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CONSULTING CLUB AT DARDEN

DARDEN CONSULTING CASE BOOK

2012-2013 EDITION

CASE 1:
BIKE DVD RENTAL SERVICE IN NYC

★★★☆☆

Firm Style	Interview Round
All	1, 2

Case Question:

Your friend has approached you with a business idea and wants your advice. He wants to open a DVD Rental service in New York City, specifically Manhattan. DVDs would be delivered to customers via delivery people on bicycles. What would you tell your friend?

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
What kind of competition exists?	Assume that Netflix and comparable services are not available. Push the student to come up with large chains (Blockbuster), local video rental stores, movie theaters, live theater, etc.
What is your friend's acceptable breakeven period?	1 year
Where will the DVDs be stored?	They will be stored in your friend's apartment (he has plenty of space for the collection).

BIKE DVD RENTAL SERVICE IN NYC

Framework / Structure

This is a primarily a Market Sizing and Profitability case, but also includes other elements. The analysis may include, but is not limited to, the following areas:

Market Sizing Analysis (Details shows in calculations at end)

a. Estimate the population of Manhattan – Push the student to pick a number around 2 million people.
b. Estimate the average household size in Manhattan – Push the student to pick 2 (lower than the 3 person average for the country due to a higher number of singles)
c. Estimate the portion of the households that your friend will be able to serve based on having one central location for the DVDs – Push the student to pick 25% of the population.
d. Estimate the percentage of the market that your friend's service will capture in the first year. – Push the student to pick a number around 1%.
e. Estimate the rentals per month. There can be some flexibility here, but push the student to make assumptions that yield around 2,000 movie rentals/month for your friend's business

BIKE DVD RENTAL SERVICE IN NYC

Profitability and Breakeven

Give the following information when asked:

a. Assume you know someone who has a sizeable DVD collection that they are willing to sell to you to $10,000
b. Assume you have a friend who can set up a website and maintain it for you for a one-time fee of $10,000
c. Variable cost to deliver DVD is $4 (pay bicycle delivery person)
d. Assume an infinite supply of bicycle delivery people
e. Choose prices between $5 and $8 and calculate the breakeven time in months (see excel sheet at end)

Operations Analysis

a. What time and what days would you operate your service?
b. How would DVDs be returned (likely dropped off at central location)
c. How will the service function in the winter months or when it rains?

Marketing and Advertising Analysis

a. What is the competitive advantage of this business?
b. How would you attract customers?
c. How can you advertise effectively and inexpensively?

BIKE DVD RENTAL SERVICE IN NYC

Calculations

Market Analysis

People in Manhattan	2,000,000
People/Household	2
Households in Manhattan	1,000,000
% of population that can be served	25%
% of population that rents regularly	40%
% of market that we can capture	1%
Market Potential (Households)	1,000

Market Breakdown	Size	DVDs/ Month
Low Renters	500	1
Medium Renters	250	2
High Renters	250	4

DVDs / Month for your friend	2000

BIKE DVD RENTAL SERVICE IN NYC

Calculations

Profitability Analysis

DVD Capital Costs	10,000
Website Costs	10,000
Variable Delivery Costs	$4

Price/DVD	Breakeven time (in months)
$5.00	10.0
$6.00	5.0
$7.00	3.3
$8.00	2.5

BIKE DVD RENTAL SERVICE IN NYC

Recommendation

The recommendation should include the following:

a. The answer – Based on the market and profitability analysis along with my friends target of breaking even in less than a year, I would recommend that he goes forward with the business
b. The number(s) – At a price of $5, the friend can breakeven in approximately 10 months
c. Risks or considerations – Demand might not materialize, delivering 60+ videos via bicycle might not be practical, and competition such as internet movies could make the service obsolete
d. Next steps – Purchase the video collection, set up the website, and start advertising

Further Challenge Questions

What challenges would be faced if your friend wanted to expand the service to serve more customers?

CASE 2:
DRYWALL COMPETITIVE THREAT

★ ★ ★ ☆ ☆

Firm Style	Interview Round
BCG / Bain	1 / 2

Case Question:

Our client is a dry wall manufacturer and is concerned about a new player coming into the market. The new player is perceived to be a low price player and our client is considering lowering its price by 10%. The client seeks our advice regarding its options.

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
How many products does the client produce?	One
Is the new competitor's product similar to ours?	For practical purposes we can assume that our product is similar to the new competitor's product.
How are "dry-wall" products differentiated?	For our analysis assume all the "dry-wall" products in the market are similar.

DRYWALL COMPETITIVE THREAT

Framework / Structure

This is a strategy/competitive type case. A comprehensive plan should include the following areas:

- Client's impact of reducing price by 10%
- Market Structure (# of competitors and their share)
- Customer:
  - Who Are They?
  - Customer Preferences
  - Price Sensitivity
- New Competitor:
  - Size
  - Strengths
  - Weaknesses
- Our Client's Position:
  - Market Position
  - Duration in the Market
  - Brand Strength

DRYWALL COMPETITIVE THREAT

Question 1: After the candidate lays out his or her plan, ask the candidate to analyze the impact of 10% price reduction on our client's bottom line. Give the following information when asked:

a. Number of units sold = 100,000
b. Selling Price Per Unit = $10
c. Variable Cost Per Unit = $3
d. Allocated Fixed Cost Per Unit = $2

Key Assumption:
If the candidate asks regarding the volume change with the price cut, state that the volume **will remain same** with the price cut. If the candidate does not ask about the volume change it is expected that the candidate explicitly state the assumption before proceeding to the calculation.

Expected Calculation:

- Total Fixed Cost = $100,000 * $2 = $200,000
- This is a key insight: the allocated fixed cost needs to be converted into total fixed cost.

DRYWALL COMPETITIVE THREAT

Original Case:

- Revenue = $10 * 100,000 = $1,000,000
- Variable Cost = $3* 100,000 = $300,000
- Contribution Margin = $1,000,000 - $300,000 = $700,000
- Profit = $700,000 - $200,000 = $500,000

Price Cut Scenario:

- New Price = $9
- Revenue = $9 * 100,000 = $900,000
- Variable Cost = $3 * 100,000 = $300,000
- Contribution Margin = $900,000 - $300,000 = $600,000
- New Profit = $600,000 - $200,000 = $400,000

Impact On Bottom Line:

[(New Profit – Old Profit)/(Old Profit)]

Impact on bottom line = ($400,000 - $500,000)/$500,000 = -$100,000/$500,000 = -20%

The candidate is expected to state that the impact on the bottom line is 20% and thus is magnified compared to the 10% price cut.

DRYWALL COMPETITIVE THREAT

Question 2: Now ask the candidate if our client maintains the price how much volume it potentially needs to lose to make it equivalent to cutting the price by 10%.

If the candidate takes the initiative and explores this question then it needs to be noted and encouraged (this differentiates a very strong candidate from others)

Expected Analysis: Let the new volume of units the client sells be "x", and if the client sells "x" units @$10:

- Revenue = 10*x Variable Cost = 3*x Fixed Cost = $200,000
- Profit = 10x -3x - $200,000

*A classic mistake is to take the contribution per unit as $5 (effectively treating the allocated fixed cost as a variable cost too) and using $5*x as the profit.*

DRYWALL COMPETITIVE THREAT

So for this option to be equivalent to cutting the price by 10% the equation would be

- 10x – 3x – 200,000 = 400,000
- 7x = 600,000
- x = 600,000/7 = 85,700 (approx)
  Loss in market share = (85,700-100,000)/100,000 = 14.3%

It is expected that the candidate explains what this 14.3% number represents; expected answer
would be that the 14.3% is the maximum market share our client can afford to lose before the option of cutting price by 10% appears to be a better choice.

A candidate can differentiate himself or herself by stating that the key is to estimate how much the client can potentially lose if it does not reduce price by 10%.

DRYWALL COMPETITIVE THREAT

Question 3: Now ask the candidate that if our client needs to make a choice between these two options how you would help our client make the choice.

Now the candidate is expected to make use of his or her plan to help make a decision. If candidate asks the following questions provide the following information:

- What is the market structure? (In terms of number of competitors and their share)
  - Show Exhibit 1, with the shares
- What is size of the competitor?
  - They are a small to mid size player
- Who are our customers?
  - They are primarily contractors/small business owners. They buy directly from us.
- What are our customer's preferences or how price sensitive they are?
  - Customers usually buy based on relationships and they build preference on a particular brand. We do not have any information regarding price sensitivity.

DRYWALL COMPETITIVE THREAT

- How do we sell to our customers?
  - We sell based on their orders. There are no long term contracts.
- What are the strengths of the new competitor?
  - Not much information, they are a new player in the market. They have presence in other market our client does not compete in.
- What are the weaknesses of the new competitor?
  - Not much information, they are a new player in the market. They have presence in other market our client does not compete in.
- What is our brand strength?
  - As a number 3 player, we have strong brand presence and we have been in the market for a significant period of time.
- How long we have been in the market?
  - We have been in the market for a significant period of time.
- Is there much differentiation in the product?
  - Not much, for practical purposes consider all products to be similar.

DRYWALL COMPETITIVE THREAT

Key Expected Insights

Based on the information provided the candidate is expected to come up with at least the following insights:

- Dry wall market is a very fragmented, and we are a dominant player
- Considering the size of the competitor, they would be one of the small 30+1 players
- That would mean on an average the new competitors' market share would be around:
  - 70/31 = 2.3% approx
- New Competitor assuming fair share draw would take 2.3% of our volume, although one can argue that they may not take any volume and compete with the other small/mid size 30 players

DRYWALL COMPETITIVE THREAT

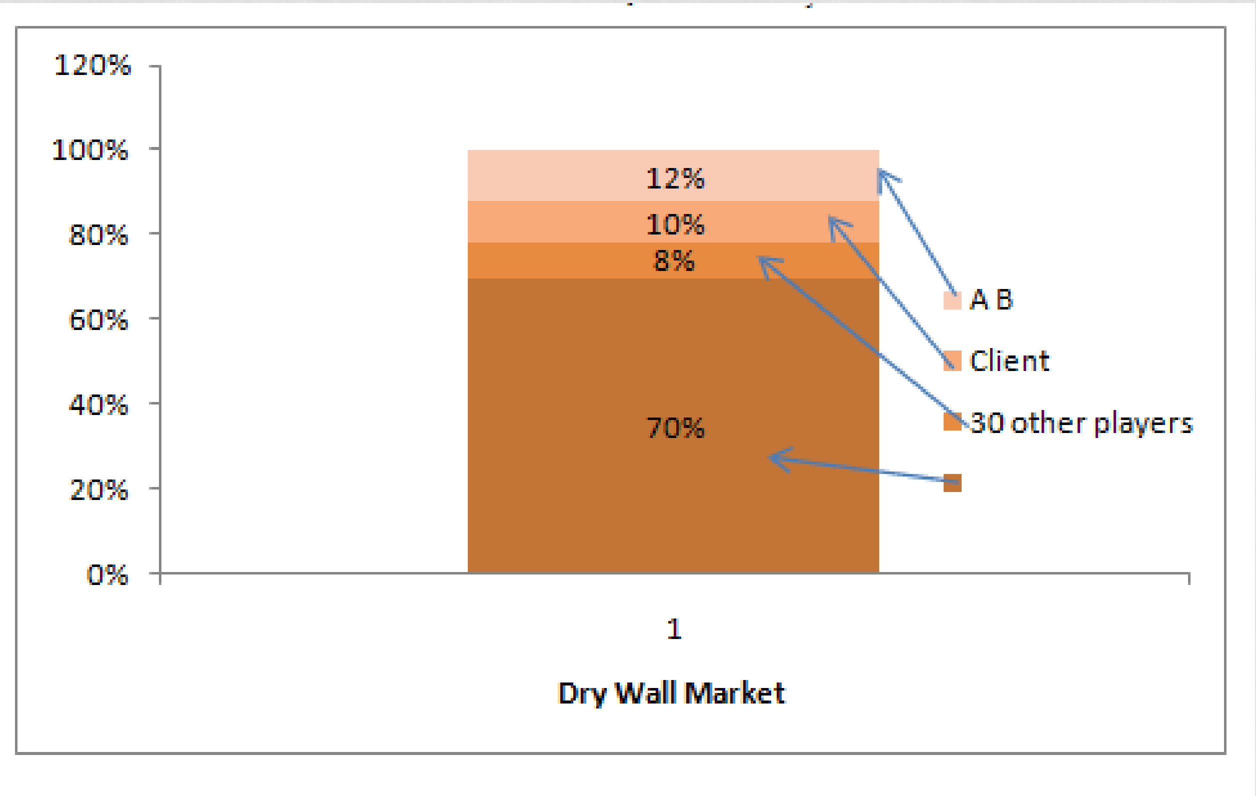
Recommendation

The recommendation should include the following:

- The answer: Client should not reduce price, because this is not a serious threat and cutting price in this market would lead to a price war where everyone would lose.
- The number(s): Reducing the price by 10% would impact profit by 20%. 20% impact on profit is equivalent to losing 14.3% market share at the current price levels and at most the client can lose 2.5% volume.
- Risks or considerations:
  - We might underestimate the size or strength of the new competitor (new competitor might be bought by a bigger player)
  - One of the major competitors (A or B) may have a knee jerk reaction and reduce price
- Next steps:
  - To mitigate some of the risks our client should aggressively strengthen its client base by providing additional services
  - To create a barrier for the new competitor to poach our client's customers
    - Client can enter into long term contracts with its customers
  - Even if A or B reduces its price, our client should maintain price and aggressively provide value added services to the customers.

DRYWALL COMPETITIVE THREAT

Exhibit 1



CASE 3:
ORGAN DONATION CASE

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Firm Style	Interview Round
McKinsey	1 / 2

Case Question:

One of the many functions of the New York State Health Commission is to coordinate organ donation amongst the state's many hospitals. In recent years the demand for organs has been greater than the supply. As a result, many patients die each year because there are not enough organ donations. The Health Commission has hired McKinsey to help it determine how to increase the number of annual organ donations in New York.

For the purposes of this case, assume that only New York residents are involved as donors and recipients.

Question 1: What are the factors and drivers that determine the number of organs donated in New York each year?

Clarifying Information

Provide the following answers only if the interviewee asks the corresponding questions.

Information
In New York, organs will be harvested from terminally ill or injured patients just before death only if they are a registered organ donor or if the hospital receives permission from the next of kin. New York residents may choose to register as organ donors when they apply for a driver's license.

ORGAN DONATION CASE

Sample answer:

(Terminal patients*% Registered donors *organs/donor) + (Terminal patients*% Not registered*% Family consent*organs/donor) = organs donated

"The number of organs donated is determined by the number of terminal patients times the percent who are registered donors times the number of organs per person, plus the number of terminal patients times the percent that are not registered donors times the rate of family consent times the number of organs per person.

"The number of terminal patients is driven by the age of the population, changes in life spans, medical technology, the size of the population, the overall rate of natural death, plus the rate of accidental death, such as car accidents. The percentage of registered donors is driven by awareness of the donor program, the ease of registering, whether it is opt-in or opt-out, awareness of the benefits of organ donation and personal things such as religious beliefs. The rate of family consent is also driven by awareness of the benefits of organ donation and things such as religious beliefs, along with the information provided by doctors in a time of great grief and assurance that organs will only be harvested after death is certain. The number of organs donated per person is driven by the average number of healthy, usable organs in a donor.

While we've identified a number of factors, it's important to note that we can only really influence the rate of registered donors and the rate of family consent."

ORGAN DONATION CASE

Note: This question seeks to test a candidate's breadth of thinking. A good answer will be logical and structured. It will examine the factors as an equation, though not necessarily exactly as presented here. It will be thorough and should include 3-4 drivers for each factor. A great answer examines the implications of the analysis – ie. There are only two factors that we can influence.

ORGAN DONATION CASE

Question 2: The team has decided to focus on increasing the number of registered donors and is specifically interested in kidneys donations. The Health Commission knows that it needs 9,200 kidneys per year. What percent of New Yorkers need to be registered donors in order for 9,200 kidneys to be donated in a year?

The team has already collected some useful information: The population of New York is 10 million. The percentage of people that become terminally ill or injured each year is .1% (one-tenth of one percent). The percentage of families that give consent to harvest organs is 10%.

Sample answer: The candidate should setup and solve the following equation.

- RD = Percent of New Yorkers who are registered donors. (10,000,000*.001*RD) + (10,000,000*.001*.1*(1-RD)) = 4,600
- (10,000*RD) + (1,000*(1-RD)) = 4,600
- 10,000RD+1,000-1,000RD = 4,600
- 9,000RD=3,600
- RD=3,600/9,000
- RD=.4=40%

Note: Set the equation equal to 4,600 because there are two kidneys per person.
4,600*2=9,200.

ORGAN DONATION CASE

Note: There are other possible ways to setup the equation. What's important is that the candidate takes a structured, analytical approach to the problem and doesn't panic. The candidate should walk the interviewer through the math, either as she solves the equation or afterwards. If the candidate gets stuck, give appropriate hints.

A great answer will include implications of the data. For example, they may conclude that 40% seems reasonable based on their personal experiences knowing people who are registered donors. Anything to show initiative and critical thinking without prompting is good.

ORGAN DONATION CASE

Question 3: What are all of the things that the Health Commission should consider doing to increase the number of registered donors?

Sample answer: "First, we should conduct benchmarking studies. Internal benchmarking will reveal what they are currently doing well to drive registrations, and external benchmarking of other states or countries will uncover new ways to increase registrations. Second, we should conduct a segmentation of current and prospective registrants. We'll want to determine the segments where we are strong so we can continue to cultivate them, and at the same time find new segments where few people are registering. Third, we should conduct a series of marketing communication tests to determine appropriate messaging and channels to increase awareness and drive registrations. We should consider testing media such as TV, radio, online, direct mail, and may also be able to leverage the word of mouth of our current customers. We'll also want to develop messaging that increases the awareness of the donor program, the benefits of donation and the safeguards that are in place. Finally, we need to optimize our distribution channels. Currently, people can only register when they get their driver's license. We should add ways to register, such as any time someone goes to the doctor or hospital. We should also make it easier to register. For example, if New York currently requires people to explicitly opt-in, we can change to an automatic opt-in with an explicit opt-out.

