THE TECH INTERVIEW

PRODUCT MANAGEMENT & PRODUCT MARKETING

Rice Business School

September 21, 2019

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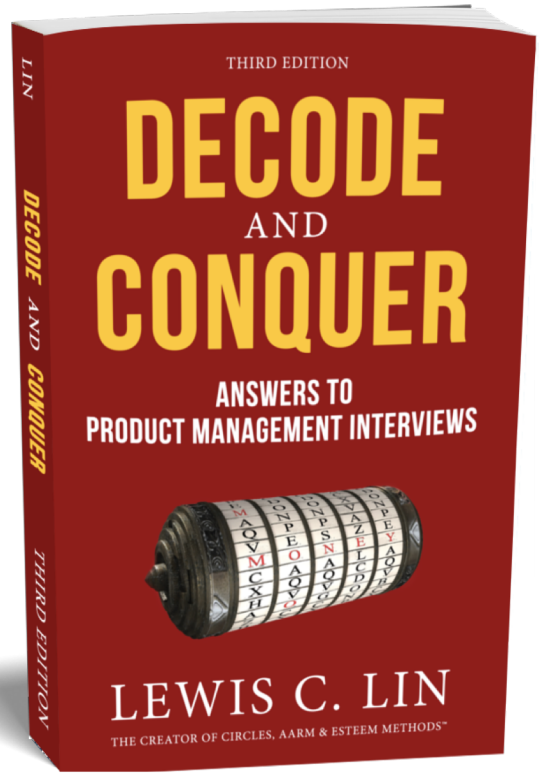
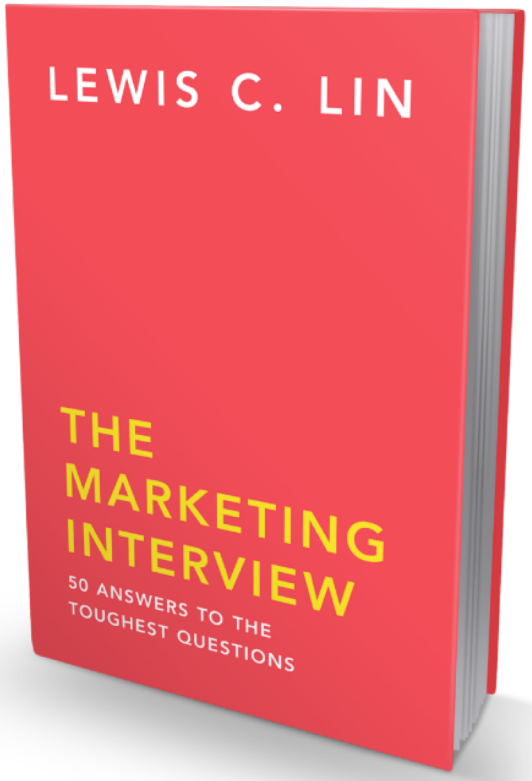
WELCOME

Introduction

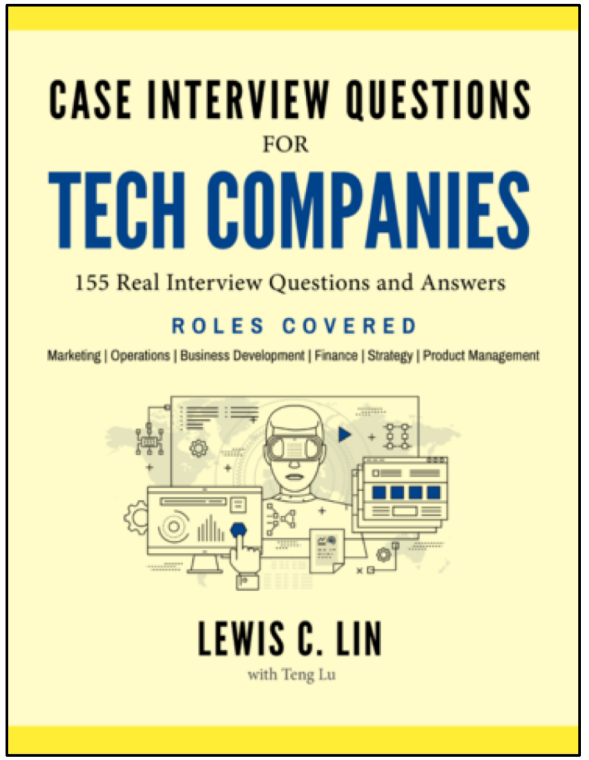
MY BACKGROUND



PM Interviews



Marketing Interviews



More Practice

MY INTERVIEW PREP BOOKS ON AMAZON

Email
lewis@impactinterview.com
to get your copy

FREE INTERVIEW CHEAT SHEETS

First Half

Interview Process

Analytical

Marketing

Second Half

Product Design

Technical

Metrics & A/B Testing

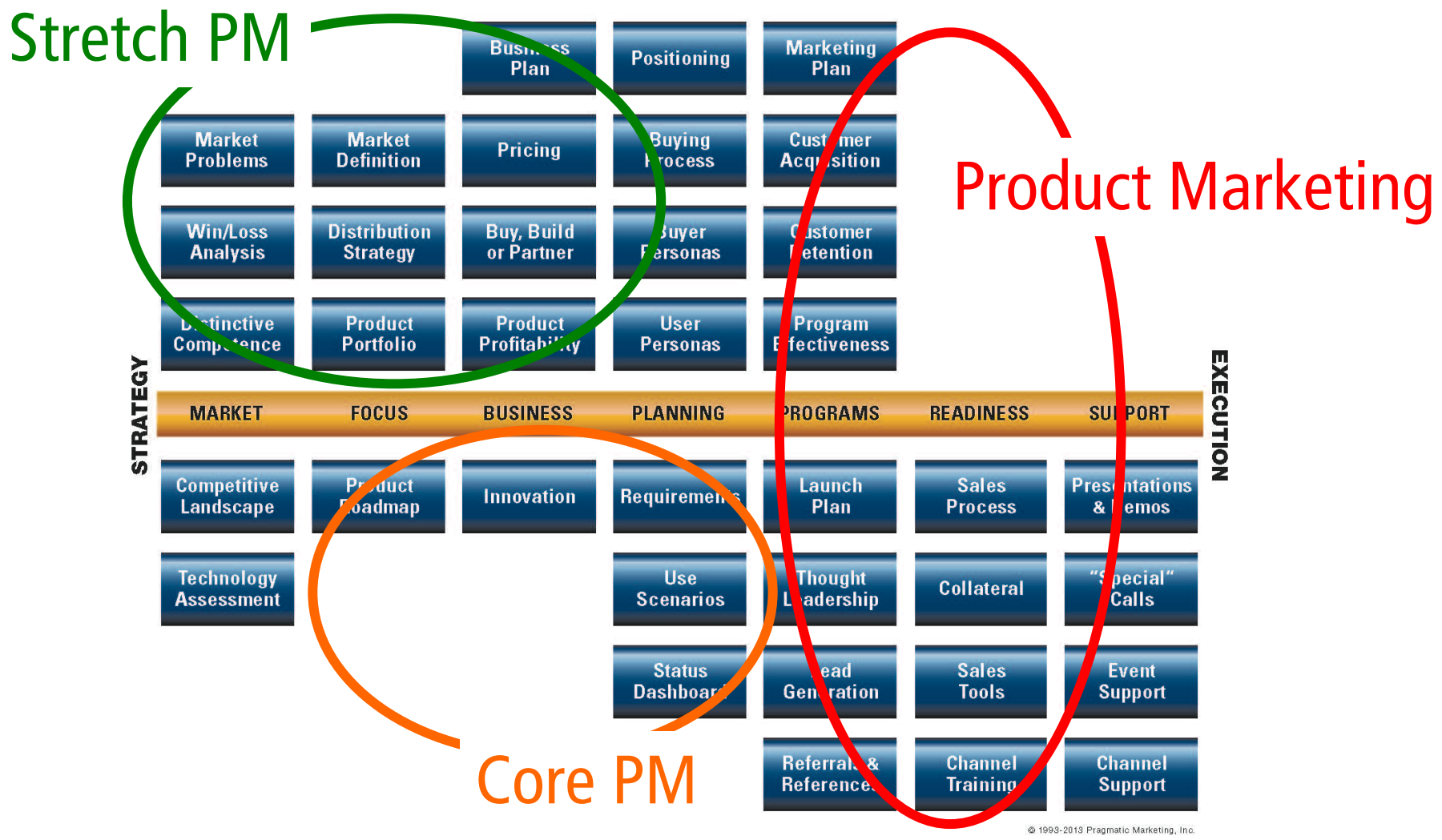
TODAY'S AGENDA

Overview of Tech Roles

TOP ROLES FOR TECH-BOUND MBAS

WHAT PROD. MANAGERS TYPICALLY DO

WHAT PROD. MKTG. TYPICALLY DOES



WHAT PROD. MARKETERS TYPICALLY DO

Case Questions

Job Type	PM Question	Company
Finance	What is the lifetime value of an Amazon Prime customer?	amazon
Analytics	What top metrics would you track for the Tinder online dating app?	Tinder
Product manager	Improve the Disneyland user experience, relevant to a Google product.	Google
Operations	Describe how Apple's supply chain works. What challenges does Apple face on a day-to-day basis?	Apple
Marketing	Create a marketing campaign for Microsoft Office 365.	Microsoft

RECENT TECH QUESTIONS

Analyze profitability

Critique a product

Design or improve a new product

Solve a technical problem

Price a new product

Price an existing product

Calculate lifetime value

Define metrics for a product

Discuss business strategy

Enter a new market

Develop a product vision

Endure a stress test

CASE QUESTIONS

Analytical

CUSTOMER LIFETIME VALUE

LIFETIME VALUE FRAMEWORK

EXERCISE, CUSTOMER LIFETIME VALUE

Just ask
Focus group of 10

GETTING ASSUMPTIONS

What's 65% of 21,000?

INTERVIEW MATH

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \cdots + \frac{CF_n}{(1+r)^n}$$

DISCOUNTING CASH FLOWS

Product Design

Design an new iPad app for Google spreadsheet?

Design a new personal finance app?

How would you design a better smoke detector?

PRODUCT DESIGN EXAMPLES

CIRCLES Method

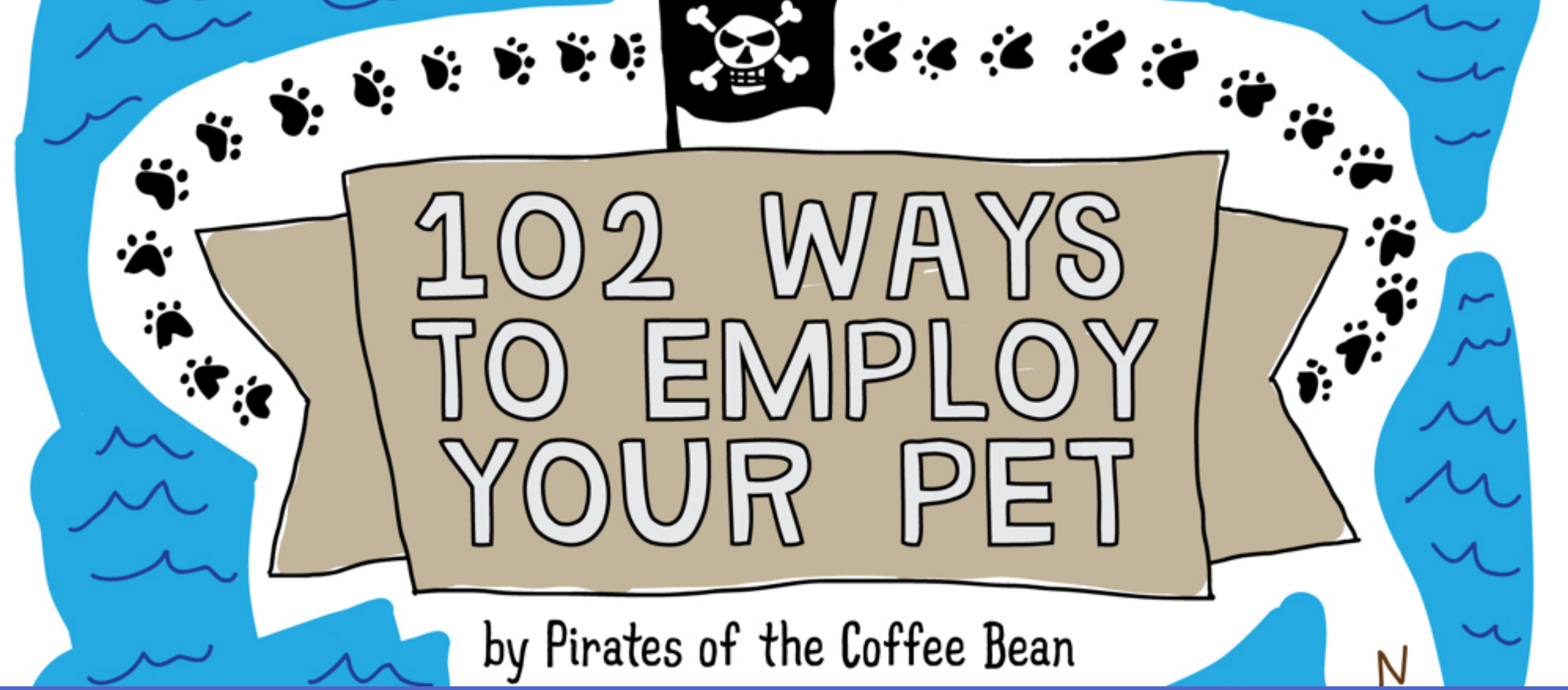
- **C**omprehend situation — what? who? why? how?
- **I**dentify customer — RR Personas
- **R**eport customer needs - as__, I want__ so that__
- **C**ut, through prioritization → ROI estimate?
- **L**ist solutions
- **E**valuate trade-offs - thoughtful, analytical, objective
- **S**ummarize recommendation — what, recap, why vs. others

