



CASE BOOK 2017

**MANAGEMENT CONSULTING
ASSOCIATION**



MCA Case Book 2017

Dear Future Consultant,

We are proud to present to you the Columbia Business School 2017 Case Book. It contains 23 new cases that were given to CBS students during the '16-'17 recruiting season, and one new original case wrote especially for this case book (Rock Band). We hope the cases in this book, which should represent cases top firms are giving to MBA students in recent years, will help you succeed in the upcoming recruiting season.

This case book is the outcome of many people's hard work, first and foremost the CBS students who made an effort to remember the cases they were given (despite the pressure of going through interviews) and write them down – **they all deserve a huge thank you.**

If this case book helped you during recruiting, please make an effort to contribute to future MCA case books so that we can continue to expand the resources we have to help each other succeed in consulting recruiting.

Good luck!

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MCA Case Book 2017

How to use the case book

General Preparation

- Go over the **Case and Fit Interview Overview** and **Tips for Smart Casing** in this case book; if possible – try to watch a live case demo presented by the MCA before diving into cases yourself
- The **Firm Overview** in this case book will also help you get to know the different firms better

Choosing Cases

- Each case is divided into **type**, **industry** and **difficulty**. Try to choose cases that deal with issues / concepts that you need the most practice with
- **Difficulty is graded on 3 elements:**

Math

The level of “mental math” the case demands

Structure

How hard or unusual the structure of the case is; how much it tests interviewee’s ability to remain structured

Creativity

How much creativity / brainstorming the case demands

- Remember: the difficulty rating is subjective, one case can be considered hard by one caser and easy by another
- Cases that are rated easy on all elements are usually **basic cases** that test the basic concepts of casing, and are a good way to start and “warm up” in casing
- **“Interviewers”**: come prepared by going over the case – not all of them have the same structure; print exhibits if needed and make sure to give interviewees the information needed

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							Page
Case	Industry	Concepts Tested	Difficulty				
			Math	Structure	Creativity		
1	Alkaline Ash <i>Growth / Investment</i>	Chemical Manufacturing	Market analysis; Mental math; Data from exhibits	Med	Med	Easy	28
2	Boston Office Supplies <i>Profitability / Growth</i>	Retail	Turnaround strategy / growth; Market Entry; Mental Math	Easy	Easy	Easy	36
3	California Parking Lot <i>Market Entry</i>	Public Services	Brainstorming; Mental math; Revenue & Utilization	Med	Med	Med	42
4	Car Wash Chain <i>M&A</i>	Private Equity	Growth strategy; Market sizing; Mental math	Hard	Med	Med	51

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	Case	Industry	Concepts Tested	Difficulty			Page
				Math	Structure	Creativity	
5	Carbon Fiber Manufacturer <i>Market Entry</i>	Manufacturing	Market entry; Mental math; Cost analysis	Med	Med	Med	59
6	Cow Dairy Milk <i>Pricing Strategy</i>	Healthcare	Pricing; Competitive landscape analysis	Easy	Med	Easy	65
7	Fast Food Co. <i>Market Entry</i>	Consumer (Food & Beverage)	Market sizing; Mental math; Market Entry	Easy	Med	Easy	70
8	Frozen Food Co. <i>Profitability</i>	Consumer (Food & Beverage)	Cost analysis; Mental math	Easy	Easy	Easy	75
9	Grocery Store <i>Profitability</i>	Retail	Profitability; Creativity; Mental Math	Easy	Easy	Easy	83
10	Hotel Ocho <i>Profitability</i>	Hospitality	Profitability; Mental Math; Creativity	Med	Easy	Hard	91

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Case	Industry	Concepts Tested	Difficulty			Page	
			Math	Structure	Creativity		
11	Ice Cream Co. <i>Profitability</i>	Retail (Food & Beverage)	Cost cutting; Creativity; Mental math	Easy	Med	Med	98
12	Life Insurance Merger <i>M&A</i>	Toy Manufacturing	Profitability; Synergies; Creativity; Mental Math	Easy	Easy	Easy	104
13	Lubricant Manufacturer <i>Profitability</i>	Manufacturing	Breakeven analysis; Revenue analysis	Med	Easy	Med	110
14	Oil and Gas Acquisition <i>M&A</i>	Oil and Gas	M&A; Valuation	Med	Med	Easy	116
15	Outsourced School Food Service <i>Investment</i>	Private Equity / Education	Mental math; Market sizing; Creativity	Med +	Easy	Med	121
16	Personal Care Company <i>Market Entry</i>	Retail / Personal Care	Market Sizing; Market Entry; Mental Math	Easy	Easy	Easy	126

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	Case	Industry	Concepts Tested	Difficulty			Page
				Math	Structure	Creativity	
17	Pharma Co. <i>Market Entry</i>	Pharma	Market Sizing; Mental math; Framework Building	Hard	Med	Easy	131
18	Population Health Management <i>Market Sizing</i>	Healthcare	Market sizing; Mental math; Healthcare knowledge	Easy	Easy	Easy	137
19	Portable Sanitation <i>Revenue Growth</i>	Sanitation	Creativity; Profitability; Demand Elasticity	Easy	Easy	Easy	142
20	Pre-K Education <i>Growth</i>	Oil and Gas	Supply & demand; Creativity; Mental math	Med	Med	Hard	148
21	Rock Band <i>Revenue Maximization</i> CBS Original case	Entertainment	Brainstorming; Mental Math; Market Analysis	Med	Hard	Hard	157
22	Soda Ash Producer <i>M&A</i>	Private Equity	Acquisition analysis; Growth strategy; Supply & demand	Med	Easy	Med	165

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Case		Industry	Concepts Tested	Difficulty			Page
	Case #			Math	Structure	Creativity	
23	Tristar Home Appliances <i>Market Expansion</i>	Manufacturing	Supply chain; Market sizing; Mental math	Med	Med	Med	174
24	Veratech <i>Profitability</i>	Tech	Market analysis; Segmentation; Competitive analysis	Easy	Easy	Easy	184

Case and Fit Interview Overview

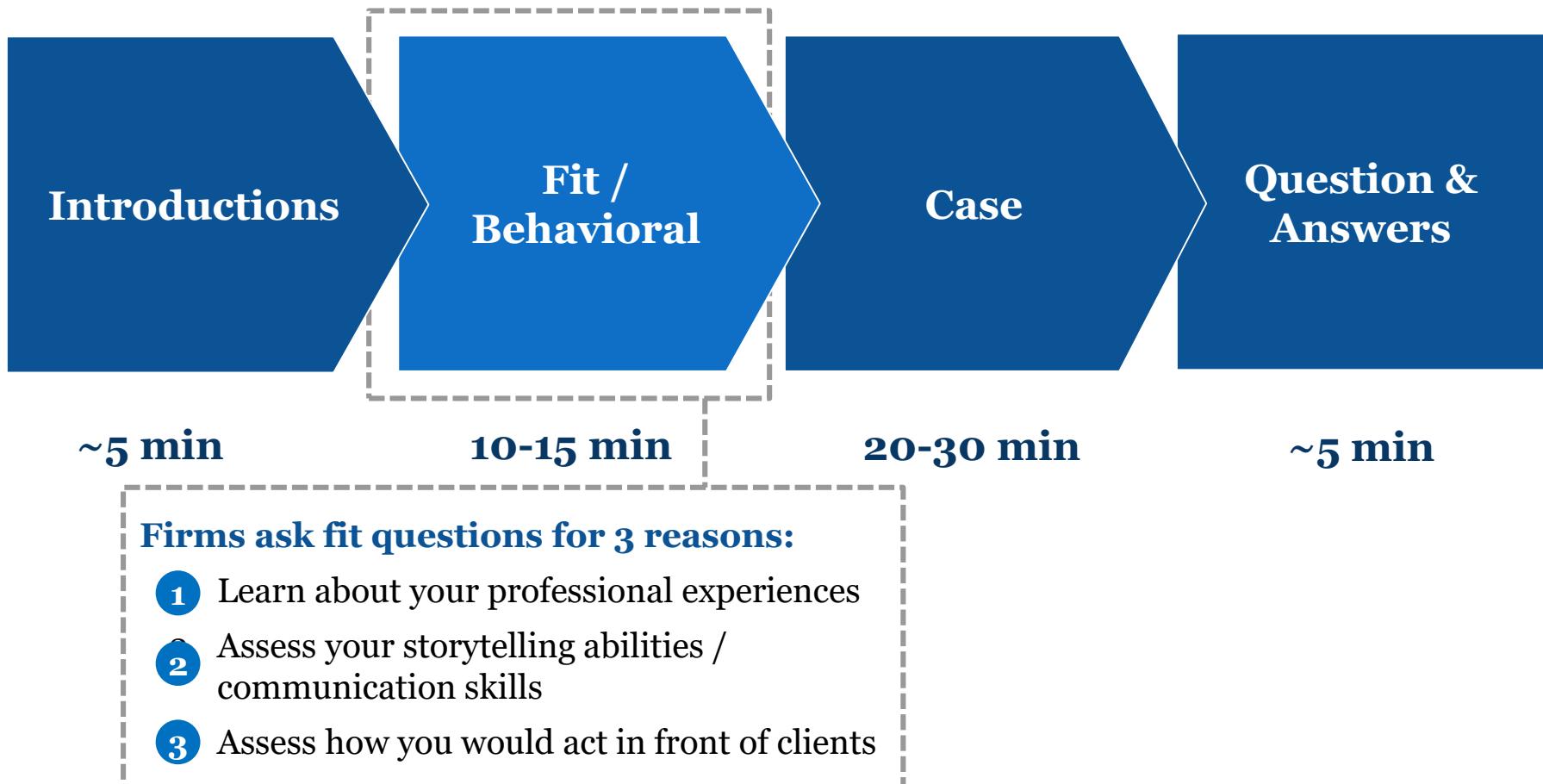
Typical case interview progression



- The majority of consulting interviews follow the same structure (above)
- The two main components are the Fit / Behavioral part and the Case part, **which are equally important!**
- While this book focuses mainly on preparing for case interviews, it is highly recommended to put the same amount of effort into preparing for the fit portion as for the case portion

Fit / Behavioral Portion of the Interview

Fit questions are the first real part of most interviews, and performance on fit is a major differentiator



Fit / Behavioral Portion of the Interview

Have airtight answers prepared for the most common fit questions

“Why you?”

- Your **pitch**, a.k.a. “*walk me through your resume*” / “*tell me about yourself*”
- Convey **motivations** for every major transition point (e.g., switching jobs, going to business school); strong answers build a **tight narrative of how your life has led to that interview**
- Highlight **key consulting skills** when speaking about experiences

“Why
consulting?”

- Develop a **genuine** answer that’s tailored to your background and goals
- It’s okay to **artfully** position consulting as a career **stepping stone**
- This question may be redundant if you have a **robust pitch**

“Why firm
X?”

- Demonstrate your **in-depth understanding** of the firm
- Use **structure** (i.e., “There are 4 reasons why I’m hopeful to join BCG”)
- Highlight **work** nuances (i.e., industries, practice areas, generalist path), **culture**, and **personal experiences**, as appropriate
- **Do not mix up firms!**

Fit / Behavioral Portion of the Interview

McKinsey approaches fit interviews slightly differently

Standard behavioral approach

- Drawn from standard questions
- 1st round fit lasts 10-15 minutes, with multiple questions
- Some 2nd rounds (e.g., Bain) devote a full interview to this

“Tell me about a time you led a team...”

“Tell me about an ethical dilemma you struggled with...”

“What’s your greatest accomplishment?”

McKinsey PEI

- One ‘anecdotal deep-dive’, the answer to which should fall into one or more of these areas:
 1. Leadership Abilities
 2. Personal Impact
 3. Entrepreneurial Drive
 4. Problem Solving
- Interviewer will then ask drill down questions for ~10 minutes

“Tell me about a time you struggled with an important decision...”

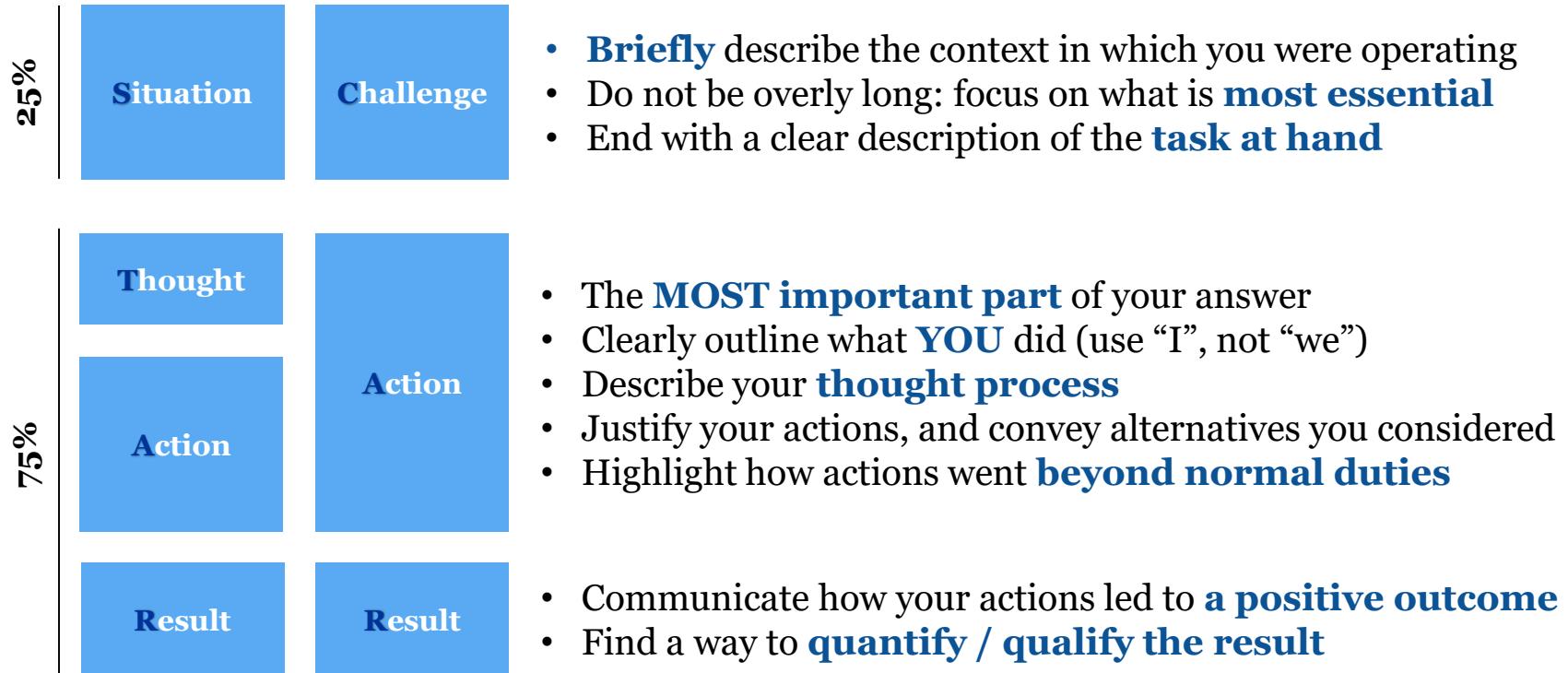
“How did you think through the choice?”

“What were the consequences of that?”

Preparation for McKinsey PEI will form answers for most fit questions at other firms

Fit / Behavioral Portion of the Interview

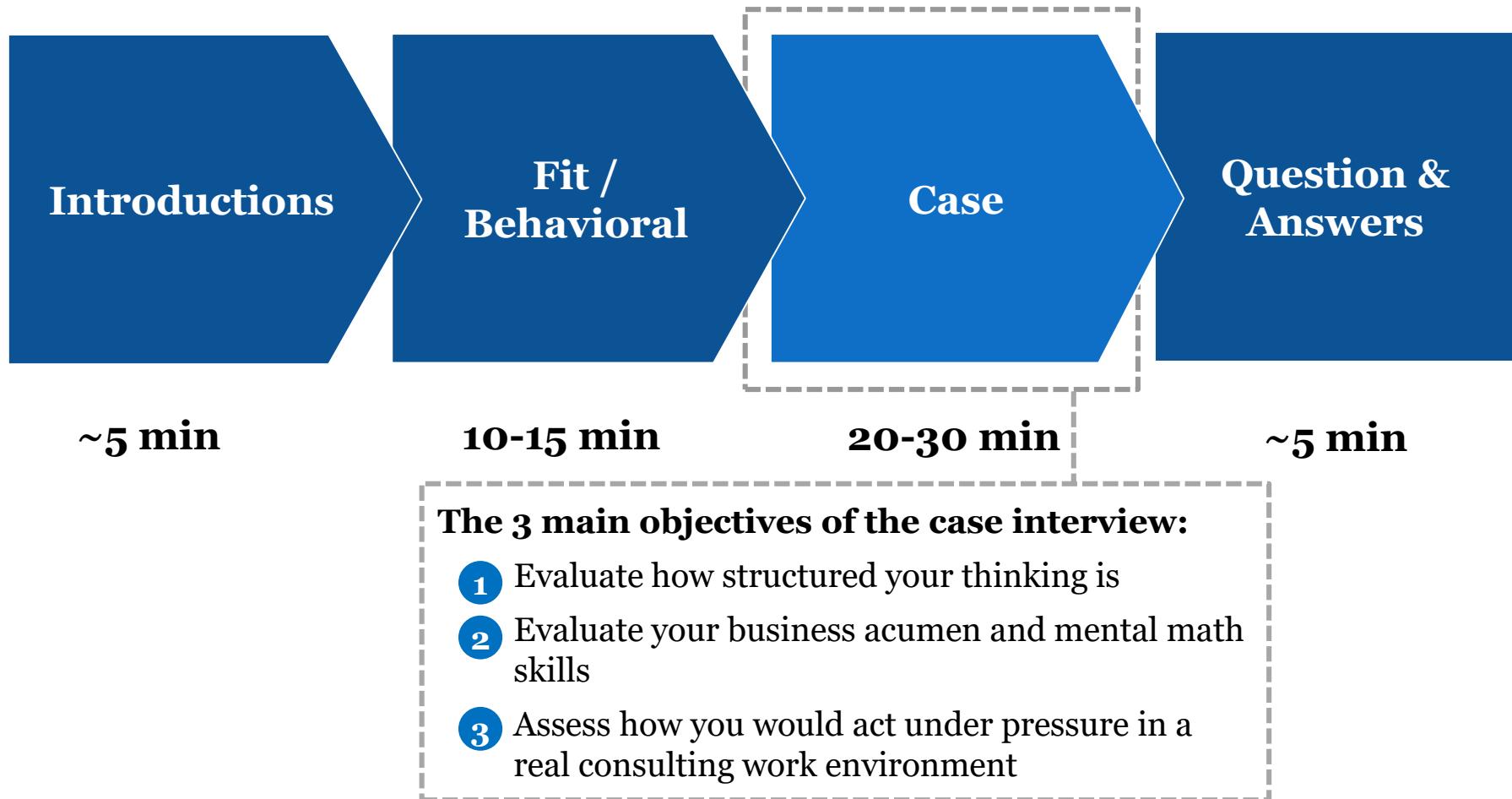
Use the STAR or CAR framework to structure fit answers



Answer should be tight and clearly communicated—how you answer matters!

The Case Portion of the Interview

The case portion is the longest part of the interview, usually involving one case that is an ongoing discussion with the interviewer



The Case Portion of the Interview

The case interview can be dissected into component parts, allowing for more targeted preparation

Time	Component	Suggested actions
<2 min	Understand	<ul style="list-style-type: none"> • Listen as interviewer describes business problem and context (i.e., “Our client is X, who is experiencing situation Y”) • Ask clarifying questions about the client situation or scope • Summarize the prompt and make sure you understand the big question
~2 min	Structure	<ul style="list-style-type: none"> • Construct a customized, structured approach to the problem (i.e., MECE framework) in ~90 seconds • Walk the interviewer through the framework, elaborating as necessary (i.e., “There are 3 main drivers I’d like to look into: X, Y, and Z. X is driven by two components, A and B”) • Note areas of anticipated importance and suggest a starting point for analysis
~20 min	Analyze	<ul style="list-style-type: none"> • Using the structure as a guide, ask probing questions to test hypothesis • Follow directions and hints from interviewer, and audibly adjust hypotheses / structure as new information is presented • Conduct quantitative analysis aloud and connect insights to larger picture • Make analyses look clean, like client-ready slides; do arithmetic on scrap paper
<1 min	Synthesize	<ul style="list-style-type: none"> • State recommendation up-front in 1-2 sentences, followed by 2-4 supporting points • End with flagging risks and outlining potential next steps

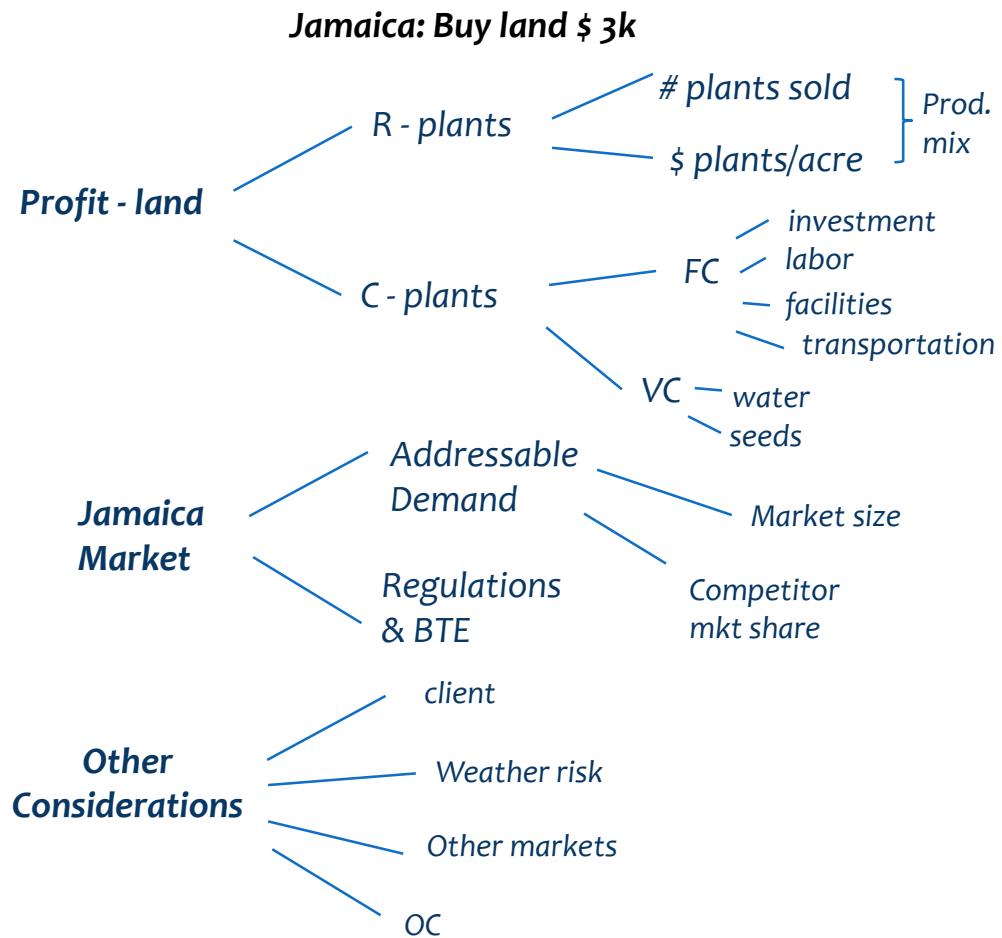
The Case Portion of the Interview

Example of a framework

Prompt

“Our client is thinking about buying a piece of land in Jamaica for \$3,000, and has asked us to determine whether this is a good idea.”