ORGAN DONATION CASE

Note: This question is designed to evaluate the candidate's depth of thinking. The above plan is a sample only and there are other approaches. A good plan will be MECE, with discrete categories (ie. "Benchmarking") and multiple items within each category. The plan should demonstrate common sense and sound business judgment.

ORGAN DONATION CASE

Question 4: The team conducted a customer segmentation and your Engagement Manager has asked you to draw some initial conclusions from the data (give candidate the exhibit from the end of the case – candidate should clarify that the data are in millions of people). What would you tell her?
Follow up question: Which segment represents the best opportunity to increase RDs?

Sample answer: "It looks like the Caucasian segment has the largest number of potential new registrants, but at the same time is already highly penetrated. The African-American segment is the opposite: low-penetration but low upside. The Hispanic segment has a slightly higher penetration than African-American, but is a bigger population. Based on this data alone, I would target the Hispanic segment because of the low current penetration and large population. Some of the risks include overcoming the language barrier and dealing with cultural differences."

ORGAN DONATION CASE

Note: The data table is designed to present the Caucasian, African-American and Hispanic segments as strong possible targets for different reasons. The candidate should reason through the pros/cons of targeting each segment and come to a firm hypothesis based on this data. It's more important that the candidate selects a target for good reasons and less important that she selects Hispanic.

ORGAN DONATION CASE

Question 5: The team has decided to focus on increasing the registration rate among Hispanics. What are some things we can do to increase registrations of Hispanics?

ORGAN DONATION CASE

Note: This question is designed to test a candidate's creativity. Hence, a sample answer is not provided. It is likely that the candidate will suggest things such as community outreach, Spanish language marketing materials/registration, etc., classic consumer marketing tactics, having vans drive around Hispanic communities encouraging people to register, etc. A good answer will have a long list of ideas that include typical business tactics along with creative, interesting suggestions. The interview should push the candidate by repeatedly asking "What else?", until the candidate can no longer think of things, and to determine how they respond to pressure

ORGAN DONATION CASE

Recommendation

Question 6: The head of the Health Commission just walked in and wants a recommendation for what he should do to quickly reach Hispanics. What's your recommendation? Start talking now.

Sample answer: "Clearly, there is a big opportunity with Hispanics. We've identified a number of things we can do to increase registrations, and since we're focused on the short term, I recommend that we do X, Y, and Z, because of A and B."

ORGAN DONATION CASE

Note: A good answer should be short (20 seconds), organized and forceful. The candidate should be firm and not hedge her answer. The recommended steps will likely be things discussed in Question 4, and a good answer will choose tactics that, logically, will make the biggest impact.

ORGAN DONATION CASE

Exhibit 1

	Registered Donors(M)	Population(M)
Caucasian	2.600	5.500
African-American	0.075	1.500
Hispanic	0.250	2.500
Other	0.100	0.500

CASE 4:
CENTRAL POWER

★★★★☆

Firm Style	Interview Round
McKinsey, BCG, AT Kearney	2

Case Question:

Our client is a regional electricity monopoly. Due to regulation, its market will be opened to competition next year on January 1. There are no actual competitors at this time; however, the client would like ideas on actions to take in the short-term in order to better prepare for potential competitors. They have no control over pricing and cost-cutting during this time period.

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
Do we know of any potential competitors?	None at this time. Central Power is facing the *threat* of market entry.
Do you have any information on pricing?	Not really; pricing is controlled by a government, so it is beyond our control and will be the same for any competition.
	Cont'd on next slide

CENTRAL POWER

Clarifying Questions & Answers (cont'd)

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
Are there other markets Central Power can enter?	None at this time. Our engagement is focused on their home market.
How is Central Power organized?	Central Power has three divisions: 1. Sales and General Administration 2. Generation and Transmission 3. Maintenance and Repair
How many employees are in sales?	About one for every 1000 customers.
Does sales, customer service treat certain customer segments differently?	No, they treat everyone equally.
If there is a power outage, does Maintenance and Repair fix industrial clients first?	No, they dispatch in the order of the call they receive.
Has Central Power ever advertised or had a marketing campaign?	Not in recent memory.
Is Central Power undertaking any capital investment?	Not in the next year.

CENTRAL POWER

Framework / Structure

This case is about customer retention within the home market. Since the client is a monopoly, market share is 100% and customer acquisition is irrelevant.

The analysis may include, but is not limited to, the following areas:

- Barriers to Entry
  - There is no actual competition to specifically target
  - The government is deregulating, so there are no possible external barriers
  - Internal barriers are possible, such as increasing switching costs and commercial attractiveness to customers
- Anticipation of Competitive Attack - Once the candidate sees the exhibit and realizes how attractive the industrial clients are, they can anticipate how a rational competitor would enter the market.
- Market Information
  - Revenue
  - Customer Segmentation
- Stakeholder Reaction - How will employees, unions, or local government leaders react to our changes? (There is no set answer to this, just ask the candidate what they think and see if it is logical and structured.)

CENTRAL POWER

Note: Strong plans will anticipate the need to be competitive and draw on analogous companies or situations.

Less experienced candidates gravitate towards issues of pricing and cost-cutting. This is not a profitability case. Weak candidates will often explore growth outside the home market, such as expansion into adjacent markets. While interesting, this does not address the primary problem of what to do in the home market before deregulation.   Avoid these tangents.

Steer the candidate to **customer retention.**

CENTRAL POWER

Phase 1

Qualitative reaction and quantitative analysis of revenue data

Purpose:

1. Test rapid understanding of a basic chart

- Most candidates ask about revenue very early. Show them the attached exhibit and immediately ask, "What is your reaction to this data?" Strong responses notice the differences between the customer segments.
- The "historical data" is irrelevant. If a candidate starts to ask about it or discuss trends, inform them that is a factor or population and government-determined prices, which are both beyond the control of the company.

2. Test basic arithmetic

Test basic math by asking the candidate (if they haven't already done so) to calculate the share of total revenue per segment and each segment's revenue per customer. If a candidate didn't notice the differences between customer segments already, this is a second chance. Note: I don't have a problem if a candidate wants to round the total revenue to $250 MM from $258 MM to simplify the math…

CENTRAL POWER

	Industrial	Commercial	Residential
# of Customers	150	10,000	100,000
Revenue	$150 MM	$60 MM	$48 MM
Revenue per Customer	$1,000,000	$6,000	$480
Residential Customer Equivalents	2083	13	1
Fraction of Total Revenue	150/258 = 58%	60/258 = 23%	48/258 = 19%

NOTE: the math is really basic, but there are a lot of zeros that tend to trip up candidates. Most strong candidates write out the problem to avoid error, even if their math is facile. Now is a good time to diagnose how well the handle orders of magnitude. If this is a problem, here are some suggestions for the candidate.

Method A – Write out the numbers and cross out the zeros:

$$R\$ = \frac{\$60MM}{10{,}000\ customers} = \frac{60{,}000{,}000}{10{,}000} = \frac{60{,}00\cancel{0{,}000}}{1\cancel{0{,}000}} = \$6{,}000\ per\ customer$$

Method B - Use exponents:

$$R\$ = \frac{\$60MM}{10{,}000\ customers} = \frac{6 \times 10^7}{10^4} = 6 \times 10^3 = \$6{,}000\ per\ customer$$

CENTRAL POWER

3. See if candidate grasps key insight regarding higher value of industrial customers and uses it for convergent logic in Phase 2.

- By now, candidates should realize that losing a single industrial customer is similar to losing more than 2000 residential customers. Churn of industrial and commercial customers is lower too and it is easier to approach a few hundred "B2B" customers than one-hundred thousand individual homeowners, apartment renters, etc.
- If a candidate still needs help, ask them, "Let's turn the situation around. Based on this data, if you were a competitor, which segment would you target?" They should realize industrial customers. If the candidate doesn't verbalize that Central Power should target or defend the industrial customers, then ask, "OK, based on your insight about a potential competitor, what should Central Power do to pre-empt them?"

CENTRAL POWER

Phase 2

Generation of ideas regarding customer retention improvements.

- Now that the candidate grasps that any action should be biased towards the smaller and higher value segments, it is time to generate actual ideas. This part of the case is extremely unstructured- there are no more data sheets or obvious answers.
- Assume Central Power is decades behind the rest of the business world- they have no website, send out massive paper bills, treat customers with the finesse of a huge monopoly, etc.

Purpose

Test candidate's ability to generate their own ideas with structure and logic

- The prime differentiator between weak and strong candidates is their ability to have an exploratory conversation that exchanges ideas.
- Strong candidates will announce that they want to discover ways of improving customer attachment (or retention, stickiness, etc.) to Central Power and begin to explore the structure of the company looking for areas to improve. They use a conversational style to ask questions. They typically draw on personal experience as residential customers of electricity (or another utility).

CENTRAL POWER

- Also, they may ask about the organization of the company or use a "value chain concept" to structure their questions regarding the organization of the company. At each part of the company, they ask questions about behavior, customer service, etc. to see if we focus on industrial clients.   Great candidates really have some out-of-the box ideas, such as energy savings, simplified billing, special websites, improved terms for accounts receivable, etc.
- You will know you have a strong candidate when they move methodically through the company and use their imagination. Let them continue on as long as possible by asking, "What else?" This is an opportunity to test a candidate's ability to structure their reasoning and demonstrate conversation skills.
- For instance, they should be able to tactfully move the investigation to a new part of the company when they have exhausted their imagination. <u>These meta-skills are more important than specific ideas</u>, so feel free to make up whatever you want about Central Power's operations.

CENTRAL POWER

Here are some ideas to facilitate customer retention by building a stronger relationship or making switching more difficult:

a) Sales and General Administration
   i. Sign customer contracts
   ii. Increasing credit terms / days allowable for accounts receivable
   iii. Increasing the size of the sales force
   iv. Allocating sales staff to specific segments, since the value proposition is different
   v. Allocate special personal to high-value accounts
   vi. Reduce or simplify the billing process
   vii. Create a website for customers to manage accounts online.
b) Generation and Transmission
   i. Consider building substations or redundancy that improves reliability or quality for industrial clients.
   ii. Work with industrial clients to improve their energy efficiency
c) Maintenance and Repair
   i. Fix outages by order of customer priority, not first-come, first serve. (Besides, Industrial clients are more sensitive to power outages than residential customers)
   ii. Preposition repair equipment near clusters of industrial clients to reduce repair time.
   iii. Proactively visit clients to inspect their infrastructure or provide engineering advice

CENTRAL POWER

Weaker candidates face typically fall in two groups:

Group 1 – Lost in the Sauce: Some candidates have no idea how to systematically generate ideas. Try and prompt them by asking about their own experience with a power company, or ask them to think of the value chain.

Group 2 – Lone Rangers: Other candidates will have a systematic approach, but will make assumptions and monopolize the conversation. They declare, instead of explore, their way through this phase. They will make up their own data and draw conclusions. For example, they might say, "Our client must be bad at customer service, so I would consider dedicating people to high-value clients."

A real conversation should flow like this: "Do we know how customers feel about service?" Response: "They hate it. The number one complaint is "every time I call, I speak to someone new." Candidate: "Perhaps we should dedicate some sales staff to high-value clients that we want to retain the most." Response: "Good idea, what else?"

CENTRAL POWER

There are two other meta-skills to evaluate:

- First, does the candidate explain their structure and line of reasoning? It should be "transparent thinking". I use an analogy of a tour-guide. A strong candidate tells me where we are going with their plan, takes me through it, keeps me from getting lost when we go outside the plan, and brings me back.
- Second, due to all the ideas being generated, a candidate needs good note-taking skills. Strong candidates will circle ideas on their plan or make a list in the corner of the page. When it is time to make a recommendation, they can quickly cover ideas at a glance. Weak candidates will attempt to recall ideas off the top of their head, usually without total success.

End the case when you are out of time or the candidate is out of steam.

CENTRAL POWER

Recommendation

The recommendation should include the following:

- The answer – We have developed several ideas for improving customer retention; all priorities should be biased towards Industrial customers.
- Next steps – Analyzing costs, potential ROI, and effects on stakeholders for particular customer retention initiatives.

Strong Recommendation

"By investigating the operations of your company, we have developed several ideas for strengthening customer retention in the face of competition. No matter which actions are undertaken, there should be a bias towards industrial customers who are more valuable as a group and on a per-customer basis. If any of these actions seem attractive to management, we can undertake more detailed analysis to support

Tepid Recommendation

Many times, students will say the same thing as above but with too much detail, too much length, or without enough structure. When they are done rambling, I ask them to <u>say it again in 30-seconds</u> or in three sentences. Sometimes it takes a few attempts, but it is more worthwhile then telling them later during feedback that their recommendation wasn't good enough. (Close only counts in horseshoes and hand-grenades.

Weak Recommendation

Weak recommendations are missing a unifying aspect, such as customer retention. They also fail to include the key insight regarding the preferential value of industrial customers. Further, they may include something totally off-base, like cost-cutting or pricing.

CENTRAL POWER

Questions to Further Challenge the Interviewee

1. How do you think the employees (or another stakeholder) will feel about these changes?
2. What do you think it will be like working for a client that lacks a history of customer service?

CENTRAL POWER

Exhibits

Revenue 2007

	Industrial	Commercial	Residential
# of Customers	150	10,000	100,000
Revenue	$150 MM	$60 MM	$48 MM

CASE 5:
CHEMICALS, INC.

★ ★ ★ ☆ ☆

Firm Style	Interview Round
All	2

Case Question:

The CEO of Chemicals Inc., a leading chemicals company with a long history of innovative products and application technologies has contacted you for assistance. In the past couple of years, the company's bottom-line profitability has slowly eroded to the point where EBITDA is hovering barely above 0, even though the company's overall sales growth is outpacing industry averages. Magnifying these financial problems are the reports he is receiving from his business unit leaders which are that revenues and volumes are up and profitability has never been higher. The CEO looks at you across the table and asks, "What do I do?"

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
Tell me about the firm's product portfolio?	Many different kinds of chemicals products, sold to many different kinds of customers (large, small), in many different kinds of industries (automotive, medical, consumer products), all around the globe.
	Cont'd on next slide

CHEMICALS, INC.

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
How is the company organized?	The company is organized geographically and by the underlying technologies that drive products, not necessarily by product line. Definition of product line is technology-application (think industry)- geography ,e.g. Chemical A – Automotive – USA.
What industries are customers of the firm's products?	Automotive, Medical, Consumer Products (packaging), Manufacturing, Electronics, Drilling
How does the firm view the world in terms of regions?	North America, South America, Europe, Pacific
Who are their competitors? What does the competitive landscape look like?	Major competitors include large multi- national corporations as well as small, local, specialized firms with a single product. Some of these firms actually purchase our client's products and rework them and sell to the end customer.
What are the costs the company is incurring?	Revenues last year were $2Bn. The COGS is variable, about 25%, but all companies in this industry are dealing with fluctuating feedstock prices. SG&A expense is 30% of revenue and beyond the industry benchmark. Other costs are inline with industry norms.

CHEMICALS, INC.

Framework / Structure

This is a Sales & Marketing case. The analysis may include, but is not limited to, the following areas:

1. Customers
   a) Who are they?
      i. Firms within the various industries, we can speak at the industry level for this case.
   b) Where are they?
      i. Global. No difference between same industry in different regions.
      ii. Customers in USA and Europe most profitable to serve because most closely located to Firm‟s plants; however, Pacific is fastest growing region.
   c) What products do they buy?
      i. Automotive – Very price conscious for most parts, except in safety applications and where the consumer will be touching the product, e.g. interior
      ii. Consumer Goods (Packaging) – Very cost conscious, cannot pass costs on, e.g. plastic cups, plates, plastic wrap
      iii. Electronics – Varied products, generally need inexpensive products; however, willing to pay more for small lot sizes and specialized custom technical support.
      iv. Medical – Very specialized medical applications, think lenses, can pass costs along to customers.
      v. Drilling – Huge costs for broken parts, so want the best products available.

CHEMICALS, INC.

2. Product & Service Mix
   a) What products are provided?
      i. Chemical Technologies A,B,C
      ii. Coupled with 5 different Industries yield 15 product lines
      iii. All supported using same shared service model and provided technical support, customer service, logistical assistance, financing terms.
      iv. See Exhibit #1 for Product Line Contribution Margins e. What services accommodate the products?
   b) What services accommodate the products?
      i. Presently customers of every product line have access to the full suite of services
         i. Small Batch sizes
         ii. Custom Logistics Servicing
         iii. Technical and Customer Support
         iv. Application Development Support

3. Organization: The company is organized into **3 business units** each representing Technology A, B,C respectively.

CHEMICALS, INC.

Strong Plan

Since sales revenues and volumes are outpacing the industry while our profitability and specifically EBITDA is suffering, I hypothesize that there is a cost problem and will therefore focus on the COGS and SG&A. Within the cost problem, since the various business units are reporting gains while the company overall is sustaining a loss I hypothesize that there is a cost allocation problem and I will try to determine where this problem exists. Finally, I want to examine the marketplace for the client's chemicals products. I hypothesize that one reason revenues are up and profitability is down is that we are actually undercharging for the products and services we do provide. I;d like to understand what our client's customers need and are willing to pay for and to align our client's offerings with those needs.

Show interviewee Exhibit 1.

Interviewee: Do you know anything about the profitability of each product line?

Interviewer: Yes, Exhibit 1 displays the contribution margins of the 15 product lines with each bar a distinct product line. The colors correspond to the business unit that owns the particular product line.

Expected Insight: Much of the firm's product portfolio has undergone commoditization, given the wide range of product line contribution margins. Also, business units are spread across the contribution margin continuum. May want to realign product lines to business units based upon contribution margins. Those with higher margins get more service, those with fewer, treated like commodities.

