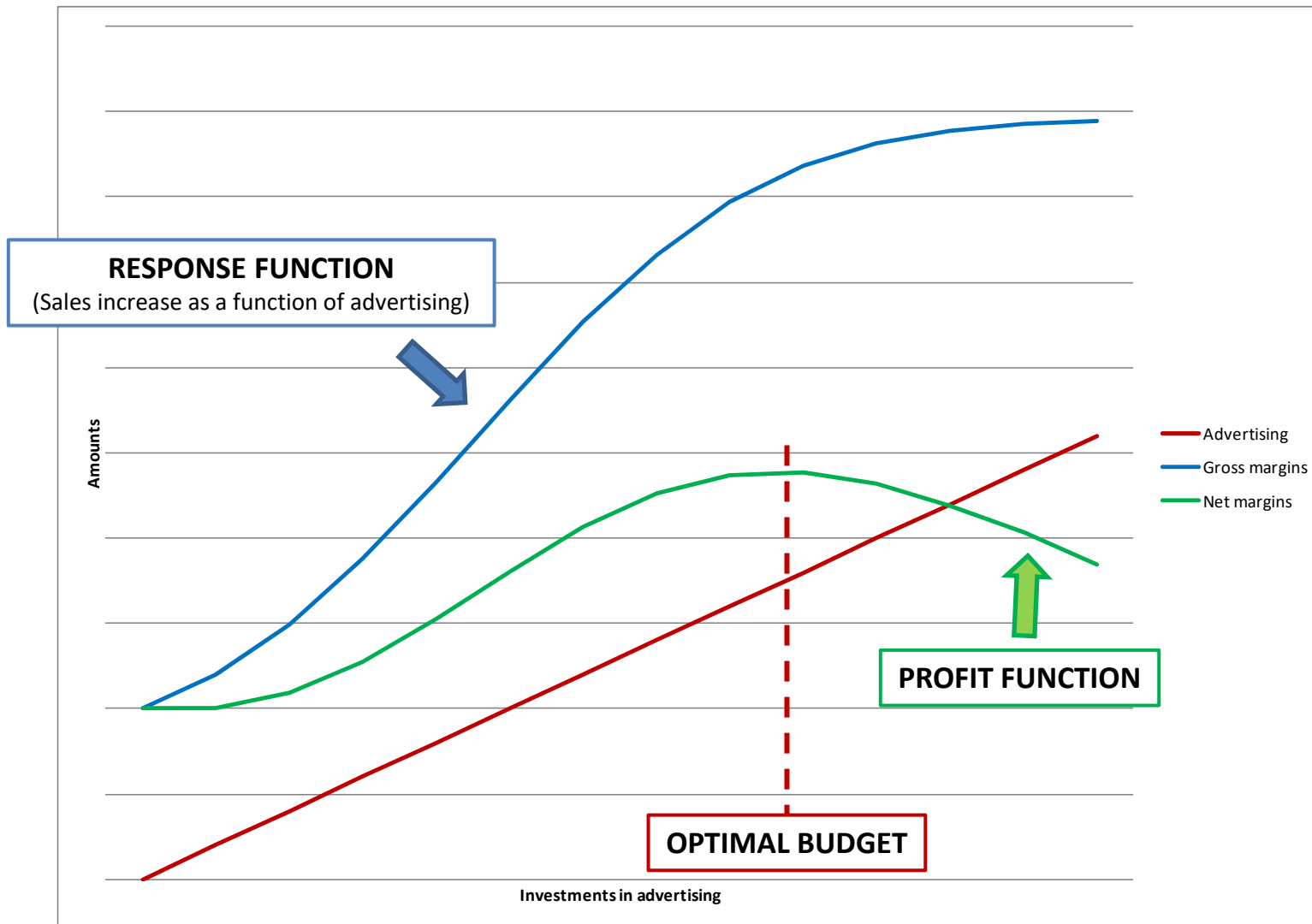
*(e.g., advertising budget, spread across different regions)*

# Potential solutions

## How to size marketing budget?

- Percentage of sales, inertia
  - E.g., invest 15% of sales revenues into marketing efforts
- Industry guidelines, benchmark method
  - What does competition do?
- Optimize return on investment
  - What investment leads to highest net returns?
  - Definitely the best option, but...