Possible Framework



Interview Overview

Strategies for successful preparation

Individually

- Skim *Case in Point* and *Case Interview Secrets*
- Use RocketBlocks or FastMath to practice math and structuring
- Practice creating frameworks from prompts in old casebooks
- Consider using mental math phone apps to practice quick mental calculations whenever there is time
- Case with sponsored cluster mates over the summer
- Form and case with a peer group
- Use MCA case coaches in the fall

Case

With others

- Review MCA fit question database and draft mock answers
- Build a story tracker and coverage map

Fit

- Career Fellows to practice fit stories
- Fit mock interviews with peer group

Tips for Smart Casing

- 1. Case Smart, Not Hard:** Your “case prep” regimen should not be designed as a grueling marathon to do as many cases as humanely possible – it should be used to develop the necessary skills to a level where you can comfortably complete a range of case types. You may hear people brag about how many cases they did this week, but they are missing the point and likely misallocating their time. Instead, you should keep a measured pace, take time to reflect after each case, and keep a log of your performance (the Columbia Case Tracker tool is great for this); doing so will allow you to track your progress and smartly build upon any areas of weakness.
- 2. Use Both 2Y's and 1Y's, and Just Dive in:** Your first case probably won't go well – acknowledge that fact and don't be afraid to just dive in. If you make a mistake, just brush it off and keep going (plenty of people get offers after making mistakes in real interviews, in fact). Know also that both first and second years are valuable resources for practice. Use second years for more pointed feedback (case with them whenever you can), but don't neglect fellow first years and sponsored consultants/students.
- 3. It's 50% Case, 50% Fit:** Don't case for 100 hours and neglect fit prep entirely. Firms evaluate you equally on each component, and if you are a case rock star but can't relate your professional story in a meaningful way or can't talk intelligently and thoughtfully about leadership experience you've had, you're toast. Firms need to see both case proficiency and professional fit and poise.
- 4. Seek variety:** Don't do 50 profitability cases, and don't just use a single casebook. Spread your practice among multiple types of cases and multiple case books from multiple schools; this is the best way to practice a range of skills necessary and increase your chances of being prepared on interview day.

Tips for Smart Casing

5. **Do Your Research on Industries & Firms:** Each firm has slight differences in the way they interview, the types of cases they use, and the terminology they use to discuss themselves. Know the difference between a McKinsey structured interview and a Deloitte Group interview. Know these differences cold, and don't mix the firms up. Again, the differences are subtle, but they are there.
6. **Read the Business Press Every Day:** You need to be able to discuss business concepts with great and convincing fluency, which you can't do if you don't stay up to date on the news. Doing so will also help build your implicit reservoir of industry knowledge and increase your level of comfort with topics outside your immediate area of expertise.
7. **Brush up on the basics:** If you struggle with simple things like basic business terminology (profit/loss/industry vs verticals/market segments) or high school algebra & mental math (multiplication tables up to 15, quick % calculations) go brush up on these first BEFORE you dive into casing. You have to learn to crawl before you can learn to walk.
8. **Remember the Goal and Purpose of Casing:** The purpose of the case interview is NOT to find people who are case robots, able to breeze through any case with 0 mistakes – the purpose is to find people who are client-ready, who demonstrate significant structured problem solving & analytical capabilities, and who would fit at that particular firm from a cultural standpoint. That's it. Keep these goals in mind as you practice, and know that the goal is to maximize along those three dimensions, not along how quickly you can breeze through a case or how amazing your mental math skills are.

MCA Firm Overview

Several consulting firms recruit each year at Columbia Business School.

While there are many similarities between the firms, each firm has its own culture and “way of doing business”. Getting to know the firms you are recruiting for, understanding how you can fit in at each firm, is an important part of preparing for the interview.

Types of firms that recruit at Columbia:

- **“The Big Three” / MBB:** the three largest consulting firms: McKinsey, Bain and BCG
- **“The Big Four”:** the big 4 accounting firms (Deloitte, PwC, Ernst & Young, KPMG) all of which have been growing their strategy consulting arms in recent years either by acquiring consulting firms, growing them in-house or a mix of both
- **Smaller Generalist Consulting Firms:** usually, they are not small at all, and still have a wide range of services and a global reach (these include A.T. Kearney, L.E.K)
- **Boutique Specialized Consulting firms:** smaller firms that specialize in certain industries, such as healthcare or PE

This overview will include only a handful of firms which maintain a strong recruiting presence at Columbia - it is by no means an exhaustive list of firms CBS students recruit and work for. Please note that this is a living resource, and information about firms contained herein may change rapidly.

Remember – the best way to get to know a firm is by talking to people who work there!

Firm Overview – A.T. Kearney

A.T. Kearney is a global team of forward-thinking, collaborative consultants that deliver immediate, meaningful results and a long-term transformational advantage to clients and colleagues

About

- Traditional strengths are in operations with increasing presence in strategy and private equity
- Strong momentum since management buyout from EDS in 2005; ambitious growth strategy as part of Vision 2020 initiative to double firm revenues by 2020
- Diverse, collegial and non-hierarchical work environment
- Strongest industry verticals: Consumer, Industrial, Retail and Public Sector Energy (CIRP); Financial Services growing

Interview overview

- 1st round
 - 2 back-to-back 45 min interviews, both with case and fit
 - Conducted by Manager/Partner
- 2nd round
 - 1h 45 min written case
 - 60 min prep, 30 min presentation, 15 min Q&A
 - Two 45 min fit interviews
 - Conducted by Principal/Partner

Quick Facts

- Consultants: 2,300
- 13 industry groups
- 11 practice areas
- 58 offices in 40 countries



Career Path

- Analyst
- Associate (MBA)
- Manager
- Principal
- Partner

Firm Overview – Bain & Company

Bain & Company is a global management consulting firm that differentiates itself by collaborating with clients as business partners and focusing on results

About

- Generalist, home-staffing model with expertise across all major industries and functions
- Redefined boundaries of traditional consulting by introducing “tied economics” arrangements with some clients, pioneering strategic consulting for PE clients, and launching Bain Capital and The Bridgespan Group
- Emphasis on people: dedication to work/life balance, career flexibility with international transfers and “Take Two” breaks

Interview overview

- 1st round
 - 2 45 min interviews, including brief fit portion and case
- 2nd round
 - 45 min fit
 - 45 min case
 - 45 min written case (with additional 60 mins of prep)

Quick Facts

- Consultants: 5,700
- 53 offices



Career Path

- Associate Consultant (Undergrad)
- Consultant (MBA)
- Case Team Leader
- Manager
- Principal
- Partner

Firm Overview – Boston Consulting Group

BCG is a global management consulting firm and one of the world's leading advisor on business strategy; commitment to both clients' success and its own standards is what sets BCG apart

About

- Regional staffing model
- Creative, collaborative and supportive environment
- Lean towards one-of-a-kind, custom-built client solutions
- One of lowest leverage ratios in the consulting industry; Partners works closely with Consultants
- Generalist, not required to specialize in until Principal level
- *Fortune #3 Best Company to Work For; #1 consulting firm*
- Mobility via 'Ambassador' program for year-long international placements, client secondments and sabbaticals
- PTO program maximizes predictability and team building

Quick Facts

- Consultants: 6,200
- 20 industry groups
- 19 capability areas
- 78 offices in 43 countries



Interview overview

- 1st round
 - 2 45 min interviews with fit and case
- 2nd round
 - 2 or 3 interviews with Partners (# varies by office)
 - Some offices have a written case

Career Path

- Associate (undergrad)
- Consultant (MBA)
- Project Leader
- Principal
- Partner

Firm Overview – Deloitte Consulting

Deloitte is a global professional services firm with a management consulting practice specializing in strategy and implementation across a broad range of industries and functions

About

- National staffing model provides flexibility to work in a variety of industries regardless of office location
- Focused on executable strategy that offers opportunities in both strategy and implementation, often across practices
- Deloitte University is a five-star leadership, training and conference center near Dallas, Texas
- Expanded practice and capabilities with acquisition of Monitor (strategy) and Doblin (innovation) Group in 2013

Quick Facts

- Consultants: 20,000
- Practices
 - Strategy & Operations
 - Technology
 - Human Capital
- Largest world-wide consulting firm

Interview overview

- 1st round
 - 45 minute fit interview
 - 45 minute case
- 2nd round
 - Two 45 minute cases
 - 90 minute group case

Career Path

- Business Analyst [2 years] (*undergrad entry*)
- Consultant [2 years]
- Senior Consultant [2 years] (*MBA entry*)
- Manager [2-4 years]
- Senior Manager [3-5 years]
- PPD (*Partner, Principal, Director*)*

Firm Overview – L.E.K Consulting

L.E.K Consulting is a global management consulting firm that leverages its deep industry expertise and uses analytical rigor to solve its clients toughest and most critical business problems

About

- Generalist model with specialization possible after one year
- Expertise across all industries and functions, with limited presence in implementation
- Heavier focus on private equity due diligences
- Office-based staffing model limits travel
- Team management responsibility early in career
- Opportunity to transfer to international office

Interview overview

- 1st round
 - 2 45 min interviews with both fit and case components
 - One case on business strategy, one on quant (most likely market sizing)
- 2nd round
 - 2 45 minute cases
 - 1 30 min written case (with additional 60 mins of prep)

Quick Facts

- Consultants: 1,200
- 16 industry groups
- 4 functional areas
- 20 offices in 12 countries



Career Path

- Associate (undergrad)
- Associate Consultant (undergrad)
- Consultant (MBA)
- Manager
- Principal
- Partner

Firm Overview – McKinsey & Company

McKinsey & Company is a large global management consulting firm focusing on high profile studies for businesses, governments, and institutions

About

- Strong support functions for consultants: research and insights (R&I), Advanced Analytics, Visual Graphics
- Global staffing model; consultants may work internationally
High profile clients and studies; work with 70%+ of F100
- Teams with diverse educational (MBAs, PhDs, JDs) and personal (LGBTQ, racial, religious) backgrounds
- Unrivalled alumni network that the firm actively develops
- Encourages active discussion; have “obligation to dissent”
- Offers ability to join as a Generalist or directly within a Functional Practice (e.g., Digital, Marketing & Sales, Risk, Strategy & Corporate Finance)

Interview overview

- 1st round
 - 2 45-60 min interviews consisting of case and PEI
- 2nd round
 - 3 or 4 (office dependent) each with case and PEI

Quick Facts

- Consultants: 10,000
- 22 industry practices
- 12 functional practices
- 110+ offices in 60+ countries



Career Path

- Business Analyst (undergrad)
- Associate (MBA)
- Engagement Manager
- Junior Partner / Associate Principal*
- Partner
- Senior Partner / Director*

Firm Overview – Strategy&

Strategy& is a global team of practical strategists bringing together 100 years of strategy consulting experience with the unrivaled industry and functional capabilities of the PwC network

About

- Founded in 1914 as “Booz Allen Hamilton”, Strategy& is the oldest continually existing strategy consultancy in the world
- Acquired by PwC in 2014 and renamed “Strategy&” (gov’t consulting arm, spun off in ‘08, retains “Booz Allen” name)
- “Strategy-through-Execution”: Strategy& focuses on strategy work while PwC Advisory does the implementation work
- Enables MBAs to align from day one both by competency and by industry focus (a flexible “soft alignment”)
- New Deals Strategy group advises PE and corporate clients on M&As; senior associates can do a deals strategy rotation
- Staffing is national and alignment-based; encouraged to also “staff yourself” on projects through networking

Interview overview

- 1st round
 - 2 back-to-back 45 min interviews, both with case and fit
- 2nd round
 - 2 back-to-back 45 min interviews, both with case and fit
 - Conducted by partners, less structured than 1st round

Quick Facts

- Consultants: 3,000+
- 5 industry groups
- 8 competencies
- 69 offices in 42 countries



Career Path

- Associate (undergrad)
- Senior Associate (MBA)
- Manager
- Director
- Partner

Case #1: Alkaline Ash

Industry:	Chemicals Manufacturing	Concepts Tested	Math	Structure	Creativity
Case Type:	Growth / Investment	<ul style="list-style-type: none"> Market analysis Mental math Extracting insights from exhibits 	Medium	Medium	Easy
Firm:	BCG				

Problem Statement Narrative

ChemCo, a U.S.-based manufacturer of chemical products, has come to your firm asking for advice on whether to make an investment. It would like to increase its production capacity for alkaline ash from one million to two million metric tons by 2020, with a total investment cost of \$20M.

*Alkaline ash is a chemical product that is commonly used in construction and electronics manufacturing.

Case Notes

This is an interviewee led case, based on analysis of exhibits. Instead of asking upfront questions, interviewer gives interviewees exhibits based on interviewee's questions. Interviewee should lead discussion of exhibits to reach conclusion.

Sample Framework

Guidance for Interviewer

This is an interviewee-led case. Please hand each exhibit to the interviewee as that information is requested, and then wait for the person to share insight or ask questions.

This case is based on current and future projections of the supply and demand of alkaline ash.

Sample Framework

Please see the next page.

Clarification Answers if Asked

All necessary information is provided in the exhibits.

Framework / Potential Areas for Analysis

Market Demand

1. **Current and expected demand** for alkaline ash in:
 - the construction industry?
 - the electronics industry?
 - other industries?

Market Supply

1. **Current and expected supply** for alkaline ash in:
 - the construction industry?
 - the electronics industry?
 - other industries?
2. Is there expected to be a **competitive response** if ChemCo expands its capacity?

Incremental Revenues

- What is ChemCo's **current market share**, and how has this trended over time?
- How much **additional market share** is ChemCo expected to capture if it expands capacity?
- What is the **price** now, and how will that change as capacity increases?

Incremental Costs

- **Capital expense** of adding capacity; only the \$20M investment?
- Additional **fixed costs**, such as managers
- Ongoing **variable costs**, and how this varies at different production levels
- **Opportunity costs**; are there more attractive investments available?

Exhibit #1

Market Projections (in millions of metric tons)

■ LatAm ■ US ■ Europe ■ Mideast/Africa ■ Rest of Asia ■ China

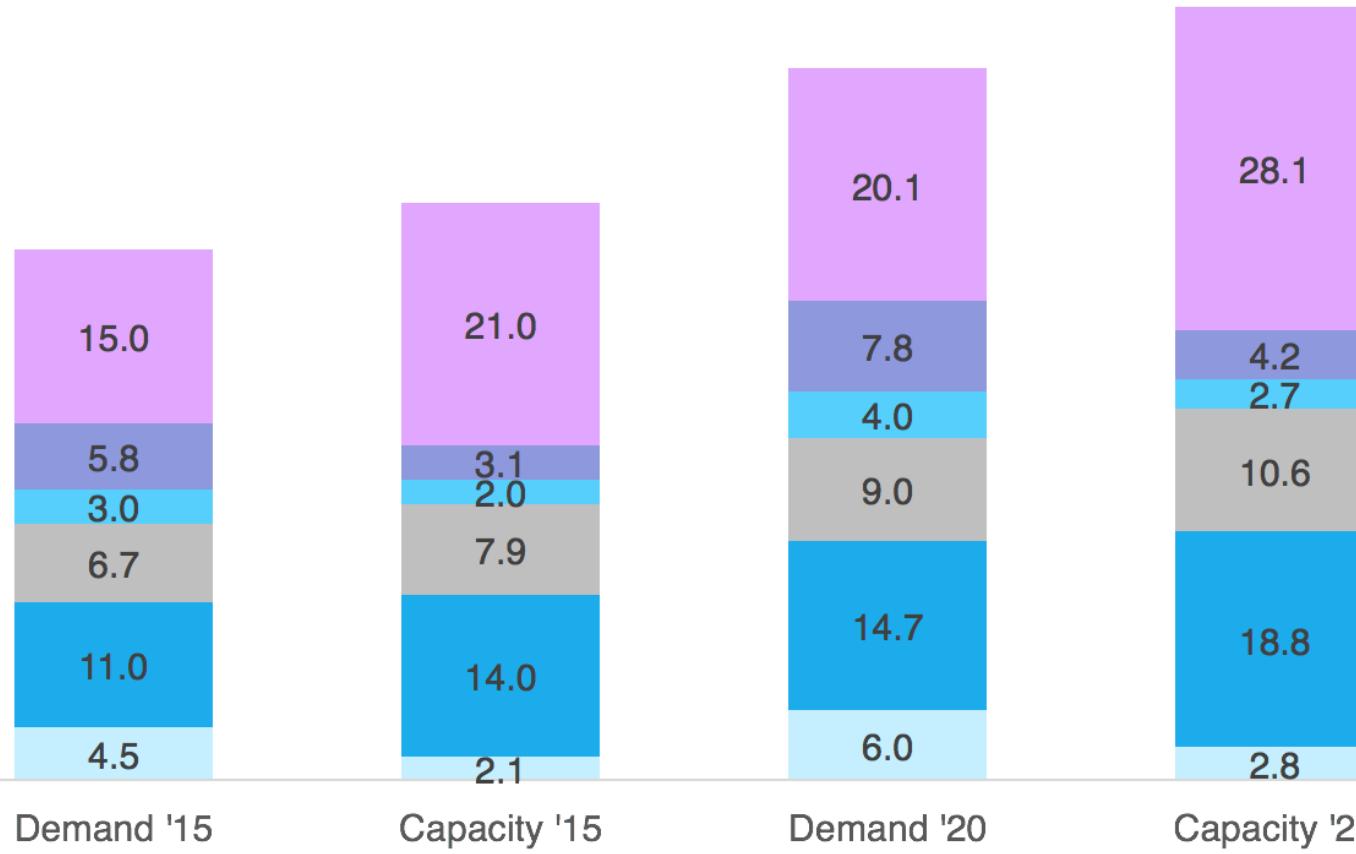


Exhibit #1 - Analysis

The candidate should examine the relationship between demand and capacity in the different markets; interviewer can lead interviewee towards discussion of demand and capacity if she/he does not do so her/him self. If the interviewee asks, the units for this exhibit are in metric tons.

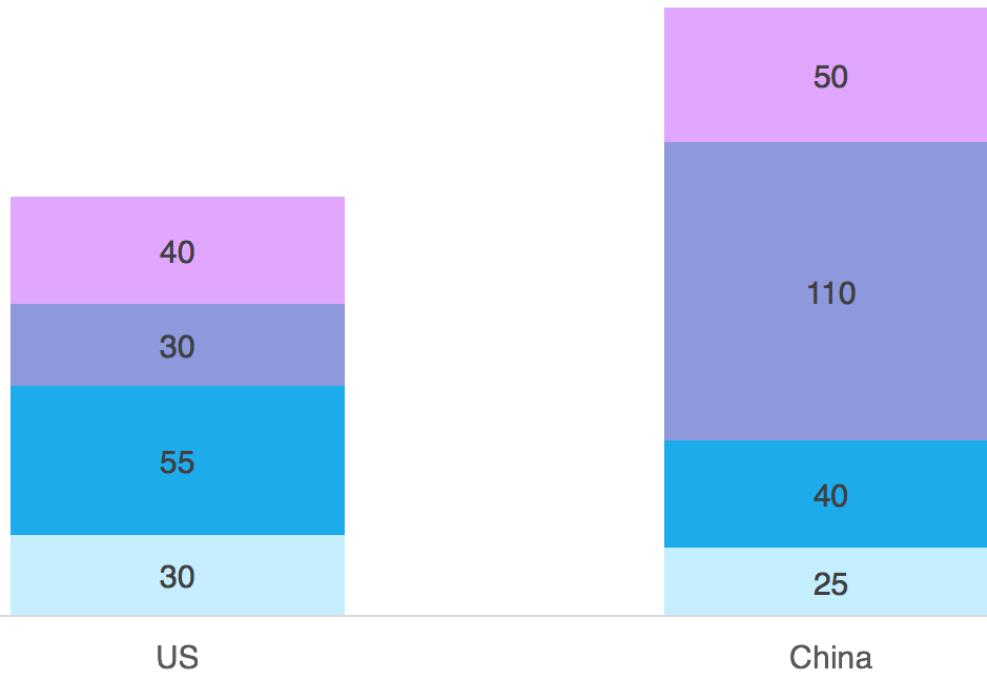
Conclusions from Exhibit 1:

1. In reviewing this exhibit, candidate should note that in the U.S., Europe, and China, **capacity outstrips demand**, and will continue to do so in 2020.
2. By contrast, **LatAm, Mideast/Africa, and Rest of Asia** all **have higher demand than capacity**.
3. The candidate should realize the **rest of Asia is particularly attractive**, since its demand is expected to grow by 2 metric tons, and its capacity is far from meeting that demand. (If the candidate focuses on LatAm, redirect her by stating that ChemCo has had bad experiences in the region before and would prefer not to engage there.)
4. Therefore, **Chinese firms**, with their large capacity and close location in Asia, will be the key competitor in reaching the lucrative Asian market.
5. A good candidate may propose a hypothesis about the cost for Chinese producers, e.g., expecting it to be lower (although that is not the case).

Exhibit #2

Cost (\$) per delivered metric ton in Asian market, 2015

■ Labour ■ Freight ■ Raw materials/Energy ■ Administration



Expected Cost Change 2015-20

	US	China
Administration	+15%	+10%
Raw materials/Energy	-5%	+15%
Freight	+20%	+5%
Labour	+20%	+10%

Exhibit #2 - Analysis

1. The candidate should note that **costs for U.S. firms are significantly lower than for Chinese firms**, with raw materials/energy being the driving factors. The candidate should propose an explanation, e.g., that the raw materials are from the U.S. and thus are cheaper for U.S. producers than for Chinese producers.
2. The candidate should then **calculate the production cost for 2020** by applying the percentage changes. The correct numbers are shown below:

	US	China
Administration	46	55
Raw materials/Energy	28.5	126.5
Freight	66	42
Labor	36	27.5
Total	176.5	251

3. The candidate should then determine how **much additional profit the firm will generate** from this move.
4. What is the selling price? The Chinese firms will sell as low as they can go, which means ignoring the fixed costs (administration) and selling at **$\$251 - \$55 = \$196/\text{metric ton}$** .
5. Accordingly, the client can sell at a profit of **$\$19.5/\text{metric ton at this price} (\$196 - \$176.5)$** . The candidate knows the cost of expansion, and if asked you can clarify that it is phased as \$5M per year for four years (totaling \$20M). These costs will be incurred starting in 2020, the earliest that ChemCo would be able to increase its capacity.
6. The candidate should then calculate that **the profit in the first year that capacity is expanded will be \$14.5M**, with greater profits down the line. Accordingly, this is a good investment.

Conclusion

Recommendation	Rationale
<ul style="list-style-type: none">ChemCo should make the investment.	<ul style="list-style-type: none">The investment will be profitable in the first year that capacity is expanded, and the firm can expect additional profits down the line.
Risks	Next Steps
<ul style="list-style-type: none">If Chinese producers can gain access to cheaper raw materials, through new discoveries or alternate production methods, they will be more competitive.An economic downturn that affects demand for electronics or construction services would be detrimental.	<ul style="list-style-type: none">Conduct further research on where demand in the Rest of Asia market will be, and establish relationships with potential future buyers.Start construction process for expanding ChemCo's production facility.

Case # 2: Boston Office Supplies

Industry: Retail
Case Type: Growth
Firm: BCG

Concepts Tested

- Turnaround strategy / growth
- Entering new market
- Mental Math

Math
Easy

Structure
Easy

Creativity
Easy

Problem Statement Narrative

Your client is an office supplies retailer in the Boston area. The client currently serves mainly large businesses. The business has been pretty flat lately, with little to no growth. Your client wants to find ways to increase growth. How would you approach this?