CHEMICALS, INC.

Recommendation

The recommendation should include the following:

- Reorganize the company into Specialty and Commodity Business Units.
- Specialty – High Level of Service; Commodity – Develop Low-Cost Service Model
- Assign 1 individual to manage each of the shared services and handle appropriate cost allocation.

Risks:

- Appropriate allocation of product lines to business units now and over time.
- Business units do not own manufacturing and supply chain so this can continue to be a holder of unnecessary cost. Little incentive to optimize.
- Reduced personal service will make company less competitive and reduce top-line and volume

Next steps:

- Study Manufacturing and Supply Chain to allocate these to business units where practical
- Increase partnerships with Specialty Chemicals customers for greater volume in high margin business
- Consider outsourcing or selling one or the other business units to focus in one area; or develop portfolio strategy with major customer, such as industry-specific sales teams that span business units.

CHEMICALS, INC.

Strong Recommendation

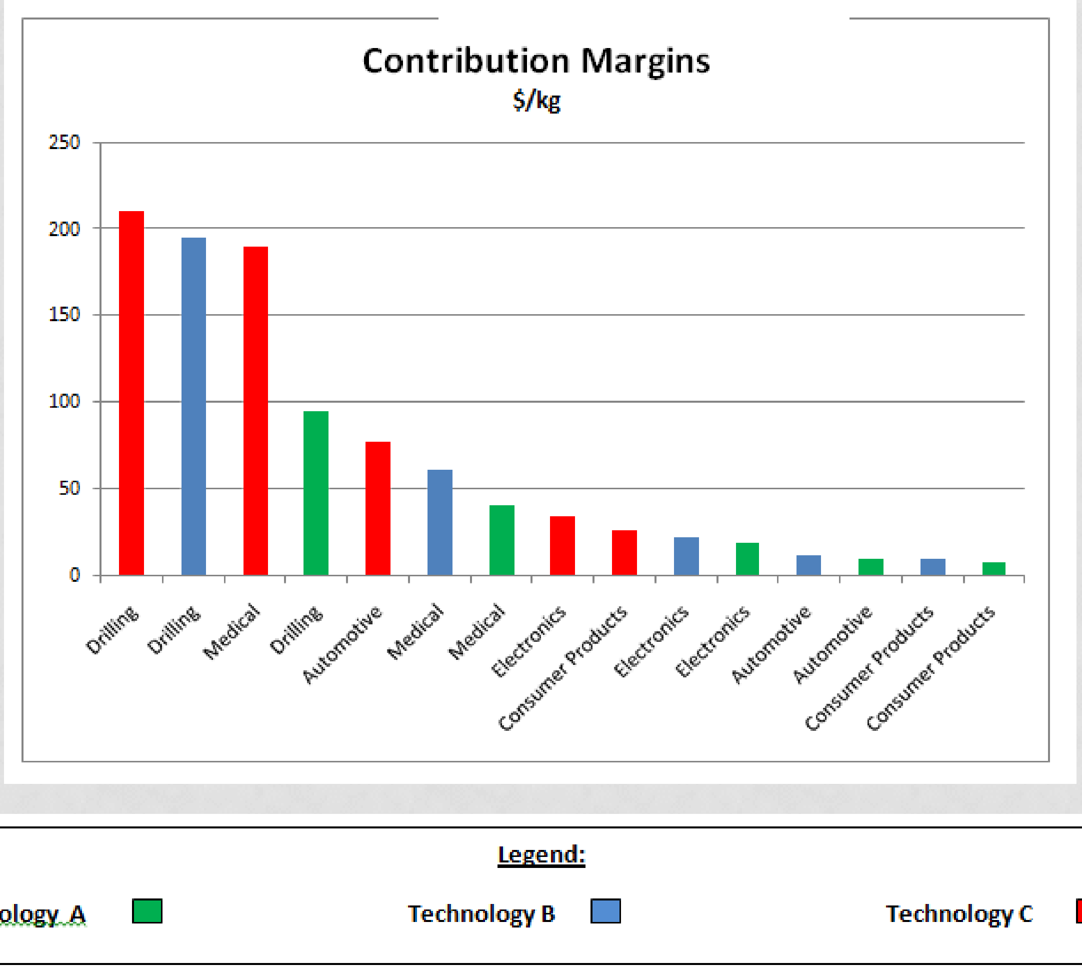
I recommend that the company reorganize along the lines of contribution margin into a specialty and a commodity business unit. The specialty business unit should continue to provide a high-level of customized service to customers, while the commodity business unit should adopt a lower cost service model. This lower cost service model may include IT tools, a la carte service agreements, and less favorable terms and conditions to the end customer. Additionally, I recommend that the client develop a shared service model that embeds business unit-specialized functions into the business and retains general legal, hr, facilities, etc. services as part of a corporate core. Each shared service should have a single leader who is responsible for the costs incurred in that function and responsible for the allocation of those costs to business units. The shared function leaders should negotiate service agreements with the business unit leaders to ensure appropriate resourcing and allocation of cost.

Questions to Further Challenge the Interviewee

1. What additional changes might you consider to an organization that is facing increased commoditization of their product lines?
2. How might the organization reduce the volatility in its raw materials? To reduce the COGS?

CHEMICALS, INC.

Exhibits



CASE 6:
HOSPITAL PROFITABILITY

★ ★ ★ ★ ☆

Firm Style	Interview Round
BCG	1

Case Question:

A hospital group has been experiencing growing pains and has asked our firm for help.

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
What do you mean by growing pains?	The hospital group originally consisted of one hospital and then it acquired 3 other hospitals, and its profits are going down.
Any other change in organization?	Yes the CEO of the main hospital changed; it was originally an MD doctor now it is a business experience MBA.
Any other changes or events impacting the hospital group?	None.
Any external market condition changing?	No.

HOSPITAL PROFITABILITY

Framework / Structure

This is a profitability case with lots of twists and turns. The analysis may include, but is not limited to, the following areas:

Phase 1

- Identify the root cause of profitability decline.
  - If the candidate makes an assumption that the acquisition led to profitability decline, steer candidate away by stating that the acquired hospital did not experience any decline in profits.
  - **Key expected response/insight: So the main hospital is experiencing profit decline**
- Identify the root cause of the profitability decline in the main hospital
  - Costs – No change
  - Revenue – Decline
  - **Key expected response/insight: So the primary reason for profits to decline is that the revenue for the main hospital is going down.**

HOSPITAL PROFITABILITY

Explore the revenue decline

- **If the interviewee asks the revenue stream for the hospital, this should be the response:**
  - The hospital treats patients and mainly collects payments from the insurance companies based on the service provided.
- **Key facts to be provided to the interviewee if asked:**
  - Volume of patient change: No
  - Any change in mix of services performed by the hospital (lower of number of surgeries etc.): No
- **Key Expected Insight: In some way the revenue per patient on average is decreasing, which implies that the patient mix is changing in terms of revenue. Which implies that the patient mix in terms of insurance they cover is changing**
- If patient asks to explain the insurance coverage, provide the following facts: Primarily the patients can be categorized into the following categories:
  - Private Insurance Covered Patients
  - Public Insurance Covered Patients
  - No Insurance Covered Patients (Usually homeless people)
  - Payments from private insurance is **greater than** public insurance.

HOSPITAL PROFITABILITY

- So expect some insight from candidate:
  - **Key Insight Expected: Looks like then the patient mix for the hospital is shifted, with less patients with private insurance coming to the hospital.**
- On providing the insight, ask the candidate what does the candidate wants to do with this information.
  - **Key Question Expected: What are the key drivers to getting people with private insurance to the hospital.(Note to the interviewer: Guide the person to explore the driver)**
- For the key drivers that drive the patients with private insurance to the hospital is referral by private physicians.

Phase II

- Interviewer should prompt the candidate to make some hypothesis with regard to lower number of patients with private insurance coming to the hospital.
  - **The key expected hypothesis: Because of change of management the perception of physicians may have changed –resulting in lower number of referrals of patients with private insurance. Interviewer should guide the candidate to make the hypothesis.**
- Interviewer should then ask the candidate how he/she can test the hypothesis.
  - **Key expected answer: Survey of physicians who normally refer patients.**

HOSPITAL PROFITABILITY

- Direct the candidate to the exhibits 1 and 2 for survey results
  - **Key Insight expected: Majority of doctors are indifferent about the hospital which may not be good news when it comes to referrals. One of the major issues plaguing the doctors is complex billing.**
- Interviewer should then prompt the candidate as to what should be the next course of action given some of the insights.
  - **Key Insight Expected: Candidate should try to highlight the need to strengthen relationships with physicians and "complex billing" may be an opportunity.**
- Interviewer should then highlight that the hospital has a outsourcing billing service which it does not aggressively market to the physicians. Pose the question how will judge whether this is a viable service for the physicians.
  - **Expected question from candidate: What is the cost of the service to the physicians and the economics of the physicians office.**
- Interviewer to provide the following data:
  - Price of the service: $50,000
  - Physician Annual Profit: $175,000
  - Physician time: 75% on patient care, 15% on billing, 10% on administrative overhead

Ask the candidate to provide a plan for the approach before calculation

HOSPITAL PROFITABILITY

- **Key Insight expected:**
  - **If physician outsources the billing to the hospital, then what benefit does it derive.**
  - **To derive the benefit, I assume that for 15% of the time the physician is not involved in billing he/she can see patients.**
  - **So the candidate should ask for the revenue number:**
- **ONLY IF THE CANDIDATE ASKS FOR REVENUE, PROVIDE IT, IF NOT TRY TO GUIDE THE CANDIDATE TO THE REVENUE NUMBER.**
  - Revenue of the doctor's office : $425,000
- **The candidate should either clearly ask whether the physician incurs additional cost when he or she adds 15% additional physician time**
  - Interviewer state that no additional cost is incurred.
- Now the interviewer should guide the candidate to perform the cost benefit analysis: Refer to the calculations section
- Ask the candidate to calculate **ROI, New Profit, Increase In profit %**

See the next slide for calculations.

HOSPITAL PROFITABILITY

Calculations

Revenue	$425,000	
Profit	$175,000	
Cost	$250,000	
Patient Care	75%	
Billing	15%	
Administrative	10%	
Revenue earned if billing outsourced	$85,000	(425000*15%/75%)
Cost of Outsourcing	$50,000	
Return on Investment	70%	(85000-50000)/50000
New Profit	$210,000	((425000 +85000)(Revenue) – (250000 + 50000)(Cost))
Increase In profit	20%	(210000-175000)/(175000)

HOSPITAL PROFITABILITY

Case Performance Assessment

Strong Plan

- Candidate clarifies key terminology – "growing pain"
- Candidate quickly focuses on the profitability of the main hospital
- Candidate keeps exploring reasons for revenue decline for main hospital and takes hints from the interviewer
- Candidate keeps asking questions or states assumptions aloud
- Candidate clearly establishes hypothesis linking revenue decline and change of management
- Candidate clearly articulates the plan, asks for the revenue to calculate the cost benefit analysis and gives some insight after calculations

Weak Plan

- Candidate keeps getting distracted and ask questions about acquisition
- Candidate starts focusing on cost instead of revenue decline
- Candidate fails to identify change in patient mix with regard to insurance coverage
- Candidate fails to clearly state the hypothesis of lower referrals with physician dissatisfaction with management change
- Candidate does not ask about the revenue when calculating cost benefit analysis

HOSPITAL PROFITABILITY

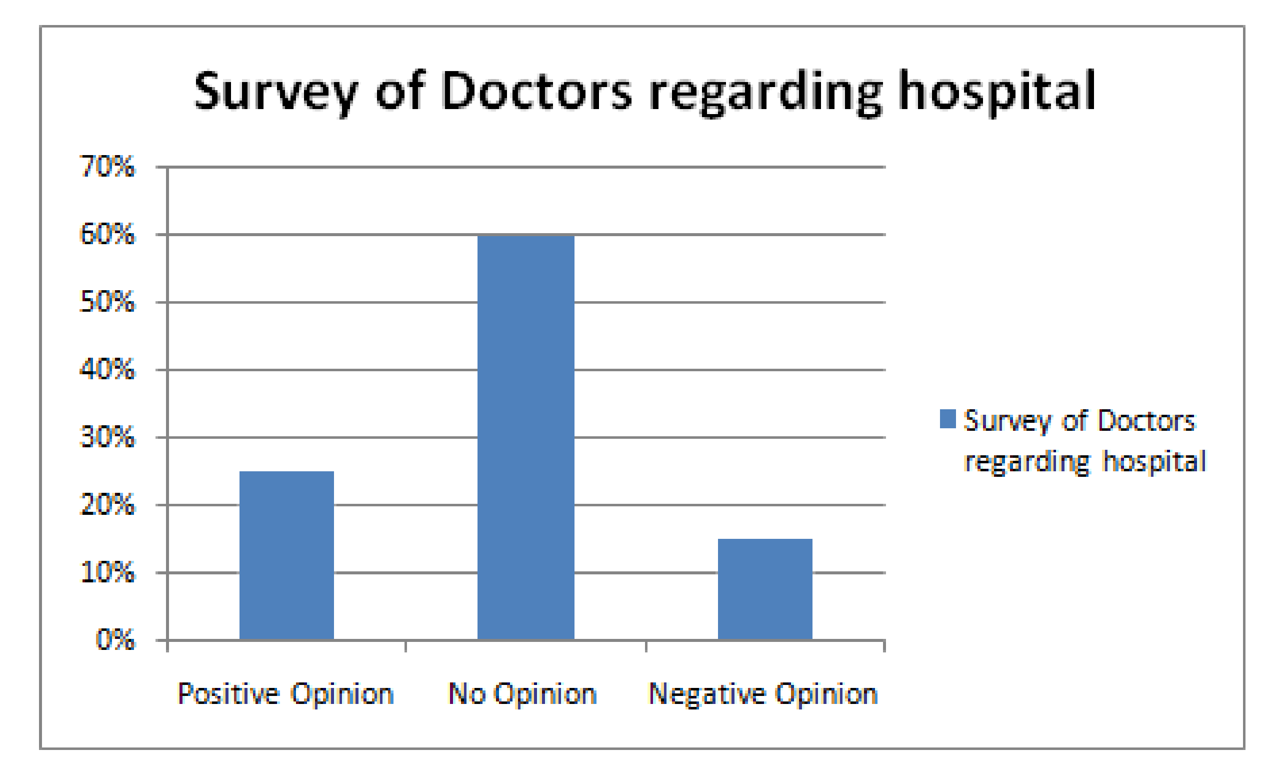
Recommendation

- The recommendation should include the following:
  - The hospital is facing revenue decline because of lower number of patients with private insurance which may be due to a change in perception of private physicians after management change.
  - To reverse the revenue decline the main hospital needs to establish strong relationship with the physicians by aggressively marketing the billing outsourcing service as it provides 70% return on investment within one year and increases profits of physicians by 20%.

HOSPITAL PROFITABILITY

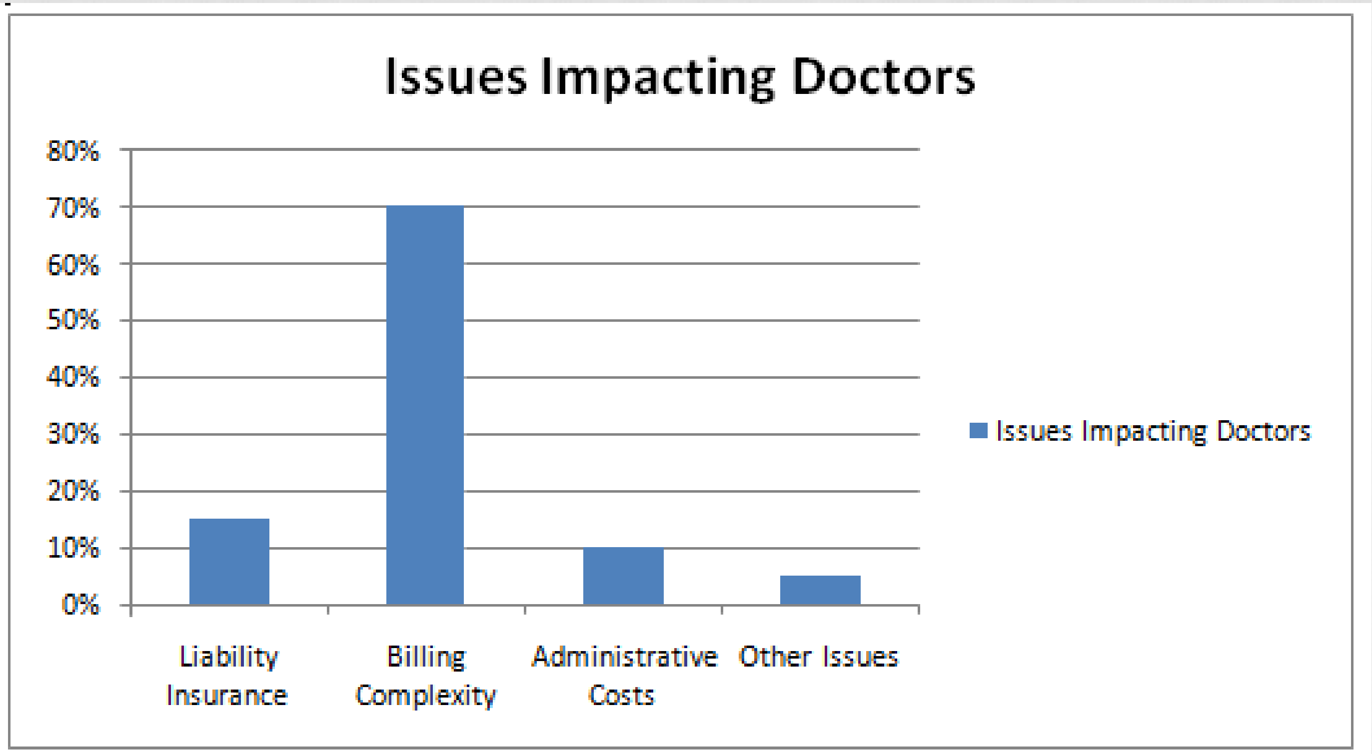
Exhibits

Exhibit 1



HOSPITAL PROFITABILITY

Exhibit 2



CASE 7: CONTACT LENS MANUFACTURER GROWTH

★ ★ ★ ★ ☆

Firm Style	Interview Round
Bain	1/2

Case Question:

Contact Lens Manufacturer seeks to quadruple its profits in 2 years and seeks our advice. How will you approach the problem?