CIRCLES DESIGN FRAMEWORK

Uninspired brainstorming
Superficial customer empathy

THE 3 BIGGEST CHALLENGES

EXERCISE, BRAINSTORMING



INNOVATION IS A VOLUME GAME

Technologists

54 Dog employed as Google StreetView or Google Earth cameraman

55 Dog blogger / live streamer running around with a video camera on its head

56 Fish as a random number generator - every few seconds it swims in a new direction and generates a new random number

57 iPhone charger powered by a hamster or by any other pet running around a lot (via a sensor)

OFF THE WALL IS OKAY

walking around on top of your back

Doggie gym trainers

28 Dogs as running partners next to you on the treadmill (they'll never get tired)

29 Dogs as trainers, doing tugs-of-war for resistance training

30 Dogs as weight-lifting weights (lift a heavy dog instead of bar bells)

31 Dogs as golf ball collectors at the driving range

32 Dogs as tennis ball collectors at the tennis court

33 Dogs as tennis trainers, holding the racket with their mouths and hitting balls back

IDEAS BUILD ON TOP OF EACH OTHER

running in a hamster wheel
to power a generator

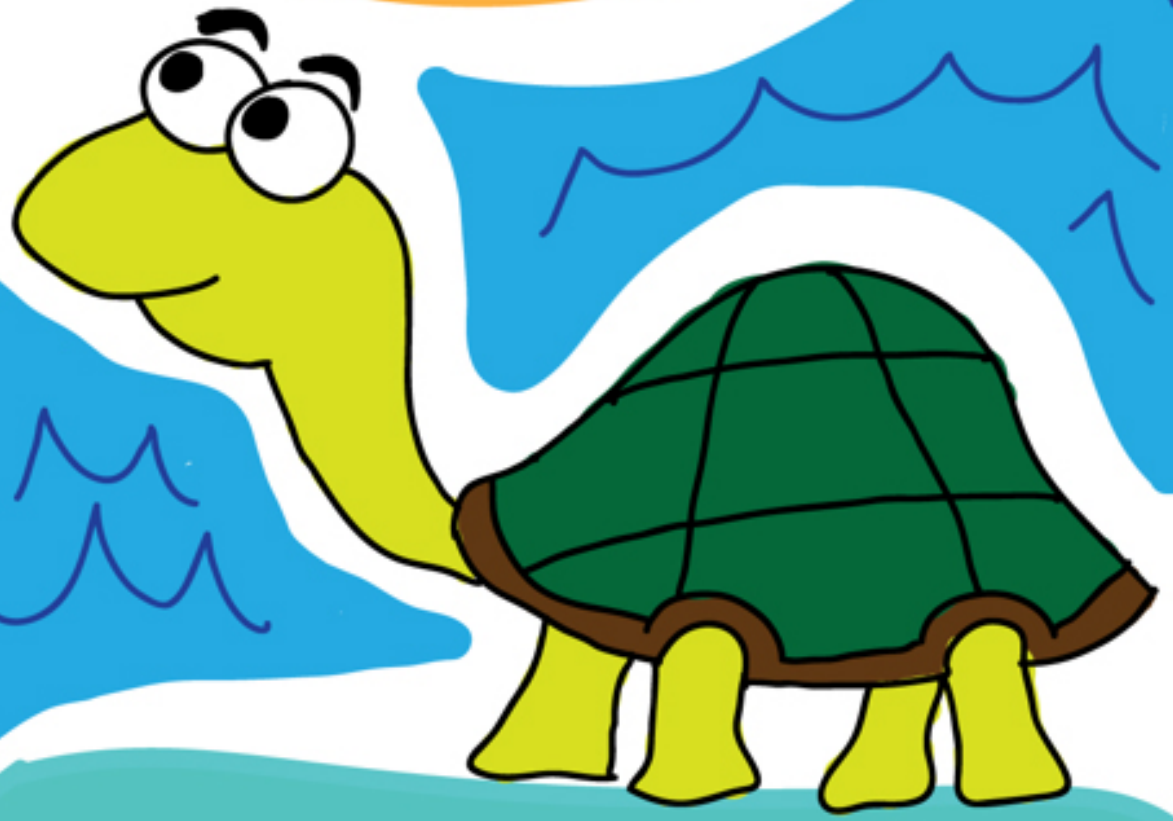
Event planning specialists

59 Dogs as wedding videographer's assistants, covering unusual angles and candid shots

60 Dog as a prop in wedding photo booths

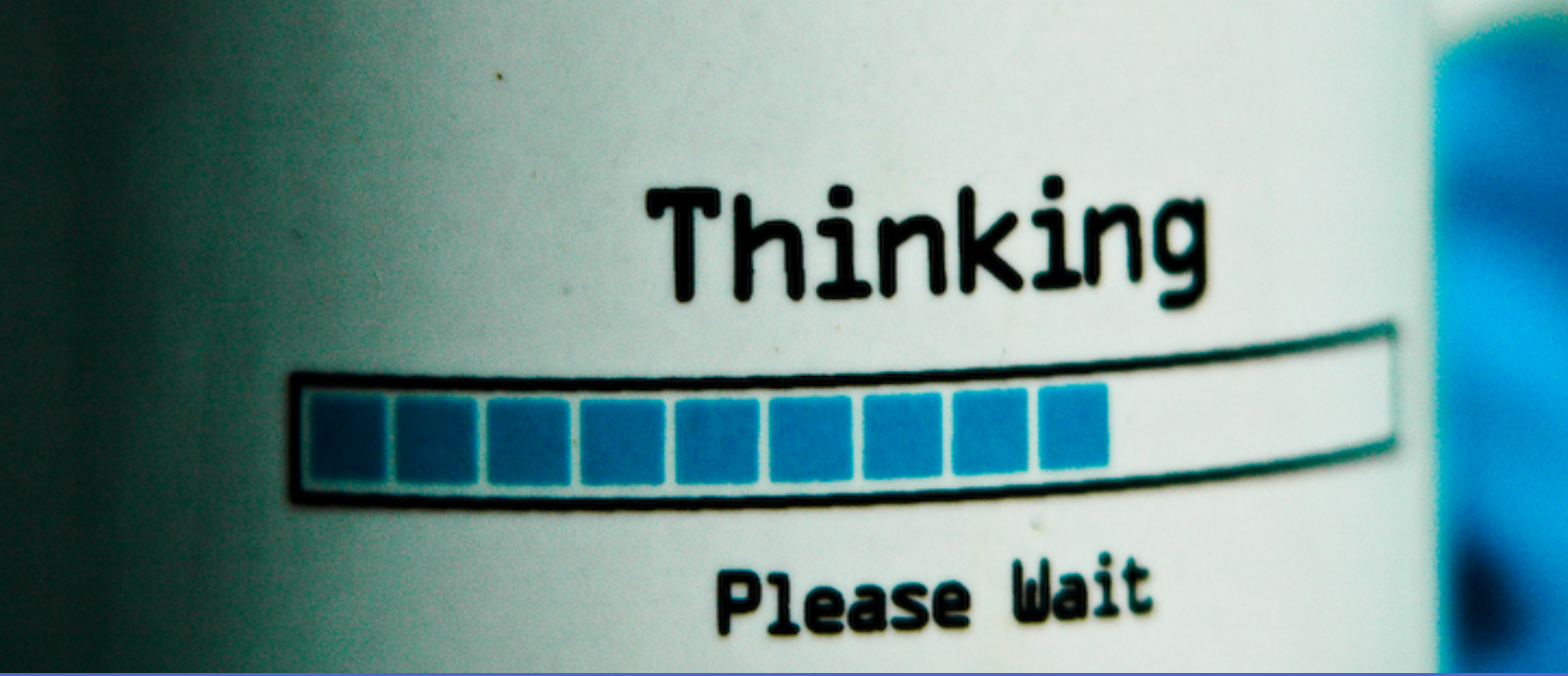
61 Geese hired to fly in formation for celebrations (instead of planes)

62 Pets in clown or other outfits as entertainment for children's parties



Rental accessories

USE CATEGORIES AS PROMPTS



ALWAYS PAUSE TO BRAINSTORM

Rant about a problem related to household cleaning

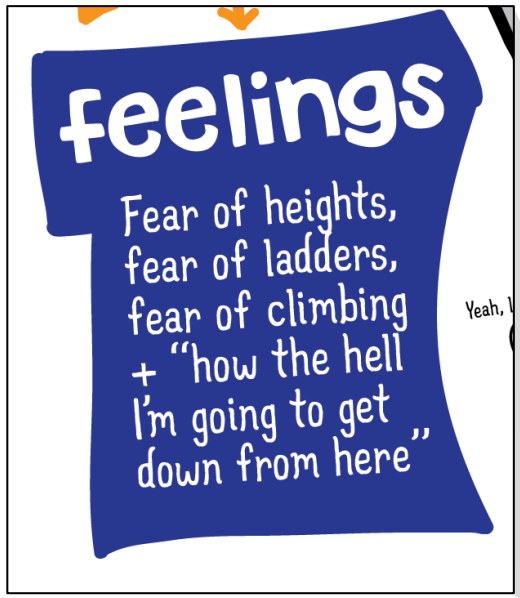
EXERCISE, EMPATHY

em·pa·thy

noun

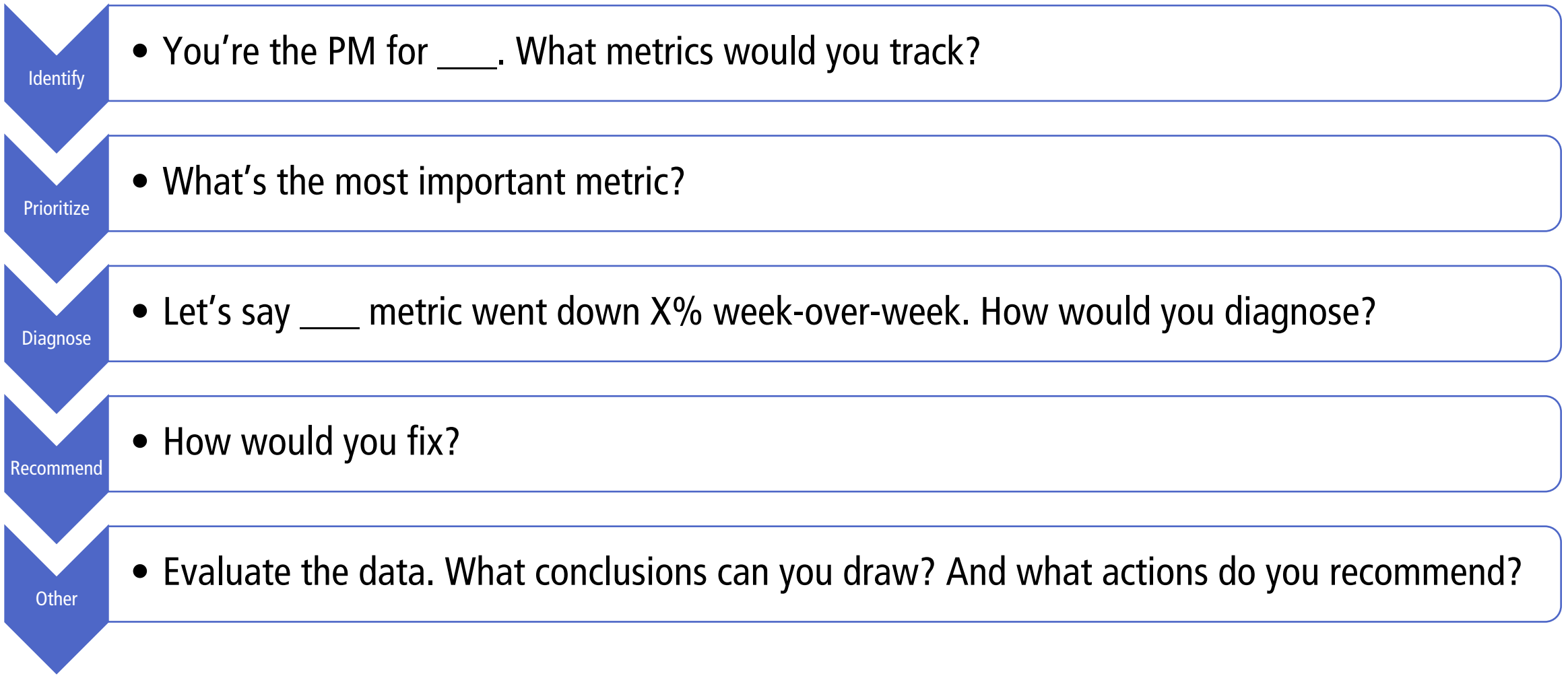
the ability to understand and share the **feelings** of another.