Case Notes

- Problem statement should lead interviewee into classic turnaround strategy / growth framework
- Case will focus on how to achieve growth for the business

Sample Framework

Guidance for Interviewer

- Interviewee should dive right in to brainstorming ideas for growing the business (see clarification for additional information to be given)
- After interviewee lays down framework for analysis, interviewer should push interviewee towards expanding to serve Small /Medium clients (option with least amount of risk, needs least investment due to existence of distribution and sales force)

Clarification Answers if Asked

- The business currently serves large clients in the Boston area
- The client currently wants to stay in the Boston area
- The client owns its own truck fleet for distribution
- The client has its own sales force

Sample Framework

Current Customers

- Offer volume discounts
- Institute loyalty programs
- Lower prices / offer discounts

Current Products

New Customers

- Expand to Small / Medium Businesses
- Attract new large businesses

New Products

- R&D for new products
- Offer new lines of products (ex: home / garden, electronics)
- Expand online presence
- Increase advertising
- Institute partnerships

Interviewee can run pros/cons analysis for different options, cost / revenue analysis, market analysis or any way to structure thought about how to evaluate the different options

Question #1

Question #1

What could be some problems with pursuing Small/Medium Businesses?

Solution

Points for discussion

Interviewee should brainstorm in a **structured** way (e.g. two main brainstorming buckets – 1) Profitability Considerations and 2) Operational Considerations

Profitability:

- More, smaller deliveries results in higher delivery cost structure
- Competition with established players serving S/MBs

Operational:

- Less products per shipment for S/MBs
- Fewer connections with S/MBs in the area
- Changes needed in the salesforce to reach S/MBs

Additional info to be given after discussion: preliminary assessments show there is an S/MB market that is large enough for them to enter in the Boston area.

Question #2

Question #2

Candidate should ask if we have any data about the costs of the shift to serving Small /Medium Businesses or the changes it would cause.

Give Exhibit 1 – interviewee should calculate financial viability of pursuing S/MBs

Solution

Financial analysis is **not** the main point and is quite simple:

1) Compare average sales per day and cost of salesperson

Large: \$2.5K sales per salesperson, cost: \$50

S/M Businesses: \$2K sales per salesperson, cost: \$50

OR

2) Compare sales per 4 day period

Large: \$10K sales per salesperson, cost: \$200

S/M Businesses: \$8K sales per salesperson, cost: \$200

The analysis shows that **it is more profitable to sell to large clients** (you get more sales for the same cost of sales). However, this **should not lead** to the conclusion that the client should not pursue S/M businesses – the client is complaining about flat sales growth, meaning he may have reached all potential market share. S/M Businesses are slightly less profitable, but that makes sense.

Conclusion

Recommendation	Rationale
<ul style="list-style-type: none"> Expand to SMBs, but do not neglect large clients as they are more profitable 	<ul style="list-style-type: none"> Taking into account that there is an addressable SMB market in the Boston area, it would be the easiest / lowest risk approach to expand the business Large clients are more profitable, therefore effort should be made to maintain and grow in the large client market; however cost of sales for SMBs is also relatively low
Risks	Next Steps
<ul style="list-style-type: none"> New and existing competitors in SMB market Difficulty reaching clients with whom the client has never had contact before Potentially need to adjust logistics network to serve SMBs, which could be costly or disruptive 	<ul style="list-style-type: none"> Conduct further market research on SMB market in Boston Focus salesforce on obtaining leads in SMB market

Exhibit #1

	Large	SMB
Average Sales	10K	2K
Time needed to close sale	4 days	1 day
Cost of salesperson	\$50/day	\$50/day

Case #3: California Parking Lot

Industry: Case Type: Firm:	Public Services Market Entry BCG	Concepts Tested	Math	Structure	Creativity
		<ul style="list-style-type: none"> • Brainstorming • Mental math • Revenue & Utilization 	Medium	Medium	Medium

Problem Statement Narrative

Your client is a local municipality in California. The town recently built a complex of six parking lots, encircling a nearby community center and outdoor mall, which features shopping, restaurants, and some light attractions. In total there are 20,000 parking spots in these lots. Our client wants to maximize the profit it generates from the parking lots, with a focus on revenue. Help our client think through the issue - how could you think about different types of pricing structures and revenue models for the parking lots?

Case Notes

Case has a lot of brainstorming and requires interviewee to remain structured and organized throughout every step of brainstorming.

Sample Framework

Guidance for Interviewer

- Main idea is how to best monetize the parking lot
- Framework should be based on brainstorming but remain as structured as possible

Sample Framework

Candidate can run a pros/cons analysis, cost / revenue analysis, or any type of analysis to go through the different options she/he comes up with, such as:

- Daily/Hourly vs. Monthly Passes;
- Valet and Self-Parking;
- Validation model (store “validates” parking for customers)
- Higher prices for spots nearer to the stores and lower prices for spots further away

Clarification Answers if Asked

- All additional information will be given in exhibit (see question 1)

Question #1

Question #1

Give Exhibit 1. Have candidate walk through the Exhibit. Then ask candidate to calculate the revenue the parking lots generate per day.

Solution

Tourists / Shoppers	Quantity	Hours	Daily Revenue
3 Hour Tourists	4,500	13,500	27,000
5+ Hour Tourists	1,500	7,500	15,000
Total	6,000	21,000	42,000
Store Owners	Quantity	Permit Revenue	Daily Revenue
Store Owners	1,000	240,000	8,000
Total Revenue:	50,000		

Question #2

Question #2

Is there a way we could generate revenue from someone other than the people actually parking their cars?
Let candidate brainstorm here.

If we move to a store validation model, in which a store validated the ticket of any customer that bought an item, the spots taken would increase to 10,000 and the cost per validation would be \$5 to the store. Assume every person parking a car would purchase an item. The number of permits would drop to 750. What would be the impact on daily revenue?

Solution

Sample Solution

Tourist / Shopper Revenue	10,000 spots x \$5 per spot = \$50,000; \$8,000 increase in Tourist / Shopper Revenue
Store Owner Revenue	750 permits x \$240 / 30 days = \$6,000; \$2,000 decrease in Store Owner Revenue
Total Change in Revenue	\$8,000 increase in tourist revenue - \$2,000 decrease in Store Owner Revenue = \$6,000 increase in revenue

Question #3

Question #3

Do you see any risks to a validation pricing model? Do you think you're likely to run into any resistance? From which types of stores and why?

Solution

Stores with high margins and high profits per transaction (like Tiffany & Co.) would be fine with paying this \$5 flat fee. Stores with low margins and low profit dollars per transaction (like an ice cream store) would likely lose money on every sale they make because all of their profits would be eaten up by the \$5 validation fee.

Question #4

Question #4

How else could you structure a validation model in order to get less pushback?

Solution

Instead of charging each store a \$5 fee per validation, charge each store a validation fee that is equal to a percentage of the transaction, or a percentage of the profit on each transaction.

Question #5

Question #5

How else could we monetize the excess parking spaces?

Solution

Concerts, street fair, roller hockey rinks, rent out the extra parking spaces to large sporting events like the U.S. open. Use it for commuter parking and have buses pick up commuters in the parking lots.

Conclusion

Recommendation <ul style="list-style-type: none">Move to validation model for parking lot	Rationale <ul style="list-style-type: none">Validation model can increase revenue generated by the parking lotThe utilization of the parking lot will increase and the municipality will enjoy a steady revenue stream from the stores
Risks <ul style="list-style-type: none">Push back from store owners	Next Steps <ul style="list-style-type: none">Negotiate accepted validation model with store ownersRun analysis to find best validation model in terms of revenue vs store push-back (flat fee, percentage of transaction etc.)

Exhibit #1

	Rate	Occupancy
Tourists / Shoppers	\$2 / hour \$10 maximum	30% total occupancy
		75% park for less than 5 hours, average 3 hours
		25% park for 5 hours or more
Store Owners	\$240 / month	5% occupancy for permits

Case# 4: Car Wash Chain

Industry: PE	Concepts Tested	Math	Structure	Creativity
Case Type: M&A	<ul style="list-style-type: none"> Growth strategy Market sizing Creativity Mental math 	Hard	Medium	Medium
Firm: Bain				

Problem Statement Narrative

The client is a private equity firm looking to acquire a chain of car washes in the United States. The car wash chain provides basic coin-operated, self-wash services for \$5, has 200 locations in 14 markets and had revenues of \$40M last year. The firm is targeting 30% revenue growth in 1 year to justify the acquisition. How would you think about whether or not this is attainable?

Case Notes

Classic PE case focusing on analyzing target's growth to justify acquisition. Most of the analysis will be based on assumptions (market sizing), with some additional information given in an exhibit.

Sample Framework

Guidance for Interviewer

Let Interviewee begin with wide analysis of potential growth areas, then guide towards new products and new markets

Clarification Answers if Asked

Can be told after framework to guide discussion:

- increasing sales of existing products and services in existing markets has already been explored and isn't a viable option

Sample Framework

1. Existing Locations

- New Products/Services
 - Customer demand
- Increase price
 - Price Sensitivity
- Change carwash hours
- Marketing
 - Advertising
 - Partnerships
 - Social Media etc.

2. New Locations

- Existing Markets
- New Markets
 - Competition & Response

3. Risks

- Cannibalization/Saturation
- Over-extended management
- Cost implications (*recognize we are primarily concerned w/ revenue here)

Question #1

Question #1

What do you think is the size of the carwash market as a whole in the United States?

Solution

Estimates:

• Number of cars owned

- 100M households w/ average 1.5 cars = 150 million vehicles
- Plus another 10% business or industrial vehicles = 165 million vehicles

• Estimate # of Washes per year

- Any number between 10 and 20 times per year is reasonable (We'll use 20)

Estimate average cost per wash ~ \$5

Total US market: \$16.5B

So long as the interviewee uses reasonable assumptions, any market size is fine.

Question #2

Question #2

Give Exhibit 1: Look at the following slide on their existing 14 markets and competitors in those markets. What do you gather from it?

Solution

Insights from slide:

- They have highest market share in about 10 of the 14 markets (all major cities) that they competed in and within those markets, many have no significant competition from other national chains. These could be targets for continued expansion either via driving competitors out of the market or acquiring smaller local chains.
- **Potential follow up:** What are the pros and cons of acquisition vs. building fresh?
- Another insight from the slide is that the chain is entirely concentrated in the Southeast and Pacific Northwest, ignoring major markets in the Midwest, Mid-Atlantic, Northeast, and Southwest.
- **Potential follow-up:** What factors would you consider in selecting potential areas for expansion?

Question #3

Question #3

What new products or services could the car wash company offer to grow their revenues?

Solution

Example solution

Most feasible/precedent:

- If they were not a full-service car wash, add additional services (wax, polish, undercarriage wash, detailing, vacuuming) to the existing car wash line. Eg., install coin-operated vacuums in a self-serve area after the car wash.
- If they don't have it already, add a retail sales area to the car wash where customers can purchase air fresheners, seat covers, convenience items, etc.

Medium feasibility/precedent:

- Explore adding a gas station or basic vehicle maintenance service (Oil changes, Tire replacements, etc.) to some of their larger carwash locations.
- Pick-up and drop-off services

Least feasible/precedent:

- Install coin-operated hoses for a gated pet-washing area (compete with a service that Petco offers)
- Explore adding a franchise fast food restaurant like Dunkin Donuts or Subway

Question #4

Question #4

After considering some of your ideas, the team has come up with the following information.

Solution

- People vacuum their cars half as often as they wash them when the price is \$0.50
 - Sub-Answer: Adding vacuums will result in additional revenue = \$2M (or $5\% = 10\% \text{ price} * 50\% \text{ frequency}$)
 - $(8\text{M washes} * 50\% \text{ frequency} * \$0.50)$
- Low frequency customers are willing to pay \$3 for wax services, while High frequency customers are willing to pay only \$1 for wax services. Make them ask for the following information:
 - Low freq: 10x/year; represent 25% of revenues
 - High freq: 30x/year; represent 75% of revenues
- Sub-Answer: Adding wax services for \$3 will result in add'l revenue = \$6M
 - $\$40\text{M annual revenue} * 25\% = \$10\text{M from low freq. customers. At } \$5/\text{wash, that's } 2\text{M washes. } 2\text{M washes} * \$3 \text{ wax} = \$6\text{M}$
 - Sub-Answer: Adding wax services for \$1 will result in add'l revenue = \$8M (or 20%, b/c everyone will use it)
- **ANSWER:** Adding vacuums for \$0.50 and waxing for \$1 will only achieve 25% revenue growth in 1 year

Conclusion

Recommendation

- Based on our analysis thus far, we've identified opportunities to achieve 25% revenue growth. This will be achieved by adding vacuum and waxing services to existing locations. We feel confident that, with further analysis, we can identify at least one more opportunity to close the final 5% gap that would justify the purchase of this carwash chain.

Rationale

- Target is market leader in several significant markets, yet is completely missing in several major markets which could be significant growth opportunities
- Target could also continue growing in markets it currently operates in, by buying out local competitors or driving them out of the market

Risks

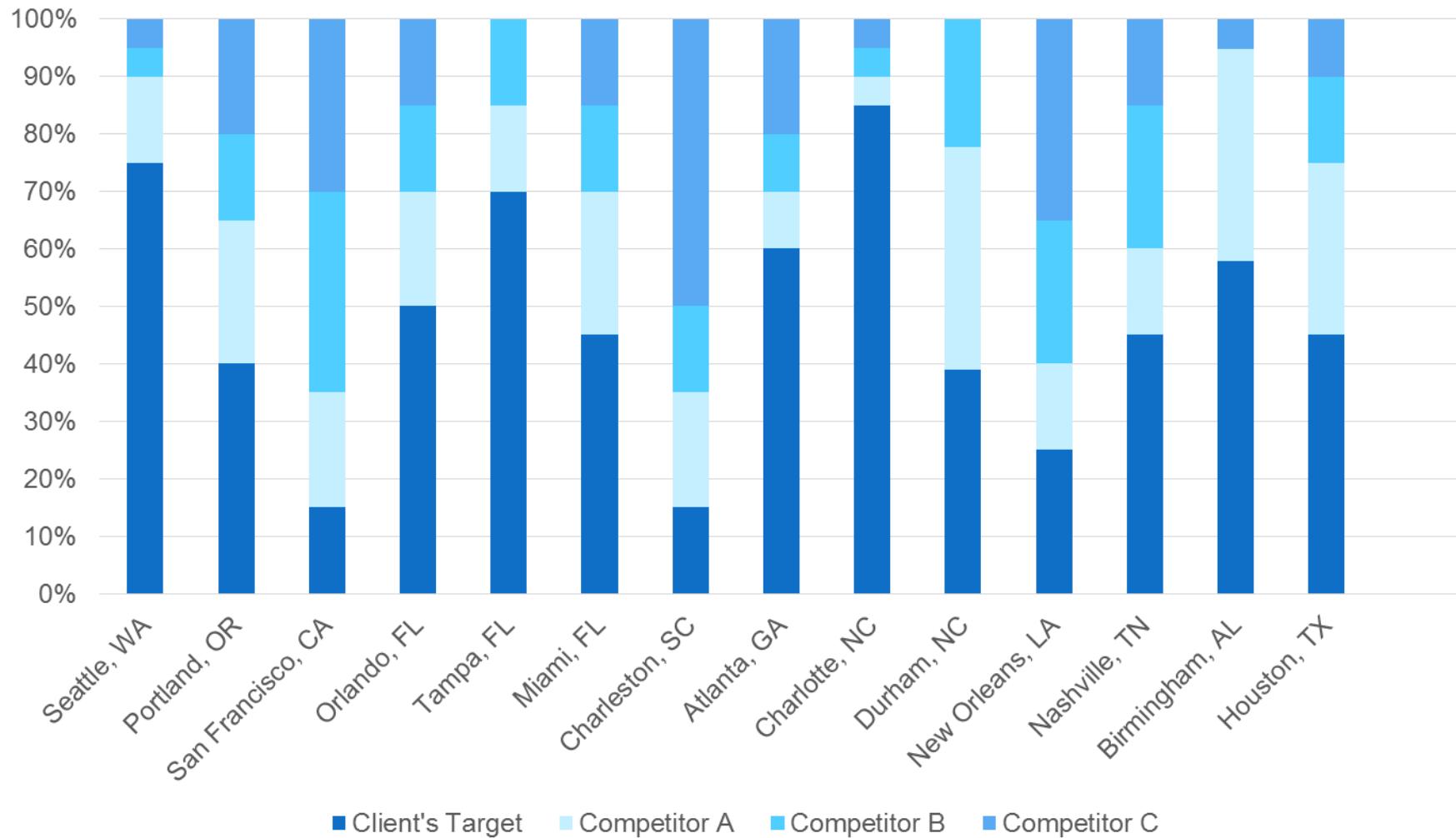
- Entering markets in which strong competitors exist could be tough
- Driving competitors out of existing markets could cause a price war
- Cost analysis of added services

Next Steps

- Research potential new markets to enter
- Dive deeper into existing markets to understand growth potential
- Discuss acquisition price

Exhibit #1

Market Share - Acquisition Target vs. National Competitors



Case # 5: Carbon Fiber Manufacturer

Industry: Case Type: Firm:	Manufacturing Market Entry BCG	Concepts Tested	Math	Structure	Creativity
		<ul style="list-style-type: none"> Market entry Mental math Cost analysis 	Medium	Medium	Medium

Problem Statement Narrative

Your client is a company that uses Carbon Fiber in its manufacturing process. Currently, it uses a traditional water based way of testing the carbon fiber for fractures, but it has developed a new laser based way of testing the Carbon Fiber for fractures. The company is contemplating commercializing this new carbon testing system and selling it to other companies which use carbon fiber in their manufacturing process.

- 1) What do you think could be the market for this new carbon fiber testing system (which industries)?
- 2) How would you approach selling this new testing system? What would make it a viable product?

Case Notes

- Case focuses on how to go to market with a new product, which is a system to test carbon fiber
- Question 1 is a rather open ended discussion question, that can be done *before* writing the framework. Interviewee should discuss which industries use carbon fiber (ex. Sports, aerospace, automotive etc.) and which would most benefit from a new testing system; interviewer can guide interviewee to industries such as aerospace in which safety is especially critical and testing for fractures is more important
- Question 2 can lead to actually writing a framework

Sample Framework

Guidance for Interviewer

- Guide interviewee towards focusing on industries that have the highest risk in carbon fiber breaking (like aerospace) and would thus benefit the most from an improved safety process
- Framework should focus on the benefit to potential customers; **interviewee should ask about cost savings in new testing system vs old water-based system (see exhibit 1)**

Clarification Answers if Asked

- New testing system is a proprietary process developed within the company and no one else on the market has it
- The new technology is faster than the current one
- Testing system has potential commercial value by selling it to other manufacturers that use carbon fiber
- Carbon fiber is used in many different industries (interviewee should brainstorm such industries)
- Industries that currently use carbon fiber will continue to use it in the foreseeable future

Sample Framework

- **Who to sell testing system to?**
 - Who would benefit most from testing system
 - High risk - industries that need a better system of testing carbon fiber for safety
 - High volume – industries that use a lot of carbon fiber and need faster testing system
 - High price – industries that would be attracted by potential cost savings
- **Potential cost savings**
 - Savings associated to a faster test process (i.e. lower cost per test)
 - Savings associated to indirect costs (i.e. less space in production floor, reduction of overheads that manage testing, lower maintenance required)
 - Savings due to fewer fractures in the future
- **How to approach the market?**
 - Approach potential customers directly (companies may be current competitors)
 - Create subsidiary for sale of new system
 - Partner with suppliers of carbon fiber for manufacturing

Question #1

Question #1

Interviewee should discuss cost savings in new process (interviewer may guide interviewee); Give Exhibit 1; Interviewee should calculate cost differences between new and old process

Solution

- Interviewee should calculate the cost of scanning per 100 SQF piece (size of pieces is the same in both systems), including depreciation, to figure out the savings per piece

Cost of scanning a 100SQF piece of carbon fiber:

Water testing system

Time: 5 hrs scan + 2 hrs setup = 7 hrs

Labor cost: \$100/ hr * 7 = \$700

Depreciation: (5hrs scan/1000hrs usable life)*\$10K = \$50

Total cost of scan: \$750

Laser testing system

Time: 1 hr scan + 0 hrs setup = 1 hr

Labor cost: \$100/hr = \$100

Depreciation: (1hr scan/1000hrs usable life)*\$80K = \$80

Total cost of scan: \$180

New system saves \$670 per scan

Question #2

Question #2

What could be some problems of going to market with this?

Interviewee should also offer solutions, if she/he doesn't, ask: How would you solve these problems?

Solution

- Main problem is a much higher up-front cost, with cost savings that make the investment worthwhile over time
- Additional problems could be:
 - Convincing manufacturers that are used to a testing system to risk moving to a new testing system (must prove reliability)
 - Dealing with other manufacturers that could potentially be competitors
 - Protecting the IP of the system and more
 - Establishing post-sales assistance and warranty
- Solution to high up-front cost could include: offering financing, developing a “pay as you save” system subscription model, lowering upfront cost and charging more for maintenance of system to recoup costs

Conclusion

Recommendation

- Client should commercialize new testing system
- Client should first seek to sell to customers in industries that would gain the most from cost savings and improved testing of carbon fiber like aerospace (safety is important)

Rationale

- New system has high commercial value as it can save \$670 of costs for each scan of a 100SQF piece of carbon
- Delivers test 7x faster than the old system

Risks

- High up front costs (8X the price of the current system) could make selling the product difficult
- Without IP / patent protection, competitors could develop similar testing systems and compete

Next Steps

- Reach out to potential customers to engage interest
- Find ways to offer financing / subscription models to help mitigate high upfront cost of new system

Exhibit #1

	Water Based Test	Laser Test
Max size of scanned carbon piece	100 SQF	100 SQF
Cost of labor	\$100/hour	\$100/hour
Set up time	2 hours	0 hours
Speed of scan	20 SQF/hour	100 SQF/hour
Initial cost of test system	\$10K	\$80K
Usable Life	1000 hours	1000 hours

Case # 6: Cow Dairy Milk

Industry: Healthcare	Concepts Tested	Math	Structure	Creativity
Case Type: Pricing Strategy	<ul style="list-style-type: none"> Pricing strategy Competitive landscape 	Easy	Medium	Easy
Firm: N/A				

Problem Statement Narrative

Our client is a healthcare provider for animals. The client has recently developed a product that enables cows to increase milk production by 20%. They have turned to you to figure out how to price this new product in order to maximize profits.

Case Notes

This case is essentially a long discussion around the framework the interviewee will build to tackle the prompt, without much math at all. Interviewer should guide interviewee towards discussion around pricing

Sample Framework

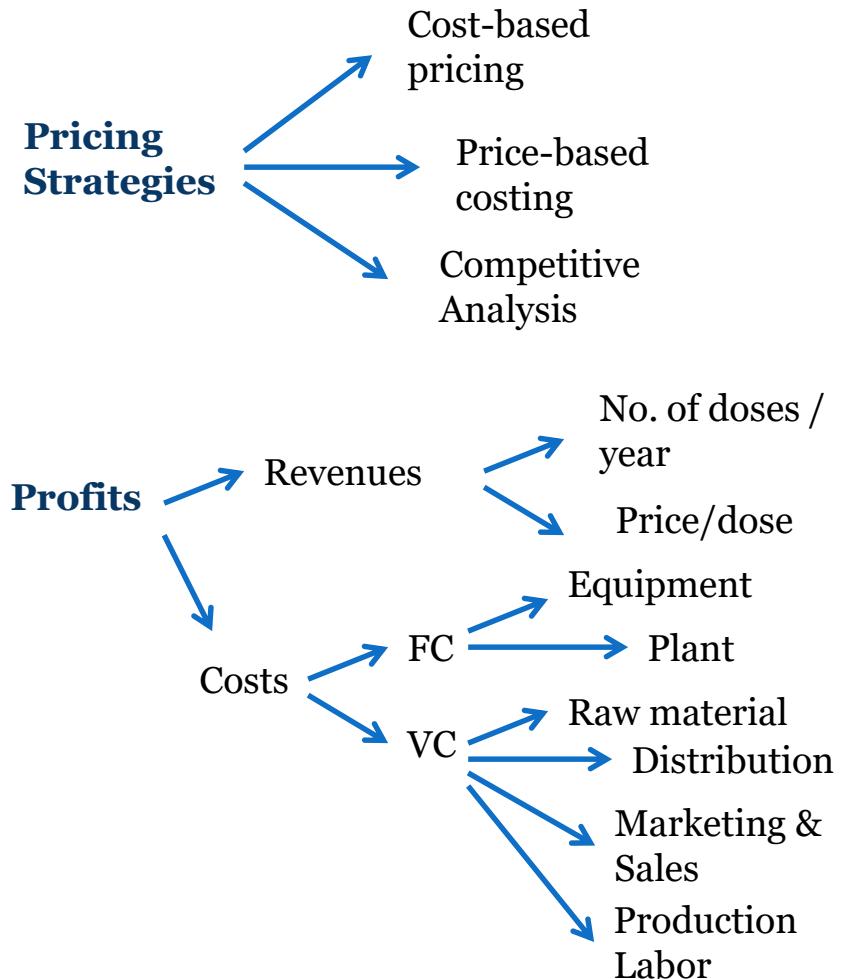
Guidance for Interviewer

There is much additional information to be given (see below). Interviewee should ask about these issues, interviewer may “nudge” interviewee in the right direction.