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
What are the different kinds of contact Lenses?	Contact Lenses can be categorized by style and duration of use. Based on Style Lenses can be broadly categorized into 2 categories: Traditional and Cosmetic. Based on Duration of Use lenses can be broadly categorized into 2 categories: Disposable and Regular.
Where do we compete?	Primarily in the US market.
What is the price of contact lens?	For Disposable Lens, consumer pays $400 per year. For Regular Lens, consumer pays $100 per year.

CONTACT LENS MANUFACTURER GROWTH

Framework / Structure

This is a market growth type case, considering the ambitious goal of 400% profit growth in two years the analysis should focus on **top line growth** for the company. The analysis may include, but is not limited to, the following areas:

- Client's current revenue model
- Competitor Analysis
- Market Analysis
  - Geography
  - Customer Demographics
- Purchase Criteria for Contact Lenses

Weak Plan

A weak plan would lay primary emphasis on costs; candidate does not appreciate the fact that by reducing costs it is not possible to quadruple profits in 2 years.

If the candidate asks for more information about client, provide Exhibit 1 (the income statement for client). Expected Insights or questions from Exhibit 1:

- Need grow our revenue to roughly $800 M dollars.
- If candidate asks about margins?
  - State margins are more or less in line with the industry. This should really direct the candidate towards achieving top line growth.

CONTACT LENS MANUFACTURER GROWTH

- Who are competitors?
  - There are 2 major competitors for our client, Novartis and Bausch & Lomb. They are big players with wide array of products.
- Are the products from competitors differentiated?
  - Not much differentiation, very similar products.
- If candidate wants to know about client's revenue model, provide Exhibit 2 and 3. Expected Insights or questions from Exhibit 2 and 3:
  - Sales in South region of US is much lower compared to other regions, any reason?
    - <u>Interviewer Response:</u> Our presence in Southern United States is smaller
  - Our product mix is predominantly "Disposable"? Any opportunity in the "Regular" market?
    - <u>Interviewer Response:</u> The "Regular" contact lens market is saturated.
  - Our product mix is predominantly "Traditional"? Any opportunity in the "Cosmetic" market?
    - <u>Interviewer Response:</u> The "Cosmetic" market is not estimated to grow much.

CONTACT LENS MANUFACTURER GROWTH

- If candidate asks about the purchase process for Contact Lens, then provide the following information:
  - Interviewer Response: Customers usually can be classified into two categories, new adopters and existing lens users.
    - New Adopters: The New Adopters are the first time users of contact lenses, they usually go to a "Retail Store", get their eye exam done. The doctor or the optometrist usually recommends lens to the customer.
    - Existing Users: The existing users usually get refill orders for their **existing lens** from "Retail Stores" or from "Online".
- If the candidate asks about how do customers decide what brand of contact lens to use? (This is a key question expected from the candidate)
  - Interviewer Response:
    - New Adopters: It is the optometrist which usually influences which brand of contact lenses the customer buys. The customer usually plays a minimal role in this decision.
    - Existing Users: Existing Users keep using the same brand and **rarely** do they switch.
  - **Key Insight Expected from Candidate:** For the contact lens manufacturer the key is to acquire "New Adopters"

CONTACT LENS MANUFACTURER GROWTH

- If the candidate asks for International Opportunities, the provide the following response.
  - <u>Interviewer Response:</u> Western Europe and Japan are big contact lens markets outside of US, the other markets are still small. Our competitors are deeply entrenched in these 2 markets and we don't have much presence. We don't have much detailed information on these markets.
  - **Key Insight Expected from Candidate:** Looks like international markets do not provide us much growth in the short term (because we have to build our presence), however the client should evaluate these markets on a long term basis. Since our focus is rapid growth in short term (2 years) maybe we should focus on the US market.
- If the candidate asks about more information for the market provide **Exhibits 4-8** and ask the candidate to digest the information and provide insights. Note Exhibit 4 represents total users i.e New Adopters + Existing Users.
  - Key Insights expected from Candidate:
    - Candidate should discard Exhibit 4 and instead use Exhibit 5-8
    - Women below the age of 30 should be the key target customer demographic.
    - Suburbs and cities of South of United States provide the greatest opportunity (as they are fastest growing and high user areas).

CONTACT LENS MANUFACTURER GROWTH

Recommendation

The recommendation should include the following:

- To achieve this rapid growth the client should have its sales and marketing department target optometrist attached to "Contact Lens Retail Stores" and build brand awareness and relationship.
- The client should focus on stores with the following characteristics:
  - Located in cities and suburbs in South US
  - Having young women as their significant customer base
    - Stores located inside malls
    - Stores located in strip malls which have stores popular among young women (some major clothing chain etc)
- Some of the Risks could be:
  - If client focuses too much on the South it may not be able to shower much attention to the other areas where it has presence and lose customers
  - The South region may have competitors deeply entrenched which might result in additional SG&A spending
  - Other competitors might be targeting the same region.

CONTACT LENS MANUFACTURER GROWTH

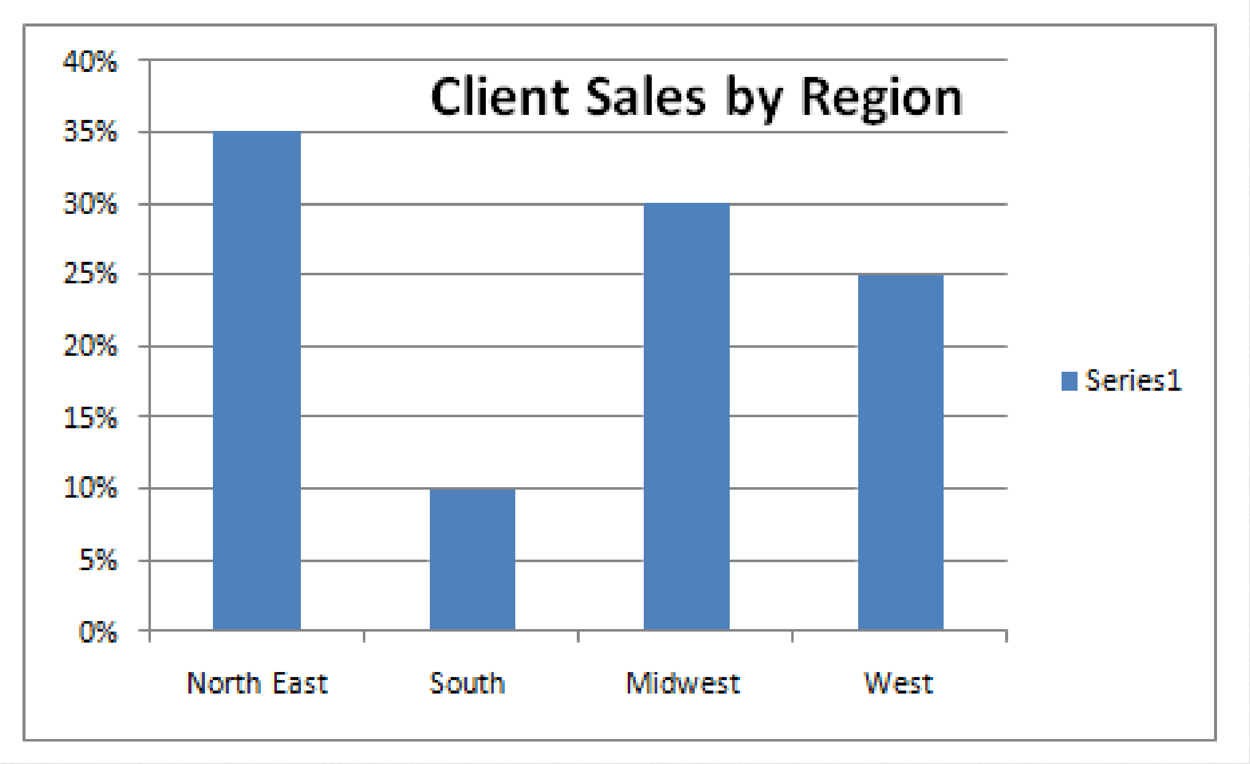
Exhibits

Exhibit 1

Contact Lens Manufacturer Income Statement (in Millions)		
Revenue	$	229.24
Cost of Goods Sold	$	100.45
Gross Profit	$	128.79
Gross Profit Margin		56%
SG&A Expense	$	104.33
Depreciation & Amortization	$	13.06
Operating Income	$	11.40
Operating Margin	$	0.05
Nonoperating Income	$	2.56
Nonoperating Expenses	$	7.21
Income Before Taxes	$	6.75
Income Taxes	$	5.38
Net Income After Taxes	$	1.37