PRACTICE OF CUSTOMER EMPATHY



RANTING HELPS US FEEL

Metrics



METRIC QUESTION EXAMPLES

Identify Metrics

You’re the PM for ____.
What metrics would you track?

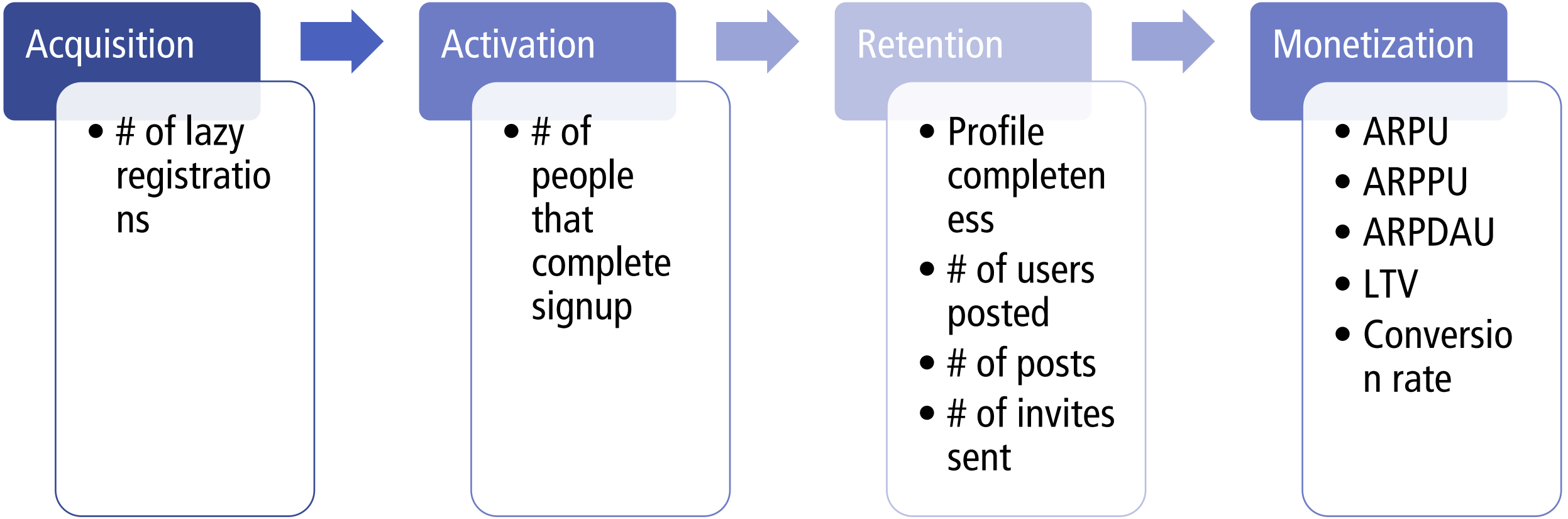
EXAMPLE IDENTIFY METRICS

Acquisition	Activation	Retention	Monetization
• Daily sessions • CPA • CPC • CPM • Mobile app D/L • Top search engine terms leading to website • Mailing list: CTR, open rate, conv rate	• New registered users • Mobile app opens • Number of searches on website or app • New cart started • User information given (address, credit card) • New customers w/ purchase	• Conversion rate • Recommendation engine conversion rate • Cart abandonment • Cart size • Visits from registered users per month	• Revenue per customer • Lapsed customers • Purchases per year • Revenue per click • Cost of sale (ad spend / revenue) • CLV • Cost of shipping

AMAZON'S AARRM™ METRICS

Other
• Avg listing position on the Google search results page • COGS • Shipping time • Stockouts • Returns • Checkout errors • # of reviews left by customers • Number of users that each customer refers (viral coefficient) • Market share • Customer engagement on social media • Net or gross margin

AMAZON'S AARM™ METRICS



AARM™ METRICS

Prioritize Metrics

What's the most important metric?

EXAMPLE PRIORITIZE METRICS

Metric Name	Pros	Cons
Cart abandonment		
Visits from registered users per month		
Lapsed customers		
Purchases per year		

MY PRIORITIES

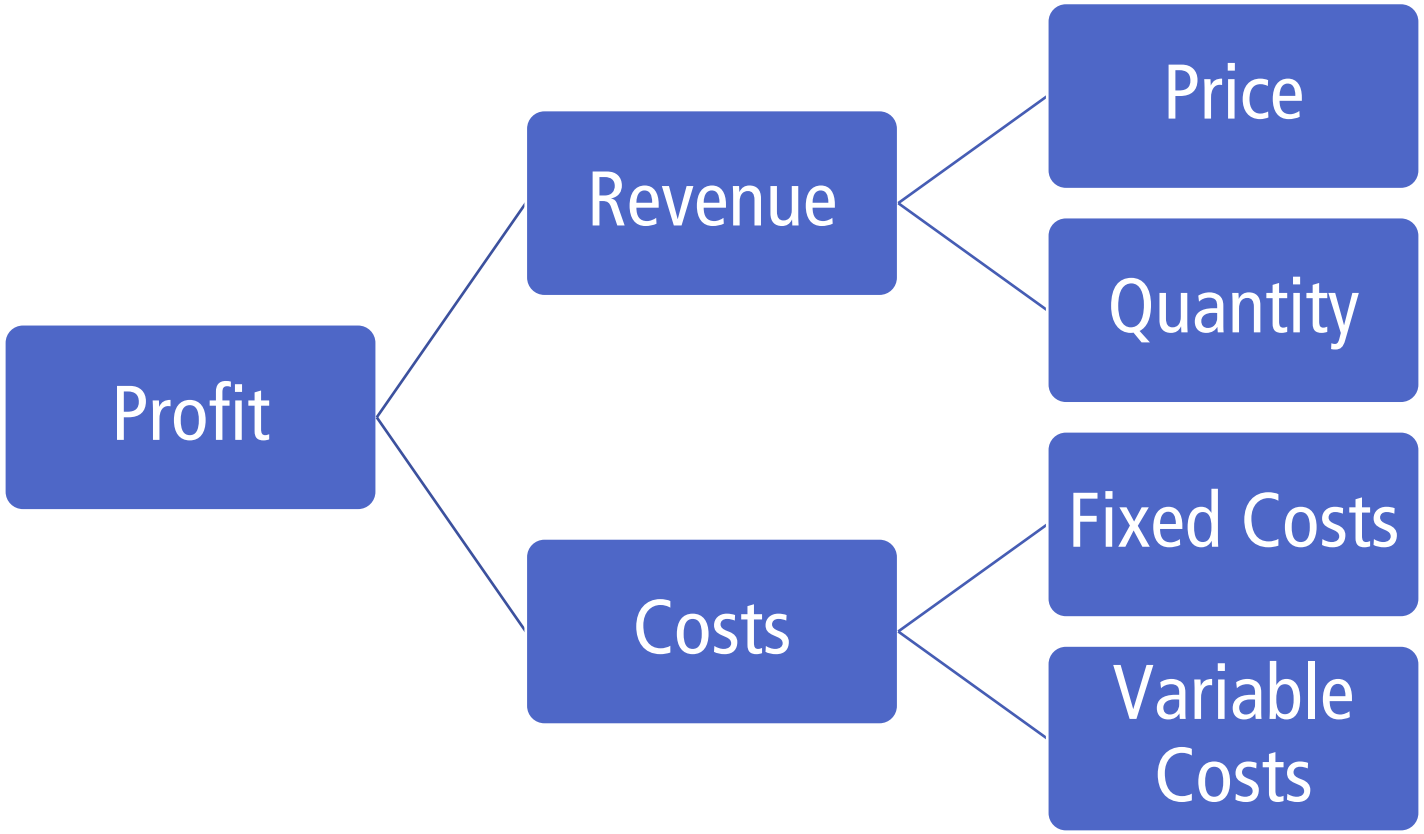
Diagnose a Metric

Let’s say ____ metric went down X% week-over-week.

How would you diagnose?