# ROI-based budget decision



# Managerial context

Why is it so difficult?

- Different markets / segments / regions
  - Each might respond differently
    - Customers are different
    - Market potentials vary
    - Competition varies
    - Response to marketing actions vary (response functions)
- ⇒ Need to estimate a specific response function for each market / segment / region

# Response function estimation

## How to estimate a response function?

- Historical data
  - Available?
  - Sufficient variability for estimation?
- Experiments
  - Difficult to execute
  - Costly, time consuming, dangerous
- Managerial Judgment
  - Not perfect, but...
  - Quick
  - Builds consensus
  - Encourages systematic thinking

# A Delphi approach to estimation problems

How do we estimate response functions?

- Need a process to get reliable managerial estimates, and a model to make recommendations based on these estimates

## Delphi-Based Resource Allocation

(various commercial applications, with various names:  
CALLPLAN, ReAllocator, etc.)

# Delphi method



The **Delphi method** is a systematic, interactive forecasting method which relies on a panel of experts



# Delphi method

- The experts answer questionnaires in two or more rounds
  - After each round, a facilitator provides an anonymous summary of the experts' forecasts + the reasons they provided for their judgments
  - Experts are encouraged to revise their earlier answers in light of the replies of other members of their panel
  - Finally, the process is stopped after a pre-defined stop criterion (e.g. number of rounds, achievement of consensus, stability of results) and the mean or median scores of the final rounds determine the results
- It is believed that during this process the range of the answers will decrease and the group will converge towards the "correct" answer

## Delphi in-class example...

What grade will you get  
for the next case study?

# Wisdom of the crowd



The Delphi method is related to the tribal wisdom principle, or **wisdom of the crowd** approach

<https://www.youtube.com/watch?v=iOucwX7Z1HU>

# Managerial calibration of response functions

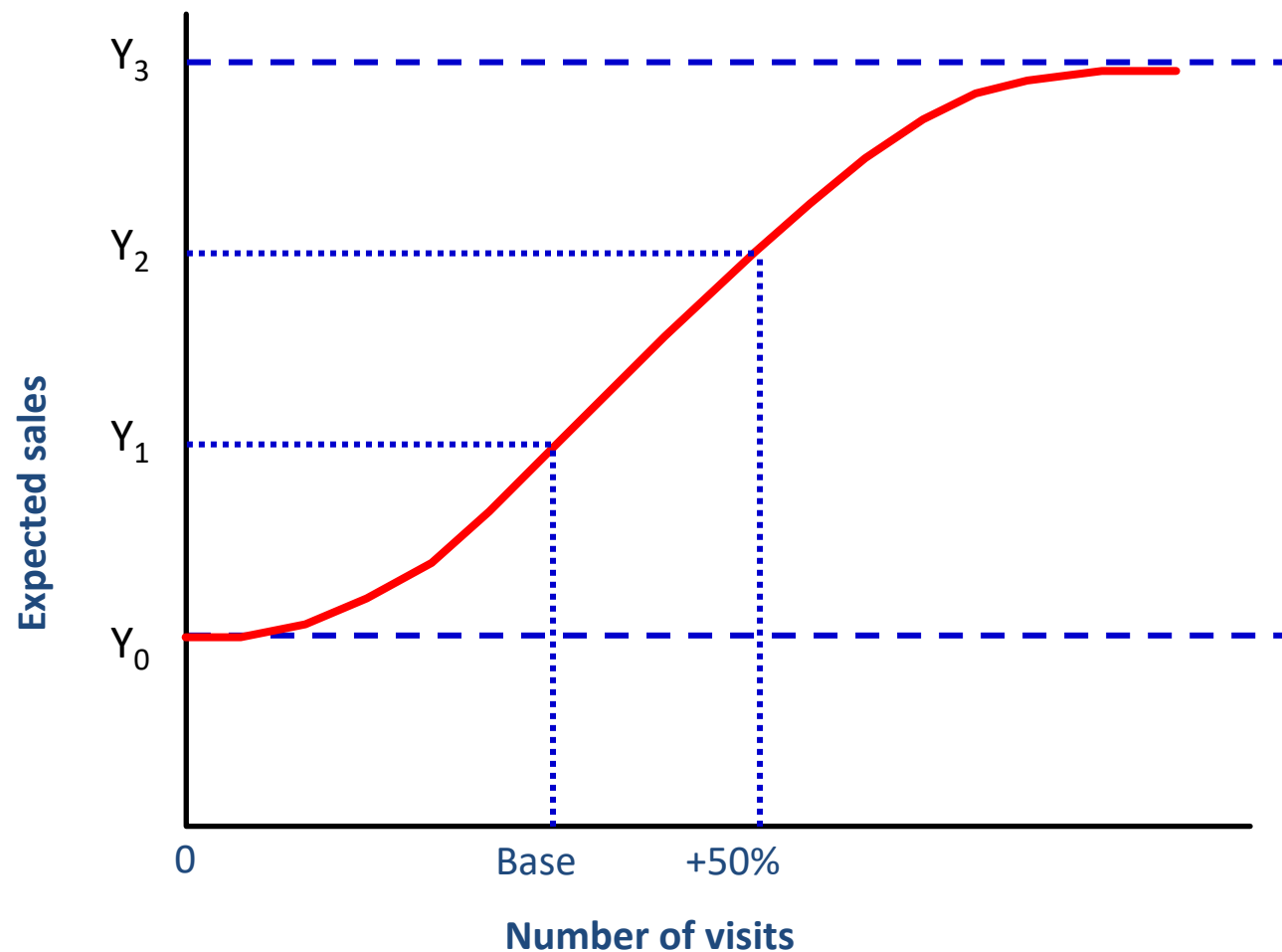
What would sales of this account be if...