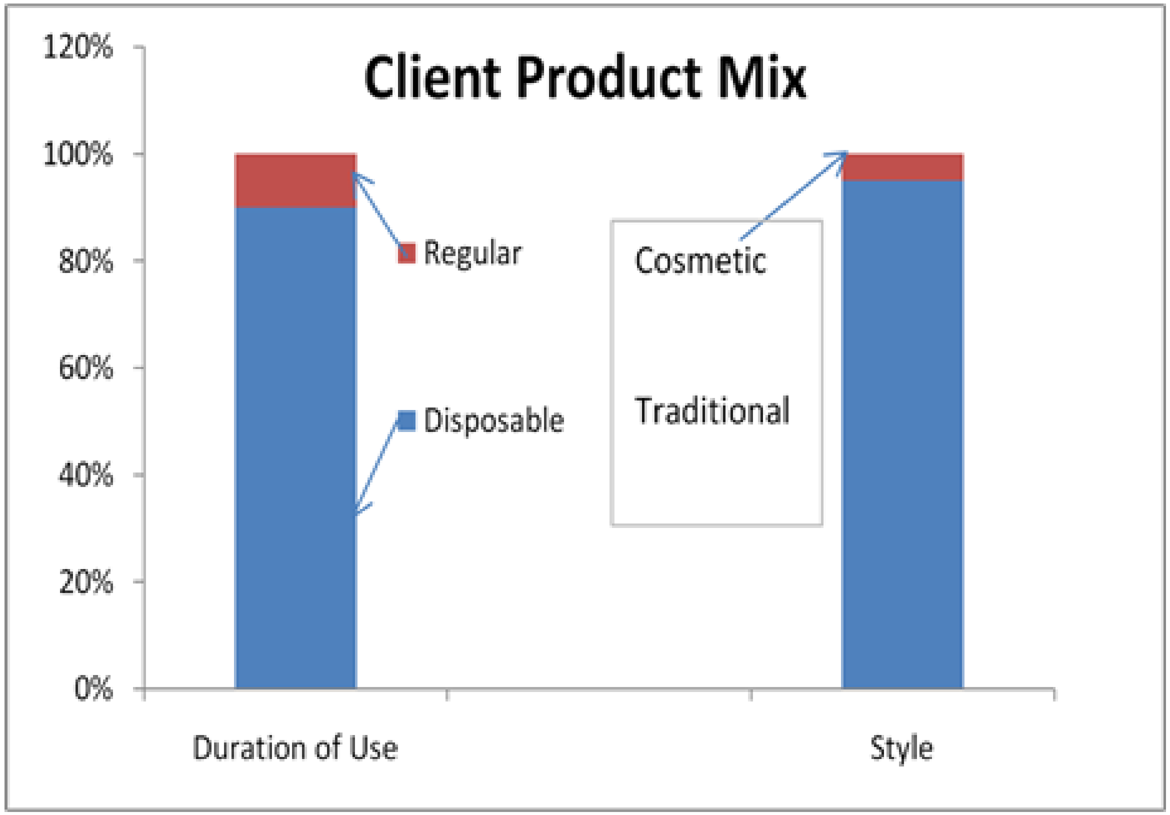
CONTACT LENS MANUFACTURER GROWTH

Exhibit 2



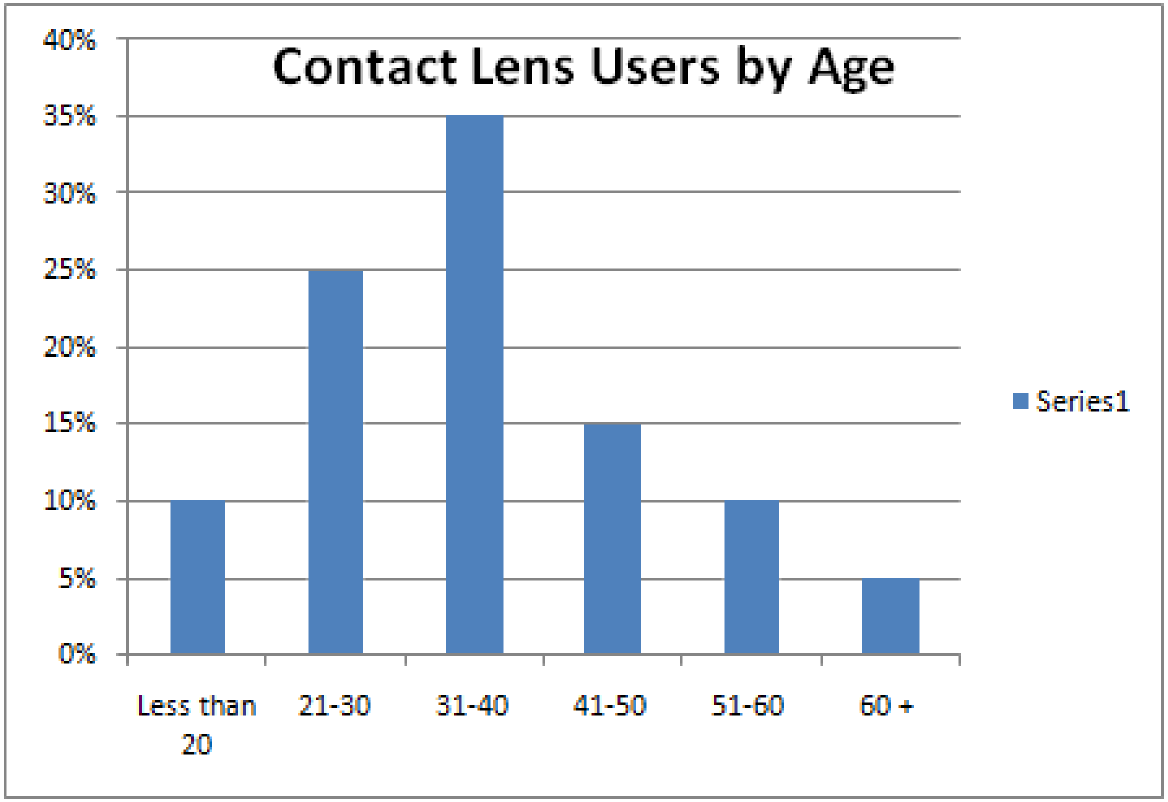
CONTACT LENS MANUFACTURER GROWTH

Exhibit 3



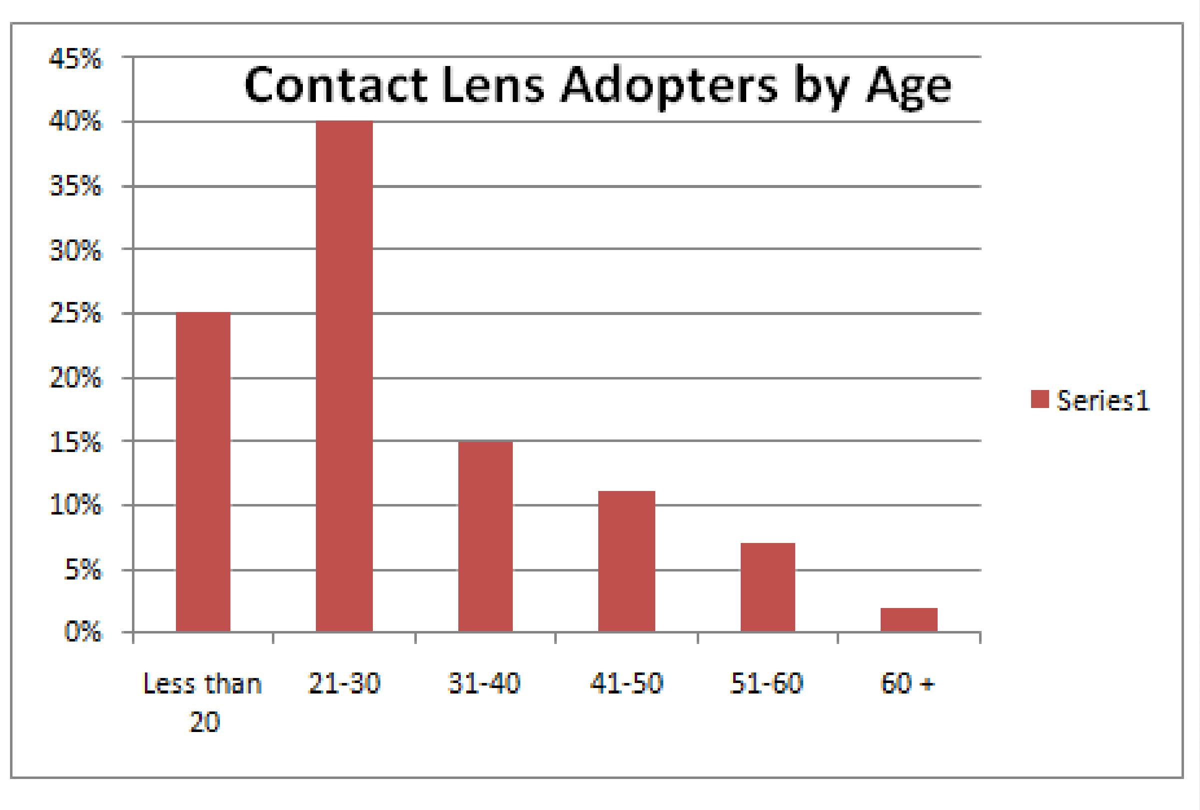
CONTACT LENS MANUFACTURER GROWTH

Exhibit 4



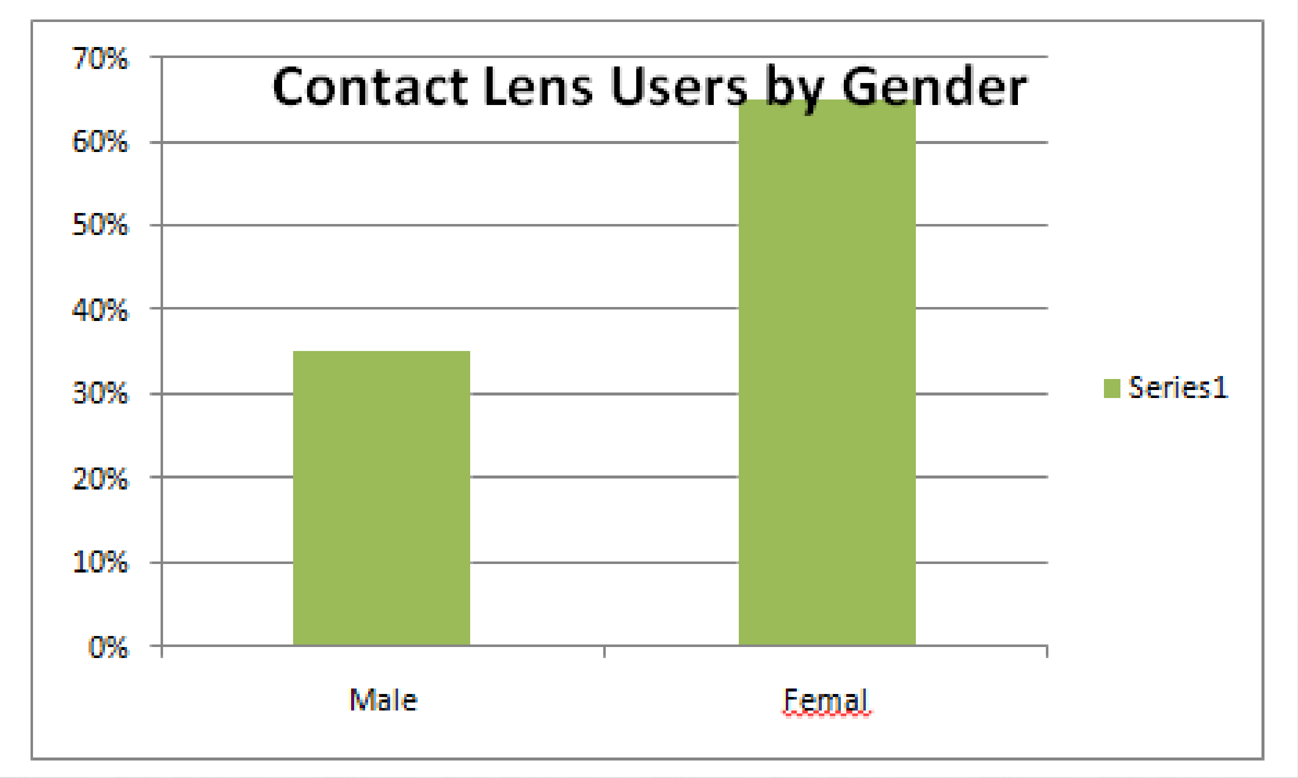
CONTACT LENS MANUFACTURER GROWTH

Exhibit 5



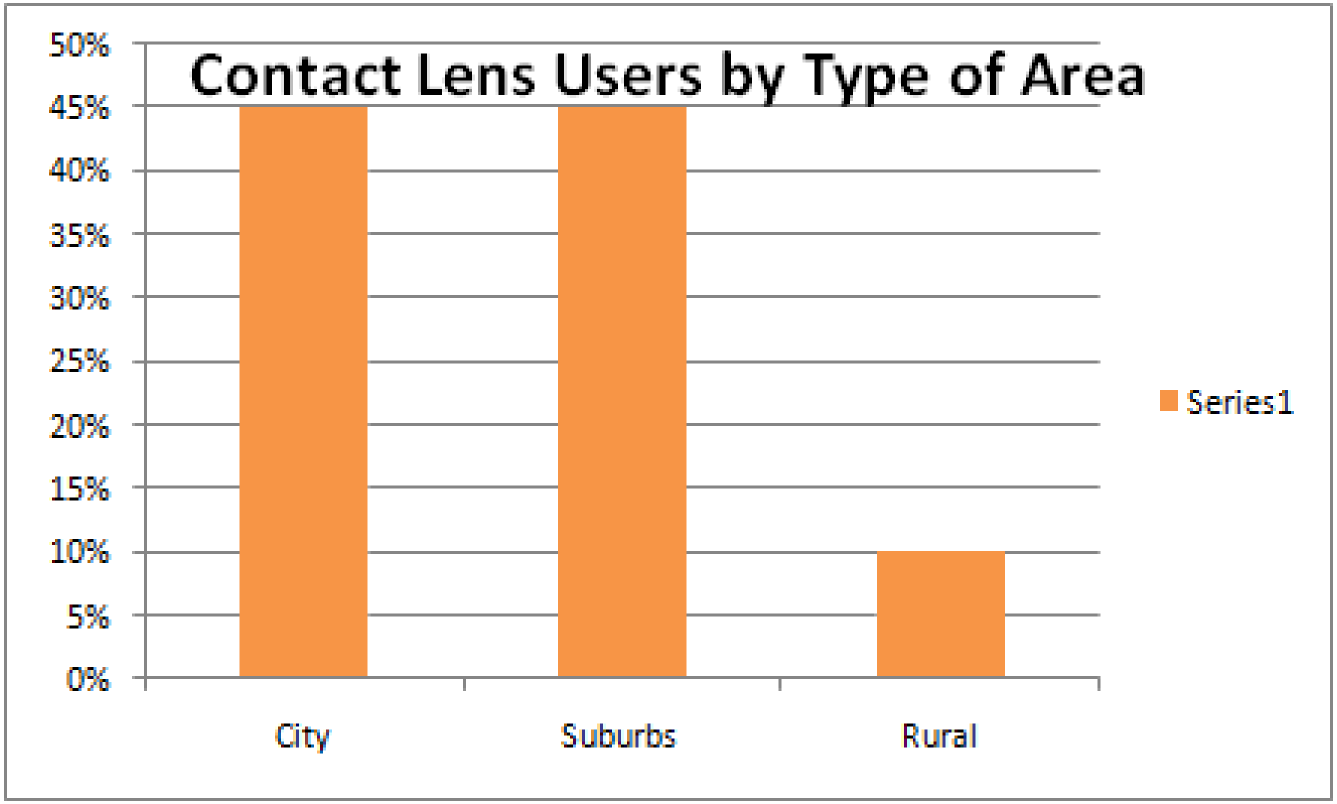
CONTACT LENS MANUFACTURER GROWTH

Exhibit 6



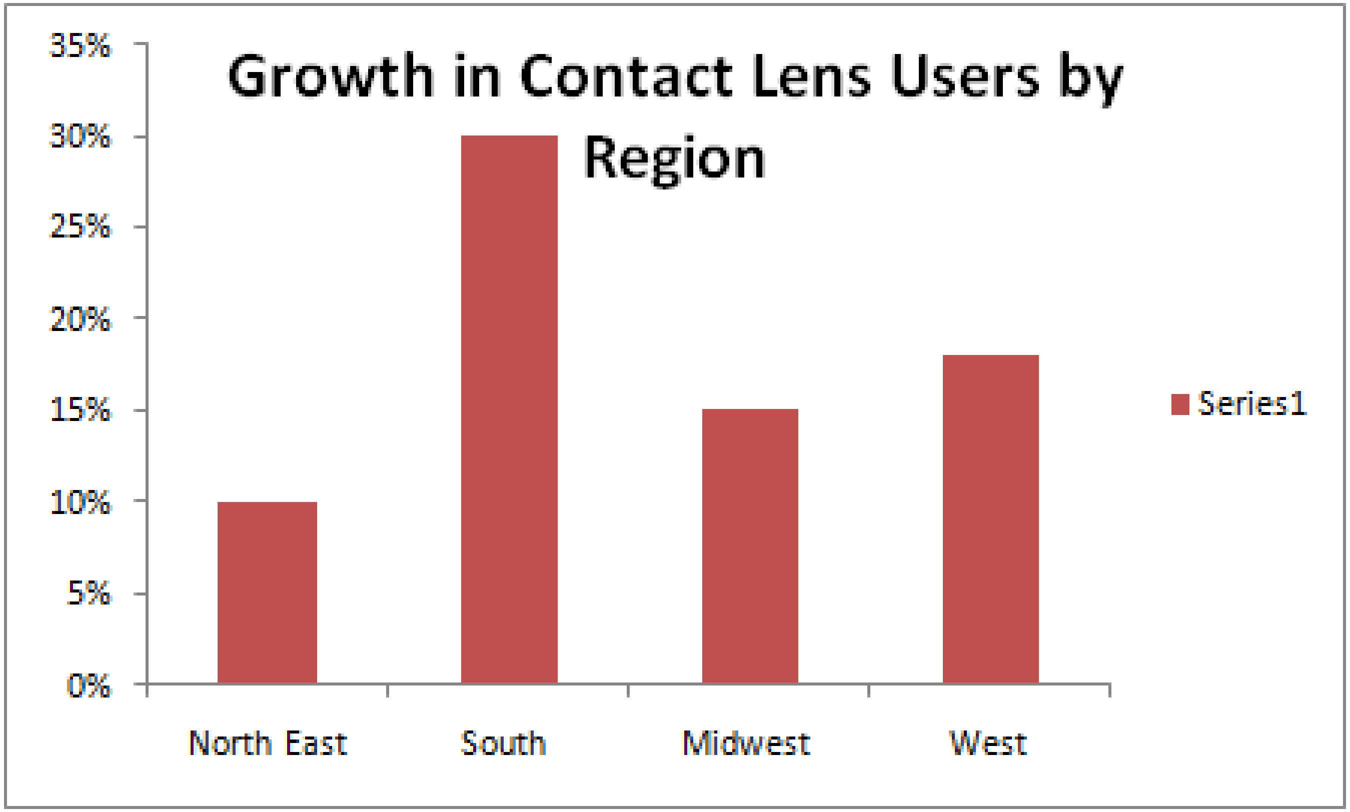
CONTACT LENS MANUFACTURER GROWTH

Exhibit 7



CONTACT LENS MANUFACTURER GROWTH

Exhibit 8



CASE 8:
E-COMMERCE IN THE AIRLINE INDUSTRY

★ ★ ★ ★ ★

Firm Style	Interview Round
BCG, Bain, A.T. Kearney	2

Case Question: The year is 1999, in the middle of the .Com-boom. An airline was approached by a group of entrepreneurs. The entrepreneurs offered the airline to invest $100MM in their software company for 20% equity, and also be the first customer for the software they develop. The software is an e-market place where airliners and spare parts suppliers could meet to improve the purchasing capabilities of the airlines and to reduce the purchasing costs. Aircraft parts are obviously a hugely important part of the airline business, as airlines struggle to keep planes in the air as much as possible, minimize downtime and control costs. What should the airline do?

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
How does the airline currently purchase spare parts?	The airline currently has a legacy system. The system is not that suitable to what's is actually happening and therefore there is a lot of extra phone calls and process work happening.
	Cont'd on next slide

E-COMMERCE IN AIRLINE INDUSTRY

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
How much does a purchasing transaction cost to an airline? ***(supply this number rather easily, even if you are not asked directly)***	$50 per transaction
How many transactions does each airline perform per year?	500,000 for each of the airlines in the states
How many airlines are there in the states?	20
How much will a transaction cost us in the new system? (try to supply only one of the numbers and see if the interviewee asks for the other)	$6 payment for the software company $9 internal cost (labor, systems, etc.)
Any other cost a customer needs to pay to join?	$20MM licensing fee
What is the cost structure for the software company?	No variable costs. $10MM a year to pay for corporate expenses.
	Cont’d on next slide

E-COMMERCE IN AIRLINE INDUSTRY

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
Will the E-Market allow us an increased bargaining power?	The aircraft industry in general, and the spare parts industry specifically, are highly regulated. To become an approved FAA supplier costs money and therefore the barrier for entry are significant. The result is that each part has one or two suppliers at the most and hence the bargaining power will not improve with the E-Market.

E-COMMERCE IN AIRLINE INDUSTRY

Framework / Structure

This is a investment assessment case. The analysis may include, but is not limited to, the following areas:

- Investment framework. Market and competitors.
- Company – availability of capital but also fit.
- Current situation – how is the airline currently manages the spare parts sourcing.

Strong Plan

The candidate has de-coupled effectively both issues requiring decoupling – One analysis is to be done from the perspective of an investor (who is the customer here) and from the perspective of a customer. This is actually THE most important issue here – decoupling the problems effectively. The candidate also asked questions about the current situation and what advantages will the system provide, and also talked about the market and competitors.

Weak Plan

The candidate is thinking about the problem as one problem. It seems that he will perform cash flow analysis for customer and investment together and doesn't seem to realize the "first customer" is not the same as "customer". In addition, candidate didn't talk about the current situation or the market at all.

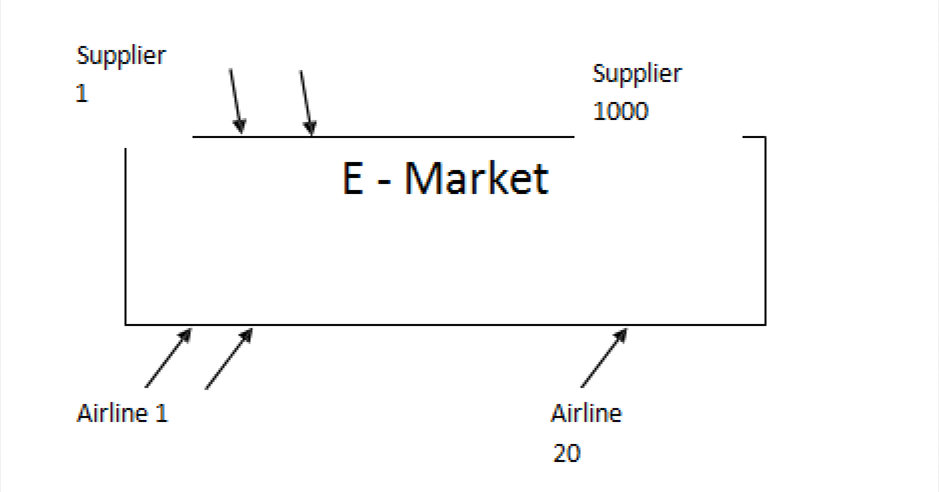
E-COMMERCE IN AIRLINE INDUSTRY

Exhibit

Exhibit 1

Interviewee: Could you tell me more about the E-Market?

Interviewer: (draw the following picture on a piece of paper and talk a little bit about it)



Expected Insight:

- For the customer to get value out of the system, many suppliers need to be connected to the system.
- Do the suppliers need to pay anything to use the system?

Tell the candidate for this analysis assume suppliers pay nothing.

E-COMMERCE IN AIRLINE INDUSTRY

Calculations

The numbers are provided in the answers to questions. There are two calculations here:

1. Calculating the cash flow for investment

- Best in class answer will utilize the cash flow framework (drawing years from 0 to 10 and writing beneath the cash flow every year).
- –100MM for year 0 (provided in the initial question)
- Calculating the resulting cash flow
    - Revenues every year - $6 (payment per transaction) * 500,000 (transactions a year) * 20 (airlines) = $60MM a year.
    - – 10MM a year (fixed costs for software company – case fact)
    - = $50MM.
    - We only own 20% of that number = $10MM, the resulting cash flow.

E-COMMERCE IN AIRLINE INDUSTRY

- The interviewee should now say “so what” and talk about one or both of:
  - There will be $10MM annual return for $100MM investment. Without discounting, we know it is a 10 years till breakeven. In the software industry that’s unacceptable
  - $10MM till perpetuity. Discount rate for the software industry is high. Let’s assume 20%. $10MM/20% = $50MM.
  - So what? Meaning that the moment you investment the $100MM it is worth $50MM. this is a bad investment.
  - A interviewee can be confused and try and use the airline discount rate (which is extremely low). This is obviously a mistake as discount rate is directly correlated to risk.

E-COMMERCE IN AIRLINE INDUSTRY

2. Calculating the cash flow for customer

- $-20MM investment (licensing fee).
- Revenue stream (cost savings)
  - $50 transactions will only cost $15 (=$9+$6).
  - Savings of $35 per transaction
  - 500,000 transactions.
  - $35*500,000 = $17.5MM savings a year.
- So what?
  - The investment in the software for the customer could be extremely good investment as it is returned in less than a year and a half.
  - However, first customer can be something else all together as there are risks than can decrease the returns:
    - Not all suppliers will join right away or at all.
    - The software will have bugs in the first few months /years.
    - The software company can go bankrupt, taking our licensing fee away and never give any returns.