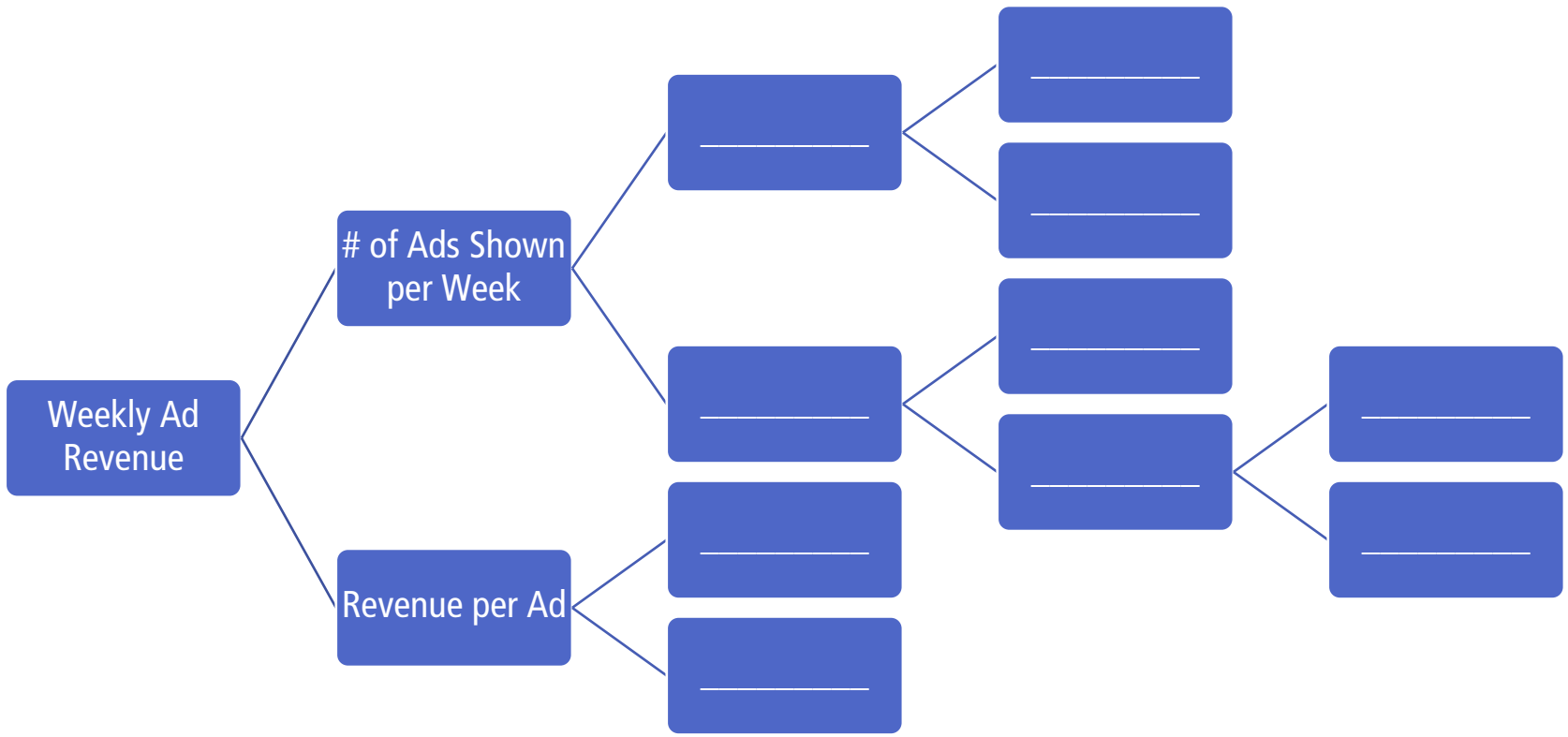
EXAMPLE DIAGNOSE A METRIC

Issue Tree Example: Profitability



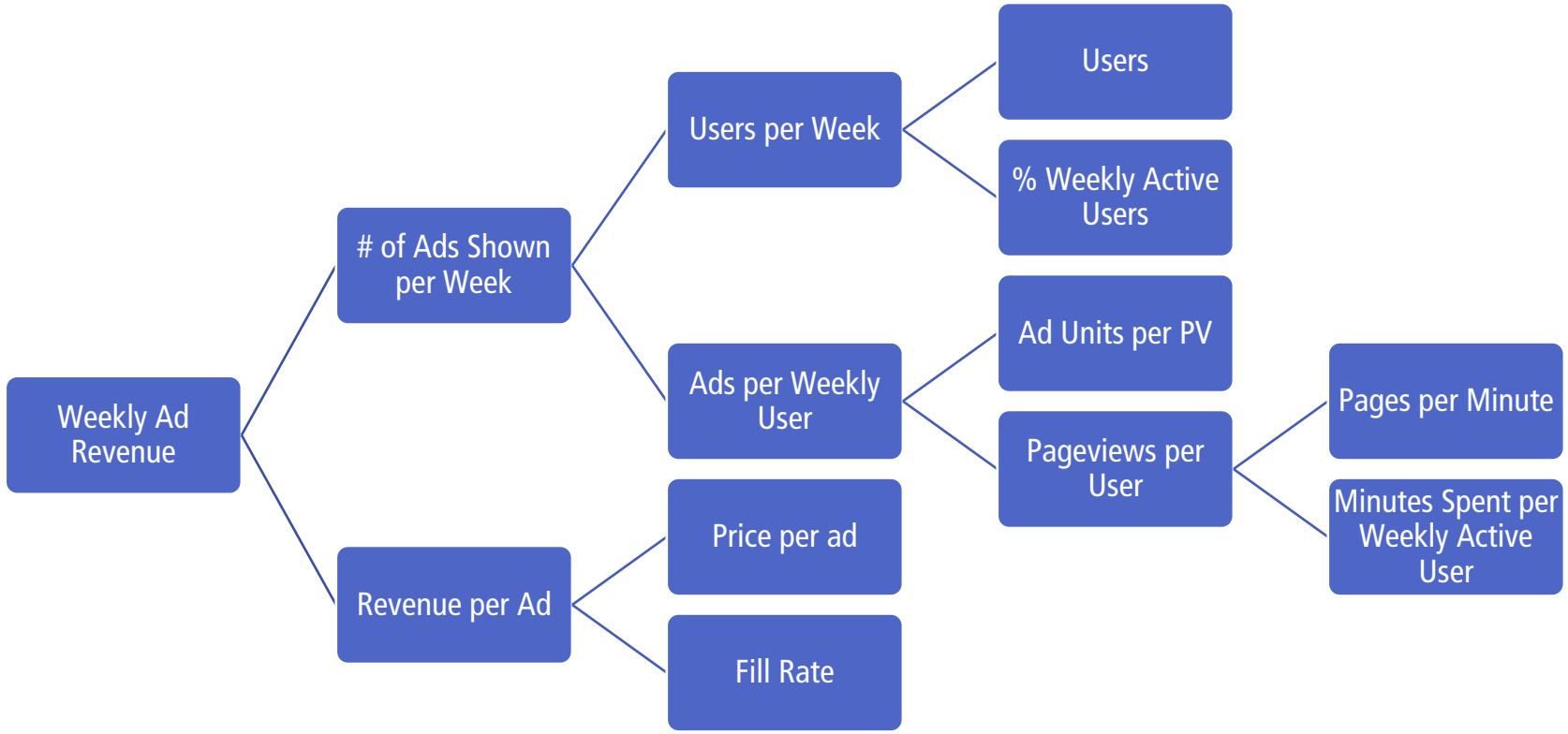
ISSUE TREE EXAMPLE

Issue Tree: Ad Revenue inside Amazon's Mobile App



EX. ISSUE TREE, AMAZON ADS

Issue Tree: Amazon's Mobile Ad Revenue



ISSUE TREE, AMAZON ADS

Recommend a Solution

A/B Testing

LinkedIn is testing a new upload feature…

EXERCISE, A/B TESTING

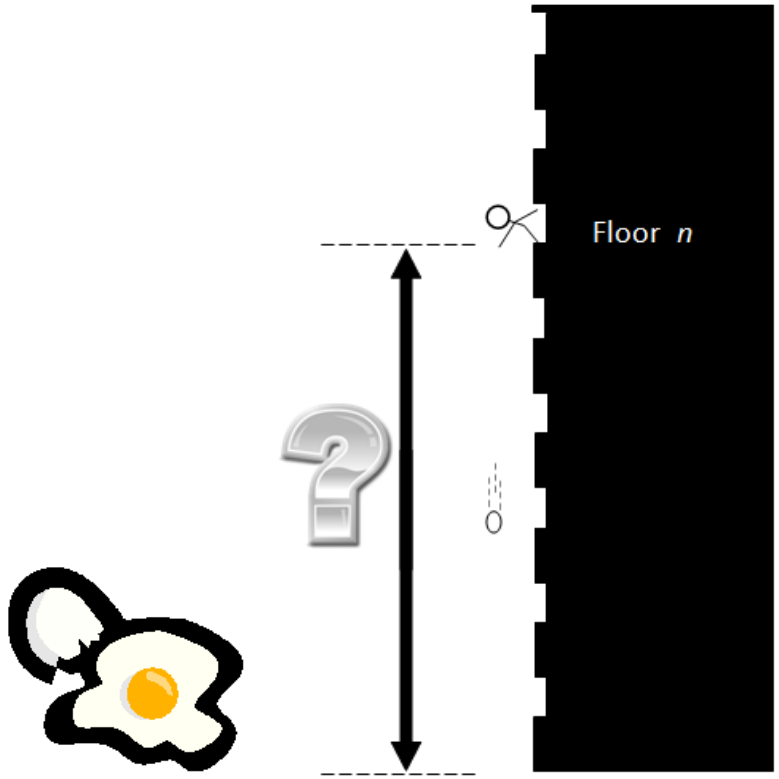
Technical

EXERCISE, TECHNICAL

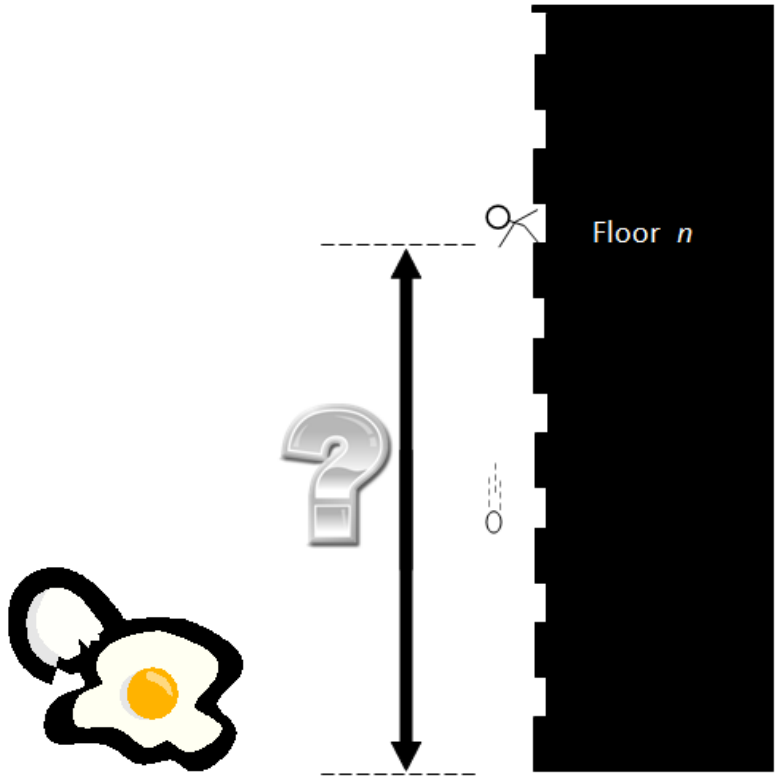
There is a building of 100 floors. If an egg drops from the Nth floor or above it will break. If it's dropped from any floor below, it will not break. You're given 2 eggs.

Find N, while minimizing drops for the worse case.

EGG DROP PROBLEM



1ST TRY: START FROM THE 1ST FLOOR



2ND TRY: PARTITION THE DROPS

We want the # of drops for the 1st egg to be similar to # of drops for the 2nd egg. i.e. minimize the sum.

With each 1st egg drop, there are fewer 1st egg drops left. I.e. if the drop does not break, we need to jump up just (n-1) floors each time.

This can be expressed in a summation:

- n + (n-1) + (n-2) + … + 1 >= 100
- n(n+1)/2 >= 100
- Solve for n = 14.
- 14 is also the worst case # of drops (at floor 98)

3RD TRY: LOAD BALANCE THE DROPS

Drop for Egg A	Floor
1	14
2	27
3	39
4	50
5	60
6	69
7	77
8	84
9	90
10	95
11	99
12	100

