

Case Interview Workshop

How to Crack the Case

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Consulting firms (and increasingly other corporations) use case interviews to evaluate candidate skills in a more realistic environment

The Challenge of Evaluating Candidates

- **The interviewer's goal is to quickly assess if you would succeed in *their* consulting environment**
 - Consulting Industry: Demanding clients, changing topics, unstructured problems
 - Dean & Company: Small firm, quantitative, early ownership, non-hierarchical
- **Your resume is critical in earning an interview by establishing that you have the raw materials we look for:**
 - Intellectual capacity
 - Business intuition
 - Demonstrated achievement
 - Entrepreneurial spirit
 - Effective communications
 - Professional integrity
- **However, because the consulting industry is so dynamic, we look for current skills and future potential more than your specific experience**
 - Limits the usefulness of traditional resume interviews
- **The *case interview* is a discussion about a problem or scenario used to evaluate your fit with the company and position**



Cases come in many forms – at Dean & Company we tend to use Business Problems, which often contain Market Sizing elements

Types of Cases

	<u>Brainteaser</u>	<u>Resume-Based</u>	<u>Market Sizing</u>	<u>Business Problem</u>
Definition:	Relatively short-answer thought question	Open-ended discussion derived from a topic on the resume	Estimate the size of something from little hard data	Analyze a real-world problem facing a client
Key Skills Tested:	<ul style="list-style-type: none"> • Creativity • “Raw Horsepower” 	<ul style="list-style-type: none"> • Applying knowledge in new directions • Building a logical & structured argument 	<ul style="list-style-type: none"> • Structuring & logic • Prioritization • 80/20 estimation • Sanity checking 	<ul style="list-style-type: none"> • Structuring open, complex problems • Logical conclusions • High stakes communications
Example:	Three switches connect to three bulbs in another room that I can enter only once. How can I map switches to bulbs?	You applied for grants. How would you reform funding in <i>[your subject matter here]</i> ?	How many coffee cups does Starbucks go through in a year?	Should we invest in Company X?
Dean Use?	Never	Occasionally, especially in ad hoc resume interviews	Rarely stand-alone, more often as part of a larger question	Absolutely



Case interviews are more about logic and reasoning than specific results

Case interviews ARE designed to assess your ability to...

- Structure complex problems
- Prioritize ideas, manage time
- Perform analysis, interpret data
- Demonstrate creativity
- “Think business”
- Communicate recommendations

... but they ARE NOT designed to:

- Test specific industry or functional experience
- Have a “right” answer
- Have a single way to address the question
- Be confrontational or misleading



There are four basic skill sets we evaluate during the case interview

The Case Interview: Evaluation Criteria

- **Problem solving**
 - Develops hypotheses
 - Structures thinking
 - Uses intuition and creativity
 - Gets to the “so whats”
 - Has intellectual curiosity
- **Communication skills**
 - Listens actively
 - Speaks clearly and concisely
 - Understands graphic presentation
 - Structures answers well
 - Seems excited and engaged
- **Analysis and research**
 - Demonstrates quantitative aptitude
 - Gathers and evaluates information, asks questions
 - Sees the forest for the trees
- **Interpersonal skills**
 - Is well rounded
 - Displays maturity and responsibility
 - Has high energy level
 - Is tactful
 - Fits with the firm’s culture

Can the person do the work?

Would I want to be “stuck” in an airport with this person?

Could I put this person in front of a client?



Part of the challenge is structuring your thoughts and managing your time well

The Four Stages of a Case Interview

The Set-Up

**Suggested
Time**

I. Ask Initial Questions

5%

II. Develop Hypothesis and Approach

10%

III. Work Through the Case

70%

IV. Summarize and Pull Up

15%



How to “Nail” a case

I. Ask Initial Questions

- Clear up any ambiguity in the problem/scenario
- Make sure you know what the output is!
- If data is given, be sure to write it down

II. Develop Hypothesis and Approach

- Explain your rationale for the answer and how you intend to get there. Identify the “sub-questions”
- Ask more questions, but don't be afraid of silence
 - Take time to structure the problem and your answer

III. Work Through the Case

- Execute your plan, adjusting as you get feedback
 - Walk the interviewer through; explain and write-down your progress
 - Actively listen, not only the words but facial expressions, etc.
- Make estimates liberally, but explain your logic
 - Don't instantly back down if challenged to explain yourself
- Don't freeze up. Talk out your thoughts and confusion.