- You don't visit the account?  $Y_0$
- You visit the account the same as last period?  $Y_1$
- You visit the account 50% *more* than last period?  $Y_2$
- You visit the account as frequently as possible?  $Y_3$

Now, fit a curve to replicate these point estimates as closely as possible

# Managerial calibration of response functions

This yields...



# Managerial calibration of response functions

## Comments...

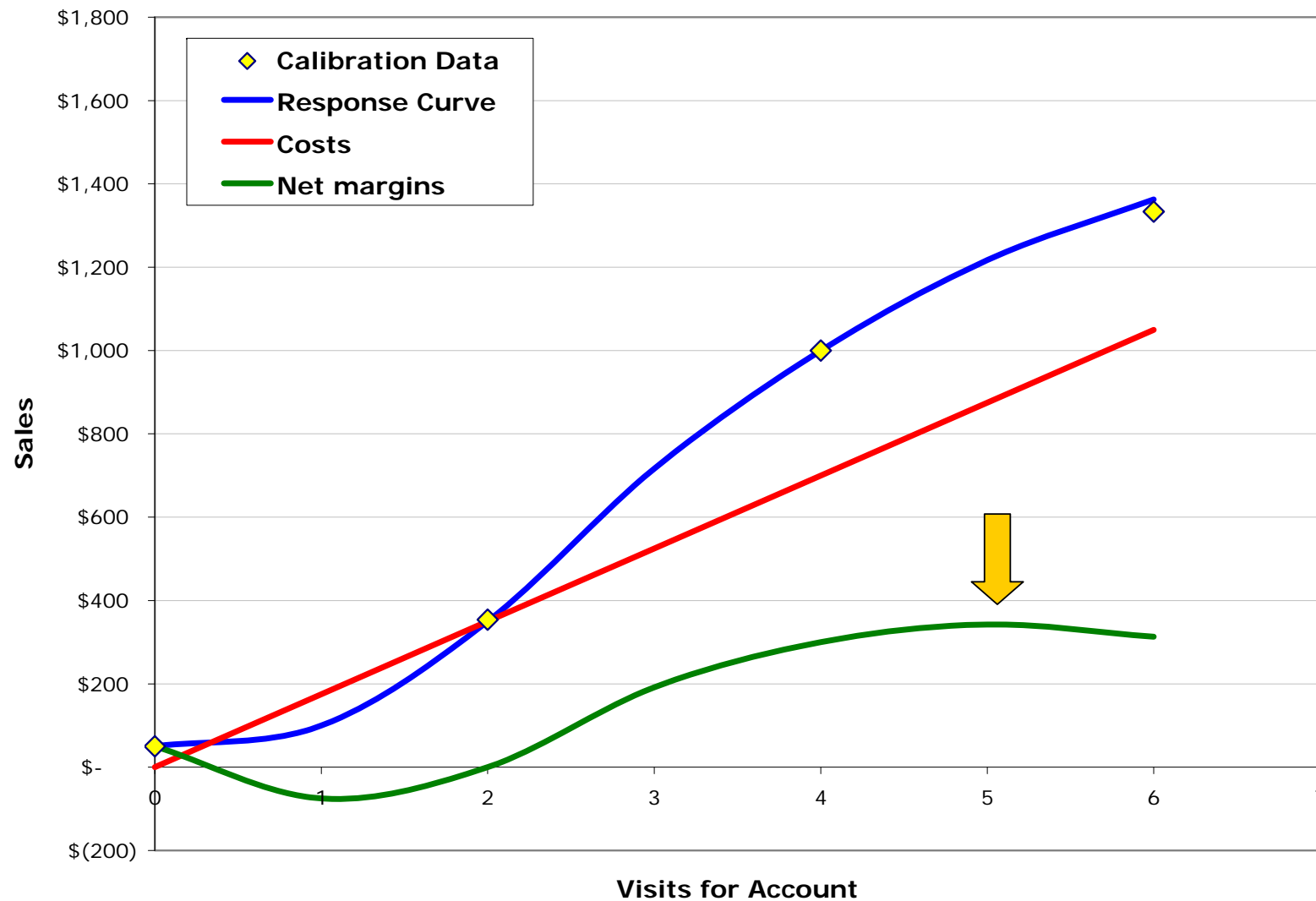
- Various functions can be used to fit

- Most common is AdBudg  
because parameters have a nice interpretation; s-curve  
a = saturation level  
b = minimum sales  
d = competitive pressure, noise

$$Y = b + (a - b) \frac{X^c}{d + X^c}$$

- Now you can estimate sales at any point (what-if scenarios)
  - Visits increase +33%
  - Visits decrease -80%
  - Etc.
- You can also estimate a profit function, and find the optimal solution