ILLUSTRATED SOLUTION

MOST DON'T ASK TECHNICAL QUESTIONS

Technical trivia

Algorithms and data structures

System design

SQL queries

TYPES OF TECHNICAL QUESTIONS

Understand what is being asked

Work through the simple base case

Talk aloud

Write the technical solution, if necessary

Review the code

APPROACH TO TECHNICAL Q'S

Marketing Case Questions

Create a positioning statement

Develop a marketing campaign

Price a new product

Change the price of a current product

Deal with declining sales

Launch a new product

Defend against the competition

Compete against generic competition

Critique a marketing effort

Critique advertising

Deal with PR disasters

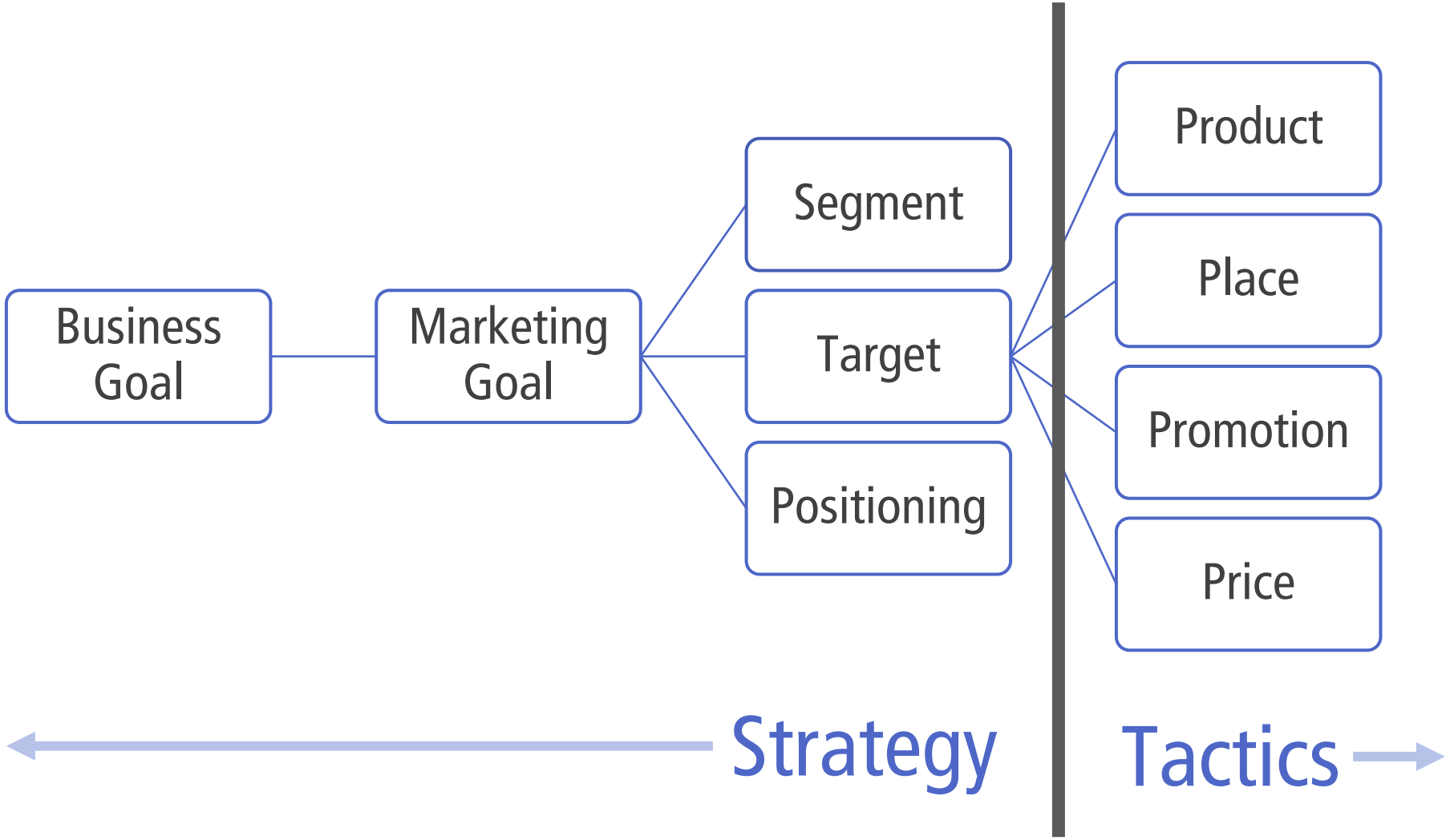
Get analytical: estimations

Get analytical: ROI calculations

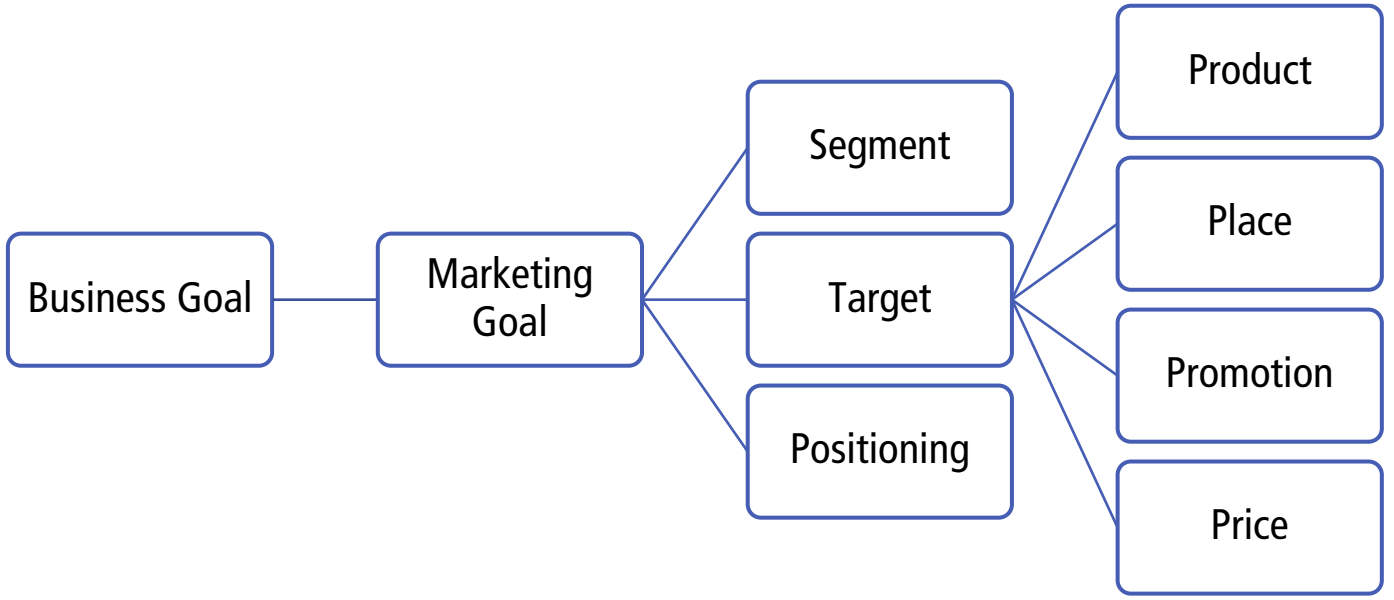
Strategize: CEO-level issues

CASE QUESTIONS

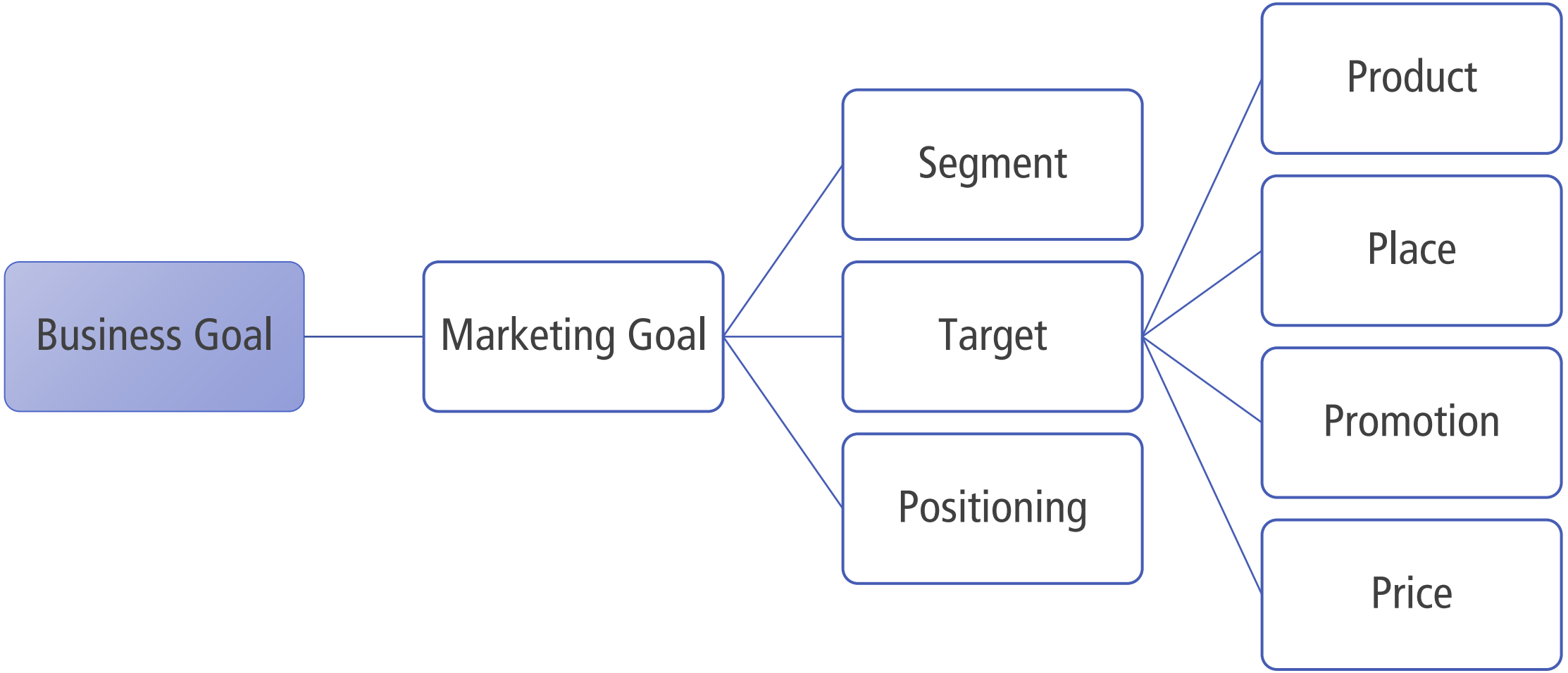
Developing a Marketing Plan



MARKETING FRAMEWORK


Business Goal
Marketing Goal
Segment
Target
Positioning
Product
Place
Promotion
Price

APPLE WATCH



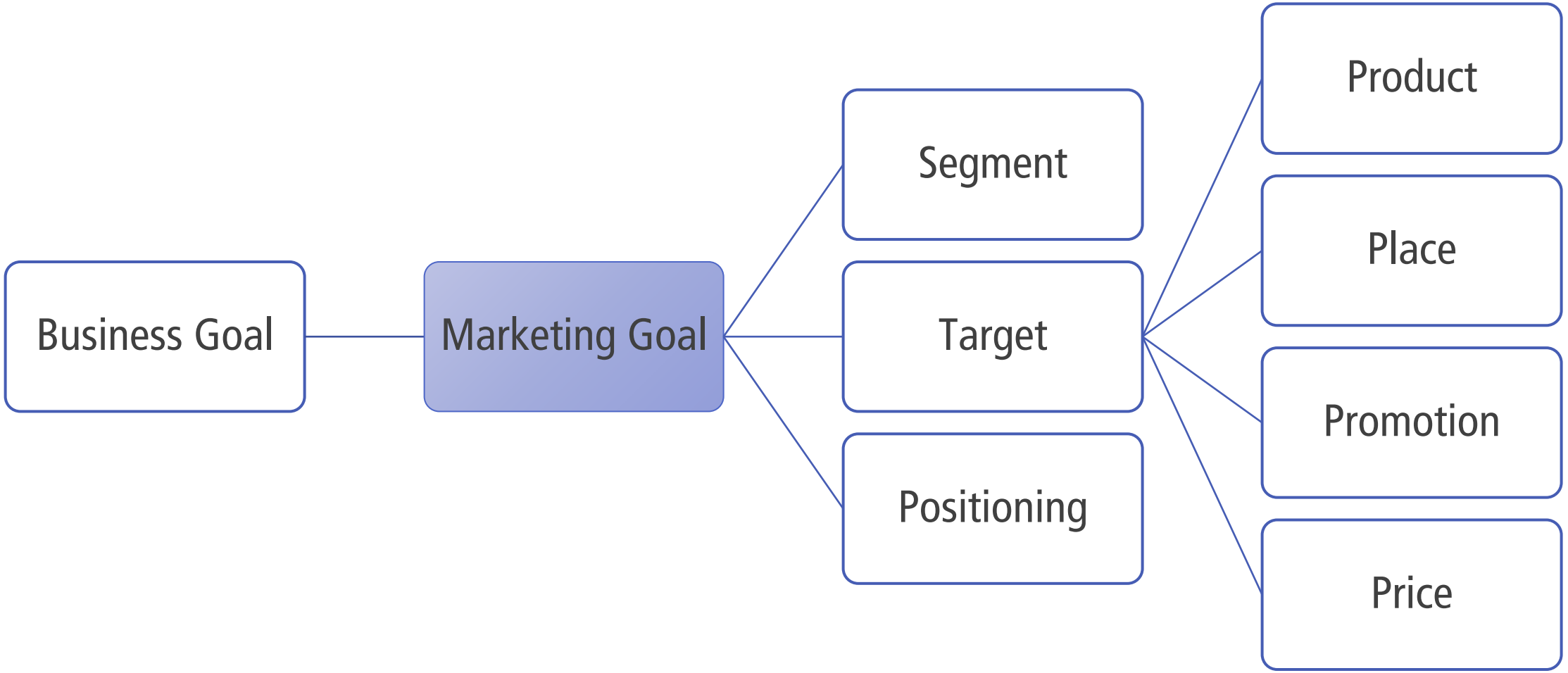
BUSINESS GOALS

1 Increase US market share 2 of sugar-free energy drinks 3 by 300 basis points among 4 men and women between 25 to 34 within the next 12 months 5