IV. Summarize and Pull Up

- Pull-up to a conclusion that answers the original question
 - Communicate with more than words. Use graphs, charts, flows, etc., if they will add value to your answer.
- Interpret your results and answer follow-up questions
 - Think business, not math
 - Does it “seem” right? If not, high or low? Why?
 - Which assumptions need more work? What if “X” were true?



An example: Market Sizing

**How many cell phones
were sold in the United
States last year?**



Market Sizing: A quick answer

I. Ask Initial Questions

- To confirm--we are talking about new sales, not total users?
- And the physical phones, not just changing service plans?
- Do you mean all types of mobile phones?

II. Develop Hypothesis and Approach

- Start with all people in the US -- but realize that only some of them will have mobile phone service (“penetration”)
- Typically someone gets a service, and then buys a new phone for one of two reasons (“turnover” or “phones/year”)
 - Change providers or plans
 - Want the latest technology
- **Number of sold phones = People x Penetration x Turnover**

III. Dive Into the Details

- Let’s assume there are 300 MM people in the United States
- Estimate 60% of Americans own a cell phone
- Then lets assume that phones have a lifetime of three years
- That means $300 \text{ MM} \times 60\% \times (1/3) = 60 \text{ MM}$ cell phones sold

IV. Pull Up and Summarize

- I estimate 60 MM cell phones were sold in the US last year
- Then I ask myself . . . Does this make sense? . . .
- And I suggest how I could make a more accurate estimate



Market Sizing: Going deeper

Interviewer Follow-up Questions

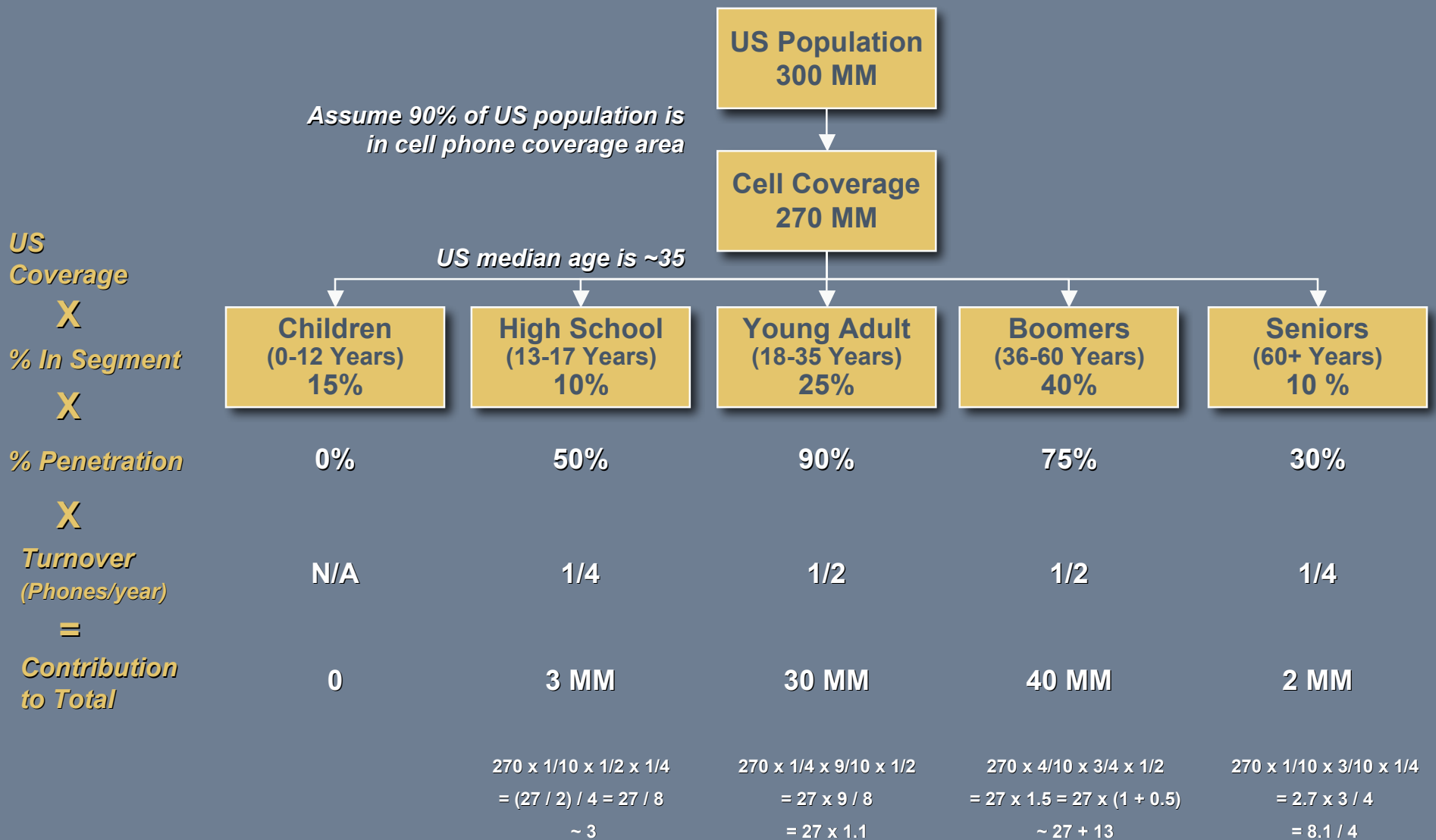
- Is a person living in the middle of nowhere going to own a cell phone?
- Almost all of my friends have cell phones and they are always showing off the new model. Can we use this type of data to refine your estimate?