Clarification Answers if Asked

- Company does not have patent for product
 - Company is operating in the US
 - The product is sold and administered in doses
- Interviewee should ask about competitive landscape; additional information to be given:**
- There is one competitor who has a similar product that is as safe as the one our client has but only increases milk production by 5%
 - Competitor is pricing product at \$300 per dose
 - Cows need to be administered 2 doses per week irrespective of which product is used
 - Customers (farmers in this case) are very price sensitive
 - Total cost to client is \$30 per dose

Sample Framework



Potential Areas for Analysis

Competitive Analysis

- At an early stage in the case the candidate should ask about the competitive landscape. Then (s)he will learn about the competitor and the price of \$300.
- Ideally (s)he should also ask about the product specifications. Then (s)he will know that the competitor's product only increases production by 5%, and not by 20%.

Costs

- Candidate should ask if there is any information regarding costs. Caser should indicate that the company can leverage existing knowledge and operations to keep FC & VC at \$30 per dose
- Additionally, sales & marketing capabilities will be required to capture market share. The caser should let the candidate come up with an estimation of how to calculate SG&A costs.

Revenues

- Revenue = price/dose * # of doses/cow * # of cows
- Market sizing calculations will be required. Caser should check for proper business assumptions on # of cows, both in terms of general cow population, as well as the % our client expects to capture (market share). It is safe to assume high % of market share, given that our client's product is 4X more efficient than the competitor's product.
- Communicate # of doses (2 per week).
- Let the candidate assume that the price will be \$300 to do the revenue calculations.

Company capabilities

- Sales & marketing capabilities for the client to acquire increased market share
- Client should start the patent registration process
- Post sale customer support for ongoing maintenance of the product

Question #1

Question #1

How would you calculate the potential profit opportunity for this product?

Solution

- Revenue = price/dose * # of doses/cow * # of cows
- Market sizing calculations will be required. Caser should check for proper business assumptions on # of cows, both in terms of general cow population, as well as the % our client expects to capture (market share). It is safe to assume high % of market share, given that our client's product is 4X more efficient than the competitor's product.
- Communicate # of doses (2 per week).
- Let the candidate assume that the price will be \$300 to do the revenue calculations

Example:

Approximately 10M **dairy** cows in the US (as opposed to beef cows)

Assume 20% market share (or any reasonable market share) = 2M cows

2 doses per week * 52 weeks = 104 doses (can round to 100)

Revenue: \$300 * 100 doses * 2M cows = \$60B (\$62.4B if using 104 doses)

Cost: \$30 * 100 doses * 2M cows = \$6B (10% of revenue)

Profit potential: \$54B – 90% margin at a price of \$300

Conclusion

Recommendation	Rationale
<ul style="list-style-type: none"> • Price product at \$300 per dose 	<ul style="list-style-type: none"> • Pricing at \$300 gives our client a hefty profit (considering costs are low) with a 90% margin • Although our product is four times more efficient, customers are price sensitive so we can't charge significantly higher. • We can leave room for promotion considering the hefty margin • We expect customers will switch over to our client's product because it's better quality for the same price
Risks	Next Steps
<ul style="list-style-type: none"> • Competitive response: <ul style="list-style-type: none"> • No patents – product may be replicated • Threat of new players that come up with better and more efficient products 	<ul style="list-style-type: none"> • Analyze competitive response • Start the patent registration process • Launch new product • In parallel continue to work on R&D. High margins allow space for it. In the long run it will help our client maintain innovation and minimize threat of competitors.

Case # 7 : Fast Food Co.

Industry: Food	Concepts Tested	Math	Structure	Creativity
Case Type: Market Entry	<ul style="list-style-type: none"> Market sizing Mental math Market entry 	Easy	Medium	Easy
Firm: KPMG				

Problem Statement Narrative

Fast Food Co is a US and Canada based quick service restaurant food chain that had \$10B in revenue last year. In order to expand their business, Fast Food Co. is looking to expand internationally. Help them evaluate whether this is a good idea.

Case Notes

Case is a classic market entry exercise, including market sizing and brainstorming. Notice additional information to be given upon interviewee's questions.

Sample Framework

Guidance for Interviewer

- Interviewee should ask questions to obtain additional information (see below); interviewer should promote discussion if interviewee does not ask questions

Clarification Answers if Asked

- They have been thinking specifically about entering Chile
- The client wants a market with similar characteristics as North America
- No info on competition in Chile
- No info on revenue trends
- Target market share in Chile is 20%, no specific time frame.
- Chile has 20M people
- We don't know anything else about the market
- Interviewee can assume the ages are evenly distributed

Sample Framework

Interviewee can use a classic expansion framework, that includes a market sizing for the new market:

Expected profit

- Revenue = market size*market captured
- Costs of expansion into new market
 - Differentiate ways of entering: JV, acquisition, by themselves

Market

- Consumer preferences
- Current competition / competitive response
- Access to raw materials, relationship with suppliers
- Risks
 - Regulatory risk of entering a new market
 - Competitive response

Company

- Client capabilities
- Sales and marketing
- Brand
- Management strength
- Opportunity cost of investing in other markets

Question #1

Question #1

What is the market size of fast food in Chile and what would be our client's share?

Solution

Possible solution: Break up 20M by age

Grouping into **0-20, 21-40, 40-60, 61-80** seems most logical and close enough to reality

Assume an even population distribution between these age groups

Apply a percentage to figure out how many eat fast food (Say, 50%, 40%, 30%, 20% for respective age groups above); if the candidate initially assumes the same percentage of fast food eaters is the same for each age group, ask them to think about why these percentages are instead likely to vary by age group and guide them to assuming different penetration rates for each age group

of people who consume fast food = $5 * 0.5 + 5 * 0.4 + 5 * 0.3 + 5 * 0.2 = 2.5 + 1 + 1.5 + 1.5 = 7M$

Estimate that they spend **\$10 a week**, every week for 50 weeks, or \$500 a year on fast food.

Market size = \$500 spend * 7M = \$3.5B

Market captured by our client (target) = 20% * 3.5B = 700M

Question #2

Question #2

What are the risks/challenges to entering the Chilean market?

Solution

Encourage the interviewee to organize their brainstorming in a **structured** way. Examples could include:

Cultural

Lack local expertise so need to hire country manager; dietary trends may be different which could force our client to adjust the menu for its Chilean restaurants; takeout vs. eat-in preferences in Chile could differ meaning that client might have to design Chilean restaurants differently than U.S. and Canada

Operational

Likely need to secure local providers of ingredients; geographic distance from U.S. and Canadian core business could make Chilean operations difficult to manage

Financial

Large upfront capital investment; significant local advertising expenditures needed to promote brand and market share

Regulatory

Labor laws for employees might be more prohibitive; perhaps unions are stronger in Chile; risk that government could pass regulation to favor local restaurants over foreign entrant

Conclusion

Recommendation

- Recommendation **could go either way**, as long as rationale is reasonable
- Client should consider other options, considering that the opportunity is relatively small and there are many risks

Rationale

- \$700M opportunity would be 7% the size of the rev that they did last year in the US and Canada – therefore, the Chilean market may not be big enough, especially given the unknowns
- 7% revenue growth should be evaluated vis a vis the client's targets and other available opportunities

Risks

- If they do decide to enter - how will competitors respond to the client's entry?
- Our client's offerings may not be compatible with the Chilean consumer's preferences
- Large upfront investment required

Next Steps

- Evaluate other opportunities
- If the decision is to move ahead, evaluate entry options: organic growth, franchise model, JV with another company

Case # 8 : Frozen Food Co.

Industry:	Food	Concepts Tested	Math	Structure	Creativity
Case Type:	Profitability				
		<ul style="list-style-type: none"> Cost analysis Mental math 	Easy	Easy	Easy

Problem Statement Narrative

Our client, Frozen Food Co (FFC), is a leading manufacturer of single serve frozen meals. The frozen meals are typically sold in supermarkets, bodegas, gas stations, and cafeterias (such as in airports, hospitals, and other workplace-type cafeterias). The company has asked us to help them determine the cause of the declining profitability over the past two years, and to explore options to reverse the problem.

Case Notes

The case becomes more specific, but for the initial framework, the interviewee does not need to know much information. S/he can think of FFC as a top player in the frozen meal (tv dinners, essentially) industry, and needs only to consider the US market for now. If asked whether the frozen food market is contracting, at this stage interviewer can just advise interviewee that we do not have that information but that s/he may consider that for the framework. In short, there is really no specific info that the interviewee needs up front.

Sample Framework

Guidance for Interviewer

Encourage the interviewee to think through anything. Ideally, they should reach profitability and market as their main buckets of inquiry.

Clarification Answers if Asked

See previous slide for notes – the interviewee really does not need a lot of information at this stage. If asked about distribution, packaging, and manufacturing generally, no details are really needed at this point, but interviewee can presume that those are all elements of FFC's operations and should be considered.

Sample Framework

Profitability

- Revenue considerations (price x quantity; could also consider product mix);
- Cost considerations (packaging, labor, distribution, raw materials, advertising)

Market

- Competition (who is it? Are we losing market share? Why?)
- FFC itself (Are our products relevant and attractive? Are we distributing in the right places?)
- Customers (Is there a move away from frozen foods? Are consumers looking for easy meals that are or that seem healthier than frozen foods? Is the rise of food trucks the issue in urban markets? Okay to get creative here)

Potential Areas for Analysis

Market

- Competition
- Consumer culture with respect to frozen foods
- Rise of health consciousness

Company

- Are we in the right places
- Are we offering the right frozen products
- Is there dead weight among our products
(underperformers that we can get rid of? Hero products that we should build off of?)

Revenues

- Consider the average price x quantity
- Consider whether we are sold in the right places

Costs

- Consider distribution, raw materials, packaging, advertising, shipping, labor, etc.

Question #1

Question #1

Who do you think are FFC's consumers?

Solution

Here, we are asking that the interviewee segment the market and offer justifications for the segmentation. Steer interviewee away from considering the direct customer to FFC (the supermarkets, bodegas, etc.). This question is about the people who are in the market for this product, who ultimately drive demand.

Can be segmented in a few different ways, but each should basically be a derivative of how frequently the consumer uses a frozen food meal (uses for meals even at time/uses in the office, a couple of times a week, uses only when necessary on the go – at hospital, airport, etc.).

Question #2

Question #2

Give Exhibit 1. We have this information about the size of FFC's packaging and the amount of ingredients used in each package, as compared to 2 leading competitors. What do you understand from this?

Solution

- FCC's package is significantly larger than its competitors, could be a significant driver of cost both in terms of packaging materials and shipping costs
- FCC's product has almost twice as much meat as the next competitor – meat may be the most expensive ingredient in the product and another significant driver of high costs which impact profitability
- FFC's pricing seems to be off - FFC and Eat Co both sound "standard" frozen food producers, and Eat Co. is significantly less expensive. By contrast, Fresh n Healthy seems to be marketing itself as a healthy product, which usually commands a premium, but it is less expensive than FFC.

Question #3

Question #3

FCC is considering reducing the size of its package so that it will be the same size as Eat Co's packages. According to FCC, it's packaging costs 0.5 cents per square inch. Can you calculate the cost savings by reducing the size of the package?

Solution

Top and bottom of package

Old: $15 \times 10 = 150$ sq inch

New: $9 \times 6 = 54$ sq inch

Difference: 96 sq inch

Difference for both top and bottom: **192 sq inch**

Long sides of package

Old: $15 \times 4 = 60$ sq inch

New: $9 \times 3 = 27$ sq inch

Difference: 33 sq inch

Difference for both long sides: **66 sq inch**

Short sides of package

Old: $10 \times 4 = 40$ sq inch

New: $6 \times 3 = 18$ sq inch

Difference: 22 sq inch

Difference for both short sides: **44 sq inch**

Total difference: 302 sq inch * 0.5 cents = 151 cents = \$1.51 saving per each package

Conclusion

Recommendation	Rationale
<ul style="list-style-type: none"> FCC should decrease the size of its package Additional changes to explore upon further examination: decreasing amount of meat in each meal, changing pricing to better compete 	<ul style="list-style-type: none"> The cost savings from packaging alone will be substantial - ~\$1.5 per meal At the same time, we noticed that we put twice as much meat in the product. We did not have cost figures for the meat, but it struck us as another potential area for cost savings.
Risks	Next Steps
<ul style="list-style-type: none"> Consumers may not like the change to smaller packaging Smaller packaging requires change in amount of ingredients (could be good thing to save on meat) 	<ul style="list-style-type: none"> Move forward on smaller packaging Working with marketing to make sure our product is still recognizable Explore the meat issue as next area for further cost saving Explore pricing issue to find better pricing strategy

Exhibit #1

Packaging and materials – FFC vs Competitors

	Frozen Food Co.	Eat Co.	Fresh & Healthy
Dimensions of packages (L,W,H)	15", 10", 4"	9", 6", 3"	8", 6", 3"
Materials (weight in oz.)			
Tomatoes	8	4	6
Pasta	8	8	4
Meat	15	8	6
Retail Price	\$6	\$4	\$5

Case # 9 : Grocery Store

Industry: Case Type:	Retail Profitability	Concepts Tested	Math	Structure	Creativity
		<ul style="list-style-type: none"> Profitability Creativity Mental math 	Easy	Easy	Easy

Problem Statement Narrative

Your client is a grocery store that primarily operates in the southern US. Your point of contact works in the beverage department which consists of carbonated beverages (soda), non-carbonated beverages, and water. Revenue has been dropping in the last two years, specifically in carbonated beverages. How would you recommend improving the performance of carbonated beverages.

Case Notes

Simple case offering a straightforward practice of basic casing concepts: framework, mental math, exhibits, brainstorming and conclusion. Not much information to be given beyond the exhibit.

Sample Framework

Guidance for Interviewer

Ask what the interviewee would consider to increase revenues (promotions, placement in store..)

Clarification Answers if Asked

- Goal is profitability, not just revenue
- Revenue fell 1% two years ago and 3% last year
- Pricing has been stable and in line with competitors
- Stable pricing indicates lower volume

Sample Framework

Company

- Beverages Profit
 - Revenue (mix-brands, total \$)
 - Costs (costs per brand)
- Full Store Revenue

Customers

- Price Sensitivity
- Brand Loyalty
- Taste / trends

Market

- Growth or Decline
- Competitors

Potential Areas for Analysis

Store Placement

Where are the carbonated beverages sold?

- Currently just sell in the beverage aisle
- Could also be sold on end-caps, coolers by the registers, or out front of the store

Beverage Department

- Brands: Coke, Pepsi, Dr. Pepper, Boylan's (craft brand), Store Brand

Revenues / Costs

- See Exhibit 1

Brand Loyalty

- While we don't have numbers, we know that a large majority of Coke drinkers will always choose Coke. The same goes for Pepsi and Dr. Pepper.

Question #1

Question #1

Show Exhibit 1. Now that you've seen the volume and margins of each brand, which brand would you recommend the client focus on to increase revenue and profitability?

Solution

Focus on the store brand. It offers the largest margin percentage, (2X the revenue per case compared to coke) and at the lower volume it potentially has room to grow. Also, it would be harder to convert loyalists of the other brands which may remain customers and choose those brands no matter what promotion we could run. We need more customers to buy soda, and promoting the store brand gives the client the best opportunity to do so while increasing the profit margin.

Question #2

Question #2

- A) What percentage of the store's profit is from the Store Brand?
- B) How many cases of the store brand would the client need to sell so that the profit earned from the store brand is equal to the profit it earns from its most profitable brand?
- C) **Interviewee should comment on the answer to question B/ interviewer can follow up:** Do you think increasing sales by an additional 1K cases is a reasonable goal?

Solution

Profit from Coke: \$0.50 margin * 10K cases = \$5K

Profit from Pepsi: \$0.75 margin * 7K cases = \$5.25K

Profit from Dr. Pepper: \$0.75 margin * 8K cases = \$6K

Profit from Boylan's: \$2 margin * 1K cases = \$2K

Profit from store brand: \$1 margin * 5K cases = 5K

A) $5K/23.25K \approx 21.5\%$ (okay to round out)

B) Store would need to sell an additional 1K cases, for a total of 6K cases and a profit of \$6K

C) Additional 1K of sales (~20% increase of sales) is not easy and is not realistic without any specific strategy on expansion

Question #3

Question #3

What are some ways the grocery store can increase the sales of the Store Brand?

Solution

This is an open brainstorming question, the important element is to have the interviewee remain structured while coming up with good ideas.

Example:

Product	Marketing
Offer new flavors	Discounts
Offer more sizes	New packaging
Improve recipe	Bundling with other products
Expand store brand to other products (food, snacks, etc)	Better placement in store

Conclusion

Recommendation	Rationale
<ul style="list-style-type: none">Focus on the store brand	<ul style="list-style-type: none">Store brand has the highest marginRoom to grow. We can attract the non-loyal soda drinkers to buy it. It has the best profit margin.
Risks	Next Steps
<ul style="list-style-type: none">Cannibalization of brands - having the small fraction of non-loyal Coke/Pepsi drinkers switch to the store brand, which would increase profit margin but not revenue.	<ul style="list-style-type: none">Determine the best promotion/marketing for our store brand as well as store placement to entice customers to buy it.Run taste tests to improve store brand if possible

Exhibit #1

Product	Revenue	Cost	Number of Cases
Coke	\$5.00	\$4.50	10,000
Pepsi	\$6.00	\$5.25	7,000
Dr. Pepper	\$5.00	\$4.25	8,000
Boylan's	\$10.00	\$8.00	1,000
Store Brand	\$4.00	\$3.00	5,000

Case 10 #: Hotel Ocho

Industry: Hospitality	Case Type: Profitability	Firm: McKinsey	Concepts Tested	Math	Structure	Creativity
			<ul style="list-style-type: none"> • Profitability • Computation • Creative Thinking 	Medium	Easy	Hard

Problem Statement Narrative

Our client, HotelOcho, is a budget hotel chain based in Spain with 800 locations across Europe, with 75% owned by franchisees and 25% owned by the company. The hotels are organized under six different brand names, which are popular among young travelers and cash-strapped business travelers alike. Though the rooms are small and spartan, the chains are renowned for bed comfort and friendly service. Customers are loyal to specific brands and TripAdvisor has several discussion threads featuring arguments about which brand is "best." A particular point of pride of HotelOcho is its highly de-centralized, hands-off management team, so these conversations are often used by brand managers to help evaluate the marketplace. Over the last three years, profit has been dropping for HotelOcho. Though the industry in general has been experiencing softness and oversupply, HotelOcho's profit has been declining faster than others'. HotelOcho has hired McKinsey to help restore profitability.

Pause here and ask student if he/she needs any further clarification on the above. This pause is really just about clarification on the information so far, as the next question (before the framework) is far more specific.

McKinsey has determined that one of the key drivers of HotelOcho's costs is purchases of washable room items, particularly towels and bedsheets. Towels and sheets are purchased as sets (each room has one set of towels and one set of sheets) and the price of each set is negotiated at the corporate level with its supplier, which has several factories spread across Europe. When towels and sheets are ordered, the general manager of each hotel contacts HotelOcho's exclusive distributor, which orders the items from the factory and delivers them to the hotel. Can you brainstorm some ways that HotelOcho could save money on its towels and sheets orders?

Sample Framework

Guidance for Interviewer

There's an optional twist in this case: when asked for a couple minutes to sketch one out, feel free to say no (or yes, but that you want to hear the student's thoughts out loud as the framework is developed). It's a good way to shake someone out of a rhythm and get him/her used to going with the flow.

Clarification Answers if Asked

- There are several designs used across brands, and not every brand (or even hotel) is consistent with its purchases. Each set costs the same, however.
- There is no need to worry about FX (foreign exchange rates,) as all costs are in euros.
- The distributor charges a set fee for each order placed.
- Towels and sheets are designed to last at least three years, but HotelOcho recommends replacing every two years.
- A towel set includes two washcloths, three hand towels, two bath towels, and a bath mat.
- A sheet set includes four pillowcases, a fitted sheet, a top sheet, and a duvet cover.

Sample Framework

Framework (this should essentially be a list of suggestions on how to save money)

Towels & Sheets (materials)

Use cheaper materials
Include less in towel set / use less material
Eliminate duvet cover or top sheet in sheet set
Use longer than two years

Ordering process

Standardize towel and sheet design
Coordinate buying decisions among local chains
Eliminate distributor / find new one
Change supplier
Lock in long-term contracts for a discount

After the list is completed, ask the student to choose the best two or three ideas that should be pursued first. Push back on the top suggestion and force him/her to defend the choice.

Question #1

Question #1

As it turns out, the two most viable options to save money are standardization of design and moving to a Chinese supplier. Can you tell me what the savings would be in year one and two if those changes are implemented? What are the risks associated with this strategy?

Solution

Key data points are below, but don't give until it is specifically asked for.

For purposes of this analysis, the life of the sheets and towels can be ignored.

Towels: €10 per set (including distributor shipping)

Sheets: €30 per set (including distributor shipping)

Total purchases last year: €50m

Purchase quantity breakdown: Half towel sets, half sheet sets

Standardization of design: 5% savings per set (based on original supplier prices)

Standardization design cost: €10m

Chinese supplier discount:

Towels: €3.00

Sheets: €5.50

Additional distributor shipping charges:

Towels: €0.50

Sheets: €1.00

Question #1 (cont.)

Question #1

As it turns out, the two most viable options to save money are standardization of design and moving to a Chinese supplier. Can you tell me what the savings would be in year one and two if those changes are implemented? What are the risks associated with this strategy?

Solution

Category	Notes	Current Year		Year 1		Year 2 (and beyond)	
		Price	Total Cost	Price	Total Cost	Price	Total Cost
Towels	1.25m sets	€10.00	€12.5m	€7.50	€9.375m	€7.50	€9.375m
Sheets	1.25m sets	€30.00	€37.5m	€25.50	€31.875m	€25.50	€31.875m
Standardization	5% of €50m		n/a		(€2.5m)		(€2.5m)
Investment	€10m one-time		n/a		€10m		
Total			€50m		€48.75m		€38.75m

*Note that the 5% price drop could also be incorporated into the price above, which would make the price of towels €7.00 and the price of sheets €24.00

Insight: Not only would this change increase profits, the payback period is less than a year and by year two there would be a cost savings of over 20% on a key cost item!

Risks

- Brand confusion / diminished differentiation
- Could a decentralized team really standardize a design that quickly?
- Enforcement of new ordering mechanism
- Political risk of ordering from China
- Inferior materials
- Transportation time / higher variable cost
- Distributor / supplier relationship

Question #1 (cont.)