# Profit function



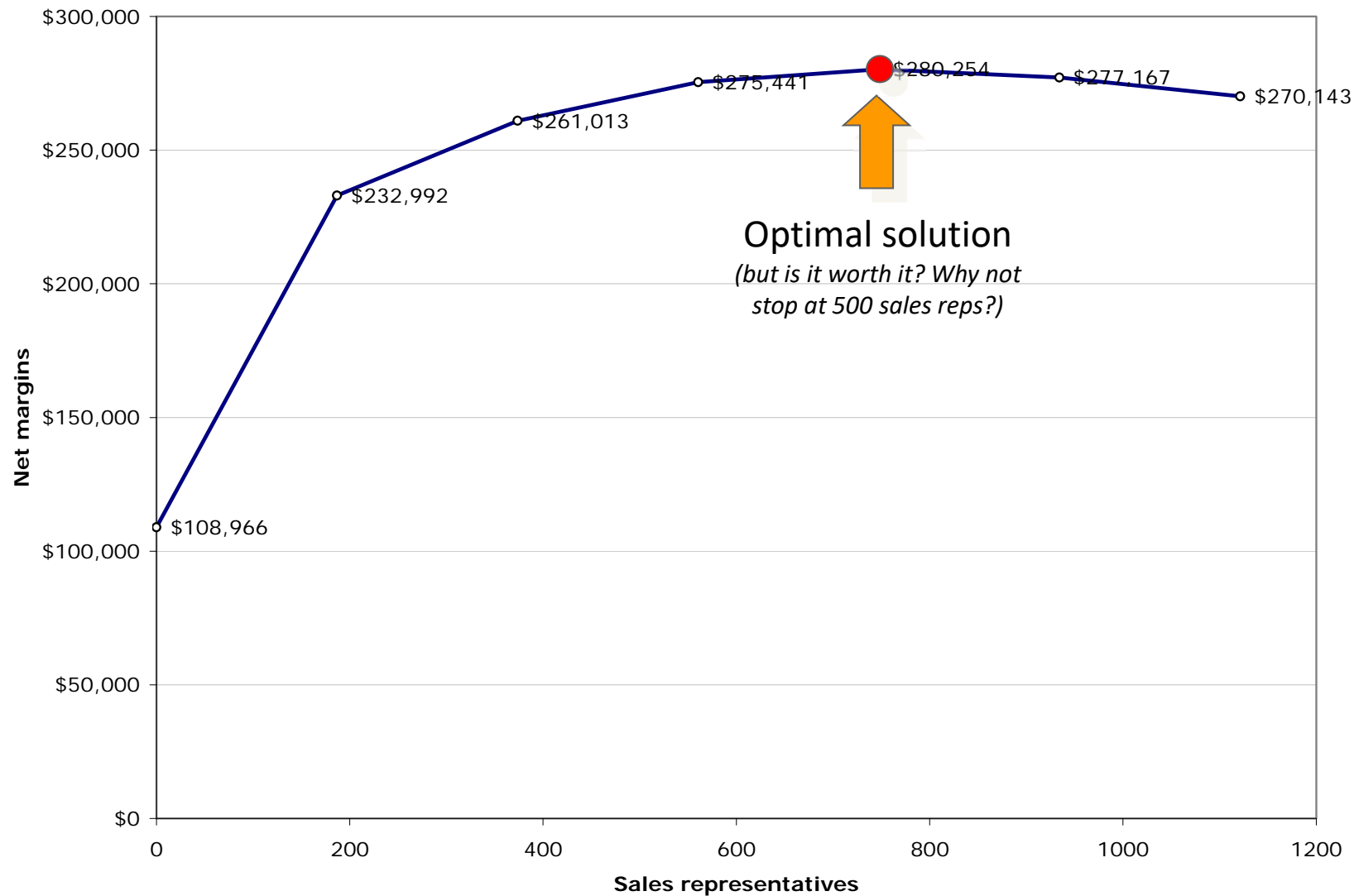
# Optimization

## How is Resource Allocation used?

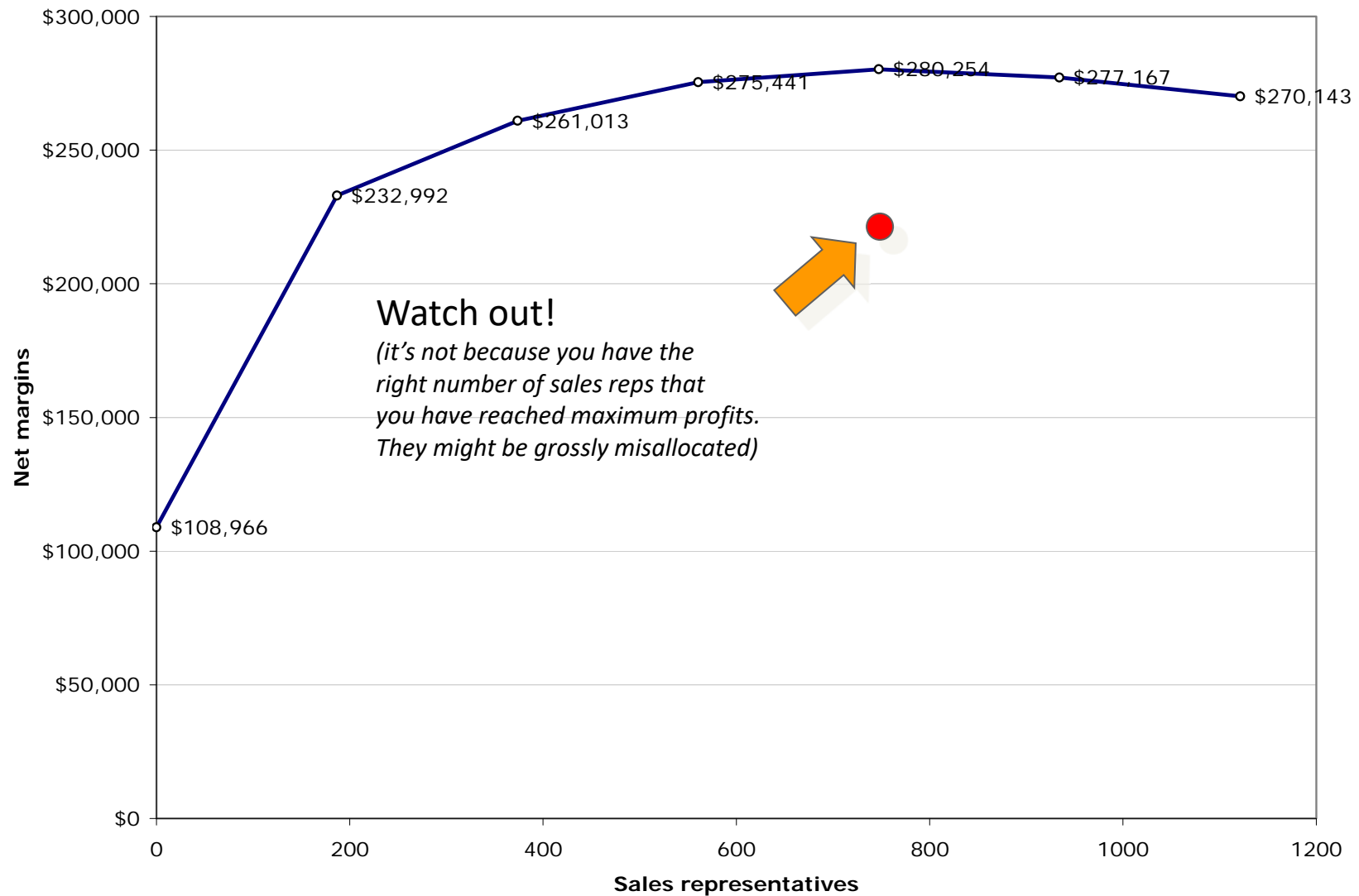
- Identify objectives
  - Sales margins
  - Sales volumes
  - Etc.
- Identify constraints
  - Minimum / maximum efforts (globally)
  - Minimum / maximum efforts (per segment)
  - Etc.
- Run the model, and analyze recommendations
  - Recommended level of efforts? (globally)
  - Allocation of these efforts across segments?