Revisions to Approach

- While the numbers need adjusting my analytical framework still holds: $\text{Sold Phones} = \text{People} \times \text{Penetration} \times \text{Turnover}$
- You are right, people won't buy a phone unless they have network coverage. The US is very well built out so lets estimate 90% of US Population is covered.
- It's not surprising your friends are heavier users, they aren't average. Lets break up the whole into a handful of "segments," each with its own set of penetration and turnover assumptions:
 - Children: Don't own cell phones
 - High School: Want them, but need parental permission. Not much money to spend.
 - Young Adult: Lots of freedom, technology savvy, more disposable income
 - Boomers: Probably have for work, lots of disposable income, but less tech savvy
 - Seniors: More uncomfortable with technology, but emergency function valued
- After calculating phones sold in each segment, add them up



“After looking at a segmented approach to the market, I estimate ~75 MM cell phones were sold in the US last year”





More Market Sizing Tips

- Feel free to make assumptions, but cross check at the end to make sure things make sense
- Know some key figures to scale the problem

Demographics		Revenue Sizing		Macroeconomics	
World Population	~7 B	Small Company	\$3 MM	World GDP/Capita	\$8 K
US Population	~300 MM	Large Company	\$300 MM	US GDP/Capita	\$38 K
Median Age	~35 yrs	Fortune #500	\$3 B	US/World GDP	~25%

- Listen to feedback and adjust your approach/assumptions accordingly
- Simplify! (but explicitly explain your actions)
 - Use round numbers whenever possible
 - Drop numbers that are small relative to others
 - Think about percentages as fractions: $80\% \times 75 = \frac{4}{5} \times 75 = 4 \times 15 = 60$
 - Make sure your math adds up
- Before the interview, know what to expect and practice