Math done alternate way

Category	Notes	Current Year		Year 1		Year 2 (and beyond)	
		Price	Total Cost	Standardized Price	Total Cost	Standardized Price	Total Cost
Towels	1.25m sets	€10.00	€12.5m	€7	€8.75m	€7	€8.75m
Sheets	1.25m sets	€30.00	€37.5m	€24	€30m	€24	€30m
Investment	€10m one-time		n/a		€10m		
Total			€50m		€48.75 m		€38.75m

Insight: Not only would this change increase profits, the payback period is less than a year and by year two there would be a cost savings of over 20% on a key cost item!

Risks

- Brand confusion / diminished differentiation
- Could a decentralized team really standardize a design that quickly?
- Enforcement of new ordering mechanism
- Political risk of ordering from China
- Inferior materials
- Transportation time / higher variable cost
- Distributor / supplier relationship

Question #2 (extra credit)

Question #2

We've also discovered that one-third of the franchisees are replacing their sheets and towels every year rather than every two years. Why might that be?

(soft brainstorm, answer is that minerals in water diminish the quality of the towels / sheets)

If the necessary filters are installed, how many less sets of towels and sheets will be purchased each year? How much will the company save per hotel, assuming the original sheet and towel costs? Assume that half of the company-owned hotels and half the franchisees replace their sets each year (i.e., a two year cycle).

Solution

The easiest way to do this is to consider the total number of hotels, which is 800. Therefore, 200 hotels must be replacing sets every year and 600 hotels must be replacing sets every other year (this can also be thought of as 300 per year). The 200 'always-replacers' represent 40% of the purchases every year ($200 / 200+300$). 40% of 1.25m sets is 500,000 sets. Divide this by two (the equivalent of moving to an every-other-year cycle) to yield 250,000 sets of both towels and sheets that can be saved every year.

Using the original price structure (€10 per towel set and €30 per sheet set) and assuming that a water filtration system lasts ten years, how much is the maximum you would be willing to pay per hotel to install the system? The discount rate is zero.

Savings: $250,000 * \text{€}10 + 250,000 * \text{€}30 = \text{€}10\text{m overall per year, €}100\text{m over the course of the system}$

Savings per hotel: $\text{€}100\text{m} / 200 \text{ hotels} = \text{€}500,000 \text{ per hotel}$

If the system costs exactly €500,000, should it still be installed?

YES: better standardization, higher quality drinking water, will also clean other items

NO: lower prices of towels / sheets make this less cost effective, perhaps government will do it

Conclusion

<p>Recommendation</p> <ul style="list-style-type: none"> • To increase profits, standardize washables design and move to Chinese supplier • (Q2 Extra Credit): Install water filtration system to decrease need for towel change 	<p>Rationale</p> <ul style="list-style-type: none"> • Increased profit of over €10m per year by year two • Less than one year payback period of initial investment • Possibility of more savings by installing water filtration systems or eliminating distributor
<p>Risks</p> <ul style="list-style-type: none"> • Design coordination • Brand confusion • Quality of materials from Chinese factory • Redundant filtration system if local government steps up 	<p>Next Steps</p> <ul style="list-style-type: none"> • Begin designing new washables and breaking contract with original supplier • Research water filtration systems

Case # 11: Ice Cream Co.

Industry: Retail
Case Type: Profitability
Firm: KPMG

Concepts Tested	Math	Structure	Creativity
<ul style="list-style-type: none"> Profitability Cost Cutting Creativity Mental math 	Easy	Medium	Medium

Problem Statement Narrative

Our client is Ice Cream Co, a mid-size ice cream retailer in the Southeast region. You have been working with the VP of Sales & Marketing to figure out why profitability is down 20% in the last year. She has hired you to find out why this is happening and how to fix it.

Case Notes

This case is a mix of brainstorming with lighter quantitative analysis (mostly to identify glaring trends). The interviewer asked additional qualitative questions along the way (i.e. why do you think that is? Why is that number high?) and also acknowledged that the case was relatively vague.

Sample Framework

Guidance for Interviewer

This case prompt is vague and the interviewee should ask clarifying questions to get more information upfront to complete the framework.

This is a profitability case, but it is also important for the interviewer to identify that a root cause of the issue is a new competitor with an innovative new business model (i.e. Uber-like delivery of ice cream).

Clarification Answers if Asked

- Profitability has decreased by 20% over the last year, but costs have remained flat.
- There are three main competitors in the market. All of them have experienced similar declines in profitability and market share in the last 5 years.
- This is because there is a new ice cream company in town with similarly priced ice-cream products but a new business model. They do not have retail locations, but instead partner with a ride-sharing service to distribute their product. The customer pays an extra \$1 delivery fee per product to use the service (that goes to the ride-sharing partner but ask the interviewee how they think it is split).

Sample Framework

Profitability

Revenue: # of units sold * price per unit

Costs: Fixed Costs + Variable costs per unit

Ice Cream Industry

Competitive Landscape
Customer Preferences
Market Trends

Internal Capabilities

Distribution & Supply Networks
Sales & Marketing
Competitive Advantage
Product Development

Ways to Increase Profitability

Introduce a new product
Increase Sales & Marketing efforts
Expand new distribution/supply channels
Grow via a partnership (M&A, JV, Outsource)
Cost cutting initiatives

Additional Info / Areas for Analysis

Market

- There are three main competitors in the market and all of them have experienced similar declines in market share over the last year.
- There is a new ice cream company in town with similar prices/product but a new business model. They do not have retail locations but instead partner with a ride-sharing service to distribute their product. The customer pays an additional \$1/pint for the delivery fee that goes directly to the ride sharing partner.

Company

- Major ice cream retailer in the Southeast region that purchases their ice cream from a distributor and sells pints at their store locations.
- They only sell pre-packaged pints (i.e. there are not like a Baskin Robbins that scoops ice cream cones/cups in the store).

Revenues

- Profitability has been down by 20% in the last year in same store sales
- On average, each store sells 2,000 pints/month at a price of \$6.25 each.

Costs

- Costs have remained flat
 - Variable Costs: \$1.45 / pint
 - On average, fixed costs per store are:
 - \$5,000/month in labor
 - \$2,000/month in rent
 - \$1,000/month in utilities
 - \$1,500/month (other, including insurance and security)

Question #1

Question #1

Calculate the average monthly profit for each store

Follow up question – how can the client increase those margins?

Solution

Contribution Margin: $\$6.25 - \$1.45 = \$4.80$ per pint

Monthly Revenue per Store: $\$4.80$ per pint * 2,000 pints sold = $\$9,600$ revenue

Monthly profit = $\$9,600 - \$9,500$ in fixed costs = $\$100$ /month (1.04% profit margin)

- The interviewee should proactively mention that this is a low figure. If not, prompt them on their thoughts to assess business judgment. Bonus if they calculate profit margin % and use in their argument.

How can the client increase those margins?

- Fixed costs are extremely high so look at ways to cut costs
 - Interviewee should notice that labor is almost 50% of costs – how can the client lower this? By reducing hours, staffing less people in the stores, hire lower-skilled labor at lower wages, etc.
- Lower the price to increase volume
 - However, do this if the client can cut costs first because the current margin is so small.
- Look at value-add opportunities and increase the price
 - Can the client bundle with other items or add any other features to increase consumer's WTP (customizable pints – ordered online, package in the distribution center, pickup in store)?

Question #2

Question #2

The ride-sharing ice cream competitor charges \$6.25 per pint but also adds a \$1 delivery fee. They are considerably more profitable than Ice Cream Co. Why do you think that is?

Solution

- The interviewee should hypothesize that the competitor has a significant cost advantage (as the products are similar). Both companies charge the same price for a pint of ice cream so the difference comes down to this hypothesis.
- The interviewee should highlight the need to compare the cost structure between the client and the new competitor
 - Ice Cream Co. has very high fixed costs (rent, labor, etc.) because they operate out of retail locations without much value-added services.
 - Competitor has lower fixed costs because they do not have retail locations and only sell their ice cream via the ride sharing service. Potential costs they might have are:
 - Distribution/transport
 - Inventory management system
 - Rent and operating costs on their warehouse
 - Fees associated with the ride-sharing service partnership
- The \$1 delivery fee is given 100% to the ride sharing partner (to incent the partnership) but ask the interviewee for their opinion first to see how they respond before explaining that the \$1 is to incent the partner.

Conclusion

Recommendation	Rationale
<ul style="list-style-type: none"> In order to compete with the new competitor, Ice Cream Co. must first increase its margins by reducing costs and finding ways to increase sales volume. 	<ul style="list-style-type: none"> Currently each store only makes \$100 monthly profit (or 1%), so the client need to increase that profit margin in order to invest in new ways to drive company growth and gain back market share from the competition.
Risks	Next Steps
<ul style="list-style-type: none"> The current fixed costs (rent, labor, etc.) might be under long-term contracts and therefore the client cannot implement short-term reductions. There might be new entrants to the market with other new business models, products, etc. that might continue to steal into Ice Cream Co.'s market share if they do not implement strategic changes quickly. 	<ul style="list-style-type: none"> Meet with the client to dive deeper into their cost structure to find ways to reduce both fixed and variable costs. Gather store-specific cost data (as it was presented in averages) to rationalize reductions or shutdowns. Consider reducing headcount in higher cost labor stores, or close stores with higher-than-average rent with lower-than-average sales.

Case 12: Life Insurance Merger

Industry: Insurance	Concepts Tested	Math	Structure	Creativity
Case Type: M&A	<ul style="list-style-type: none"> Profitability Synergies Creativity Mental Math 	Easy	Easy	Easy
Firm: Bain				

Problem Statement Narrative

Our client is a German insurance company that is merging with another German insurance company. Our client currently utilizes an independent sales force structure, where its sales team can sell any type of insurance to customers. The other insurer utilizes a non-independent sales force structure, where its sales team has less autonomy and can sell only its insurance to customers. It has three options: 1) Keep the independent sales force model under the merged insurance company; 2) Move to the non-independent sales force model under the merged insurance company; 3) Keep the status quo for each company, under one umbrella company. What should our client's strategy be moving forward?

Case Notes

Case is a relatively simple exercise of all aspects of basic casing: framework. Exhibit analysis and simple mental math. Interviewer should lead interviewee to ask additional questions to uncover full information in the case.

Sample Framework

Guidance for Interviewer

After the interviewee goes through their framework, have them brainstorm some of the pros and cons of each option. Especially focus on cost synergies, and encourage them to mention that a positive of an independent sales force is customer retention, while a positive of a non-independent sales force is market share.

Sample Framework

This can be framed in a number of different ways.

One option is to simply outline the three options and talk about the pros/cons of each.

Another option is to create a company bucket to look at the merged company's profitability and a market bucket to consider the market dynamics.

Clarification Answers if Asked

- Our client offers life insurance, as does the other insurance company.
- There is no specific timetable or expected return.
- Our client's independent sales structure means that its sales agents can sell competitors' insurance.
- There is no information on competitors.
- Our client does not anticipate revenue synergies.

Question #1

Question #1

Give Exhibit 1 showing the expected revenue losses for options 1) Move to independent and 2) Move to non-independent; Which option do you think would be best?

Solution

The interviewee has to calculate how much revenue would be lost under each option. Under option 1) the other insurer was generating \$200M in revenue, but would lose 20% of its revenue by switching to an independent structure. Under option 2), our client was receiving \$400M in revenue, but would lose 20% of its revenue by switching to a non-independent structure.

Once the interviewee understands the exhibit, he/she should calculate the new revenue under these options. The interviewee should assume that revenue will remain the same under option 3).

Option 1 (independent): $400 + 0.8 * 200 = \$550M$

Option 2 (non-independent): $0.8 * 400 + 200 = \$520M$

Option 3 (status quo): \$600M

Question #2

Question #2

The company has also conducted a synergy estimate, and they believe that the merger could generate \$10M in cost synergies if the new merged company does not keep the status quo. How does this effect your conclusion regarding the option to choose?

Solution

Given this information, the interviewer should calculate the new profitability.

Interviewee should ask about additional cost information (if she/he doesn't, interviewer can push interviewee towards discussion about costs)

Interviewer: we don't have the specific breakdown of costs, but we know that each one of the options has a **10% profit margin**, before factoring in the cost synergies.

Given this new information, the interviewee should calculate that profits are (10% of answers to Q1):

Option 1: \$55M

Option 2: \$52M

Option 3: \$60M

And then add in the **\$10M** in cost synergies for Options 1 and 2, creating a new profitability of **\$65M** and **\$62M**, respectively. Given this calculation, the interviewee should recommend Option 1.

Conclusion

Recommendation <ul style="list-style-type: none">The company should move to the independent sales-force structure post-merger.	Rationale <ul style="list-style-type: none">The independent sales structure creates \$65M in profits, whereas the other two options will create less.
Risks <ul style="list-style-type: none">Competitors may pick off some of the merged company's customer base or market share.Independent sales force may not push the merged company's products strong enough.Merged company's products may cannibalize each other.	Next Steps <ul style="list-style-type: none">Launch pilot to see effect of independent sales force on sales.Review company's offerings to minimize cannibalization and increase effectiveness of sales.

Exhibit 1 (all figures in \$M)

	Option 1 (Independent structure)	Option 2 (Non-Independent structure)	Option 3 (Status quo)
Client's revenue	400	-20% of status quo	400
Second company's revenue	-20% of status quo	200	200

Case # 13: Lubricant Manufacturer

Industry: Manufacturing
Case Type: Profitability
Firm: Parthenon EY

Concepts Tested

- Breakeven Analysis
- Revenue Analysis

Math	Structure	Creativity
Medium	Easy	Medium

Problem Statement Narrative

Your client is a lubricant manufacturer with a total revenue of \$50M. The client sells a special “Type 3” lubricant to power and utility companies. The lubricant is used for items such as pumps, machines, and fans. The client has not had any revenue growth in 3 years and has come to us to find ways to achieve revenue growth.

Case Notes

Additional information will be given during questions.

Sample Framework

Guidance for Interviewer

- Interviewee should drive the case and suggest ways to increase revenue.
- Additional information will be given during the framework / clarification phase and during the questions.

Clarification Answers if Asked

- Type 3 lubricant is the only product your client sells.
- It is a B2B company, selling directly to power and utility companies; it has no clients in other business types.

Sample Framework

Current Customers

- Offer volume discounts
- Institute loyalty programs
- Utilize long-term contracts
- Raise prices

New Customers

- Automotive?
- Defense?
- Construction?
- New Distribution Channel?

Current Products

New Products

- R&D for new products
- Complementary services

- Increase advertising
- Institute partnerships
- R&D for new products
- B2C route with drivers

Question #1

Question #1

Referring to interviewee's framework: What do you want to explore first?

Additional information to be given during discussion:

- Client doesn't believe they can sell more to their current customers
- Client prefers not to increase R&D (therefore prefers using current product over developing new product)

Guide candidate to explore “new customers + current product” and give Exhibit 1; have candidate comment on information in the exhibit

Solution

Candidate should identify the automotive industry as most attractive market and be able to explain why:

- Slowest growing but 3x as much revenue as the next closest industry (Medical)
- The market already has high demand for Type 3 lubricant

Question #2

Question #2

To produce Type 3 lubricant for the automotive industry, the client would need to invest in a new production facility:

- Fixed cost of the new production facility: **\$10M**
- Variable costs: **\$10 / lb**
- Market price of the lubricant: **\$50 / lb**
- Average purchase by barrel: **1 barrel = 5 gallons**
- **4 lbs = 1 gallon**

How many barrels would the client need to sell to break even within 2 years?

Solution

Unit profit: **\$50 - \$10 = \$40/lb**

Fixed cost / Unit profit = **\$10M / \$40 = 250,000 lbs**

Converting from lbs to gallons: **250,000 lbs / 4 = 62,500 gallons**

Converting from gallons to barrels: **62,500 gallons / 5 = 12,500 barrels**

Per year: **12,500 barrels / 2 = 6,250 barrels per year** to break even

Candidate should comment on this number – is that a reasonable number of barrels to sell? (no data given, so this would be a guesstimate)

Conclusion

Recommendation	Rationale
<ul style="list-style-type: none">Client should focus expansion on the automotive industryClient should build a new plant to focus on the automotive industry, pending industry analysis and # of barrel sales projection	<ul style="list-style-type: none">Automotive industry has a high demand for Type 3 lubricant (hence there is no need to develop new product)3X as much revenue as the next industry
Risks	Next Steps
<ul style="list-style-type: none">Automotive industry has slow growthContinued focus on single product maintains a risk of becoming obsolete if the product is no longer in use/ in demand	<ul style="list-style-type: none">Begin analysis for investing in new plantMap automotive industry for potential new clients

Exhibit #1

	Automotive	Medical	Semiconductor	Aerospace
Annual Rev	\$600M	\$200M	\$80M	\$50M
Growth Rate	3%	4%	6%	4%
Type 3 lubricant	60%	20%	25%	30%
Type 4 lubricant	30%	20%	25%	30%
Type 5 lubricant	5%	40%	25%	30%
Type 6 lubricant	5%	20%	25%	10%

Case # 14: Oil and Gas Acquisition

Industry: Oil and Gas	Concepts Tested	Math	Structure	Creativity
Case Type: M&A	<ul style="list-style-type: none"> M&A Valuation 	Medium	Medium	Easy
Firm: Bain				

Problem Statement Narrative

Your client is a large Oil and Gas company. Yesterday afternoon, the CEO receives a call from another large Oil and Gas company (AQC) with an offer to buy the company. The CEO needs to get on the phone with the acquiring company tomorrow morning. You have one afternoon to prepare some analysis to help him understand which stance he should take for the call tomorrow.

Case Notes

The case needs to be prepared in a very short amount of time, so there is limited data available. There should be more emphasis on brainstorming and planning for next steps rather than making a concrete recommendation on whether the client should sell or not.

Sample Framework

Guidance for Interviewer

Modified version of M&A framework, with less focus on valuation/synergy since very little data is available.

If candidate starts asking about restructuring after the sale or laying off workers, lead them to the argument that the CEO should make the decision primarily with the shareholders in mind and increase the shareholder's value.

Clarification Answers if Asked

Client is an upstream client with both onshore and offshore wells, primarily in the US.

Our client focuses on traditional wells as assets and has seen steady growth.

Oil prices dropped sharply in 2015 and have been increasing again. This led to increased upstream activity.

No offer information is received yet, but will be coming in very shortly.

Sample Framework

- Evaluate the offer
- Consider EBIT multiple compared to other comparable company sales in the industry
- Book value approach based on current assets and estimated future revenues
- Consider strategic fit
- Consider synergy with acquiring company that will increase shareholder value
- Consider cultural fit
- Consider management structure
- Consider geographic location of headquarters
- Consider IT integration
- Consider future of the industry as a whole

Question #1

Question #1

We just received the offer from the client. Please evaluate the offer (**Give Exhibit 1**) and tell me what you would recommend the CEO to say during the call tomorrow.

Solution

Calculate EBIT multiple:

$$500,000 \text{ shares} * (0.8) = 400,000 \text{ shares of AQC}$$

Assuming that the deal will not dilute AQC's stock and hence affect its price.

$$400,000 * \$70 = \$28M$$

$$\$28M / \$2.8M \text{ EBIT} = 10x \text{ EBIT}$$

Purchase price is 10x EBIT and greater than current market cap value. A sale would increase shareholder value. **$\$50 \text{ per share for } \$56 (0.8 * \$70)$**

If candidate asks, other comparable companies in the industry have sold for 7-12x EBIT.

Other questions interviewer asked:

- Why AQC would offer to buy higher than market cap?
- What other things should the CEO consider? (elements of strategic fit and generating long term value)
- Why might companies want to vertically integrate (if candidate brings up as possible reason for acquisition)

Conclusion

Recommendation

- The CEO should be open to further discussion and start preparing materials for negotiation of a better offer.

Rationale

- At a first glance, the offer seems reasonable and aligned with other recent sales in the industry.
- Accepting the offer will immediately increase shareholder value

Risks

- The market tends to look unfavorable on M&A in regards to stock price.
- Might decrease shareholder value if strategic fit is not aligned.

Next Steps

- Conduct valuation of company including assessment of all wells in production and in exploration phase.
- Assess whether assets are a good fit with acquiring company (diversify risk)
- Consider cultural fit/corporate structure and integration risks.

Exhibit #1

The client received the following details regarding the offer:

Instead of cash, the purchasing company (AQC) will offer our shareholders a 1:0.8 (Client : AQC) deal.

	Client	AQC
# of Shares Outstanding	500,000	600,000
Closing price	\$50	\$70
Market Cap	\$25M	\$42M
2015 EBIT	\$2.8M	\$5M

Case # 15: Outsourced School Food Service

Industry: Case Type: Firm:	PE (Education / Food) Investment Parthenon	Concepts Tested <ul style="list-style-type: none">• Mental math• Market sizing• Creativity	Math Medium+	Structure Easy	Creativity Medium
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Problem Statement Narrative

Our client is a PE firm looking to whether invest in an outsourcing food service company that provides meals to K-12 schools (both public and private). This would be a new venture for the PE firm. Should it make this investment?

Case Notes

This was the first part of a first round phone interview and begins as a relatively short market-sizing exercise. Interviewee should remember this is a PE client and incorporate that into any analysis and brainstorming during the case.

Sample Framework

Guidance for Interviewer

Candidate should get to the market sizing exercise rather quickly; there aren't that many ancillary details in this case.

The name of the game is speed here; if the interviewee is slow in calculating the math, pressure them to take shortcuts to go faster.

Clarification Answers if Asked

- Include all public and private schools. Don't worry about government subsidies for food.
- Assume 30% of students buy breakfast and 60% buy lunch (as opposed to bringing food from home).

Sample Framework

- Profitability
 - Revenue
 - Price paid per meal
 - Number of total meals served
 - Cost
 - Fixed: factories, management, salespeople
 - Variable: cost of food, transportation
- Current portfolio
 - Other firms that 'fit' or have complementary knowledge
 - Expertise in sector
- Industry trends/performance
 - Is target struggling?
 - What's happening in food service?
 - Any new government regulations?
- Cost/Exit strategy
 - Financing of target price
 - Hold period, target exit return
 - Opportunity cost of capital

Question #1

Question #1

Show **Exhibit 1** and ask for comments upon viewing. You may ask for estimations of average breakfast (\$3.00) and lunch (\$4.50) prices, but don't allow any non-mental math until the question below is asked.

What is the market size by annual revenue for lunch and breakfast in the K-12 age group in the U.S.?

Possible Solution

Estimating the size of target audiences:

U.S. Population (320m) / Average lifespan (80 years, 4m per year) * # of years in segment (13 years)
 $= 52\text{mn} \rightarrow \underline{\text{Round DOWN}} \text{ to } 50\text{m}$

Estimating the revenue from providing food services per day:

$50\text{m} * (\% \text{ Buy Breakfast [30%, 15m]} * \text{Weighted Average price for Breakfast [\$3.00]} + \% \text{ Buy Lunch [60%, 30m]} * \text{Weighted Average price for Lunch [\$4.50]})$
 $= (15\text{m} * \$3.00 + 30\text{m} * \$4.50)$

Extrapolating this number from per day to a whole year:

$(15\text{m} * \$3.00 + 30\text{m} * \$4.50) * \# \text{ of days in schoolyear (250 work days, students have \sim 3 months [1/4 of year] off, 75\% of 250 is hard, so \underline{round UP} [offsets above] to 80\%, or 200 days of school)}$
 $= (15\text{m} * \$3.00 + 30\text{m} * \$4.50) * 200 = (\$45\text{m} + \$105\text{m}) * 200 = \$150\text{m} * 200 = \$30 \text{ billion annual market size}$

Question #2

Question #2

What are some reasons a school would outsource food services versus cooking in-house?
Would outsourcing food service have any risks?