E-COMMERCE IN AIRLINE INDUSTRY

Recommendation

- The recommendation should include the following:
  - The answer – Candidate suggests that investment in the company is not a good option as it takes 10 years to recoup investment (without discount rate). Being a customer looks good, though not necessarily first customer.
  - The number(s) – NA
  - Risks or considerations –
    - Joining as a first customer will be considered if the client will be compensated for the risks.
    - After few airlines will join the system, and the software proven itself, the client should definitely join as it will save costs.
- Next steps – NA

E-COMMERCE IN AIRLINE INDUSTRY

Questions to Further Challenge the Interviewee

The following question tests creativity further:

- Let's assume there is another feature in the software that allows airlines to view other airlines" inventory by location and part. So, for example, if I'm southwest and I have a plane down in NYC. I contact the supplier and get an answer that I'll have the part in three days. I can look into American Airlines inventory and see if they have the part in NYC. If they do, I can buy it from them at cost and ask the supplier to send the part their way. Is it a good feature?
- A full answer (push interviewee till he reaches all conclusions or gives up):
    - The feature is great for the industry, as the entire industry will be able to reduce downtime and share the value in its companies" bottom line and with the customers.
    - However, the risk is that the feature actually encourages the airlines to carry no inventory (why should I carry inventory when everyone shares the benefits?)
    - A solution to mitigate the risks through the system is to create a system of checks and balances and create a part exchange account for every airline. So every time an airline takes a part from another airline then the airline's part exchange account is reduced by the part cost. Every time an airline provides a part to another, its parts exchange account is increased by the part cost. If we cap the part exchange account to say minimum of -$5MM, then we solved the problem.
    - This will actually encourage better inventory management throughout the industry as airlines will not want to stay away of this program as it provide huge cost benefits.

CASE 9:
BIG GREEN BIOFUELS

★★★☆☆

Firm Style	Interview Round
McKinsey	2

Case Question:

Big Green Fuel Systems, a large provider of fuel additives required for the production of gasoline, has recently developed a substantially improved form of ethanol that adds 20% efficiency (measured as miles driven on a single gallon of ethanol). This version of fuel is costly to produce but the market is large and growing more rapidly as increased amounts of ethanol are being used in fuel blends. The company has engaged your team to help determine the viability of this new product, and, if it is viable, how to go about the process of launching it.

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
Is the company working in the US only?	Yes, please concentrate on the US market only.
Does the current infrastructure exist to make and support this product?	It's compatible with other infrastructure in the external value chain, but Big Green does not yet have the capacity to mass produce it.
	Cont'd on next slide

BIG GREEN BIOFUELS

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
What criteria does Big Green want us to use to determine the viability of the project?	Please develop your own criteria.
What is the value chain for this product from Big Green to the consumer?	Ethanol is delivered from manufacturers to fuel blenders, who then sell and deliver in bulk to filling stations, who in turn sell it to consumers.
Does Big Green have a patent on this technology?	Yes, they have a patent.

BIG GREEN BIOFUELS

Structure / Framework

This is a value chain analysis case. The analysis may include, but is not limited to, the following areas:

- Standard valuation (ROI + intangible benefits). What is the initial and recurring investment?
- What is the incremental profit from this venture? What can be gained beyond the sale of ethanol?
- What barriers exist for this product? How will the value chain respond? Can we make it?
- What is the standalone value of this product, and what is its value to other producers? Can we sell it?
- What will existing competitors do in response?

BIG GREEN BIOFUELS

Strong Plan

Includes valuation of the product as part of Big Green and at least considers its value for other firms. It is necessary to consider barriers to a successful launch (both internal capability and external pressures). Also a strong plan considers the competitive response and how it is manifested throughout the value chain. Intangible benefits (spin-offs, positive PR, etc.) should be considered as well.

Weak Plan

Valuation is important but not strong enough on its own. Failing to consider costs and investments (both fixed and working capital) is a shortcoming. Failure to consider the possibility of selling the product to another, more capable company shows lack of creativity. Intangible benefits (hard to quantify) are a strong opportunity to showcase creativity as well. Failure to consider competitive response and the full impact on the value chain would also result in a negative hit.

BIG GREEN BIOFUELS

Calculations

Interviewer: Thank you for sharing your approach. Now I would like you to size the market for me. But I will give you some data. First, there are two ethanol-gasoline blends used in the US, E-85 and E-15. E-85 is 85% ethanol at 10% of the market and E-15 is 15% ethanol at 90% of the market. The number of miles driven in the US last year was 1,800 billion miles. Please give me the market in gallons for ethanol.

This is fairly simple, but it's important to first develop the approach (gallons of ethanol = (1,800 billion total miles / *X* average gas mileage) * 85% ethanol content * 10% of the market + (1,800 billion total miles / *X* average mileage) * 15% ethanol content * 90% of the market.

A key is seeing that the *X* mileage is missing and is needed, so the interviewer should ask for it. This will yield a response from the interviewer of 20 miles per gallon on average. Thus: (1,800 billion / 20) * .85 * .10 + (1,800 billion / 20) * .15 * .90 = **19.8** billion gallons of ethanol.

Expected Insight: One should notice that there's not enough information and know to ask for the average mileage in the US (20 miles/gallon). Also, one should ask about the 20% additional efficiency, but the interviewer will instruct the interviewee to ignore it. Once the interviewee calculates the answer, he or she should remark about the size of the market, and immediately want to know how fragmented it is, and will be told it's highly fragmented.

BIG GREEN BIOFUELS

Interviewer: Good. Now, the analysis has determined that there is no savings by using this new fuel blend. Basically, the fuel costs exactly as much to develop and deliver as can be gained by selling it. But the CEO has staked his reputation on this product, so he is committed to delivering it. Please explain how you would best appeal to each level in the value chain in order to best promote this improved product.

Expected Insight: The value chain should be looked at from source to consumer:

- Selling to blenders: the fuel blenders will have to blend 20% less (but will pay for it as a price premium). However, they could use it as a competitive advantage by differentiating on its basis. Additionally, it could reduce its distribution costs (delivering less to filling stations). Also, blenders would have a competitive advantage by being positioned for potential future government regulation.
- Filling stations: differentiating factor for eco-sensitive consumers. Point of positive public relations. Appeals to drivers who want to spend less time filling up. Less refills needed from the blender, so less delivery costs. Could also make it possible to distribute gas from smaller tanks, making it possible to put new stations in formerly prohibitive locations.
- Consumers: eco-friendliness. Higher cost of fuel set off by less need to fuel up (efficiency) and there is an additional value add since they'll spend less time at the gas station.

BIG GREEN BIOFUELS

Recommendation

The recommendation should include the following:

- The answer – Since the interviewer will make it clear that the CEO is intending to roll out the new fuel, this is a given. The main points from the second question, regarding the value chain, should be included as supporting evidence.
- The number(s) – The ethanol market number is optional and may not do anything to add value to the argument.
- Risks or considerations – Rolling out the new fuel could cause a price-perception problem (higher cost to fill up). Attempts to fix this through marketing efforts could also drive marketing costs. There is also the consideration of what it means to release a new fuel, including risk that the fuel is more corrosive than other existing fuels.
- Next steps – Next step would be launching a pilot program, including marketing efforts, to test the fuel for its efficacy. Lessons learned would be applied to a gradual national roll-out.

Strong Recommendation

The CEO has indicated that he wants to roll out the new fuel. The best way to do this is to appeal to blenders and gas stations on the basis of reduced delivery costs and enhanced public relations, and appeal to consumers on the basis of eco-friendliness and fewer required fill-ups. The biggest risk is alienating consumers due to the higher cost perception and alternatively the marketing cost of mitigating this perception.

Weak Recommendation

The market size is 20.9 Billion gallons of ethanol each year. Thus Big Green should roll out the new product because it's more efficient and could cut associated costs and make green consumers happy.

CASE 10:
NEW RUBBER PLANT INVESTMENT

★ ★ ★ ★ ★

Firm Style	Interview Round
BCG, Bain, A.T. Kearney, Deloitte	1

Case Question:

The federal government of a country in certain part of the world is investigating whether to restart a rubber factory in the western part of the country. The factory was operational in past but has not been used for 7 years. The plant was closed due to terrorism in the area which has now come down significantly though there are still issues and skirmishes reported in the area. If rejuvenated the plant may become a target for the rebels. All the equipment is considered useable but the government still estimates to spend $12M to rejuvenate the plant which would enable the plant to produce up to 10M lbs of rubber per month. The demand of rubber worldwide is strong but rubber must be transported to an export port via trains; up to 2 trains per day can used for this.

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
What are the raw materials?	Need gum resin. 3lb of resin after processing results in 1lb of rubber
Where are the resins coming from?	They need to be transported from the capital. Up to 4 trains can be used for the same (This is a key question, a candidate not asking the question misses out a key element in the case)

NEW RUBBER PLANT INVESTMENT

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
What price can rubber be sold at?	Sell the Rubber at $20 per lb, Gum resin costs $5 per lb.
How many suppliers are there?	We have identified one supplier.
Who are our customers?	We would be selling the rubber in the commodity market to the entire world.

NEW RUBBER PLANT INVESTMENT

Structure / Framework

This is an Operations case mixed with Cost Benefit Analysis. The analysis may include, but is not limited to, the following areas:

- Analyze the Financial benefits of the investment:
  - Analyze the ROI for the investment
  - Analyze the production capacity of the plant. Given the equipment capacity is 10M lbs per month production is probably limited by supply and distribution.
  - A great approach would be to lay out the value chain for the rubber plant

Raw Material Supplier → Manufacturing Plant → Customers

After drawing the value chain, the candidate should clearly identify that there is a transportation element here.

- Identify the other benefits associated with this investment considering this is a government investment:
  - Employment
  - Economic Development
- Identification of Risks
  - Assess risks in the investment (timely delivery, terrorism, labor shortage, etc) and deliver

After the candidate lays out the plan ask the candidate to calculate the **ROI.**

If the candidate asks about the demand of rubber in the market then state that the market demand is strong and for our analysis assume that whatever the plant produces can be sold.

NEW RUBBER PLANT INVESTMENT

Calculations

First step expected to analyze how much the rubber plant can produce. A common mistake is to assume the 10MM pounds per month as the amount of production. Also ask the candidate to perform all calculations on a monthly basis.

For the calculation ask the candidate to make the assumption that there are 25 days in a month.

Outgoing Train Information:

No of Trains	2
Bogies/train	8
Cases/Bogie	25
lbs/Case	500

<u>Expected Calculation:</u>

Daily Capacity: 2*8*25*500 = 200,000 lbs

Monthly Capacity 200,000*25 = 5,000,000 lbs

NEW RUBBER PLANT INVESTMENT

Incoming Train Information (Carrying Resin):

No of Trains	4
Bogies/train	10
Barrels/Bogie	25
pds/barrel*	640

<u>Expected Calculation:</u>

Daily Capacity: 4*10*25*640 = 640,000 lbs

Monthly Capacity: 640,000 * 25 = 16,000,000 lbs of resin => 5.33 M lbs of rubber (using 1:3 conversion)

<u>**Expected Key Insight:**</u>

The bottleneck is the outgoing train capacity which implies that the monthly production of rubber would be $5MM.

NEW RUBBER PLANT INVESTMENT

<u>Other Financial Information for the Plant:</u>

Labor: $8 MM per month

Other Fixed Overhead costs: $10 MM per month

Cost per train trip: $40,000 (both inbound and outbound)

<u>Expected Calculation:</u>

Transportation Cost per month: $40,000* (4+2)[Number of trains per day]*25 = $6MM per month [Ask the candidate to assume that although 15MM pounds of resin will be transported we will be using all the trains.]

Revenue: 5MM * $20 = $100 MM

Material Cost: 15MM * $15 = $75MM

NEW RUBBER PLANT INVESTMENT

<u>**Income Statement:**</u>

Revenue = $100MM

Material Cost = ($75MM)

Labor Cost = ($8MM)

Transportation Cost = ($6MM)

Other Fixed Costs = ($10MM)

Profit = $1MM per month

<u>**Key Insights expected**</u>

The candidate is then expected to state that the ROI is 1 year, however the margins are wafer thin 1%.

If candidate asks whether a NPV analysis is required, let the candidate that this is not required.

<u>Interviewer:</u> Now ask the candidate what other areas the candidate would explore to help make a recommendation to the government.

NEW RUBBER PLANT INVESTMENT

If the interviewer asks any of the following questions provide the responses give below:

- Interviewee: We are limited by our Outgoing capacity. Do we have market demand for 5,000,000 lbs of rubber?
  - Interviewer: Yes we have demand of lot more
- Interviewee: Can we increase the number of trains incoming or outgoing? We have additional production capacity.
  - Interviewer: Not right now but good thing to explore in future.

<u>**Expected insights from the candidate**</u>

- **Highlight the other benefits:**
  - Employment ($8MM per month figure indicates quite labor intensive process)
  - Economic Development of the area

NEW RUBBER PLANT INVESTMENT

- **Highlight some of the risks and state mitigation:**
  - Low Margin, exposure to price fluctuations of resin and rubber
    - Mitigation: Forward contract purchases of resin
    - Forward contract sale of rubber
  - Labor risks
    - Introduce automation
    - Facilitate migration of labor from other areas
  - Terrorism Risk
    - Involve community leaders in the process
    - Look at getting government or private security for the plant.
  - Supply Chain Risk
    - Sole dependency on trains
      - Mitigation
        - Maintain enough safety stock of resins and rubber
        - Ensure the rail tracks are protected sufficiently in sensitive areas
        - Crucial to diversify into other modes of transportation, invest in building roads and if applicable pursue waterways.
    - Single Supplier
      - Mitigation: Diversify Supplier base

NEW RUBBER PLANT INVESTMENT

Recommendation

The recommendation should include the following:

- The answer – Go ahead with investment in the plan as it seems highly profitable
- The number(s) – With production at 5M lbs of rubber we make a profit of $12M a year. Production is limited by transportation, an area that can be looked at and addressed. This should further increase our profits in future.
- Risks or considerations – We have highlighted a lot of the risks, key is that the government takes steps to mitigate the risks , the government can take some steps based on our analysis of the mitigation. Some of the steps could mean a long term investment.
- Next steps – Assess how plant can be staffed, whether transportation bottleneck can be alleviated, the level of terrorism threat and steps to mitigate.

CASE 11:
ASIAN MOBILE SERVICE PROVIDER

★ ★ ★ ★ ☆

Firm Style	Interview Round
Bain	2

Case Question:

Your client is a mobile service provider in an Asian country. They were targeting on the high and medium segments in the country. Recently they acquired another service provider which targeting lower segment of the market. The two companies have two different brands before, and they kept both brand after the merge. To the CEO's surprise, the overall pre-tax profit has been lower than the combined pre-tax profit of the two companies when they were not merged.

You are hired to figure out why and how can we improve that.

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
Which country is it?	Doesn't matter

Framework / Structure

This is a Profitability type case. The analysis may include, but is not limited to, the following areas:

Profit = (P-VC)*Volume – FC, with product mix in mind

ASIAN MOBILE SERVICE PROVIDER

Strong Plan

Use the profitability formula, with assumption that there's something in the product mix

Weak Plan

Not able to focus on profitability.

Interviewee – I am going to use this simple profit framework.

Interviewer – Good. The cost has been optimized when the two companies merged.

Expected insight – focus on price, volume and mix

Interviewee – Has price been changing?

Interviewer – What specific price are you talking about?

Interviewee- We have two brands, let's say one is high (H) and one is low (L). So I want to know the price of the H brand first, was there any changes?

Interviewer – Let me be very clear, the pricing plan that the company offered didn't change.

Interviewee– How about L brand?

Interviewer – The pricing plan didn't change

Interviewee - That's interesting, how about the real revenue we received from each customer per months?

Interviewer – That has been flat on the H brand and been decreasing on the L brand

ASIAN MOBILE SERVICE PROVIDER

Interviewee – But the pricing plan of L brand didn't change
Interviewer – Yes

Expected insight – Focus on the L brand, its either volume or mix

Interviewee – does customer use the mobile phone less than before, I am assuming that there's a part in the pricing plan vary with usage
Interviewer –No
Interviewee – Do we have different pricing plans in the L brand?
Interviewer – Yes, actually the L brand targets two sub-segments, one is middle income level segment (let's call it LM), and one is low level segment (let's call it LL).
Interviewee – I see, has the mix been changing towards plan targeting lower segments(LL)?
Interviewer – Yes
Interviewee – That's probably the reason, but let me move on to the volume first and then come back. Has the volume been changing?
Interviewer – No. So what could be the reason of the mix change in the L brand?

Expected insight – You may take a break, and think about possible reasons: Customer demand shift, competitor actions, product cannibalization, or 4P.

Interviewee – Had we done anything differently in terms of sales and marketing?

ASIAN MOBILE SERVICE PROVIDER

Interviewer – We promoted heavily on the plan targeting lower income level segment (LL). We did attract more customers to that sub-segment. Normally this will increase revenue. Why in this case we are losing revenue?

Interviewee – Was there cannibalization between the two sub-segments in L brand?

Interviewer – no

Interviewee - Was there cannibalization between H brand and L brand (higher sub-segments)?

Interviewer – no

Interviewee – Interesting, it must be that competitor has done something differently?

Interviewer – How would you find out?

Expected insight - take a break if necessary again, and think about practical ways to verify whether your assumption is true.

Interviewee – I will review our history customer database, and do some customer survey

Interviewer – Who are you going to survey and what questions are you going to ask if you do customer survey?

Interviewee – I will survey those customers who left us. And ask them below questions: 1). Why did they leave us 2). Who did they choose and why

Interviewer – Let's end here.

CASE 12:
RADIATOR FINS FOR DEFENSE AIRCRAFT

★★★☆☆

Firm Style	Interview Round
Booz, A.T. Kearney	2

Case Question:

Our client is negotiating the price of radiator fins which are used in defense aircrafts. What should be an appropriate price for a radiator fin?

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
What does the client do?	They are a defense aircraft manufacturer.
Who is the client negotiating with?	An existing supplier who has been supplying these products for the last 10 years.
Where is the client based?	They are based in the United States.
What is the function of a radiator fin in aircraft?	Cooling the aircraft engines.
Is there specific leverage for our client in the negotiation?	By regulation, defense manufacturers can obtain the cost structure from their suppliers.