Dean Sample Case II: A Business Problem

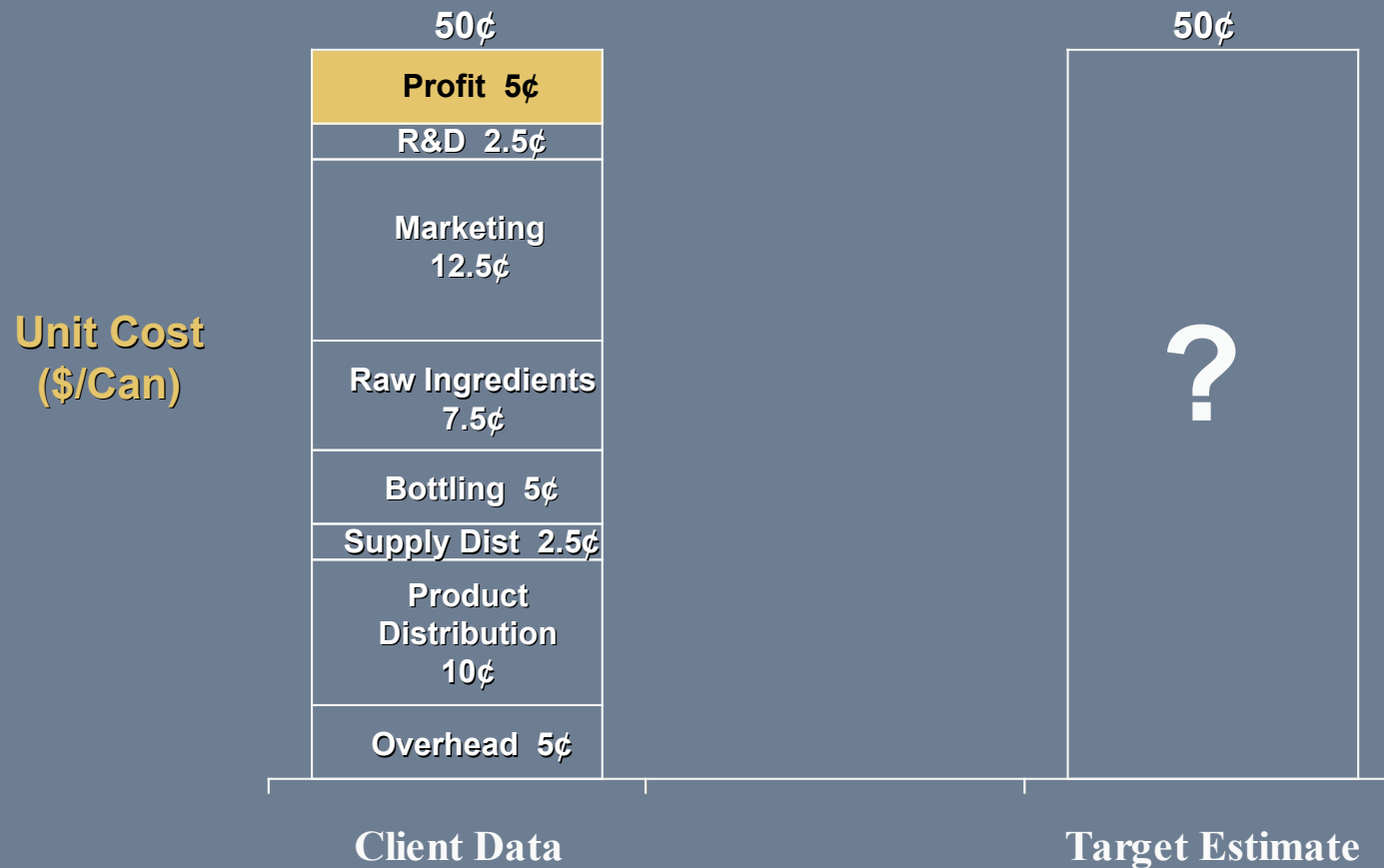
A Business Problem Case: The Set Up

- Your client, the Coca-Cola Corporation, is assessing its competitive positioning for “Coca-Cola Classic”
- Your assignment is to provide your assessment of RC’s profitability and product strategy, then use the results to determine if RC is likely to threaten Coke
- In-store market research has determined that both products sell for \$0.50/can
- While the data on RC’s costs are not available, Coke has provided significant information on their own product

**Answer discussed is one solution,
this is one of many potential approaches**



Business Problem Case: The Set-Up -- What initial information/clarifications do you need to move forward?