Solution

Economic reasons:

- Cheaper food than producing in-house
- Can band together with other schools in district for economy-of-scale discounts
- Cost of labor may be high in a particular area; better to outsource

Operational reasons:

- No facilities for cooking food in-house
- Standardize meal calorie count or recommended serving size
- No expertise in food service
- Students prefer outsourced food over in-house

Risks:

- Health concerns over preservatives, quality or taste
- Little control over process and could have to scramble if shipment doesn't arrive or is spoiled
- Possibly less variety in choice of meals served
- Politics → food service company could support or be controlled by undesirable parties

Exhibit 1

Average price of breakfast and lunch meals, United States

	Breakfast	Lunch
Elementary school (K-5 th grade)	\$2.78	\$4.11
Middle school (6-8 th grade)	\$3.04	\$4.32
High school (9-12 th grade)	\$3.26	\$5.35

Case # 16: Personal Care Company

Industry: Case Type:	Personal Care Market Entry	Concepts Tested	Math	Structure	Creativity
		<ul style="list-style-type: none"> • Market Sizing • Market Entry • Mental Math 	Easy	Easy	Easy

Problem Statement Narrative

Our client is a \$10B personal care company. They currently operate in North America and Europe but are considering entering into the Chinese market – specifically to sell toothbrushes in China. How would you size the market and determine if it is a worthy opportunity?

Case Notes

This is a fairly straightforward market entry case. Interviewer should be suitably vague about any detail and let the interviewee structure a framework to determine whether entering the Chinese market is a good idea. There is no specific goal (profitability or otherwise) with this case. Instead, you are looking for the candidate to make a judgment call based on sound reasoning.

Sample Framework

Guidance for Interviewer

Allow the interviewee to structure their thoughts on how they would consider the toothbrush opportunity in China.

Ultimately, a strong candidate should direct attention to the large-scale market opportunity in China and assessment of profit potential

Clarification Answers if Asked

Market is fragmented in China, with about 40 competitors

While toothbrushes are largely a commodity product, the Chinese market segments itself by frequency of purchase within different income groups

Sample Framework

- Profitability
 - Revenue
 - Quantity of toothbrushes sold
 - Market size
 - Projected market share
 - Segmentation
 - Price point
 - Toothbrush pricing in China (commodity) Costs
 - Fixed
 - Labor
 - PP&E in China?
 - Marketing/advertising
 - Overhead (Chinese admin)
 - Variable
 - Raw materials
 - Distribution
- Market
 - Customers – who buys toothbrushes?
 - Competition – consolidated or fragmented?
 - Regulation – Tariffs? Medical devices?

Potential Areas for Analysis

Customers

- How big is the market?
- How many are likely to buy a toothbrush?
- How frequently do they buy?
- What is their willingness to pay? How price sensitive are potential customers?
- Is there any segmentation between toothbrush types?

Competition

- Who are the competitors? What are their market shares?
- How many competitors are there?
- What are the barriers to entry?
- Are there any unique competitive advantages?

Revenues

- What is the likely quantity of toothbrushes we can expect to sell?
- Does the quantity differ among customers in different segments?
- How flexible are the pricing options? Can the client segment based on price?

Costs

- What are the likely fixed costs associated with entering the Chinese toothbrush market? Are there any setup costs?
- What are the potential variable costs?
- Are there any regulatory costs specific to the Chinese market?
- What are the opportunity costs associated with exploring this opportunity?

Market Sizing

Question #1

What is the market potential for the client?

NOTE: Give interviewee total China population of 1.3B

Solution

Interviewee can lead market sizing as she/he sees fits, as long as assumptions are reasonable.

Total population: **1.3B** (everyone potentially uses a toothbrush)

3 Segments:

- **Wealthy (50M people)** – change toothbrush every month
- **Middle Class (500M people)** – change toothbrush every 3 months
- **Poor (750M)** – change toothbrush every 6 months

Average price of toothbrush: **\$2**

Market size of the Wealthy segment : **50M*12 toothbrushes/year * \$2 = \$1.2B**

Market size of the Middle class segment: **500M*4 toothbrushes/year * \$2 = \$4B**

Market size of the Poor segment: **750M*2 toothbrushes/year * \$2 = \$3B**

Total potential market: \$1.2B + 4B + 3B = ~ \$9B

10% market share = **\$900M**

5% market share = **\$450M**

Conclusion

Recommendation

Chinese market represents significant opportunity for client.

Rationale

Even small market share would have significant effect on client

Even a fraction of the Chinese toothbrush market will significantly affect our current \$10B of revenues

Client is relatively large with international experience, could leverage in entering into China

Risks

- May not have enough knowledge of Chinese market
- Regulations may be tough to deal with
- Local competitors may have advantage

Next Steps

- Survey potential ways to enter Chinese market
- Analyze costs associated with this potential opportunity

Case # 17 : Pharma Co.

Industry: Case Type: Firm:	Pharma Market Entry Strategy&	Concepts Tested	Math	Structure	Creativity
		<ul style="list-style-type: none"> • Market Sizing • Mental math • Framework Building 	Hard	Medium	Easy

Problem Statement Narrative

Our client is Pharma Co, a mid-size pharmaceutical company focusing on primary care drugs (pain meds, OTC drugs, etc.) and with a target to grow. They are exploring entering the specialty drug market in the auto-immune disorder category and specifically looking at rheumatoid arthritis drugs. They want to know what factors they should be considering when entering the US market with a rheumatoid arthritis drug.

Case Notes

This is an open-ended prompt, meant to drive the interviewee into discussion and framework creation. The point is not to test the interviewee on knowledge of the pharma industry, but on the his/her approach to structured thinking, business acumen and market sizing.

Sample Framework

Guidance for Interviewer

The interviewee should start with determining the market size for this new drug. They should also ask about competitors and customers (both existing and new). There are no specific objectives or quantifiable goals in this case.

Clarification Answers if Asked

- There are four main big pharma competitors to our client that are already in this space.
- Our client's customer base consists of primary doctors but if they produce this new drug, then their clients become specialty doctors and patients will receive the drug from specialty pharmacies
- Drug is good fit with the rest of the client's portfolio
- No specific details on revenue or costs

Sample Framework

Market Size

- Determine # of patients
- Determine spend per patient
- Current competitive landscape
- Consumer preferences

Profitability

- Revenue: Market captured*overall market
- Costs: Upfront vs. Ongoing (FC & VC)

Client Capabilities and risks

- Existing client network with doctors, payers, regulators
- R&D Capabilities
- Expertise in autoimmune disorders/drugs

Risks

- What is the R&D and commercial risk
- Payer (private and government health insurer) willingness to pay
- Patent life time

Potential Areas for Analysis

Market	Profitability
<ul style="list-style-type: none"> • Market Sizing (<u>see question 1</u>) <ul style="list-style-type: none"> • Determine # of patients <ul style="list-style-type: none"> • 1 out of every 500 men and 1 out of every 100 women has rheumatoid arthritis • 50% of these are diagnosed • 30% treated with similar drug • Frequency of dosage – 1/week • Price of each dose is \$350 	<ul style="list-style-type: none"> • Profits = Revenue – Fixed costs – variable costs • Revenue = % of market captured*overall market size • Fixed costs: R&D, overhead, legal fees, SG&A, overhead • Variable costs: raw materials, packaging, variable component/incentives for sales force
Client Capabilities	

Question #1

Question #1

How big is the US market for rheumatoid arthritis drugs?

Additional information to be given (interviewee should ask for some of the information below):

- # of patients
 - **1 out of every 500 men** and 1 out of every 100 women has rheumatoid arthritis
 - **50%** of these are diagnosed
 - **30%** treated with similar drug
- Frequency of dosage – **1/week**
- Price of each dose is **\$350**

Solution

Using the information provided:

US Population = **300 million** (assume even split between men and women)

of men with rheumatoid arthritis = **150 million * 0.2% = 1.5 million / 5 = 300K**

of women with rheumatoid arthritis = **150 million * 1% = 1.5 million**

Total population with disease = **1.5 million + 300K = 1.8 million**

Total population diagnosed = **1.8 million * 50% = 900K**

Total population treated with drug = **900K * 30% = 270K**

Total revenue per week = **270K * \$350/dose * 1 dose/week = \$94.5 M**

Total annual revenue = **\$94.5 M * 50 weeks per year = \$4,720,500,000 ~ \$4.7 billion**

Sample Dialogue

Dialogue

Below are some qualitative questions that should be asked while calculating the market size:

- How would you go about figuring out this market?
 - Interviewee should drive this portion and only receives info if prompted
- Why do you think only **50%** of the people with rheumatoid arthritis are diagnosed?
- Why do you think **70%** of people diagnosed with rheumatoid arthritis are not treated with a drug?
- How might our client take advantage of that if they enter this market?

After calculating...

- What do you think about the size of that market?
- What else should we consider besides the **\$4.7 billion in annual revenue?**

Conclusion

Recommendation	Rationale
<ul style="list-style-type: none"> Client should enter the market 	<ul style="list-style-type: none"> Overall market is substantial at ~\$4.7bn Higher efficacy of client's drug compared to competitors (lower frequency of dosage, improved patient adherence, better outcomes)
Risks	Next Steps
<ul style="list-style-type: none"> R&D risk – what is the probability that the drug will receive all the approvals and hit the market? Commercial risk – what is the probability that the drug will be accepted by payers, doctors, and patients? Patent risk - Once the drug is launched, what will the leftover patent lifetime be for the client to recuperate their R&D investment? Payer willingness to pay – will the drug be accepted by insurers? 	<ul style="list-style-type: none"> Analyze competitive response and evaluate if we can sustain a price war

Case # 18: Population Health Management

Industry: Case Type: Firm:	Healthcare Market Sizing Strategy&	Concepts Tested <ul style="list-style-type: none">Market sizingMental mathHealthcare knowledge	Math Easy	Structure Easy	Creativity Easy
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Problem Statement Narrative

Our client is a healthcare insurer-provider that has recently developed new software designed to contain cost. The program is a component of our client's intention to move toward a complete population health management system of care providing. The CEO of the firm wants to better understand the market for this software.

Case Notes

The interviewee should consider why would the CEO wants to understand the market for this software. The interviewee should size the market from a monetary standpoint.
The market should be for the United States only.

Sample Framework

Guidance for Interviewer

The interviewee can take different approaches to size the market. One option is to calculate the total cost savings generated by this software.

Sample Framework

Since this is a market sizing case, the framework is somewhat non-traditional and should focus only on the market size.

One possible approach is to calculate **the (# of patients in the United States) * (amount saved per patient)** to figure out the total value of this software.

Clarification Answers if Asked

- Assume that everyone in the United States has some form of health insurance.
- There are two types of users that would be interested in purchasing this software:
 - healthcare providers
 - accountable care organizations (insurer-providers, like our client).

Question #1

Question #1

How would you calculate the value generated by the software in the US?

Solution

Additional information to be given upon request:

- Medicare serves everyone **age 65+** (do not give if also testing healthcare knowledge)
- Approximately **20% of US population** is enrolled in Medicaid (do not give if also testing healthcare knowledge)
- New program saves **~10% of costs per patient**
- Cost of private patient is **\$1,000 per year**; Cost of public patient is **\$500 per year**

To calculate the # patients in the U.S., first divide the population into three types of health insurance coverage:

- **Medicare**
- **Medicaid**
- **Private**

Afterwards, estimate the size of each type in the market:

- Since everyone aged 65+ is in Medicare, which is roughly 15% of the U.S. population of 300M = **45M patients**.
- Medicaid eligibility varies by state, but roughly 20% of the population is enrolled in the program = **60M patients**.
- That leaves 195M patients enrolled in private insurance.

In that case, the program saves \$100 per private patient and \$50 per public patient.

Private: (195M patients) x (\$100 per patient) = \$19,500,000,000 or \$19.5B

Public: (105M patients) x (\$50 per patient) = \$5,250,000,000 or \$5.2B

Total = \$24.7B

Question #2

Question #2

How would you price this software?

How would you segment the market if at all?

Solution

Interviewee can assume that the cost of developing the software is negligible.

The software can be priced according to the potential amount of saving for the customer (healthcare providers and insurers). For example, a license to private health-care provider can be priced at about **\$50** – thus offering the customer **net \$50 of savings** (this of course has to be done according to our cost of developing the product).

The market for this product should be segmented between private and public entities – since private companies “save more” for each patient. The client can offer a high-end product for private customers, which can include premium features, and a simpler and cheaper version for public customers.

Conclusion

Recommendation

- The new software should be commercialized

Rationale

- Software generates significant saving; pricing according to savings generated can present a significant opportunity for profit
- Will be attractive to health care providers and insurers alike
- It is attractive for healthcare providers because it allows them to improve patient outcomes
- It is attractive for insurers because it lowers the cost of reimbursement to providers

Risks

- Intellectual property risk – the program can be copied
- Potential risk is that other population health management programs may exist, or may be developed, which would cannibalize some of this market

Next Steps

- Develop a patent for the software
- Start a work stream to determine how to price the product to allow adoption

Case # 19: Portable Sanitation

Industry: Case Type: Firm:	Sanitation Revenue Growth Parthenon	Concepts Tested	Math	Structure	Creativity
		<ul style="list-style-type: none"> • Creativity • Profitability • Demand elasticity • Mental math 	Easy	Easy	Easy

Problem Statement Narrative

Our client is a national portable sanitation provider in the U.S. Their revenue primarily comes from renting out port-a-potties to construction sites, events, etc. They also have a smaller business in temporary fencing (such as for construction sites) and mobile dumpsters. Revenue has been decreasing in recent years and they would like us to provide a strategy to increase revenue over the next few years.

Case Notes

This was the 2nd part of a 2-part 1st round phone interview with a consulting firm. The interviewer primarily wanted to test creativity, strategic thinking and business acumen in driving growth for the business.

Note: this case is written in a conversational format (see questions 1 and 2) in which the interviewee is leading the discussion; it can be adapted to a more interviewer led format by using the questions within the dialogue.

Sample Framework

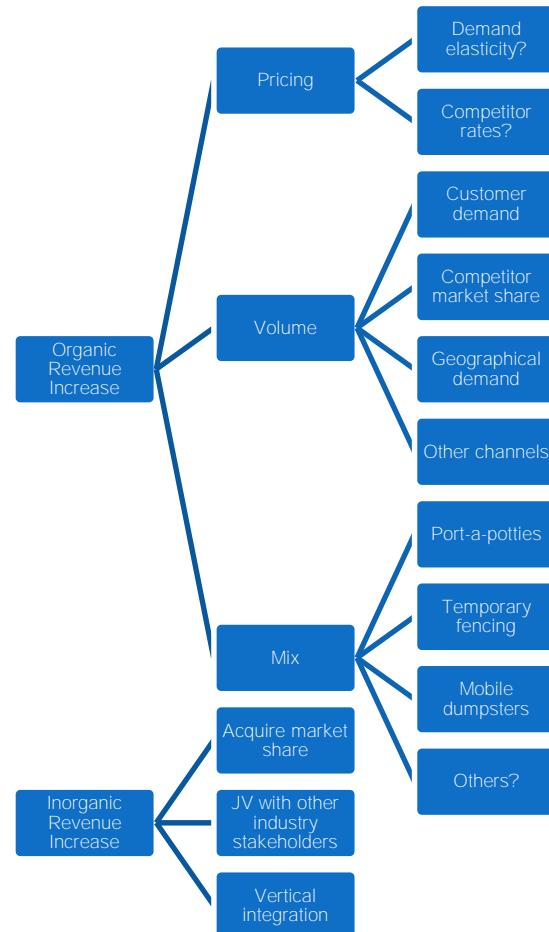
Guidance for Interviewer

Original case was highly interviewee led. The interviewer should encourage interviewee to lead the case and ask questions (see *sample dialogue*)

Clarification Answers if Asked

- No other objectives besides to increase revenue.
- U.S. only.
- The client is the “middle man” – purchases port-a-potties from manufacturer and deploys to sites. Will handle maintenance and cleanup afterwards.
- Has an online presence but primarily gets business via phone/in-person relationships
- Information on pricing, revenue etc. to be provided as asked
 - Rental income of **\$2000** per toilet per year
 - 90% of the client’s product portfolio

Sample Framework



Question 1 (sample dialogue)

Q1 - Should the client consider raising prices?

If candidate does not ask about pricing, interviewer can lead towards a pricing discussion

Candidate: I would like to start with Pricing. Is our pricing in-line with the industry?

Interviewer: Yes, it is. We receive about **\$2,000/year/toilet** in rental fees.

Candidate: What is the revenue breakout of your different product offerings?

Interviewer: Our port-a-potty business makes up **90%** of our business which is currently \$200mm/year.

Candidate: Do we have any customer data regarding their willingness-to-pay?

Interviewer: We do know that customers are very sensitive to price and it is 2nd in priority only to service/quality. We have some data regarding a test on one branch of the organization – **Give Exhibit 1.**

What do you understand from this Exhibit? (Interviewee should calculate effect on revenue)

Candidate: It looks like as price increased by **5%**, volume decreased by **20%**. Revenue went from **1000 * \$2000 = \$2,000,000** down to **800 * \$2100 = \$1,680,000**. The price sensitivity is high for our customers, so we probably would not want to raise prices to increase revenues.

Question 2 (sample dialogue)

Q2 - What else can the client do to grow revenue?

Candidate: I'd like to look at other ways to grow our revenue. Do we have any data on our geographical footprint?

Interviewer: Yes, we have a wide range of anywhere from **30% market share in New England** down to **8% in the Southwest**.

Candidate: Great, would you also have some data regarding the total market opportunity in those regions?

Interviewer: No, but I'd like to hear what you would do with the data?

Candidate: I would like to determine which market is more attractive to grow based on the current market penetration level vs the nominal amount of market opportunity available. For example, we have a low market share in the Southwest and might want to grow there – but if the total market opportunity is low, it might not be worth it.

Interviewer: Good point. The Southwest in fact has a very high market opportunity. What other ideas do you have for growing revenue?

Candidate: Well, if there's a lot of opportunity in the Southwest, maybe the client should consider improving their market share in that region.

For organic growth, the client could consider: increase sales and marketing spend; increase efficacy of marketing spend
For inorganic growth: invest in R&D to introduce an innovative product with better quality, start offering maintenance service to create a new revenue stream, consider acquiring a competitor in the southwest or integrate vertically.

Can also be phrased as an interviewer question: "How else can the client grow revenue?" and lead to a discussion about market share

Conclusion

Recommendation <ul style="list-style-type: none">• Recommend growing revenue by increasing market share in the Southwest region	Rationale <ul style="list-style-type: none">• Low current market capture and high nominal market opportunity
Risks <ul style="list-style-type: none">• Market entry risks• Competitor response• Management distraction	Next Steps <ul style="list-style-type: none">• Start a work stream to determine cost breakdown• Evaluate competitor response• Build operational capacity to enter the market

Exhibit #1

Results of Price Increase Test

	Original	Test
Price	\$2000	\$2100
Volume	1000	800
VC	\$1200 p/toilet	\$1200 p/toilet
FC	\$100,000	\$100,000

Case # 20 : Pre-K Education

Industry: Case Type: Firm:	Education Growth BCG	Concepts Tested	Math	Structure	Creativity
		<ul style="list-style-type: none"> Supply and Demand Creativity Mental math 	Medium	Medium	Hard

Problem Statement Narrative

Your client is the State Department of Education and it is looking to improve the education outcomes of the general population. The department believes that investment in Pre-Kindergarten education (ages 3-4) is key and wants to increase the capacity of its state accredited Pre-K programs. The client is thinking about running a campaign to raise taxes to fund this initiative and have come to us with three questions:

1. How many additional spots for children need to be funded for the Pre-K programs?
2. How much will the campaign cost?
3. How should they approach the tax increase campaign?

Case Notes

Case requires both creativity in dealing with an unorthodox business model and a high level of quantitative analysis. Notice “sample dialogue” to fully simulate case and give all questions and information.

Sample Framework

Guidance for Interviewer

- Candidate should recognize or clarify that there's no revenue associated with Pre- K program.
- It's a tradeoff between improving education outcomes and cost to the state.
- Ask candidate to brainstorm: What are some benefits to improving education ?
 - **Short-term education goals:** social and emotional development, colors, letters, etc.
 - **Long-term education goals:** high school graduation rates, standardized test scores, reading/writing at grade level, etc.

Clarification Answers if Asked

- Education outcome means college admittance and completion rates.
- Private Pre-K programs are highly fragmented and range widely in quality. Therefore, the State Department of Education only wants to rely on state-funded programs in which they can guarantee the quality of the program (education level of the teacher, full-day program with adequate teaching materials/supplies etc).

Sample Framework

Financial considerations

- Total addressable market vs. current capacity
- Cost breakdown of adding new schools
- Taxpayer base and how to increase taxes

Strategic considerations

- Other states who have launched Pre-K education programs (what was their approach)
- Private Pre-K programs and how they might help serve to help State's goal
- Other pressing issues facing the city and/or the school district – who else is competing for the same resources?

Operational considerations

- Long-term impact of funding initiative (to help get taxpayers on board)
- What's being taxed (real estate, sales, soda) and who is most directly affected by it

Additional Info / Areas for Analysis

Market

- Population experiencing steady growth. Assume equal distribution of children in each age amongst all kids 3-18 years old.
- Not in competition with private programs as the public market is only for children from low-income families (who could not afford private programs).

State

- The State Department of Education has already launched a similar initiative and provided some funding. Now they want to expand the program.
- The graduates of last year's program did not show great results when they were tested on their social and aptitude for learning skills. (How long they can sit still, how they interact with other kids.) The State Department of Education hope that perhaps the poor result is due to flaws in the test.

Revenues

- No revenues since the program will be free. Want to limit capacity to only children from low-income families.

Costs

- Cost per 1 spot is \$10,000 a year to the state.

Question #1

Question #1

Give Exhibit 1. How many additional spots need to be funded to reach the State Department of Education's goal of providing Pre-K education to all children of low income families?

Solution

Region	Population (K-12 th grade)	Population (Pre-K)	% Low Income	Total Spots for Children Needed	Current Spots Available	Current Spots Needed
1	13,000	1,000	50%	500	462	38
2	26,000	2,000	60%	1,200	3,439	(2,239)
3	13,000	1,000	75%	750	397	353
4	39,000	3,000	40%	1,200	3,279	(2,079)
5	26,000	2,000	60%	1,200	2,025	(825)
						(4,752)

Turns out in total the State Department of Education would need to fund less than 400 additional spots or reallocate spots between regions.

Interviewee should recognize that some regions (2, 4, and 5) are overfunded

Follow up question: Why do you think some of the regions are over funded?

Question #2

Question #2

Give Exhibit 2. After discussion about over funding in certain regions, take a look at this exhibit. What do you make of it?

Solution

- Exhibit 2 shows many of the state's citizens live less than 30 mins from the border of their region (especially in Region 3 and Region 5).
- If many students live close to Region 2 and 4, which have over capacity, perhaps some students from underfunded regions could be sent to schools that have over capacity
- Alternatively, some teachers in overfunded regions could be sent to teach in underfunded regions.
- In general – resources need to be allocated based on local demand: the number of children who qualify (low income) and the number of families that want Pre-K (harder to estimate).

Sample Dialogue

Dialogue

Candidate: Since overall we only need to fund additional **<400 spots**, instead of raising tax rates, I want to first focus on if we can reallocate resources amongst the regions. Also, since there are already funded spots, do we have results of how successful the current program is?

Interviewer: Actually, it turns out that the graduates of last year's program did not show great results when they were tested on their social and aptitude for learning skills. (How long they can sit still, how they interact with other kids.) But the State Department of Education still has hope, maybe something is wrong with the test and that's why results are poor. Back to your first point, why do you think some regions are over funded?