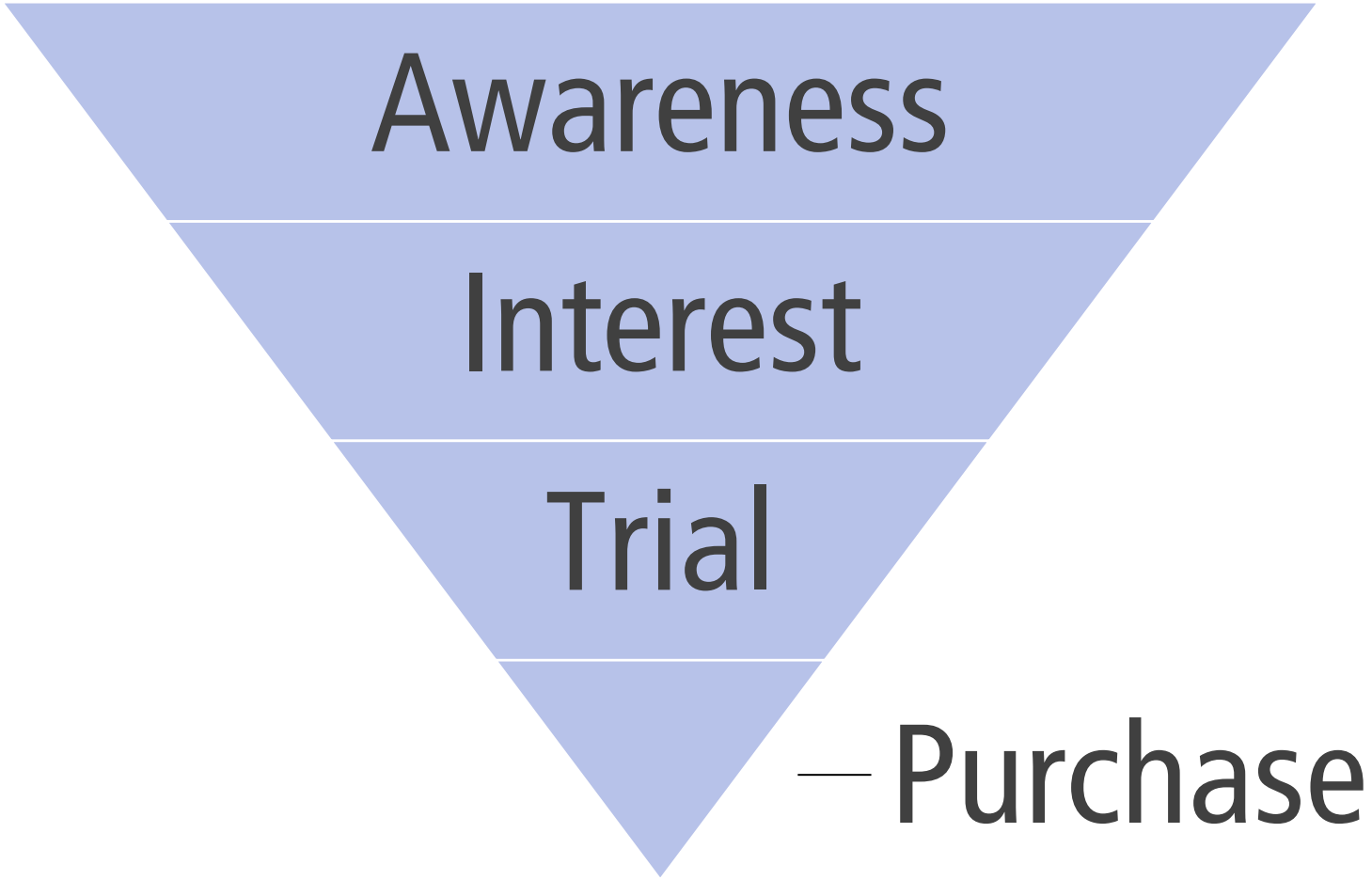
A WELL-WRITTEN GOAL

Profits / Revenues
Share / Adoption

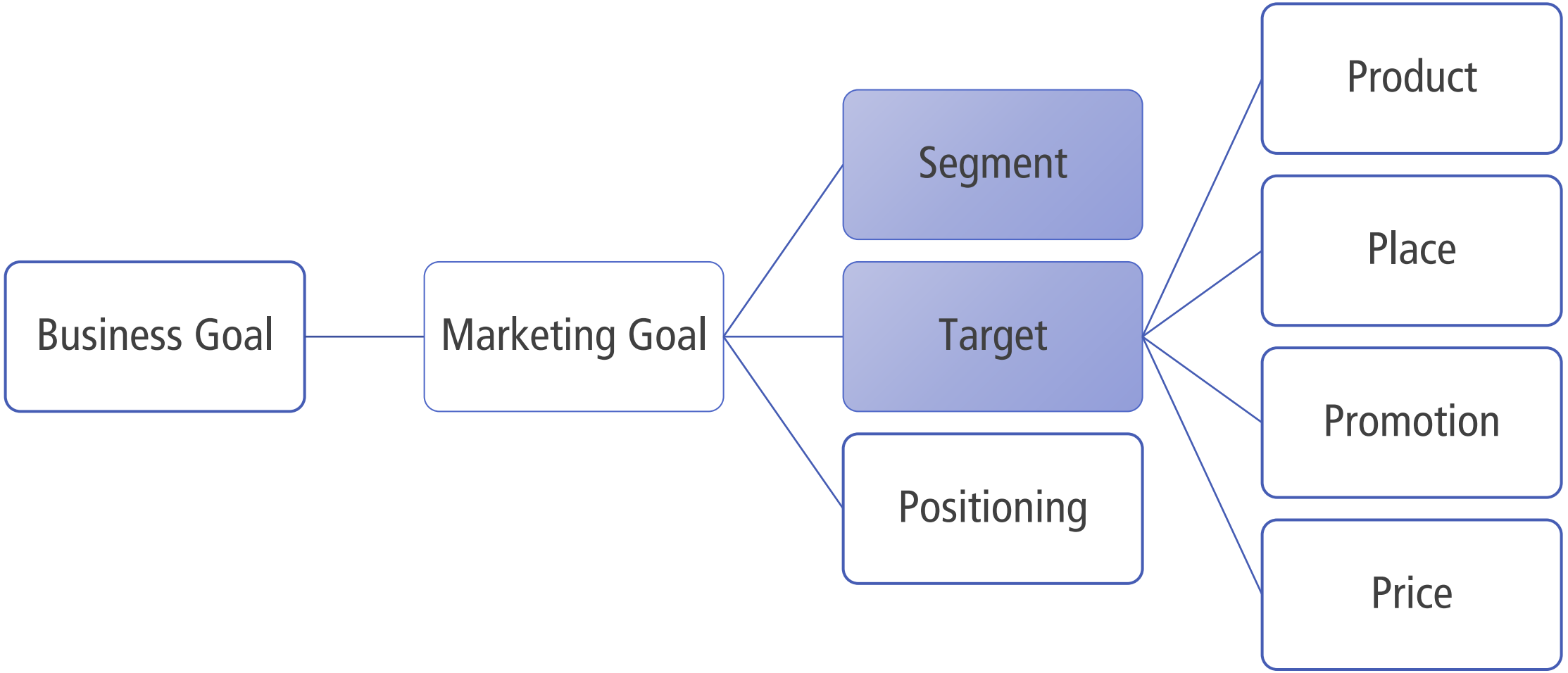
POSSIBLE BUSINESS GOALS



MARKETING GOALS

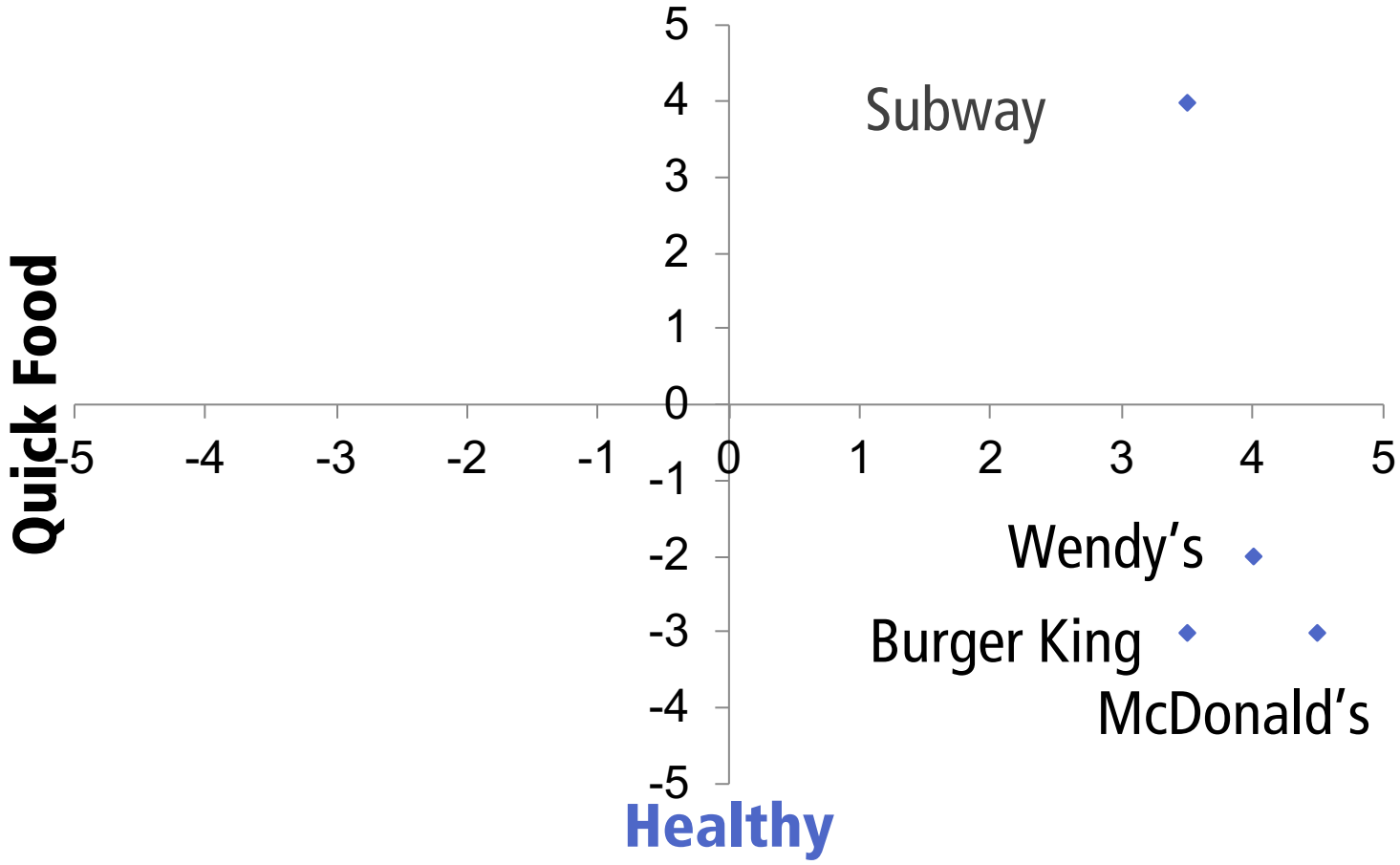


MARKETING GOALS



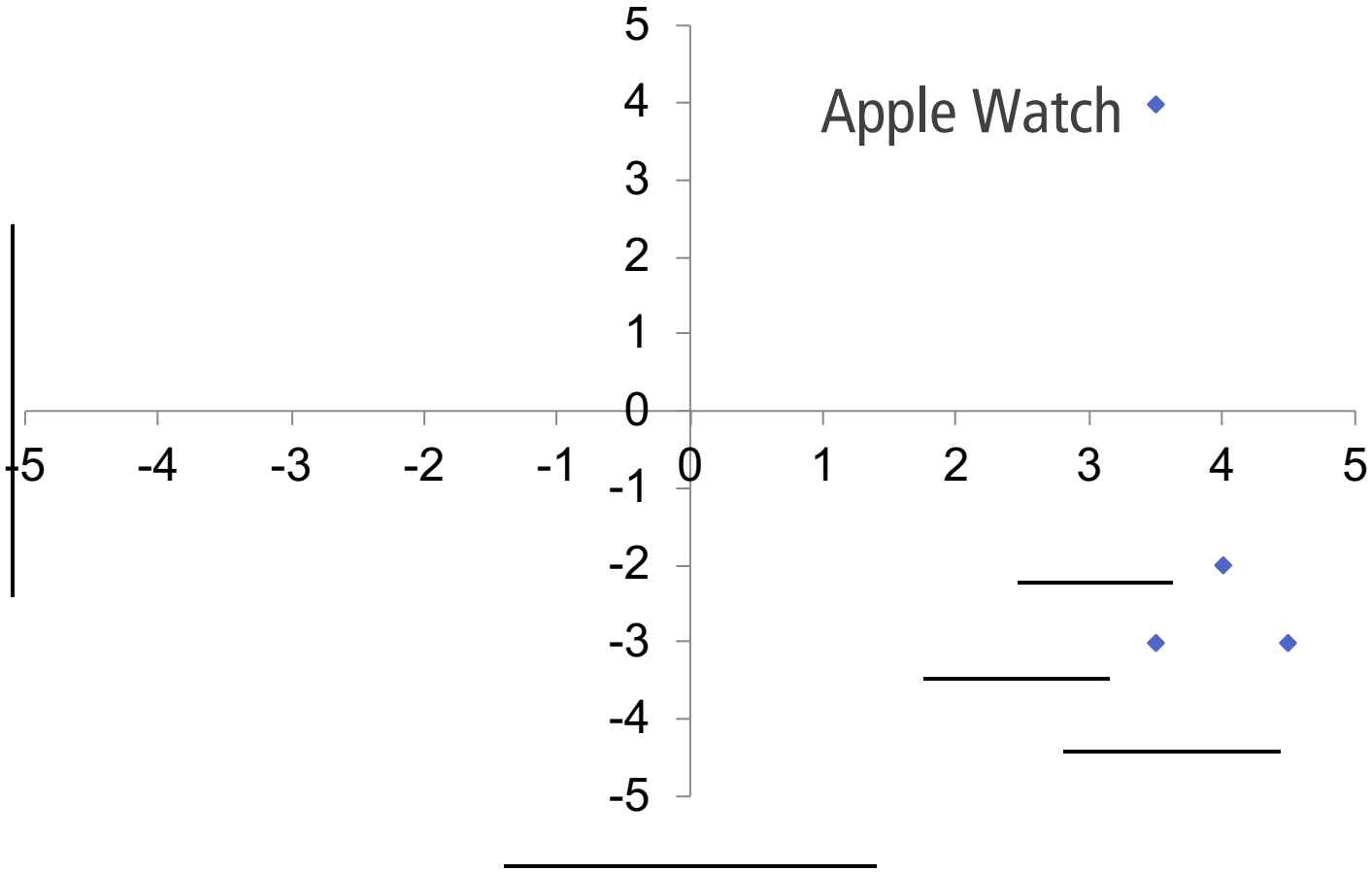
SEGMENTATION & TARGETING

Subway's Perceptual Map

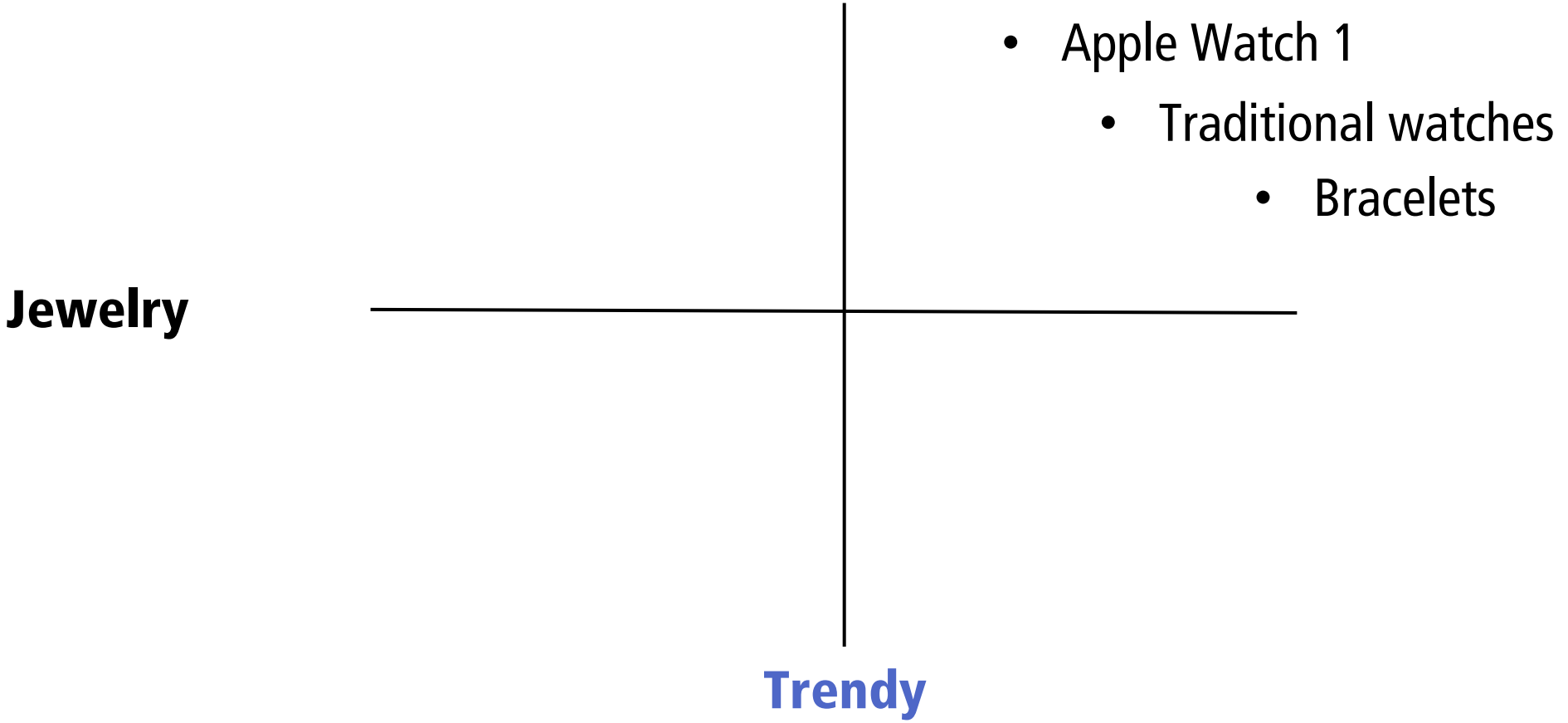


PERCEPTUAL MAP

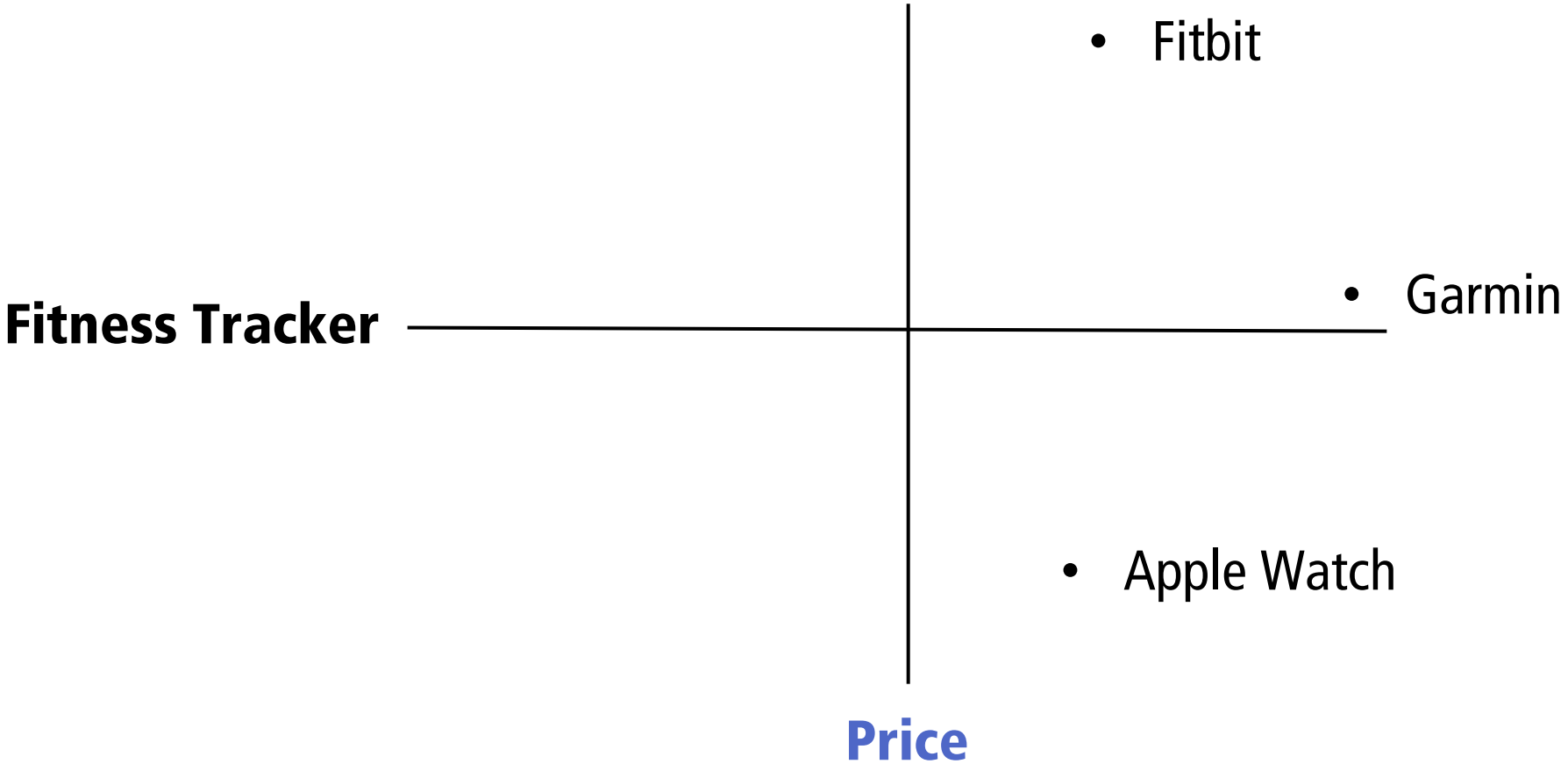
Perceptual Map for Apple Watch



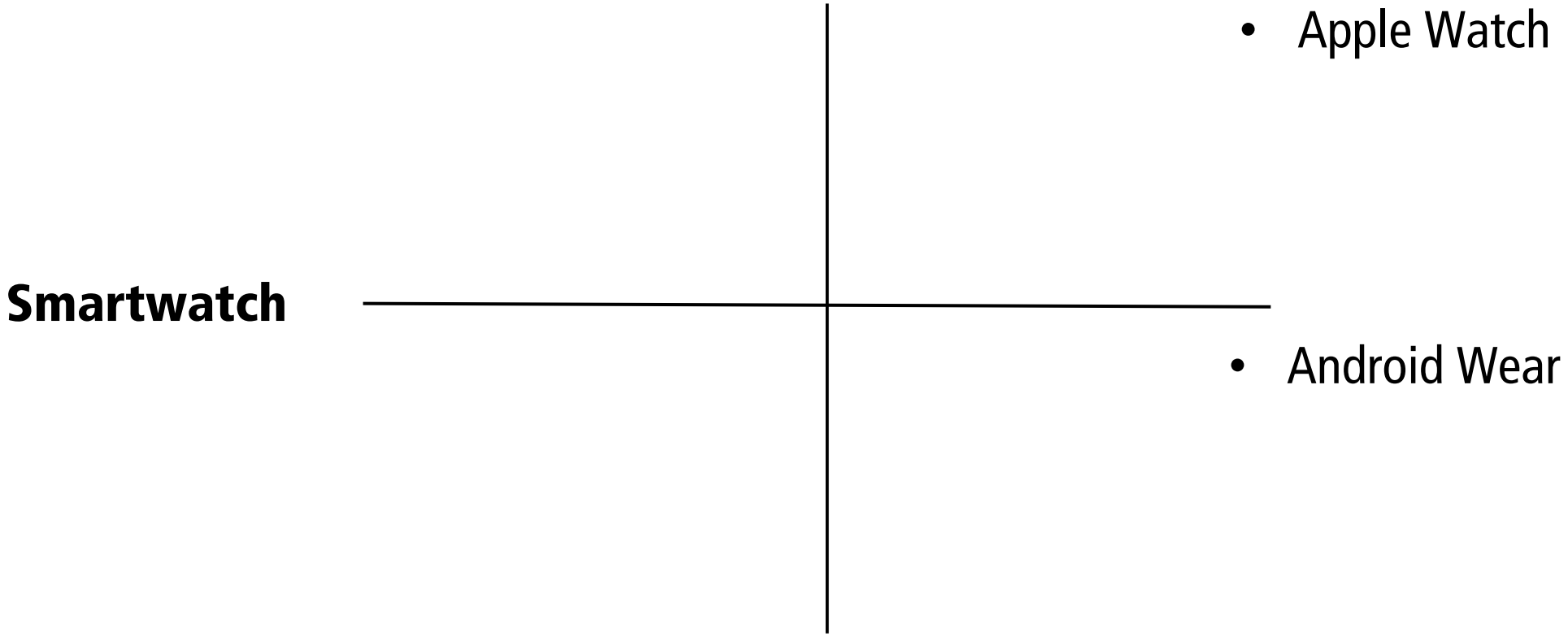
EXERCISE, PERCEPTUAL MAP



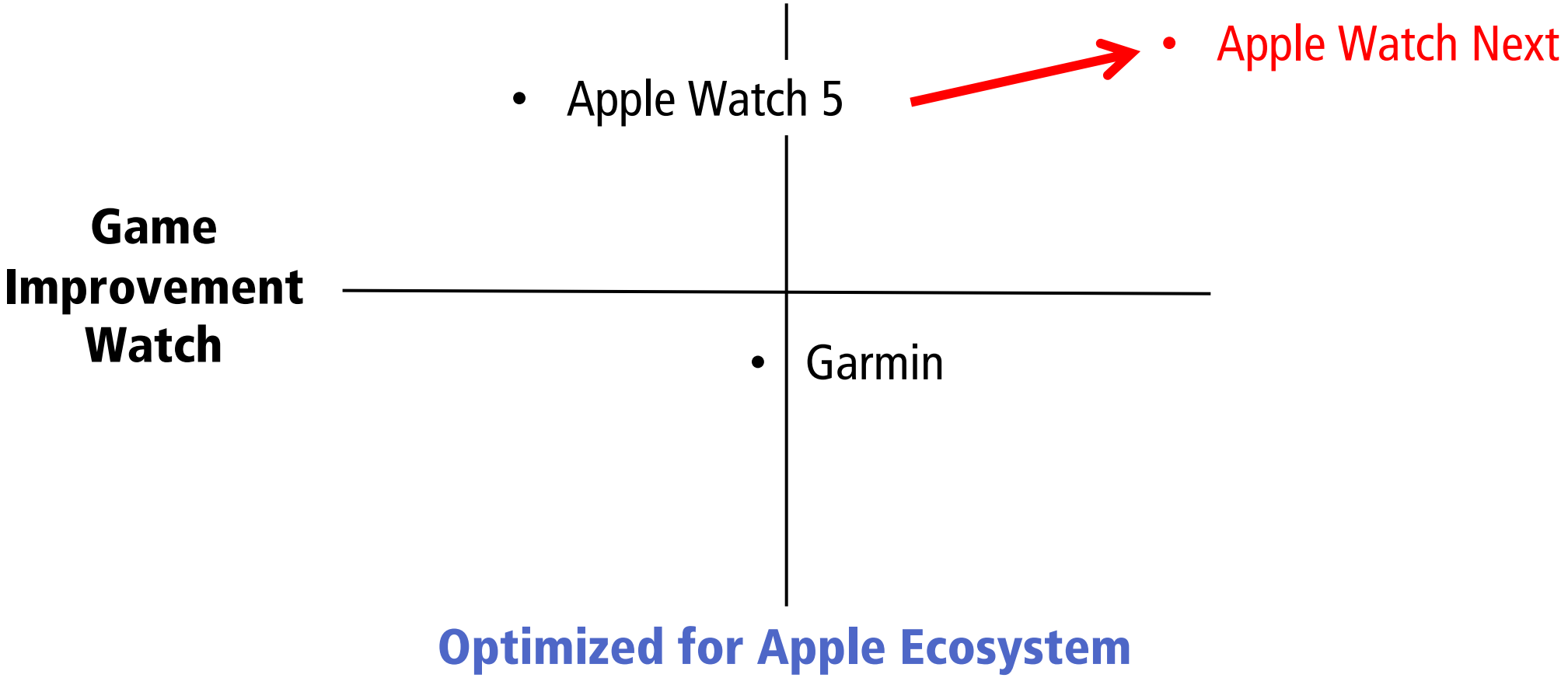
P-MAP: JEWELRY+ FASHION