Business Problem Case: Sample “Scoping” Questions

I. Ask Initial Questions

- Clear up any ambiguity in the problem/scenario
- Make sure you know what the output is!

Example Questions:

- Global or U.S. only?
- Is data for “Coca-Cola Classic” or all soft drinks?
- I know Coca-Cola Classic is made by a huge corporation. What about RC?
- Did the “market research” assess the following:
 - Alignment of RC products to Coke products?
 - Regional focus of RC and overlap with Coke?
- Does RC have the same cost categories as Coke?



Business Problem Case: Given initial information/clarifications, what is your hypothesis and approach?

**Unit Cost
(\$/Can)**

	50¢	50¢
	Profit 5¢	Profit
	R&D 2.5¢	R&D
	Marketing 12.5¢	Marketing
	Raw Ingredients 7.5¢	Raw Ingredients
	Bottling 5¢	Bottling
	Supply Dist 2.5¢	Supply Distribution
	Product Distribution 10¢	Product Distribution
	Overhead 5¢	Overhead
	Coca-Cola Classic	RC Cola

Headquarters
Geographic Focus
Overlap

Atlanta, GA
Entire US
20%

Raleigh-Durham, NC
Southeast US
100%



Business Problem Case: Sample Hypothesis/Approach

II. Develop Hypothesis and Approach

- Explain your rationale for the answer and how you intend to get there. Identify the “sub-questions”
- Ask more questions, but don’t be afraid of silence
 - Take time to structure the problem and your answer

Example Approach:

- The ultimate threat to Coke could come from many angles (e.g., price pressure, new products), but assume RC remains profitable
- Both companies price the same, so differences will be in costs. I can use Coke’s cost structure and infer differences for RC
- I’ll start with the production costs: Ingredients, Distribution, and Overhead. Assume that cost/unit is depends on number of cans (“economies of scale”).
 - How many cans does each company produce and distribute?
- That leaves money for discretionary costs (marketing, R&D) and profit. We can discuss how these resources are split, infer RC’s strategy, and ultimately any threat to Coke



Business Problem Case: Given your hypotheses and approach, how should you “dig in” and conduct the analysis?

Unit Cost (\$/Can)	50¢		50¢		Estimated RC Unit Cost vs. Coke
	Coca-Cola Classic	RC Cola	Coca-Cola Classic	RC Cola	
	Profit 5¢		Profit		
	R&D 2.5¢		R&D		
	Marketing 12.5¢		Marketing		
	Raw Ingredients 7.5¢		Raw Ingredients ~7.5¢		>, <, or =
	Bottling 5¢		Bottling ~ 5¢		>, <, or =
	Supply Dist 2.5¢		Supply Dist ~2.5¢		>, <, or =
	Product Distribution 10¢		Product Distribution ~10¢		>, <, or =
	Overhead 5¢		Overhead ~5¢		>, <, or =

Headquarters Atlanta, GA
Geographic Focus Entire US
Overlap in Cans 160MM (20%)
Total Cans Produced 800 MM

Headquarters Raleigh-Durham, NC
Geographic Focus Southeast US
Overlap in Cans 40 MM (100%)
Total Cans Produced 40 MM



Business Problem Case: Sample Detailed Analyses

III. Dive Into the Details

- Execute your plan, adjusting as you get feedback
- Make estimates liberally, but explain your logic
- Don't freeze up. Talk out your thoughts and confusion