Candidate: Could be because **Region 2 and 4** have large populations, the State Department of Education opened more schools there and hired more teachers than what was necessary to serve just the children of low-income families. We could transfer some of the teachers and ask them to teach in other regions. Also depending on how large the state is and how far apart each region is, we could try to see if kids from **Regions 1, 3, and 5** could attend school in **Region 2 and 4**.

Interviewer: (**Give Exhibit 2**) What do you make of this?

Candidate: It seems **10-20%** of residents could possibly attend school in another region. However, I need to know whether these regions are adjacent to Region 2 or 4, also how is the distribution of age and income within each region to assess the likelihood that our target kids just happen to be in that **10-20% of population** on regional borders. Lastly, since these are young children of low-income families, they might not have the resources to attend preschool that requires driving to another region anyways (families don't have cars, or no one to drop off/pick up.)

Interviewer: Head of the Education department asks for your opinion in an elevator, what do you say?

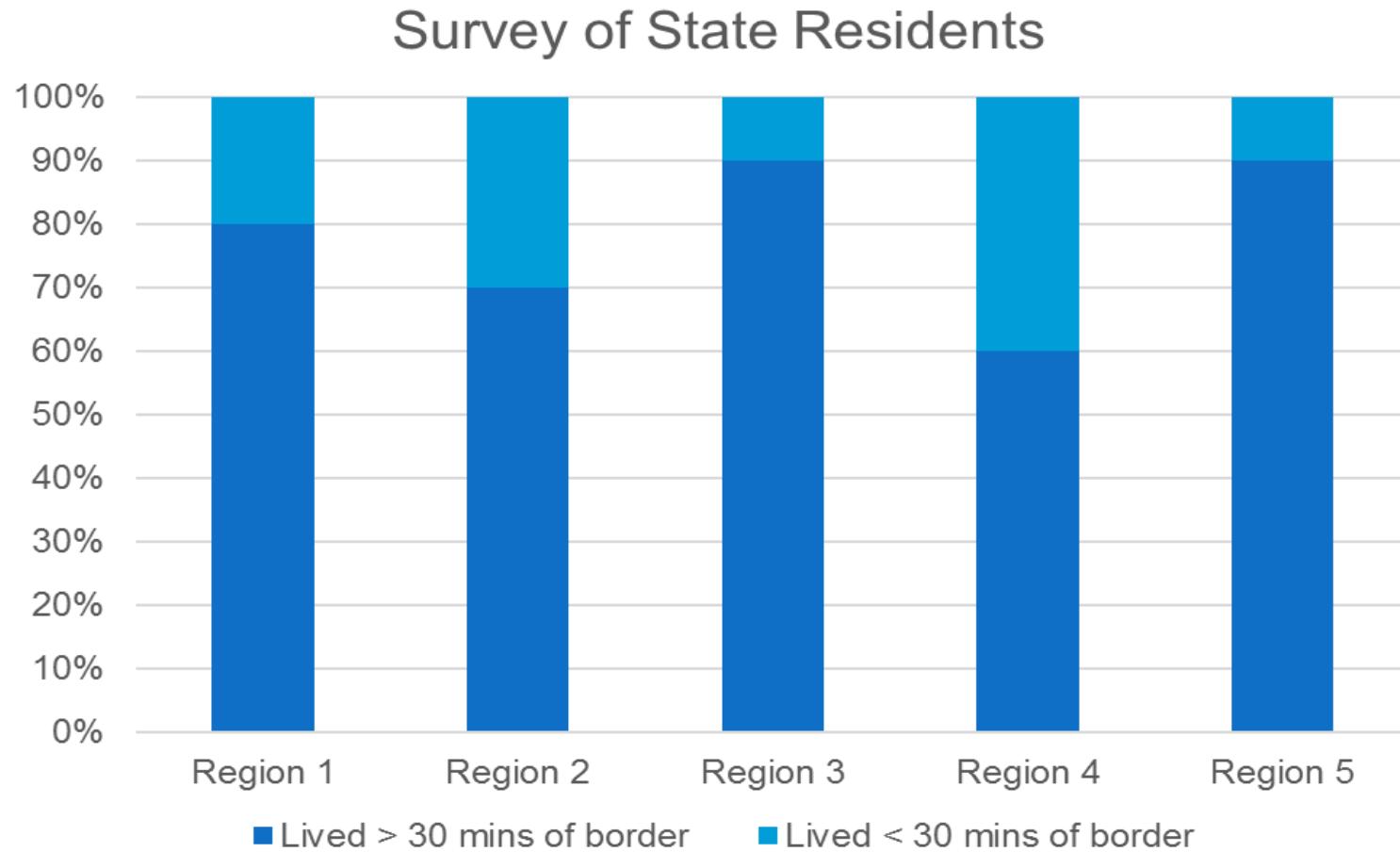
Conclusion

Recommendation	Rationale
<ul style="list-style-type: none">I would not recommend launching a campaign to raise taxes or to expand the program.	<ul style="list-style-type: none">Some regions are currently overfunded. I would want to reallocate those resources first before opening new schools.The current results are not conclusive for the effectiveness of the program, we want to focus on replicable results before justifying a tax increase.
Risks	Next Steps
<ul style="list-style-type: none">Our state continues to fall behind in education standards, making it hard to attract/retain residents.	<ul style="list-style-type: none">Start with improving the effectiveness of the Pre-K program by either changing curriculum or trying out different ways to measure the performance.

Exhibit #1

Region	Population (K-12 th grade)	% Low Income	Current spots Available
1	13,193	50%	462
2	25,870	60%	3,429
3	13,049	75%	397
4	39,203	40%	3,279
5	26,103	60%	2,025

Exhibit #2



Case # 21: Rock Band

Industry: Entertainment
Case Type: Revenue Maximization, Managing Stakeholders

Original Case written for CBS Case Book
by Josh Klemme '17

Concepts Tested

- Brainstorming / Creativity
- Mental Math
- Market Analysis

Math	Structure	Creativity
Medium	Hard	Hard

Problem Statement Narrative

The manager of a semi-famous rock band has approached you to help him make a decision about touring after they release their new album.

Case Notes

The keys to this case are:

- The ability to grasp the economics of a previously unknown business for most casers
- Understanding that different stakeholders have different goals, and therefore at times may have different requirements to approve an opportunity

Sample Framework

Guidance for Interviewer

Let the interviewee drive the case. Good interviewees will ask for the goal/objective, and be able to create a framework given this information, but be willing to pivot to consider multiple perspectives once it is revealed that key stakeholders' opinions will affect the manager's final decision.

Clarification Answers if Asked

Goal/Objective: The manager's goal is to maximize his personal commission. Commission in the music industry is based on a percentage of band revenue. The band itself may have other reasons to tour, but the manager is the client.

Value Chain: Consumers buy tickets from promoters, who in turn have booked the band for the show. The promoters pay the band a fixed amount and, in some cases, a bonus based on strong tour revenue.

Sample Framework

Tour Possibilities:

- Available touring options
- Potential revenue from each tour
 - Artist fee
 - Bonus on overall tour revenue?
 - Ticket prices
 - Quantity of tickets per markets
 - Number of markets per tour
- Merchandise
 - Product mix
 - Merchandise prices
- Sponsorship Fees

Non-Touring Alternatives:

- Potential non-touring revenue sources
 - Endorsements
 - Recording
- Non-revenue, brand-building options
 - Press tour
 - Radio station visits
 - TV/print/online press
 - Free promotional shows

Tour Options

Question #1

There are two tours available to choose from. Which is the better option for the manager?

Key Information to be Given to Interviewee

Tour #1:

40-city tour in major markets, 1,500-seat venues with \$50 average ticket price.

The Deal: \$750,000 guaranteed for tour plus 50% of net earnings.

Shows: One show per city, except in New York (3 shows), Los Angeles (2 shows), and Chicago (2 shows).

Tour #2:

30-city tour in secondary markets (markets 41-60 by population). 1,000-seat venues with \$40 average ticket price.

The Deal: \$500,000 guaranteed for tour or 80% of gross revenues, whichever is highest.

Shows: One show per city

Manager's Commission: 20% of gross revenues received by the band

Attendance Projections:

From the band's touring history, we know that the band is more popular in secondary markets, and we can assume that they therefore could expect to sell the following:

- **66.7%** of all tickets in major markets
- **100%** of all tickets in secondary markets

Analysis (1/2)

Tour Revenue

Interviewee should now advance to an analysis of the two tours, starting with overall tour revenue projections.

Calculation

	Major Markets	Secondary Markets
Cities	40	30
Shows	44	30
Tickets Available	1500	1000
Historical Sales Percentage	66.7%	100.0%
Projected Ticket Sales>Show	1000	1000
Ticket Price	\$50	\$40
Revenue/show	\$50,000	\$40,000
Tour Revenue Potential	\$2,200,000	\$1,200,000

Notes for Interviewer

There is a difference between tour revenue, which goes initially to the promoter who booked the show, and band revenue – money paid to the artist as part of their guarantee plus any applicable bonuses.

A strong interviewee will note that the major market tour offers higher tour revenue, but that bonuses must be considered before making a final decision.

Analysis (2/2)

Revenues

Interviewee should now analyze potential band revenue, considering show costs as well when calculating the potential bonus for Tour #1. Interviewee should realize that cost information is not necessary for Tour #2.

Cost Information

There are specific show costs that the promoter has agreed to include when calculating profitability of both tours:

- Fixed costs:**
\$100,000 for the tour
- Variable costs:**
\$5,000 per show

Bonus Question: What do you think the fixed and variable costs might be for a tour like this?

Solution

	Major Markets	Secondary Markets
Tour Revenue Potential	\$2,200,000	\$1,200,000
Variable Cost/show	\$5,000	N/A
Variable Cost/tour	\$220,000	N/A
Fixed Cost/tour	\$100,000	N/A
Band Guarantee (cost)	\$750,000	\$500,000
Tour Profit	\$1,130,000	N/A
Band Profit share (50%)	\$565,000	N/A
Band Revenue share (80%)	N/A	\$960,000
Total Band Revenue	\$1,315,000	\$960,000

Additional Stakeholders

Question #2

So it seems like the band's manager should take Tour #1, because he'd stand to make a \$263,000 commission based (20% of band revenues). However, it turns out that to approve any deal the manager must receive majority approval (2/3) from all voting members of the band. The band is set up as an equal partnership among its three founding members.

Key Stakeholders – Information to be given to interviewee

Through interviews with the manager and the band members prior to any recommendation, you find out the following:

Lead Singer: He's having trouble paying his mortgage, and wants to maximize profits.

Lead Guitarist: Cares only about lifestyle; wants the best possible venues, buses, food, equipment.

Bassist: She wants to maximize the band's marketing ability and use the tour to market the band in front of the greatest possible audience (including press opportunities) so the band can go platinum.

Drummer: Easy going, he's a hired hand. Not a voting member.

Given these considerations, can you still recommend Tour #1 to the band's manager?

Stakeholder Analysis

Additional Information (if asked)

Band Costs (for profitability calculation): Costs borne by the band include buses, food, hotels, and touring equipment. These would be the same regardless of which tour is selected.

Lifestyle analysis: Although it might sound counterintuitive, secondary markets are generally considered to have better venues. Many have been built in the last few years and therefore have more state-of-the art sound systems and better facilities.

Analysis of Stakeholder Needs

Band Member	Tour Preference	Rationale
Lead singer	1	Similar costs mean the tour with the greatest band revenue still turns the greatest profit for the band
Lead guitarist	2	Secondary markets offer the best possible lifestyle
Bassist	1	A major market tour would allow for the greatest possible promotional effort
Drummer	(Irrelevant – member is a hired hand and not a voting party)	N/A

Bonus Questions:

- What kind of challenges do you think might be faced by only 2/3 of band members agreeing to the tour? How would you convince the outvoted member that this tour is right for them?
- Which tour would the promoter want the band to take? Why?
- What other revenue considerations do you think the band might want to consider?

Conclusion

Recommendation

The band's manager should select Tour #1

Rationale

- Tour #1 achieves the highest possible revenue for the band, and therefore would result in the highest commission for the manager.
- Tour #1 would be the most profitable for the band and would provide them with the greatest possible promotional opportunities, thereby meeting the goals of 2 out of the 3 voting band members and making it possible for the manager to convince the band to approve the tour.

Risks

- Tour #1 is longer, which may result in higher foreseen or unforeseen costs
- As the outvoted band member, the lead guitarist may be disgruntled by the lesser lifestyle offered by Tour #1. This may result in lower performance or morale for the band.

Next Steps

- Bring the opportunity to the band so they can officially approve Tour #1
- Approve Tour #1 to the promoter
- Begin working with the band's marketing team to maximize promotional efforts in major markets
- Work to reduce band costs as much as possible
- *Bonus answer:* Try to find added lifestyle value to placate the lead guitarist

Case # 22 : Soda Ash Producer

Industry: Case Type:	Private Equity M&A	Concepts Tested	Math	Structure	Creativity
		<ul style="list-style-type: none"> • Acquisition analysis • Growth strategy • Supply & demand • Mental math 	Medium	Easy	Medium

Problem Statement Narrative

The client is a private equity firm looking to acquire a natural soda ash producer. Soda ash, also known as sodium carbonate, is a chemical that is used primarily in the production of glass and soap. It can be mined and refined naturally or produced synthetically, though, synthetic soda ash is twice as expensive to produce compared to natural soda ash. However, natural soda ash can only supply about 30% of global demand. The good news is that the firm is profitable and benefits from a highly concentrated market with only 5 natural soda ash producers globally (4 in the United States, 1 in Turkey). The bad news is that growth has been flat for all producers for years. The client is targeting 7% EBITDA growth per annum for 5 years to justify the acquisition.

How can they achieve this target?

Case Notes

The case focuses on the Brazilian market for the client, and can be used to approximate the EBITDA of the client's business.

The Turkish player is currently not present in the Brazil market.

Sample Framework

Guidance for Interviewer

- Give additional information (see below) if asked about current costs
- Lead interviewee to general analysis such as revenue vs cost

Clarification Answers if Asked

- The producer had already streamlined their costs
- Initial analysis shows that continued improvements in their efficiency and operations could account for about **2% of the target 7% growth** each year
- Currently, the Turkish producer is not in the Brazil market

Sample Framework

EBITDA:

- **Revenues**
 - \$ per ton
 - Increase price? (Commodity?)
 - Tons sold
 - Increase demand
 - Offer discounts?
 - New Customers?
 - Expand geographically?

Costs

- COGS
- SG&A

Question #1

Question #1

Give Exhibit 1. Look at the following slide on the soda ash market in Brazil. Taking into account that the producer's shipping cost is \$85/metric ton, what are the producer's current profits in that market?

Solution

Their shipping cost was **\$85/metric ton** and they were shipping **700 tons** at a market price of **\$180/metric ton**.

Profit per metric ton: **\$180-\$85 = \$95**

Total profits: **\$95 x 700 tons = \$66,500**

(shortcut: $\$100 * 700 - \$5 * 700$)

Question #2

Question #2

Continuing with Exhibit 1: What would happen to profits if they decided to supply 250 additional tons of soda ash to the market (no change in competitor's output)?

Solution

Shipping cost remains the same, i.e. **\$85/metric ton.**

New total shipping volume = **700 + 250 = 950 tons**

They would be shipping **950 tons** at a new market price of **\$130/metric ton.**

Profit per metric ton: **\$130-\$85 = \$45**

Total profits would be **\$45*950 tons = \$42,750**

Interviewee must comment on this number: profits are much lower in this scenario

Interviewee can also note the observation of the correlation between price vs. demand and supply. In this case, the increase of supply, leads to downward pressures on the price and a decline of overall market price.

Question #3

Question #3

Give Exhibit 2 & 3. Knowing that increasing volume can't produce the EBITDA growth that the fund is targeting, how might they raise prices? Why might competitors choose not to enter the market even when higher prices would produce positive margins for them? What price increase should the company target?

Solution

- As the market is highly concentrated, the company can potentially signal its intention to raise price, and hope that other major producers will follow suit.
- Increasing prices will allow the Turkish firm to earn a positive margin in Brazil and lead to the Turkish firm entering the market. (Currently, the Turkish firm is not in the market due to the high shipping costs from Turkey to Brazil. **Exhibit 1 +2**)
- However, due to high shipping costs, although entering the Brazilian market can produce positive margins for the Turkish firm, it may choose to instead focus on higher margin opportunities in EU and Middle East markets that are closer to home.
- The required EBITDA target of **5% increase** is **$1.05 * \$66,500 = \$69,825$** .
- Raising the price to **\$200** will lead to a maximum achievable profit, based on **Exhibit 3**, at **3.75%** profit increase for the target : **$(\$200 - \$85) * 600 \text{ tons} = \$69,000$** .
- The **3.5%** profit increase due to price adjustment, combined with the **2%** per annum growth from cost improvements will result in a total of **5.5% EBITDA** increase, which is lower than the growth target of the client.
- Given that the client needs a **7% year-on-year EBITDA** growth for the next 5 years, further price increases or volume decreases will not lead to the desired results.

Conclusion

Recommendation	Rationale
<ul style="list-style-type: none"> • DO NOT acquire the target. 	<ul style="list-style-type: none"> • Increase in price to the optimal profitability profile at \$200 will only result in 3.5% of EBITDA increase, which is below 5%. • Combined with 2% yearly operational and efficiency improvement, the 7% EBITDA goal is still not attainable. • The 7% EBITDA growth needed for the next 5 years is not likely to be achievable.
Risks	Next Steps
<ul style="list-style-type: none"> • Market assumptions could be wrong, and acquisition may be profitable • Acquisition may be worthwhile even at a lower than 7% EBITDA growth 	<ul style="list-style-type: none"> • Not to acquire the target unless there are further information on likely decrease in costs that will lead to increased profitability. • Search for other potential acquisition targets.

Exhibit #1



Only 4 American firms currently operate in Brazil

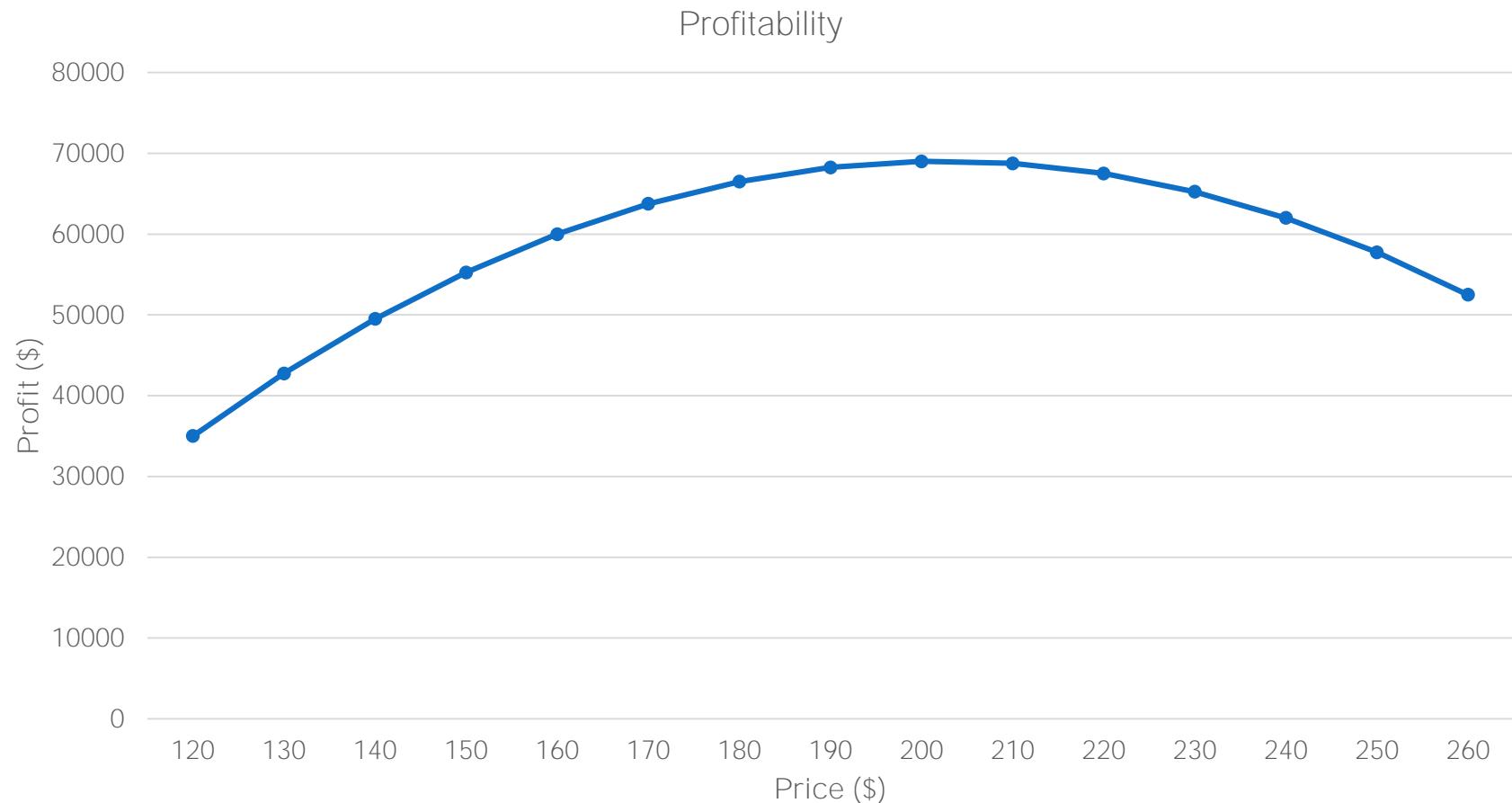
Exhibit #2

Soda Ash Shipping Costs

	To Local Market	To Brazil
Acquisition Target	\$60	\$85
American Firm 1	\$60	\$120
American Firm 2	\$55	\$100
American Firm 3	\$65	\$90
Turkish Firm	\$40	\$180

Exhibit #3

Profitability Profile with Price Change



Case # 23 : Tristar Home Appliances

Industry: Case Type:	Manufacturing Market Expansion	Concepts Tested	Math	Structure	Creativity
Firm:	Samsung Global Strategy Group	<ul style="list-style-type: none"> • Supply chain • Market sizing • Mental math 	Medium	Medium	Medium

Problem Statement Narrative

Tristar is a large international manufacturer of electronics, home appliances, software, and biotech products. Their home appliance line (refrigerators, washers & dryers, microwaves) has been very successful in the United States, mostly through a B2C model: they get their products into retailers like Best Buy, Sears, Home Depot, etc. Tristar management has set aggressive revenue targets for the coming year, and the home application business unit director has some concerns about meeting them. She has asked your firm for help in evaluating a new opportunity: B2B sales, specifically the home builders market. Tristar would sell appliances to builders, who would then install them in their new units. Sales could also occur for home remodeling.

Case Notes

This case is not particularly complicated, but there is a lot of data to work with. The candidate needs to demonstrate an ability to quickly digest the content of charts.

Note: this case is structured slightly different than other cases in this case book – questions are all part of the case flow section.

Notes

Guidance for Interviewer

The candidate should recognize that home builders is a fundamentally different market, with significant distribution challenges. This case focuses on revenues, but the candidate should recognize that there will be some potential additional costs in setting up the new distribution system. **See Case Flow for full guidance on the case.**

Sample Framework

This is a fairly straightforward market sizing exercise at first; **See Areas for Analysis on the next slide.**

Clarification Answers if Asked

- The builders market is split 50/50 between two competitors: GE and Whirlpool.
- If the candidate needs guidance to recognize the difference in the market, you can explain that with a retailer like Best Buy the firm simply supplies sufficient inventory, whereas in the builders market deliveries must occur on a particular day to a particular building site.
- Tristar has strong sales throughout the US.

Potential Areas for Analysis / Framework

Market

- **Competition**
 - How much market share can we realistically capture in the builders market?
 - What will the competitive response be?
- **Risks**
 - What are the prospects for the housing market in the next several years? Is this a reliable new revenue stream?