# Sensitivity analysis



# Sensitivity analysis

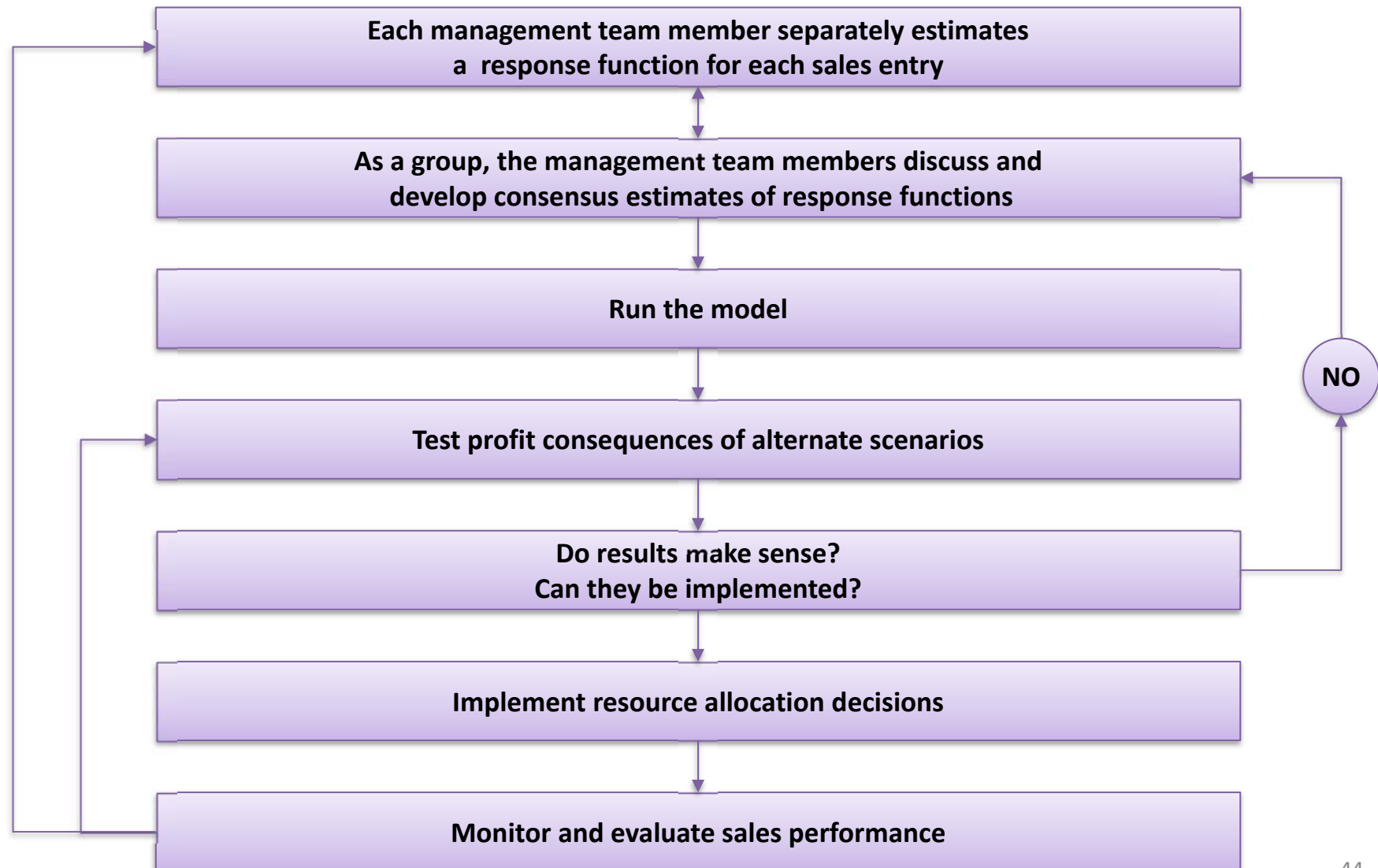


# Managerial calibration of response functions

How do we reach these managerial input?

- Managers use all their knowledge, expertise and experience
  - About competition
  - About customers
  - About market conditions
  - Etc.
- Usually reached through group consensus
  - Very useful to encourage systematic thinking
  - Builds consensus in the group
  - Convergence of expertise and experience
- What if consensus cannot be reached?
  - Try with various point estimates. Does it make a difference?
  - No?  $\Rightarrow$  Not critical
  - Yes?  $\Rightarrow$  Critical, and clueless. Highlights needs for more data

# Managerial calibration of response functions



# Benefits of resource allocation



- 20 sales people participated
  - 10 West Coast
  - 10 East Coast
- 10 pairs selected
  - 5 East and 5 West matched by managerial judgment, personal characteristics, compatibility of territory size, and revenue account mix
  - For each pair, one was “control” group
  - The other received Resource Allocation recommendations
- Control group
  - Told they were in an experiment
  - Participated in judgmental call frequency/account response development
  - Received computer feedback of their input but no Resource Allocation recommendations

# Benefits of resource allocation



- Results (compared to previous year)
  - Experimental group : +11,9%
  - Control group : +3,8%
  - Difference : +8,1%
  - Not due to chance ( $p < .025$ )
- Time needed
  - ~ 1/2 day per salesperson
- Change in sales
  - (~ 95% profit in airline business) > \$1,000,000 (for the 10 sales people) in 6 months

# Benefits of resource allocation

Where do the benefits come from?

- Using pooled judgment to get best guesses about how the market operates/responds to marketer actions taps corporate intelligence
- Attention focused separately on inputs and ends/goals
- Computer does calculations and sensitivity analysis
- Process aligns beliefs with actions

# What for?

(beyond profits)

## Goals of judgmental resource allocation model

- Helps set broad direction
- Identify priorities
- Gain anticipatory intelligence
- Generate buy-in for action
- Improve communication within the organization





Resource allocation

# SOFTWARE OVERVIEW

# That's all folks!