RADIATOR FINS
FOR DEFENSE AIRCRAFT

Framework / Structure

This is a typical pricing case. The analysis may include, but is not limited to, the following areas:

- Industry Analysis
- Pricing Strategy – Market-based pricing, value-based pricing, cost-based pricing.

Strong Plan

A strong plan should discuss the analysis along with the drivers such as market based pricing is driven by market competition and cost base pricing is driven by supplier's cost structure

Weak Plan

Weak plan will discuss only the pricing strategy without any drivers. For example it can include cost structure in cost based pricing but will not break it further into components and its drivers.

RADIATOR FINS FOR DEFENSE AIRCRAFT

Interviewee: How many suppliers are there in the market?
Interviewer: Our client's supplier is the only one in the market.

Expected Insight: We don't need to consider market-based pricing since there is no competition. Interviewee: Is there a substitute product for radiator fins?

Interviewer: No, the client cannot substitute the radiator fins with any other product. Interviewee: What is the value proposition of this product?
Interviewer: The radiator fins are essential for the aircraft to function.

Expected Insight: The product has high value for the client but given that our client is a defense manufacturer who can obtain the suppliers" cost breakdown, value-based pricing is not viable.

Interviewee: Let's discuss the cost structure of the supplier.
Interviewer: Excellent, what do you need?
Interviewee: Recommended cost structure is as follows:

RADIATOR FINS FOR DEFENSE AIRCRAFT

Cost Components	Drivers
Raw Material	Prevalent market price
Labor	Geography and labor market
SGA including overhead	Efficiency
Allocated fixed cost	Utilization and scale
Transportation	Geographical distance, weight, volume and mode of transport.

Cost Component		Old	New
Production Cost	Material	$300	+7%
	Labor	$100	-2%
	SGA	13%	
	Total	$452	
Transportation	12 fins per box	$5000/box	-12%
Margin		20%	
Final Price		$1042.4	

Note: An average interviewee will only calculate the change in cost structure and then decide on the negotiation price, while a strong interviewee will challenge even the old cost structure.

RADIATOR FINS FOR DEFENSE AIRCRAFT

Calculations

Old price after margin is $1042.4 per fin and as per calculations the new price is $1008.16.

Recommendation

The recommendation should include the following:

- The answer – as per cost modeling, final price should be $1008 and we should negotiate for the lower price.
- Risks or considerations – we added margins on top of transportation cost, if that is not the case final number may be different.
- Next steps – Do the cost modeling for the old cost structure to make sure it is accurate.

CASE 13:
CAPITAL INVESTMENT FOR UTILITY

★ ★ ★ ★ ☆

Firm Style	Interview Round
Booz, BCG	1

Case Question:

A major East Coast, vertically integrated and regulated electric utility has received a permit to build its first nuclear power plant. It wants to know if this will be a good investment and possible risks associated with this venture.

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
Can you describe the structure of the company? What does "vertically integrated" and "regulated" mean?	A vertically integrated utility owns the entire value chain – generation, transmission and distribution. It is somewhat of a monopoly and is overseen by state regulators.
What is the competition like?	There is virtually no competition because it is a regulated industry.
	Cont'd on next slide

CAPITAL INVESTMENT FOR UTILITY

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
What is the size of the plant?	The new plant is expected to supply about 8,760 GWh (Gigawatt hours) per year and it is expected to be utilized for 30 years.
What is the current demand?	The current annual demand in the utility's service area is 17,000 GWh. For this case assume this demand will remain constant in the near future.
What is the expected revenue on a variable basis?	\$80/MWh (1000 MWh = 1 GWh)
What is the expected variable cost?	\$10/MWh
Is there any public opposition?	No
Why is the utility building this new plant?	Great question. Currently the company has about 9,000 GWh of supply that comes from old, dirty and inefficient coal fired power plants. It plans to retire them in the near future.
	Cont'd on next slide

CAPITAL INVESTMENT FOR UTILITY

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
Who will build the plant?	The utility plans to outsource the building of the nuclear plant and the price quote is about $7 Billion
What is the market cap of our client?	Top question. The market cap of this company is $6 Billion. The candidate should note that the fixed cost of the plant is more than the entire company is worth.

CAPITAL INVESTMENT FOR UTILITY

Framework / Structure

This is a cost-benefit analysis case along with elements of assessing risk associated with developing a new technology.

- Understanding the company structure and industry:
  - This is a regulated industry and hence no competition exists.
  - The main barriers to any project are the cost, subsequent benefits and most importantly the ability to assess the need for this project.
  - Internal barriers can be significant especially with regard to operating this new plant.
- Market information
  - The candidate should quickly be able to calculate the contribution margin generated from this venture.
  - Calculating the estimated value of the fixed cost will give the candidate enough information to figure out the breakeven period.
- Risks
  - There are significant risks associated with this project including financial and organizational. Utilization of the new plant is not an issue because it will be used to capacity.
  - There is a construction cost overrun risk as well.
  - There is also the risk of possible regulatory changes.

CAPITAL INVESTMENT FOR UTILITY

Phase 1

Understand the cost of this new venture. When asked by the candidate, provide the following information:

- The cost of the plant is estimated to be about $7 Billion. However the company's management believes that there are cost overrun risks involved. They are as follows:

Construction Type	Quoted cost	Risk of cost overrun	Cost of overrun
Technology and engineering	$4 Billion	50%	800 M
Structure	$2 Billion	50%	600 M
Other overhead	$1 Billion	20%	250 M
Total	**$7 Billion**		

What is the expected value of the cost of the plant?

Expected value of the fixed cost:
$7 Billion + (50%*800M)+(50%*600M)+(20%*250M) = $7B +$400M+$300M+$50M
= $7.75 Billion

CAPITAL INVESTMENT FOR UTILITY

Phase 2

Evaluate the revenue streams and contribution margin. The capacity of the plant will be 8,760 GWh per year.

The price for each MWh (not GWh) is fixed at $80/MWh. The variable cost is $10/MWh. Contribution = $80-$10 = $70/MWh which translates to **$70,000/GWh**

Annual contribution = 8,760 GWh *$70,000/GWh = **$613.2 M**

The breakeven point of the investment is $7.75B/$0.6132B = 12.6 years ~ 13 years

Phase 3

Qualitatively evaluate the financial and organizational risks.

There are some critical financial risks associated with this investment. The market cap of the firm is $6Billion and this investment alone is estimated to be $7.75Billion. The breakeven period for the plant is almost 13 years which is much longer than the industry average breakeven period of 6-7 years. If the firm goes ahead with this investment it will need to rely heavily on debt financing or more expensive equity. This will likely prevent other capital investments in the near future.

Nuclear technology is complicated and one major risk is the shortage of personnel with the necessary skills to run the plant. The company will have to spend a considerable amount of time and money on training and hiring new personnel. Safety and reliability are issues to consider as well.

The candidate should address most of these issues in evaluating the qualitative risks. If they don't, keep giving them clues and push them to consider the above risks.

CAPITAL INVESTMENT FOR UTILITY

Recommendation

The recommendation should include the following:

- The answer – At this point it does not make sense for the firm to go ahead with this project.
- The number(s) – The expected cost of building the plant is $7.75B and the breakeven period is 13 years.
- Risks or considerations – The firm should look closely at the financial and organizational risks involved with this project.
- Next steps – The client should look carefully at its options and see if they can go with a less expensive technology to replace their old plants

CAPITAL INVESTMENT FOR UTILITY

Strong Recommendation

The client should not go ahead with this project. The expected value of the project is $7.75B and the breakeven period is approximately 13 years, which means that a significant amount of capital will be tied to this investment for a very long time. With a market cap of $6B which is less than the cost of this plant, the financial risk is quite high especially with the large amount of capital needed to be raised. Finally, the organization will need to adjust to the high demand on human resources with regard to running such a complex technology as well as safety and reliability concerns. The client should evaluate other generation technologies which are less expensive with a shorter pay-off period.

Weak Recommendation

The company should not go ahead with this investment because it will be very expensive and will take a long time to recuperate the costs. Also the organization will have a tough time running this new plant because of the complex technology.

CASE 14:
ELECTRIC CAR MANUFACTURER GROWTH

★★★☆☆

Firm Style	Interview Round
McKinsey	1 / 2

Case Question:

Our client is a start-up electric vehicle manufacturer that has built a prototype all-electric vehicle and is interested in mass-producing it for the U.S. market. We have been hired to help them think about this opportunity

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
What type of vehicle(s) has the client developed?	It is a light-duty all-electric truck. They have manufactured 3 identical prototype vehicles to date.
What are the client's existing manufacturing capabilities?	Minimal. The current manufacturing facility is little more than a large R&D lab.
Where does the client hope to sell their vehicles?	In the U.S. market. Nationwide.
	Cont'd on next slide

ELECTRIC CAR MANUFACTURER GROWTH

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
4. How many vehicles does the client want to produce in Year 1 of manufacturing?	150,000 vehicles in Year 1.
5. How much will the vehicle retail for?	Pricing has not been determined yet, but will likely be in the $35k-$50k range.

Question 1

How would you think about the potential market for this vehicle in the U.S. (i.e. market segments)?

Strong Answer

Breakdown of different customer segments in the U.S. auto industry (i.e. luxury, hybrid, vehicle class (SUV, sedan), etc).

Candidate should recognize that the potential market for the vehicle will depend on the price, its physical characteristics (i.e. amount of cargo/passenger space), range of the vehicle, choice and availability of distribution.

ELECTRIC CAR MANUFACTURER GROWTH

Weak Answer
A weak answer will contain only one or two examples of different dimensions that consumers use to purchase vehicles. Candidate should expect to get pushed for "what else" if your answer is too thin.

Question 2

How many employees will be required to build the desired first year production run of 150,000 vehicles? The following information is known about the production process:

- The vehicle requires approximately 600 unique assembly steps.
- Each assembly step takes approximately 30 seconds.

Strong Plan
Student needs to ask some clarifying questions:

- How many hours per day (week) would the average employee work?
    - 10 (50)
- How many weeks per year does an average employee work?
    - 50

ELECTRIC CAR MANUFACTURER GROWTH

Weak Answer

Candidate makes assumptions without clarifying with the interviewer.

Calculations

Number of employees needed = 150,000 vehicles x 5 hours per vehicle/(2500 hours per employee per year) = 300 employee

Question 3

What options should the client consider for scaling up manufacturing to mass-produce the vehicle? What are the pros and cons of each option?

This question seeks to test a candidate's depth of thinking. A good answer will be logical, structured and will discuss drivers.

Strong Answer

A strong answer will discuss the pros and cons of various manufacturing options. For example they could build a manufacturing facility in the U.S., build a manufacturing facility in a low-cost SE Asian country, or outsource production (under contract/joint venture) in the U.S. or overseas. Items to be addressed include labor costs, shipping, quality (actual or perceived), regulation, public reaction, proximity to suppliers, etc.

ELECTRIC CAR MANUFACTURER GROWTH

Weak Answer

A weak answer will cover only one or two areas addressed above. Having at least three pros and three cons for each option covered is advisable.

Question 4

Assume that the client has decided to build a manufacturing facility in the United States, what are some strategies that they could use to reduce costs. Discuss the trade-offs of each approach. **Note: This question is designed to evaluate the candidate's breath of thinking.**

Strong Answer

There are many different ways to address this question. The "most-right" answer is to consider the trade-off between more automated technology and more manual labor. The automated technology will require a substantial initial investment and high fixed costs but will reduce the direct labor (variable) costs. Less automation will mean lower upfront and fixed costs but higher variable costs. Other potential answers include choice of location (right to work state vs. union), engineering optimization (reduce the number of steps vs. vehicle customization), etc.

Weak Answer

A weak answer will not address multiple cost-savings approaches and the trade-off involved with each one.

ELECTRIC CAR MANUFACTURER GROWTH

Question 5

What would you advise the CEO to do regarding the decision to mass-produce an electric vehicle next year?

Strong Answer

There is no single right answer. Some additional insights that have not already been covered by previous questions include: advising the client to consider licensing/selling the technology to a major auto-industry player with established manufacturing and distribution, forming a JV or strategic alliance with an established player, launching a pilot program to work out kinks in the technology and gauge market reaction. A good recommendation will have a decisive approach with supporting argument and address the risks and ways to mitigate risks of the recommended approach as well as next steps.

Weak Answer

A weak recommendation brings nothing new to the conversation. Simply recapping some of the items uncovered in previous questions is not a strong recommendation

CASE 15:
MINER'S DILEMMA

★ ★ ★ ★ ☆

Firm Style	Interview Round
BCG, Bain	1

Case Question:

Your client is in the mining industry. They have just purchased a mountain that has high concentrations of a valuable metal ore. Unfortunately, the mountain is made up of an unusually hard type of rock and none of the commercially available drills are able to penetrate the mountain's surface. Your client's engineers have built a prototype of a drill that could be used to extract the metal from the mountain. The client is not sure about whether to manufacture the drill and has doubts regarding profitably mining at the mountain. Help the client think through the issue.

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
Is there any way to mine without having to manufacture the drill?	No
Is it possible to manufacture the drill that the client has prototyped?	Yes, the client can manufacturer the drill in-house.
Is it possible to outsource the production of the drill to one of our suppliers or other manufactures?	Yes, there is a supplier who is capable and willing to manufacture the drill.

MINER'S DILEMMA

Framework / Structure

This is a cost-analysis and profitability case.

Phase I – Understand more about the client's plan for the mine

- Can you tell me more about the useful life of the mine and the extraction rates the client is hoping to pursue?
  - The client plans to extract ore from the mine for 20 years from the date drilling commences. After that the mine will be retired with no salvage value.
  - Additionally the client is concerned about flooding the market and will cap annual extraction as per the following schedule:
    - Years 1 – 5: < 10% of total US production
    - Years 6 – 10: < 15% of total US production
    - Years 10 – 15: < 20% of total US production
    - Years 15 – 20: < 25% of total US production
  - For logistical reasons (transportation, etc.) they must also cap annual extraction to 12,000 tons.
- What is the annual US production?
  - The annual US production is 64,000 tons.

MINER'S DILEMMA

Phase II - Determine which of two drill options is more cost effective.

Manufacture Drills In-House

- What are the costs to the client if they decide to manufacture their own drills?
  - There will be a $30MM fixed setup cost and a variable cost of $100,000 per drill.
- How many drills will the client need if they produce their own drills?
  - Using their own design, each drill will be able to mine 500 tons of ore per year. b. Each drill that the client produces will last 4 years at the given rate of mining.

Outsource Drill Production

- What are the costs to the client if they outsource production of drills?
  - Each drill will cost the client $250,000 but there will be no setup cost.
- How many drills will the client need if they buy from a supplier?
  - The manufacturer estimates that each drill of their design will be able to mine 400 tons of ore per year.
  - The manufacturer estimates a 2.5 year lifespan for their drills at the given rate of mining.

Phase III - Determine which option is more profitable.

- Can you tell me more about the ore? How much is it worth?
  - For every ton of ore extracted the client will realize $325 in revenue.
- How much does the mine cost to operate?
  - $1MM per year.

MINER'S DILEMMA

Strong Plan

The candidate has successfully identified both the issues in the case – drill cost effectiveness and profitability of mining at the mountain. The candidate also asked questions about the client's mining plan and associated constraints.

Weak Plan

The candidate makes basic assumptions about the size of the mine and number of drills typically needed. He starts working to a solution without considering the outsourcing option.

Calculations

Total amount of ore to be mined over the life of the mountain:

- Years 1 – 5: 10% of 64,000 tons = 6,400 tons per year
- Years 6 – 10: 15% of 64,000 tons = 9,600 tons per year
- Years 11 – 15: 20% of 64,000 tons = 12,800 tons per year, but client is constrained to a maximum of 12,000 tons per year
- Years 16 – 20: 25% of 64,000 tons = 16,000 tons per year, but client is constrained to a maximum of 12,000 tons per year
- Total to be mined over 20 years: (6,400 x 5) + (9,600 x 5) + (12,000 x 10) = 200,000 tons

MINER’S DILEMMA

Number of drills needed if manufactured by client:
(200,000 tons) / (4 years per drill x 500 tons per drill per year) = 100 drills

Number of drills needed if outsourced:
(200,000 tons) / (2.5 years per drill x 400 tons per drill per year) = 200 drills

Total cost if client manufactures drills:
$30MM fixed cost + $100,000 variable cost per drill x 100 drills = $40MM

Total cost if client outsources drills:
$0 fixed cost + $250,000 variable cost per drill x 200 drills = $50MM

Total revenue from mining activities:
200,000 tons x $325 revenue per ton = $65MM

Profitability if client manufactures drills:
$65MM in revenue - $1MM operating cost per year x 20 years - $40M drill cost = $5MM

Profitability if client outsources drills:
$65MM in revenue - $1MM operating cost per year x 20 years - $50M drill cost = $-5MM

MINER'S DILEMMA

Recommendation

The recommendation should include the following:

- The client should manufacture their own drills to make the operation profitable. Over the life of the project, outsourced drills cost $10MM more than drills manufactured in-house.
- Risks or considerations
  - There is a risk of cost overrun in setting up in-house manufacturing facility. It will be important to secure the $30MM construction cost with the contractors.
  - Additionally, our client may want to pursue the sale of drills to other mining companies that own property with the same geologic makeup.

Questions to Further Challenge to Interviewee

- Do you think it may strain relations with the client's drill supplier if they begin to manufacture their own drills? What can the client do to mitigate this possibility?
- Do you think there might be a third solution? What about working with the supplier to have them manufacture the drills that your client's engineers have designed? How could that be good for your client?
- Based on what you've calculated, what could change that would make outsourcing more optimal?

CASE 16:
BIG TRUCK COMPANY

★ ★ ★ ★ ☆

Firm Style	Interview Round
McKinsey	2

Case Question:

The client, Big Truck Co., is a large, US based manufacturer of heavy duty trucks, also known as semi-trucks. They make two types of vehicles, semi-trucks designed for pulling trailers and trucks or chassis' used for cement trucks, waste haulers, etc. The company has three marquees (brands), all of which manufacturer vehicles for both types of vehicles. The three brands are the result of acquisitions done in the past five years. The company is profitable, but profit margins have been declining slightly over the last few years. Additionally, the market is forecasting a significant market decline in the next few years, which brings great concern to the management of the company.