Company

- Does the firm have the capability to meet demand in this market?
 - Production capacity
 - Distribution capacity

Revenues

- **Volume**
 - What is the size and growth of the market?
- **Pricing**
 - Can we command a higher price in this new market, or will we have to lower our prices to compete for market share?

Costs

- Not central to the case, but would there be additional costs due to:
 - Changes in distribution?
 - Additional administration?

Case Flow & Questions

Case Flow Overview

1. Introduce case and answer candidate questions. Don't share charts yet; if the candidate asks about the specifics of the revenue targets say that you will share information later.
2. Candidate should take time to develop and talk through a framework. Candidate should lay out various salient issues, but should focus on revenue projections as the first place to start. Costs can be ignored for this case.
3. **Give Exhibit #1** – revenues and targets. The candidate should identify that the gap is **\$1.1B** between targets and projections. Prompt her: do you think we close this gap through this established retail channel or do we need to explore the other opportunity? Tristar has **~23% market share** and is aiming for **~30%**; this is an ambitious expansion given the saturation of the market.
4. If needed, prompt the candidate: what do you want to know in order to assess the home builders market? She should identify the need for volume and price figures, i.e. how many new homes starts and remodelings, and expected revenue for each. At this point, **Give Exhibit #2** – details of the home builders market. The candidate should calculate the market size (see sample calculations). The candidate should note that the remodeling market is actually the larger one (**\$7.6B vs. \$4.2B**), but that most importantly, the combined market is huge – **\$11.8B**. If Tristar were to capture just **10%** of this market they could make up the gap between targets and projections.
5. Ask the candidate to identify the factors and considerations that will determine the feasibility of entering this new market. She should identify factors including production capacity, upfront costs, and – most importantly – the new distribution model. At this point, **Give Exhibit #3** – chart of distribution channels. The candidate should recognize that through our existing relationship with large distributors we can serve both the small and large distributor/builders, though we can also build a direct relationship and thus capture more value. While we can reach the large builders directly, this distribution would likely be quite different from our current operation.
6. The candidate should ask for information on what percentage of the market is attributable to each of these entities, at which point you should **Give Exhibit #4** – market share of distributors and builders. With this data it becomes clear that a focus on the distributor/builders is most favorable, especially given that they account for **80%** of the market, and Tristar is aiming to capture **10%**.

Conclusion

Recommendation

- Tristar should definitely pursue this opportunity as a means to close the gap between target and expected revenues.

Rationale

- The home builders market is highly concentrated, but Tristar is of similar size to the other two firms so it has a good chance of capturing market share, and needs only 10% to meet revenue targets.

Risks

- Investment required in new distribution model
- Risk of diverting attention and resources from core business
- Housing market volatility

Next Steps

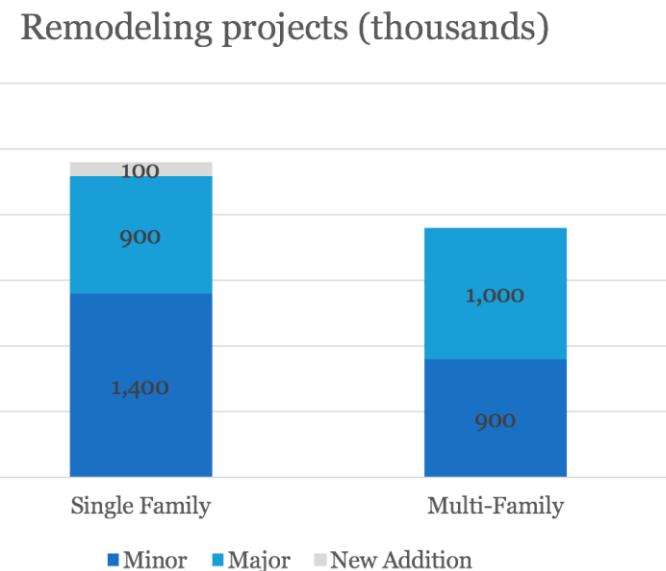
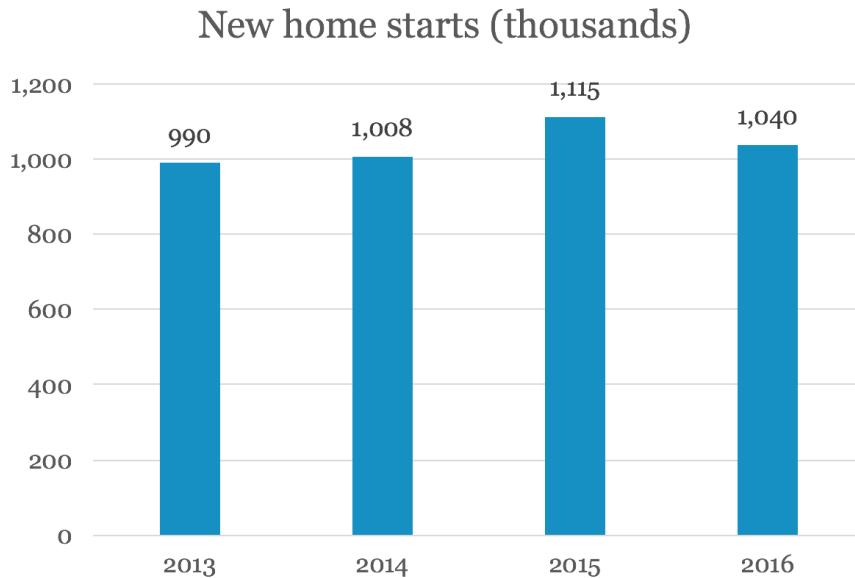
- Study competitive landscape to determine which markets to attack and how to set prices
- Study distribution channels to determine best path for establishing direct relationship with builder/distributors

Exhibit #1: Retail sales opportunity

Target and expected retail sales (\$ millions)

					Others	Total
Total Revenue Opportunity	3,500	2,400	2,100	2,000	5,000	15,000
Tristar Target (~30% market share)	1,050	720	730	600	1,500	4,600
Tristar Expected 2017 Sales	785	540	555	450	1,130	3,460

Exhibit #2: Builders Market



New home price/cost information

Average price: \$300,000

Builder's margin: 6%

Land: 15% of price

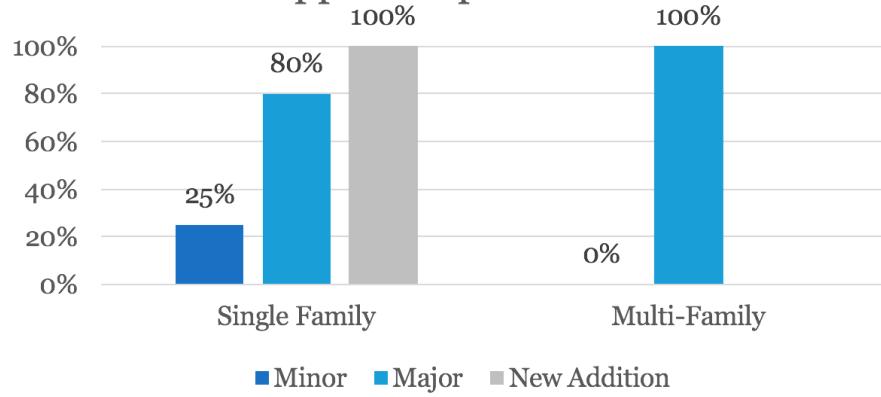
Other non-construction costs: 10% of price

Appliance costs: 2% of construction costs

Expected appliance spend in remodeling projects:

	Minor	Major	New Addition
Single Family	2,000	5,000	8,000
Multi-Family	1,500	2,500	

Percentage of projects requiring appliance purchases



Sample Calculations

Sample Calculations: Market Sizing

New homes

Remove the builder's margin, land cost, and other non-construction costs, so construction costs are equal to 70% of the price:

$$300,000 * 70\% = 210,000 \text{ (mental math: 70% of 100,000 would be 70,000; multiply by 3)}$$

We know that the cost of appliances are 2% of the construction costs:

$$210,000 * 2\% = 4,200 \text{ (mental math: 1% of 210,000 is 2,100, multiply by 2)}$$

Take 1M as the approximate number of new home starts per year:

$$\text{Market size (new)} = 4,200 * 1M = \$4.2B$$

Remodeling

	Type	# Projects (thousands)	% Purchasing Appliances	# Purchasing Appliances	Average spend/project	Total expected revenue
Single Family	Minor	1,400	25%	350	2,000	700,000
	Major	900	80%	720	5,000	3,600,000
	New Addition	100	100%	100	8,000	800,000
Multi-Family	Minor	900	0%	-	1,500	-
	Major	1,000	100%	1,000	2,500	2,500,000
						7,600,000

Market size (remodeling): **\$7.6B**

Total size for builders market: **\$11.8B**

Exhibit #3: Distribution Channels

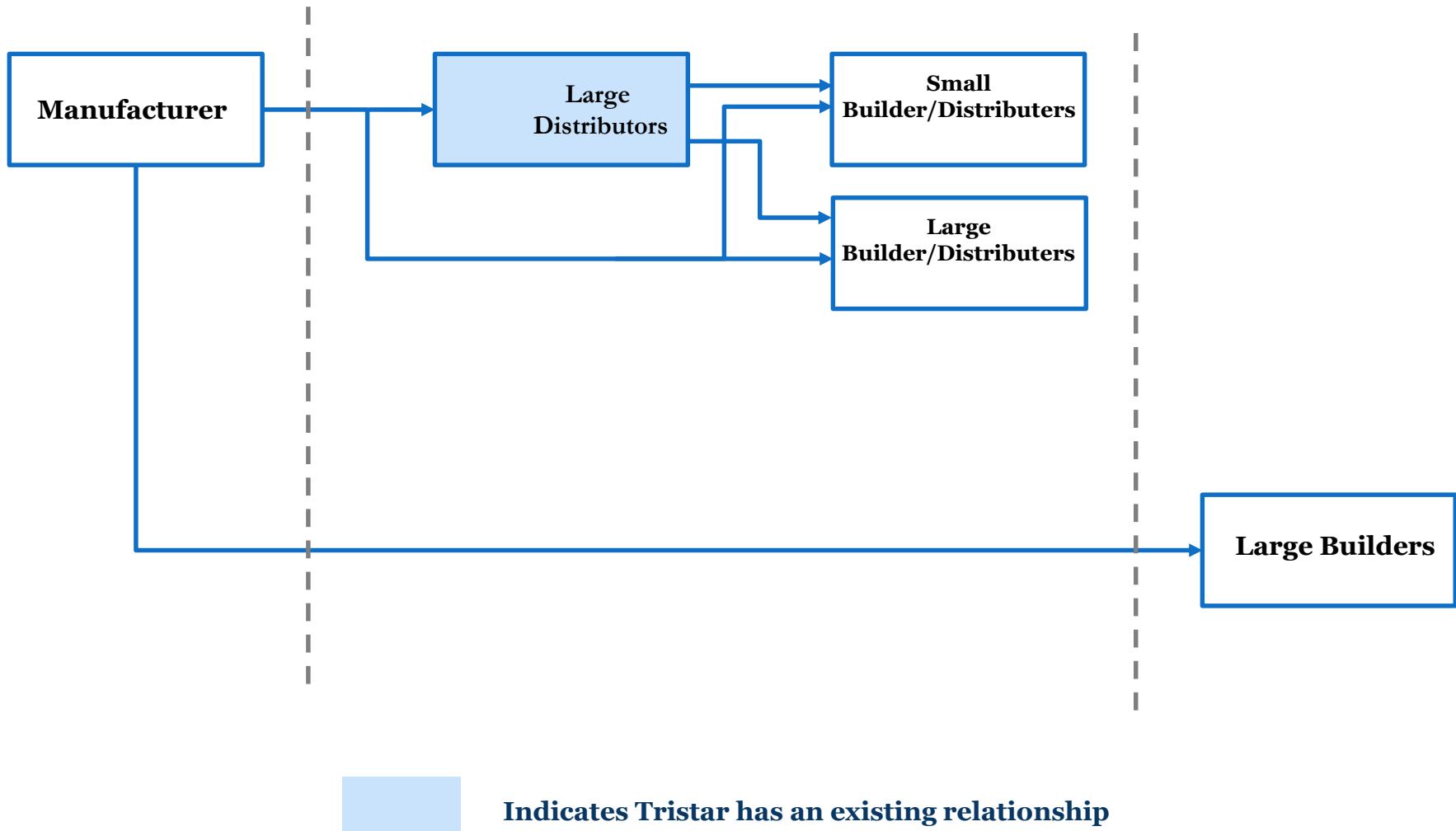
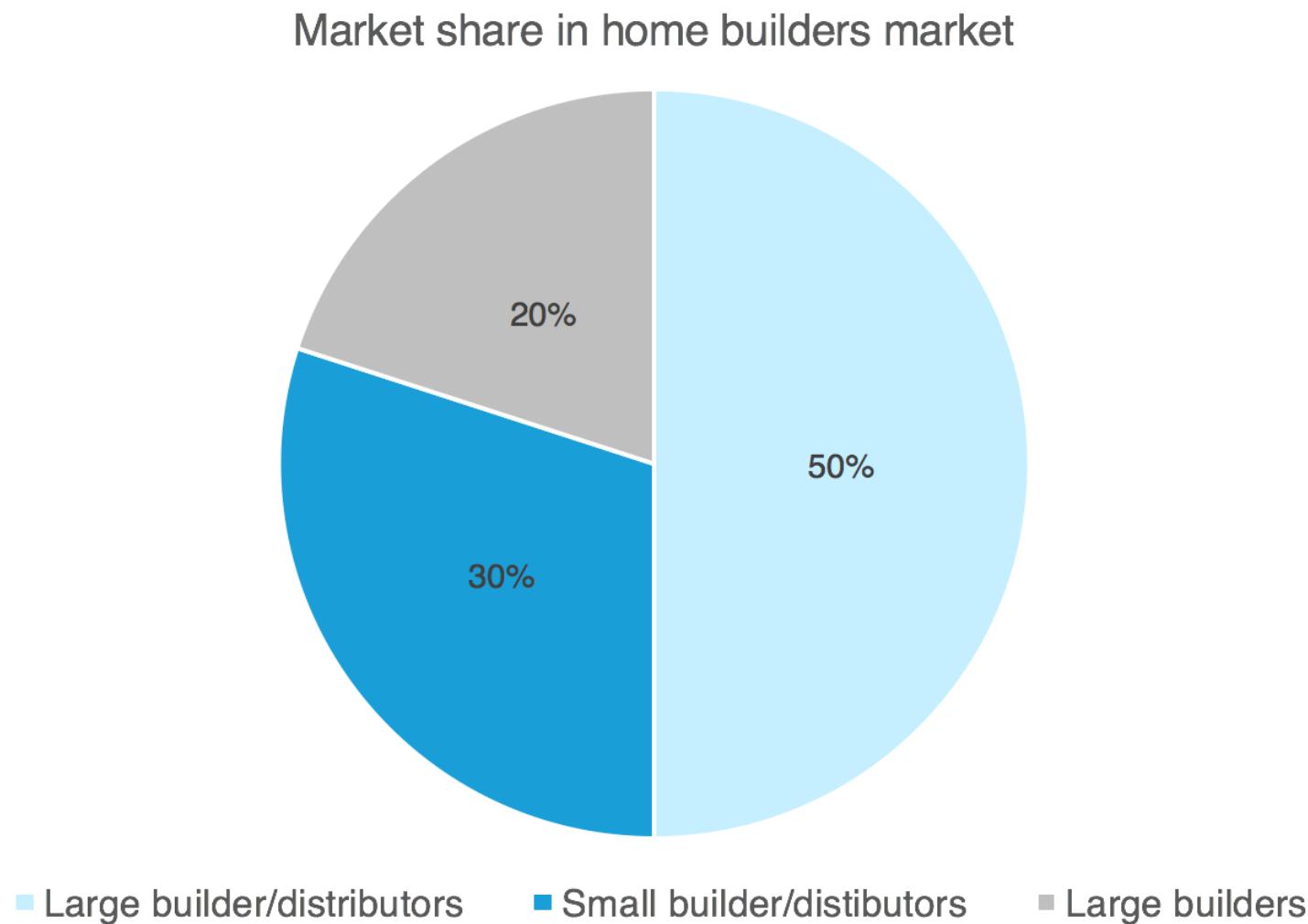


Exhibit #4: Distribution Market Share



Case # 24 : Veratech

Industry: Case Type:	Tech Profitability	Concepts Tested	Math	Structure	Creativity
		<ul style="list-style-type: none"> • Market analysis • Segmentation • Competitive analysis 	Easy	Easy	Easy

Problem Statement Narrative

Our client, Veratech, is an international tech firm that sells hardware and additional add-on services. Recently, its market share in the US has been falling and it has hired us to determine how to regain market share.

Case Notes

This case is light on math and focuses on competitive analysis and business acumen. Interviewee should ask questions and develop ideas based on the information given.

Sample Framework

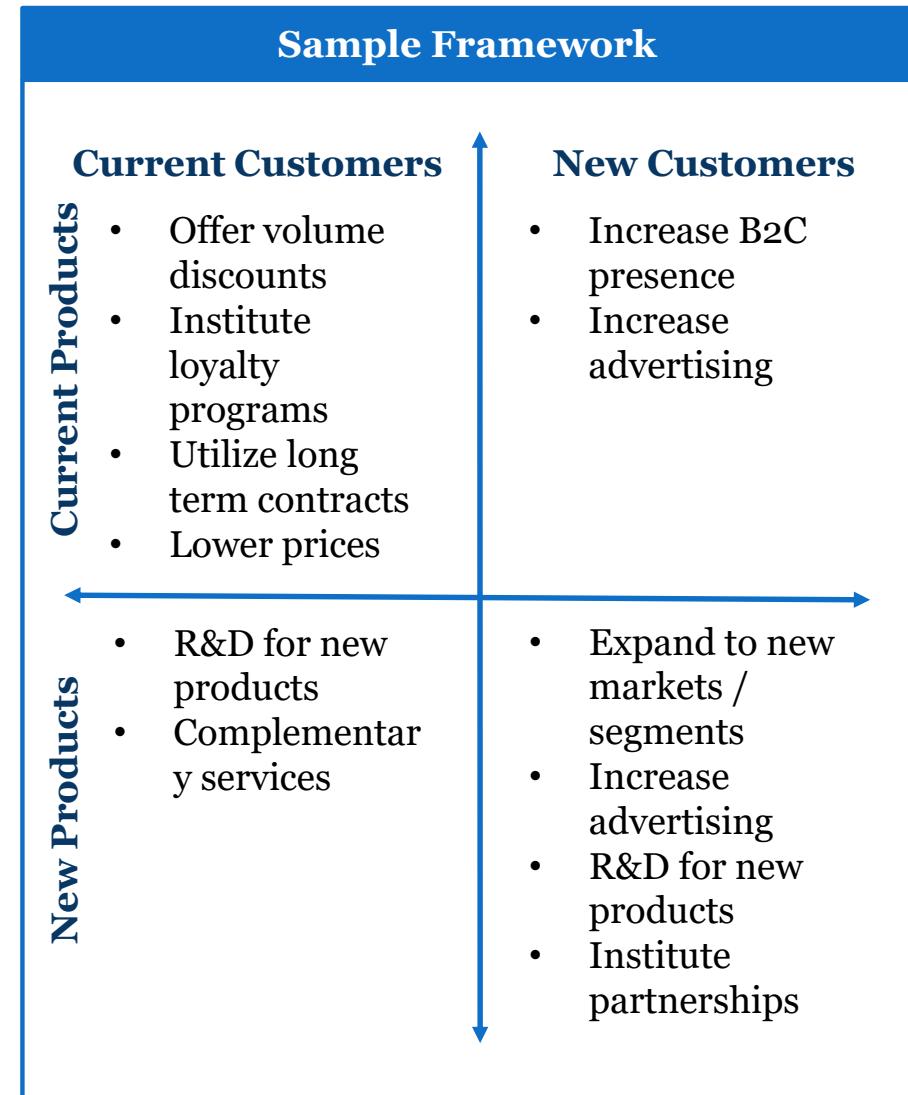
Guidance for Interviewer

- Candidate should ask questions to receive all needed information

Clarification Answers / Additional Information Needed

- Company is international, but we will focus on US market
- Revenue source breakdowns:
50/50: between Hardware and Services
70/30: between B2B and B2C
- Pricing: High End
- There are **5 competitors** outside of Veratech that make up the entirety of the market
- Competitor C offers a mass market hardware / services product while Veratech offers a customized high end product
- Customers have not changed year over year

Sample Framework



Question #1

Question #1

Give Exhibit 1. Ask candidate what she/he understands from this Exhibit; what recommendations would you have for Veratech based on this?

Solution

Possible discussion points:

- Market is growing, albeit very slowly
- Most competitors are stagnant; only competitor C is growing and only Veratech is shrinking in market share → problem is unique to Veratech and not an industry-wide problem
- B2B is Veratech's main focus and costs are rising
- Mass market is larger and growing faster than high-end

Candidate should ask for info about competitors (if she/he has not done so earlier). Make sure candidate knows that competitor C focuses on mass-market solutions while Veratech prides itself on high-end, customized solutions

Possible conclusions / recommendations:

- High-end market is shrinking, customers looking for mass-market solutions (competitor C offers mass-market solutions)
- **Veratech should enter the mass-market segment:**

How? Develop new products in-house; Purchase competitor; Partnerships

Question #2

Question #2

Give Exhibit 2: Does the information in the exhibit change your recommendation? What risks do you see for Veratech in entering the mass-market segment?

Solution

Recommendation should not change, but candidate should acknowledge that Veratech would face considerable competition in mass-market – especially from competitor C; Possible recommendation would be to also try and increase market share in high-end segment in case mass-market penetration does not go well

1. Enter mass market

- Risk: competitors are already established in mass-market
- Risk: diluting their high-end, customized brand with a commoditized product

2. Lower Price of Existing products

- Risk: hurts “high-end” image of Veratech’s existing products

3. Shift some of the focus from B2B to B2C

- Costs are rising in B2B; shifting to B2C (in both segments) could enable reaching more customers without raising costs
- Risk: reaching B2C clients is harder and may require additional investment in sales

Conclusion

Recommendation	Rationale
<ul style="list-style-type: none"> • 2 Tier Pricing Model – offer customized and mass market products, particularly in the B2C segment where costs are more stable • Cut costs in order to lower prices for both sets of products (metrics for customer service calls) 	<ul style="list-style-type: none"> • Lower price point appeals to mass market clients • Higher price point allows us to continue to customize HW/Svc for clients that want it
Risks	Next Steps
<ul style="list-style-type: none"> • Competition: mass-market segment has several established competitors, especially competitor C • Timing: Competitor C could continue taking our market share until we can develop a mass market solution • Buy-in: Our employees are used to being the high-end brand in the market. 	<ul style="list-style-type: none"> • Start developing a mass market product • Cut customer service costs in order to lower the price point on the products Veratech currently offers.

Exhibit #1 – Market Analysis

Market
<ul style="list-style-type: none"> • \$1B Total Market Size <ul style="list-style-type: none"> • Mass market: \$750M • High End: \$250M
<ul style="list-style-type: none"> • 4% Total Market Growth last year <ul style="list-style-type: none"> • Mass Market Growth: 5% • High End Growth: 1%

Costs
<ul style="list-style-type: none"> • B2B segment: costs up 20% <ul style="list-style-type: none"> • Reason: Customer Service Hours are up

Competition
<ul style="list-style-type: none"> • 5 Competitors (Market share last year to this year) <ul style="list-style-type: none"> • A: 10% to 10% Market Share • B: 10% to 10% Market Share • C: 20% to 25% Market Share • D: 20% to 20% Market Share • E: 20% to 20% Market Share • Veratech: 20% to 15%

Exhibit #2