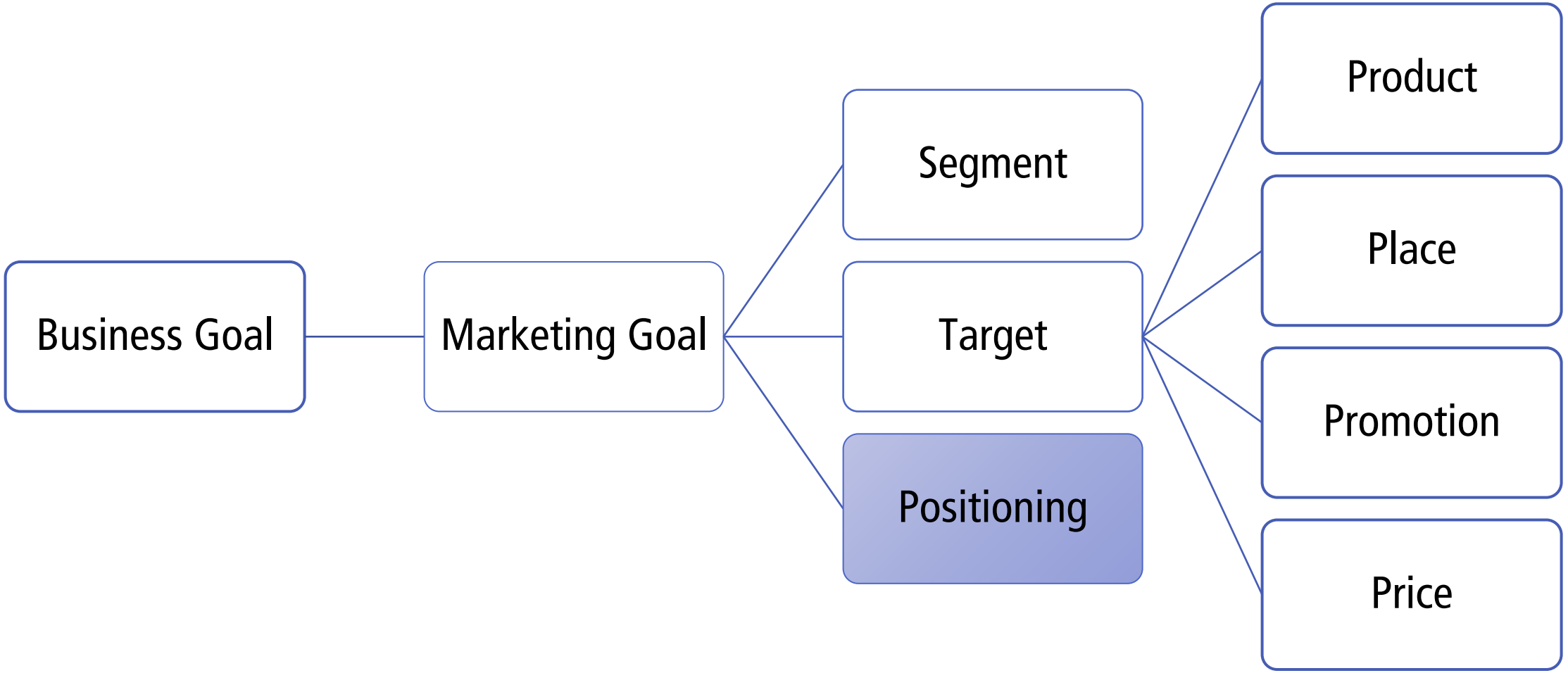
P-MAP: FITNESS + PRICE



P-MAP: S-WATCH + APPLE ECOSYSTEM



P-MAP: GAME IMPROVEMENT



POSITIONING

For [target end user]
Who wants/needs [compelling reason to buy]
The [product name] is a [product category]
That provides [key benefit].
Unlike [main competitor],
The [product name] [key differentiation]

POSITIONING STATEMENT

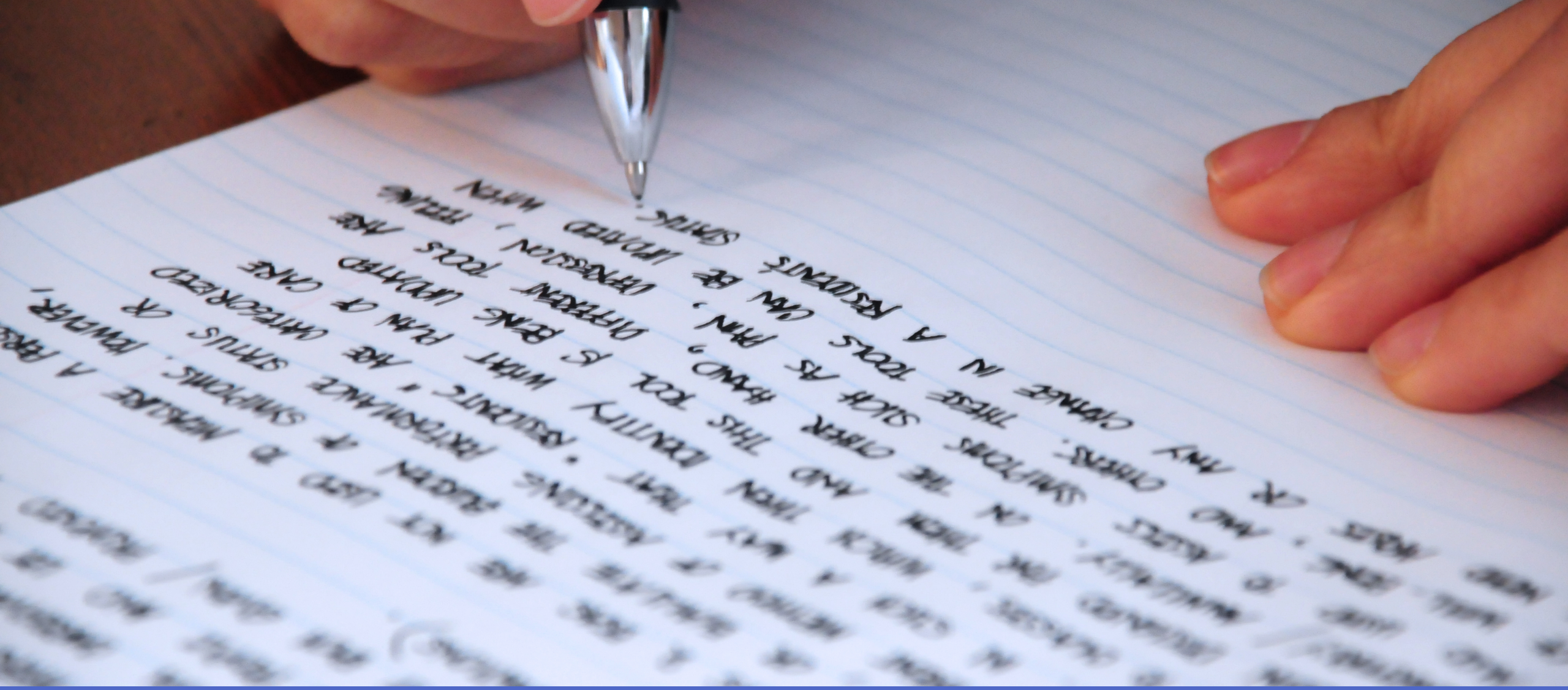
For first-time computer buyers, the Samsung Chromebook is as sexy as the MacBook Air, but costs 80 percent less.

POSITIONING STATEMENT EXAMPLE

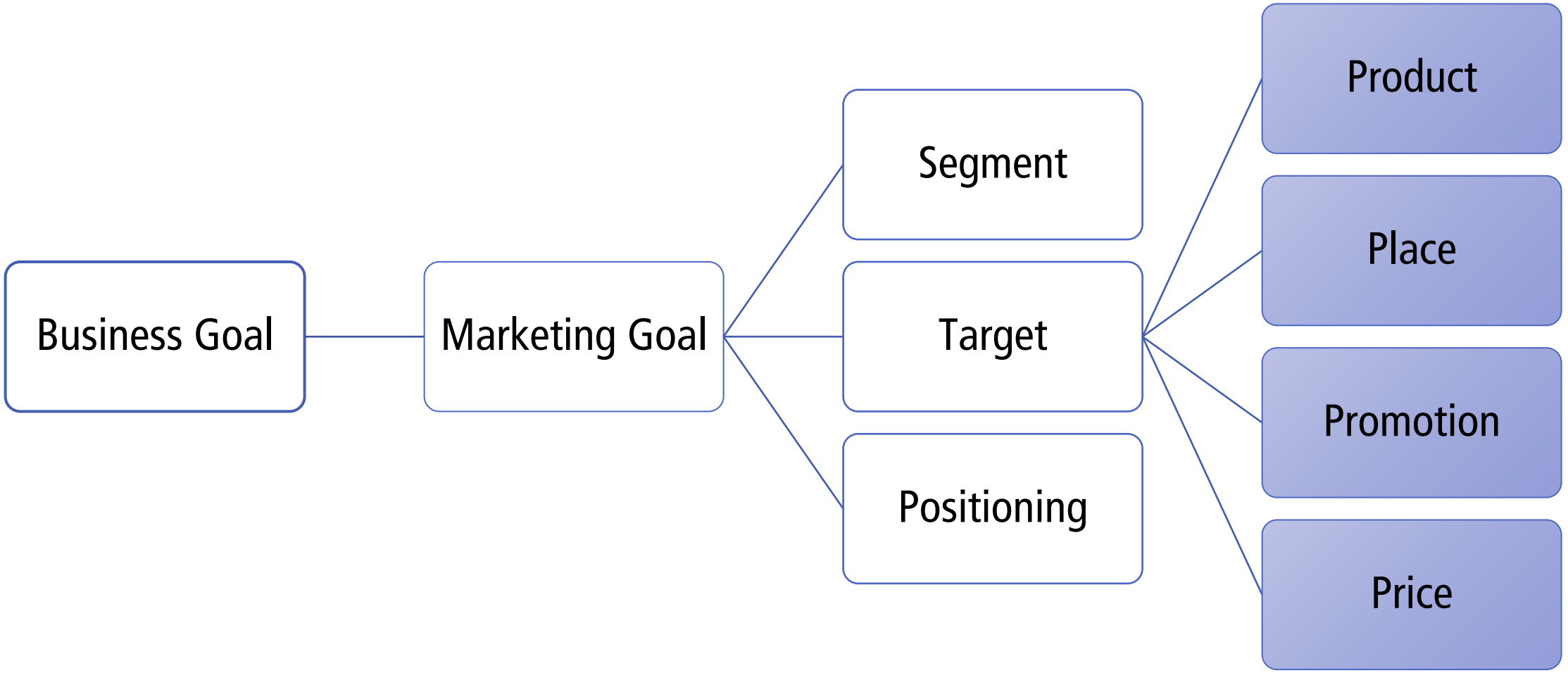
Memorable?
Unique?
Believable?
Actionable?

For first-time computer buyers, the Samsung Chromebook is as sexy as the MacBook Air, but costs 80 percent less.

EVALUATING POSITIONING STATEMENTS



EXERCISE, POSITIONING STATEMENT


Business Goal
Marketing Goal
Segment
Target
Positioning
Product
Place
Promotion
Price

FOUR P'S

EXERCISE, PROMOTIONAL TACTICS

The brick walls are there for a reason. The brick walls are not there to keep us out. The brick walls are a chance to show how badly we want something. They stop other people. Those who don't want it badly enough.

Randy Pausch, The Last Lecture

lewis@impactinterview.com

FINAL THOUGHT