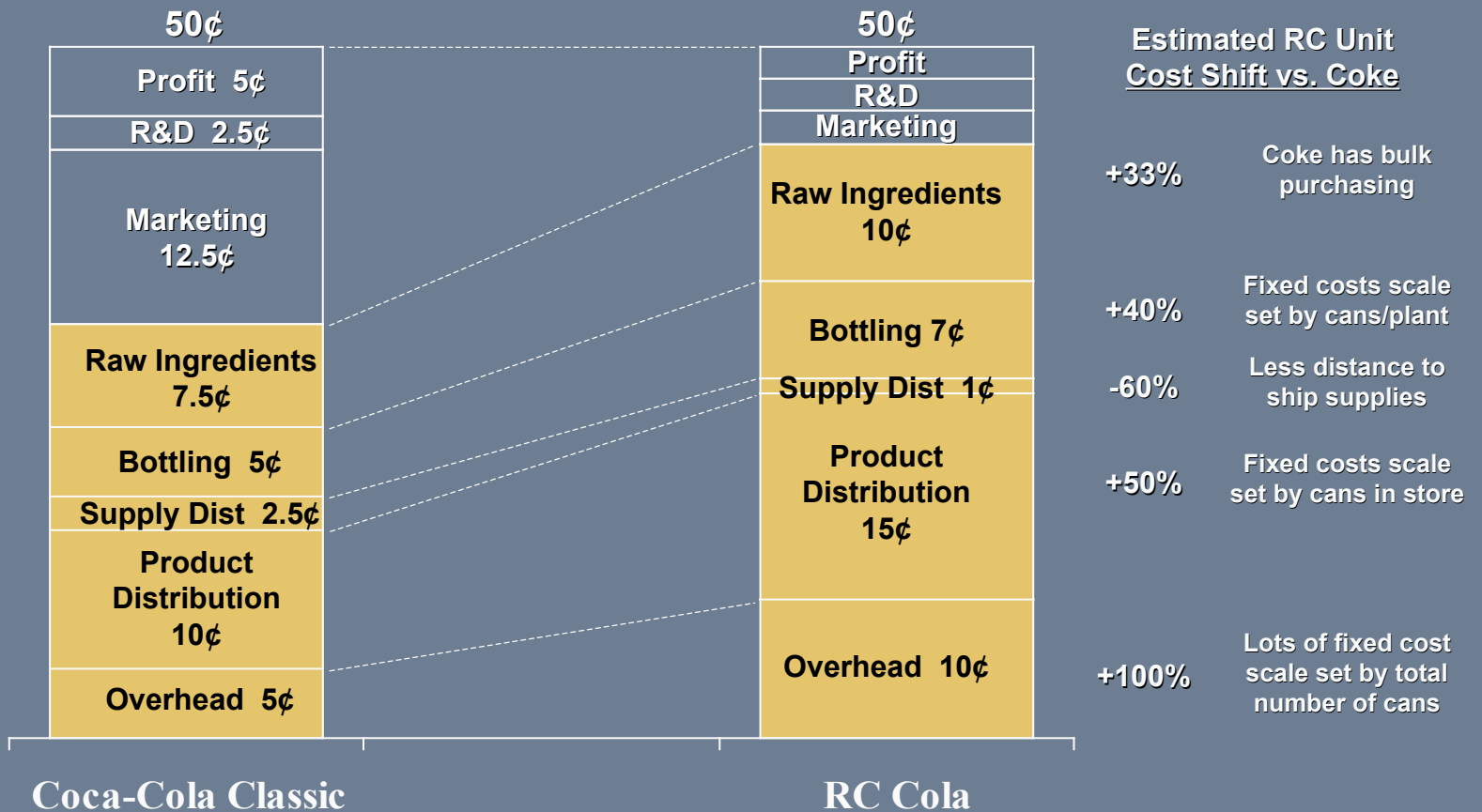
Example Analysis:

- Product Distribution: Assuming RC and Coke sell in the same outlets, Coke has a 4:1 advantage in “overlapping cans”. Assume RC's cost/can will be more by a half
- Ingredients: Coke buys 20x more than RC. But corn syrup and water are easy to come by so this limits advantage. Assume RC's cost/can will be higher by a third.
- Bottling: Coke produces 20x more, but probably has more plants. Assume 4:1 Coke:RC plants -- 5x advantage in production per plant. RC cost/can ~40% higher
— Do we have any data on number of factories for each company?
- Overhead: Coke is part of a multinational company, RC is stand alone. Yet both companies need HR, etc. Estimate cost/can is double that of Coke.
- Supply Distribution: RC doesn't have a national presence, so cost is likely lower, maybe half as much. Estimate cost/can ~60% lower so the numbers are easier.



Business Problem Case: Given your detailed analysis, how should you “pull-up” and summarize your findings/conclusions?

Unit Cost (\$/Can)



Headquarters	Atlanta, GA	Raleigh-Durham, NC
Geographic Focus	Entire US	Southeast US
Overlap in Cans	160MM (20%)	40 MM (100%)
Total Cans Produced	800 MM	40 MM



Business Problem Case: Sample Pull-Up/Summary

IV. Pull Up and Summarize

- **Pull-up to a conclusion that answers the original question**
 - Communicate with more than words. Use graphs, charts, flows, etc.
- **Interpret your results and answer follow-up questions.**
 - Think business, not math
 - Does it “seem” right? If not, high or low? Why?
 - Which assumptions need more work? What if “X” were true?

Example Summary:

- The sum of production costs is 43¢, leaving 7¢ for Marketing, R&D, and Profit
- Assuming all 7¢ went to profit (we know it can't) RC would make \$2.8MM, a huge disadvantage to Coke who generates \$40MM in total and \$8MM in the overlap area
 - Furthermore, in this scenario Coke is making significant investments in R&D and marketing which RC is not matching
- RC Cola is unlikely to be a threat to Coca-Cola Classic, even in the overlap region
- As well, even with minimal investments in R&D (1-3¢/can for market research) and marketing (3-5¢/can for coupons), RC will have challenges going it alone
 - Difficulty funding business growth (e.g., new products, customers, markets)
 - Finding a corporate buyer could reduce costs (even just overhead) and contribute profits as a product in a larger portfolio



More Business Problem Tips

- **Listen very carefully to your interviewer**
 - They will drop hints that may become important later
 - Pay attention to their involuntary reactions (e.g., did their eyes just light up?)
 - Don't contradict your interviewer. Take the facts as presented in the case, often simplifications have been made (did you want to consider PowerAde?)
- **Don't assume you are wrong if you are challenged**
 - ... but don't assert you are right either!
 - Test your argument with logic and cross checks.
 - If you were wrong, it is NOT the end of the world. Adjust and move on.
- **It isn't over until it's over**
 - Be prepared for iterations based on your existing result (e.g., what if's)
 - Cases are often embedded in cases (e.g., do a market size, then apply it)
 - You are being evaluated from the time you walk in to the time you leave
- **Invest time in organization**
 - Lay out a structure on paper with key assumptions/data noted
 - Verbally walk through the calculation as you work through
 - Think for yourself, your interviewer knows the "classic" frameworks



Be prepared

The Simple (But Important!) Stuff

- **Research the firm**
 - Know the basics: what type of company, major office locations
 - Company personality
 - Recruiting cycle
 - Types of interviews
- **Practice interviewing**
 - Many case interview guides/tools
- **Appropriate attire (business or business casual)**
- **Bring paper, pen/pencil, copies of your resume & transcript**
- **RELAX!**

Some Excellent Resources

- **Career Services**
- **Alumni/ae Networks**
- **Career fair**
- **Company Web Sites**
 - www.dean.com
- **Career Resource Websites**
 - www.wetfeet.com
 - www.vault.com



Questions You Should be Prepared to Answer

- Why are you interested in consulting?
- Why have you chosen this specific firm to apply to?
- What are three words to describe yourself?
- What is your greatest weakness?
- Tell me about your junior independent work/senior thesis
- Have I missed anything?
- What question did you expect me to ask that I haven't?
- Do you have any questions for me?



Brainteasers

- How many games are played in the NCAA tournament?
- You have a cube which is 10 x 10 x 10 made up of cubes which are 1 x 1 x 1. You dip it in paint. How many cubes have paint on them?

Market Sizing

- How many roses are sold in the U.S. each year?
- Estimate the market for frozen rats in America.



Business Problems

- It's 6pm in NYC and you just found out the price of subway tokens is going up by 25 cents tomorrow—how many tokens do you buy tonight?
- A whisky company has recently lost significant share in the last two years—why?