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
How large is the company in terms of revenue?	$30 billion
Can we clarify that the objective is to preserve profitability as the market declines?	Yes
Does the company sell into international markets?	Yes

BIG TRUCK COMPANY

Framework / Structure

Question 1: The CEO has hired McKinsey to help the company better understand their position and to look for solutions for the coming years. How would you structure the problem for the CEO?

- ***Sample "Poor" Answer:*** I would want to examine the revenue, starting with volume and then looking at price. Second, I would want to look at costs, better understanding the variable and fixed costs.

- ***Sample "Good" Answer:*** This is clearly a profitability question. In order to understand this problem, we need to examine the cost structure of the business and determine where we can be flexible in an ensuing economic downturn. Additionally, we may want to understand ways of adding to our top line. Starting with the revenue, I would want to better understand the product mix. Perhaps there is opportunity to upsell for better profitability. Second, I would want to understand our sales model (dealership, wholesale, fleet, etc.). On the cost side of the equation, I would want to examine any additional synergies we could achieve from our recent acquisitions. We could also look at our fixed costs and overhead and determine if new investments may be worth it to save costs in the long run. Finally, I would want to look at the variable costs and see if we can reduce our labor or input costs on a per truck basis.

- ***Sample "Great" Answer***: [A great answer would include all the elements of a good answer, plus the following additional ideas.] From a revenue standpoint, analysis of our three marquees would be useful. Perhaps we are cannibalizing our own brands and need to consider a drastic reorganization. Additional, analyzing the competitive marketplace could provide significant information on how we can achieve better profitability. Within costs, operational efficiencies and lean processes could be a way to achieve costs savings. One thing to watch out for, however, is regulatory changes, most likely emissions rules, that could dramatically change our costs. We should be cognizant of this and other external factors in everything we consider.

BIG TRUCK COMPANY

Question 1 (cont'd):

Color Commentary: While a profitability framework does work well in this case, the specific bullets beneath revenue and costs should truly address this company in particular and the issues it will face. Here is a potential framework that will serve the interviewee well in this case:

How do we preserve profitability for Big Truck Co.?

Revenue
> Product mix (Semis vs. Chassis, or Marquees)
> Cannabilization across Marquees
> Styling of vehicles
> Sales model (Dealership, wholesale, Fleet, etc.)
> Competitors
>Market volumes

Costs
> Synergies across Marquees
> Labor/union costs
> Input/commodity costs
> Operational efficiences (Lean, Six Sigma, etc.)
> Fixed overhead (SG&A)
> Fixed manufacturing (age of facilities, etc.)

External
> Regulatory changes
> Market substitutes (Rail, air, water, etc.)

BIG TRUCK COMPANY

Calculations

Question 2: The team decided to take a closer look at the costs of producing a particular line of trucks. Take a look at Exhibit 1. What is the potential savings for Big Truck Co. were we to be best in industry in regard to our cost structure?

Calculation:	= Total Cost / Truck x [In-House % x (Comp B Cost / Big Truck Cost)
	+ Outsourced % x (Comp A Cost / Big Truck Cost)]
	= $40,000 x [30% x (80/100) + 70% x (80/120)]
	$ 30,400
Savings	$ 9,600
% Savings	24.00%
Annual Volume	5,000
Total Annual Savings	$48,000,000

BIG TRUCK COMPANY

Question 2 (cont'd):
The interviewee should be told to leave the Manufacturing Mix constant in the calculations.

- ***Sample "Good" Answer***: If I understand this correctly, we are basically indexing the costs of both manufactured goods and outsourced parts against that of our competitors. Given that, it looks like we could save 20% in our in-house manufacturing ((100-80)/100) if we had the same cost levels as competitor B. On the outsourced parts, it looks like we could save ~33% ((120-80)/120 if we matched the pricing competitor A is achieving. Given we know our product mix, we know how much of the $40,000 is being spent on both areas. I can then calculate the new cost at the "best in the business" cost structure. [Performs calculations]. It appears that we can save approximately $9,600/truck or 24% of our original cost on a blended basis.

- ***Sample "Great" Answer:*** [Same initial answer as above.] While this savings is great, I want to better understand the savings to the company. Do we know how many units are manufacturing in this product line a year [answer of 5000 units given]. Given that, it appears we could save $48 million dollars a year. For a $30 billion company, that is about 15 basis points of operating margin before accounting for taxes.

BIG TRUCK COMPANY

Question 2 (cont'd):

Color Commentary: The candidate will likely struggle with understanding how to calculate the savings as the indexing is an odd way of thinking about the market. Be prepared to nudge the interviewee to keep the product mix constant. Additionally, many interviewees may use 80%/100% for the outsourced parts, instead of 80%/120%. Watch for this and guide the interviewee toward a better answer. Obviously, the great answer brings in the context to the company as a whole and truly seeks to understand the impact of the savings.

BIG TRUCK COMPANY

Question 3: The team decided to take a closer look at the costs of producing a particular line of trucks. Take a look at Exhibit 1. What is the potential savings for Big Truck Co. were we to be best in industry in regard to our cost structure?

- ***Sample "Great" Answer:*** If we structure this out, I think we can come up with multiple ideas as to how we can remove costs for this system. Let's look at it this way:

  In-House Manufacturing
  - Lean/Six Sigma evaluation, continuous improvement
  - Labor evaluation – are we union? What can we change?
  - Commodities/inputs – LT contracts?
  - Facilities – are they old/new? Can we upgrade? Are we at capacity? Are the flexible?

  Supplied Parts (Outsourced)
  - Can we improve our contracts?
  - Is our delivery/distribution poor and costing us additional dollars.
  - Are we scaling properly across our marquees? Can we leverage the volume/standardize parts?

  Other
  - Can we improve by changing the mix of outsource versus manufactured parts?
  - Can we vertically integrate? Buy suppliers?

- ***Sample "Good" Answer:*** [The interviewee will list a number of the items listed in the great answer, but will lack completeness and structure in comparison.]

BIG TRUCK COMPANY

Question 3 (cont'd):

Color Commentary: A great answer will really go through this problem in a structured way. Additionally, each answer should be listed as a conversation with the interviewer. Ask outright about some of the ideas. Perhaps they have been tried already. The interviewer can engage as much as desired in this question guiding the interviewee to specific ideas if desired.

BIG TRUCK COMPANY

Question 4: The team also identified another area that it thinks there is potential for savings. The company has a significant used truck business and has contractual obligations to purchase trucks back form customers who bought them new. Take a look at Exhibit 2. What analysis can you do from this data? What is the potential for Big Truck Co.?

Outline of Calculations:

Expected cost of buy backs

= Buy back price x trucks in program

= $25,000 x 20,000

$ 500,000,000

Expected value of trucks in program

= (trucks x % year 1 x valuation year 1) + (trucks x % year 2 x valuation year 2)
+ (trucks x % year 3 x valuation year 3)

=(20,000 x 50% x $20,000) + (20,000 x 25% x $15,000) + (20,000 x 25% x $20,000)

$ 375,000,000

Expected Loss

$ (125,000,000)

BIG TRUCK COMPANY

Question 4 (cont'd):

- *Sample "Good" Answer:* After analyzing this program, it is clear that we are mispricing the trucks intended to be bought back. We are offering to buy trucks at $25,000, but at no point in the next three years are the trucks worth that much. While this may be a good program and offer us other profits as part of a used truck business, we are taking a large loss with this program. Based on the calculations, we are projected to lose $125 million dollars and I suspect we are selling trucks under these same contracts every day, only further exacerbating the problem.
- *Sample "Great" Answer:* [After answering the good answer, additional points like this could be made]. Although it seems obvious that we should seek to change these practices, I would want to better understand why we are in the position that we are in. Is there an advantage to selling at a loss because it translates into larger profits in our used truck business? Does this create goodwill with our customers and draw them to buy more new vehicles at a greater margin? Understanding these issues more fully would better help me understand how to create a positive solution in regard to this issue.

Color Commentary: This problem has fairly straightforward math and shouldn't take the interviewee long to see what the potential loss would be. The great answer should not only bring to light the scale of the potential loss, but be inquisitive as to why this might be the case. A good interviewee should also guide the interviewer easily to the next question regarding potential solutions.

THE BIG TRUCK COMPANY

Question 5: What specific steps would you take to achieve the savings identified in Exhibit 2?

- ***Sample "Good" Answer:*** My first action would be to halt the practice of these sales immediately to avoid further sales at a loss. I would then work very quickly with our sales managers to structure new contracts so we can launch the business again. I recognize this may be a key sell point for our salesman and do not want to leave them without this tool. At the same time, I would begin an analysis of how affective of a tool this business is for driving business. There may be a reason to be creating contracts that drive a small loss if it allows us to take profitable new truck sale volume from our competitors and creates greater profitability overall.

- ***Sample "Great" Answer:*** [Answer would be inclusive of the statement above]. After stopping the current unprofitable practice, understanding more appropriately how to drive sales, and creating new procedures, I would then go back to the current contracts and see how we can squeeze value out of them. We may be able to renegotiate some of the contracts finding alternate solutions that are more profitable for us. Perhaps we can break the contracts early. Perhaps we can negotiate service packages in trade for buybacks at a higher profitability level to the company. Maybe we can sell the contracts to a third party who thinks they can get more value out of them than we can. Exploring as many options as possible to increase profitability would be a worthwhile exercise.

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Question 5 (cont'd):

Color Commentary: The interviewee should very deliberately talk about things the company should do, preferably in a timeline (short, medium, and long term) format. Thinking through not only what to do going forward, but what to do about the current position is what truly makes an answer great. The interviewer should be open to using the phrase "what else?" to push the interviewer outside their comfort zone.

THE BIG TRUCK COMPANY

Recommendation

Question 6: It appears the potential for savings is there. The CEO would like a specific recommendation as to what action he should take. Can you provide a recommendation?

- ***Sample "Good" Answer:*** After extensive analysis of both the cost of manufacturing and of the buy back program, I have identified significant savings in both areas. By modifying the buy back program, we could potentially save $125 million, keeping in mind that these obligations are unlikely to disappear entirely. As for the manufacturing, we have identified an annual savings of $48 million, again under the caveat that some upfront costs may be needed in order to realize the savings. I recommend you begin by modifying your buy back program first and then looking more closely at your manufacturing and suppliers in hopes of achieving the additional savings there as well. When modifying the buy back program, you do want to be careful not to damage relationships with your customers. However, the scale is large and needs to be addressed regardless.

- ***Sample "Great" Answer:*** [Include the above recommendation, but add the following.] Given this recommendation and the inherent risks, I would begin tomorrow with communication to your sales team to begin implementing a solution to the buy back program. Additionally, we should begin doing deep analysis on our manufacturing operations in order to identify our inefficiencies and talking with our suppliers about how to reduce costs. We should also look into the future to see if we can take some of the savings for this line of trucks and apply it across the many product lines that we sell. Additionally, given an impending downturn, we should also perform an analysis of the effects of a changed sales program as it may affect the implementation.

THE BIG TRUCK COMPANY

Question 6 (cont'd):

Color Commentary: A good answer should have a clear, early recommendation, evidence for the recommendation, risks inherent in the changes, and clear next steps to be taken in the immediate future. Credit should also be given for noticing that an improvement to operations creates perpetual annual savings. The interviewee should be comfortable asking for a moment to synthesize their thoughts and structure an answer starting with the action, then reasons, then risks, and finally next steps.

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Exhibits

Exhibit 1 - Cost Breakdown

Manufacturing Mix	**Big Truck Co.**	**Comp A**	**Comp B**
In-House Manufacturing	70%	50%	30%
Outsourced Parts	30%	50%	70%
Parts Cost Index	**Big Truck Co.**	**Comp A**	**Comp B**
In-House Manufacturing	100	100	80
Outsourced Parts	120	80	100
Total Cost per Truck	$ 40,000		

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Exhibit 2 - Buy Back Schedule

Buy back price	$	25,000
Years till buy back		3
Trucks in buy back program		20,000
Aging of trucks		
1 year old		50%
2 years old		25%
3 years old		25%
Valuation of Trucks at Time of Buy Back		
1 year old	$	20,000
2 years old	$	15,000
3 years old	$	20,000

*Ignore time value of money for the purposes of this exercise

★ ★ ★ ☆ ☆

CASE 17:
AUTO SPARE PARTS

Firm Style	Interview Round
Bain	1

Case Question:

An auto spare-part retailer is facing slowing growth. They are looking to expand into distributing auto spare-parts to garages. How will you approach the problem?

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
Is the Auto Co. similar to an Advanced Auto parts?	Yes, exactly!
And the primary customers would be walk-in customers who look to fix their own cars?	Yes, as opposed to professional entities like Midas, etc.
So the slowing growth has been in the walk-in customers?	Yes
Is the slowing of growth a recent trend, and is everyone in this segment experiencing the same?	A gradual trend over the past 5 years, and yes.
5. So what is Auto Co.'s target growth rate?	Say a rate of >5%

AUTO SPARE PARTS

Framework / Structure

This is a market entry case. The analysis may include, but is not limited to, the following areas:

- Primary approach to the problem (Structure)
- Market sizing
- Barriers
  - Competition
  - Development of a value proposition
  - Infrastructure/Investment
- Execution
  - How will you penetrate the market?
  - How will you sell, and the importance of sales team?

AUTO SPARE PARTS

Strong Plan

- Understand the market
  - Size the market
  - Look at current trends, $ per sale, profit per sale
  - Current players, strengths, weaknesses, value proposition.
  - Barriers to entry
- Understand the consumer
  - What do auto-garages want?
  - How do they base their decision?
  - Your value-proposition vis-a-vis competition.
  - How do you get them to switch?
- Economics
  - Investment required
  - % of market captured (year by year)
  - Profit generated (year by year)
  - Break-even, etc.
- Execution
  - Development of expertise (systems, infrastructure)
  - Business-Consumer to Business-Business marketing switch
  - New selling mechanism – need for a sales force
  - Market penetration strategies

AUTO SPARE PARTS

Calculations

Size of market (note repairs include routine maintenance and ignores repairs due to accidents)

- 100 MM HHs in the US
  - Average auto ownership = 2
  - Therefore – 200 MM cars in the US
- Cars need no repair for newer cars, lots for older cars.
  - So average trip to garages = 5 per year (4 maintenance + 1 repair)
  - Therefore – total trips to garages = 1B (200 MM cars * 5)
- Car repairs/maintenance can go from $30 - $3000, so average repair (assume = $300, 50% for parts, 50% for labor),
  - Therefore, avg parts ordered per visit = $150 (ie 300/2)
- Size of market =
  - Number of visits * $ parts ordered per visit
  - = 1 B trips * $150 parts ordered per visit
  - = $ 150 B USD annually

AUTO SPARE PARTS

Recommendation

- The keys for market entry would be offering a **superior value-proposition to garage-owners and then over-delivering**
  - Superior value-proposition
    - Higher volume discounts
    - Guaranteed 99% in stock guarantee and same day delivery
- Execution
  - Developing infrastructure and systems
    - Nationwide warehousing infrastructure (avenues exist for consolidating store inventory with B-B inventory)
    - Linking inventory IT system with garage's computers, so they can view inventory, prices, and order through their own computers
  - Developing a strong sales force
    - Hiring, training a strong sales force to get garage owners to switch
  - Developing a strong market penetration strategy
- Risks/Issues
  - Guaranteeing 99% in-stock percentage and same-day delivery (value proposition) will require higher inventory costs
  - NWC increases, cash position becomes weaker
  - Competitive response
  - Time to break even
- Next Steps
  - Assess market, consumer preferences, investment required,

CASE 18:
MACHINE COMPANY

★ ★ ★ ★ ☆

Firm Style	Interview Round
McKinsey	2

Case Question:

Our client is Machine Co. – a European specialty machine manufacturer. The company researches, designs, and manufactures a variety of machines from underwater drills to semi-conductor chip fabricating machines. The machines are developed based on specific requirement of a customer, as well as brand products which are then marketed and sold to niche customers. One of Machine Co.'s brand products is an injection molding machine (XG 43). This machine injects and molds plastic at high temperatures to create specific plastic products. XG43 is renowned for fabricating high quality products with a nine-sigma defect rate. The quality of products is unmatched by any other existing machine. Although XG43 has strong and profitable market share in Europe, it is unable to sell any machines in the US. Over the past few years, Machine Co. has made two unsuccessful attempts to penetrate the US market. McKinsey and Co. has been retained by Machine Co. to evaluate whether a third attempt is warranted, and if so, how can the attempt be made successful.

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
For this discussion, we are only going to focus on XG43's potential in the US?	Yes
Do we have any information as to why Machine Co.'s previous two attempts at US market were unsuccessful? (low hanging fruit)	No, but let's find out
Success for entering a new market entry can be measured by market share and breakeven. Is Machine Co. using the same metrics?	Sure

MACHINE COMPANY

Framework / Structure

This is a market entry case. The analysis may include, but is not limited to, the following areas:

- Understand XG43's value proposition
  - High quality was mentioned, but what else?
  - Investigate other value propositions
    - High efficiency/speed (No)
    - Low power consumption (No)
    - Low material waste ** (yes, asking or arriving at this is 20% of the case), reduces waste by 10%
- Understand the US market
  - Size of injection molding market (segment by low quality, high quality, etc.)
  - US competitors, and how XG43 compares with them
  - Is the value proposition enough for them to switch

MACHINE COMPANY

Framework / Structure (cont'd)

- Executing the entry
  - Brand awareness (none required. XG43 has received rave reviews in industry journals

and has been endorsed by independent agencies.)

  - Infrastructure
    - Manufacturing location (in Europe, so none)
    - Service (none exists in US, but 10 will be needed to deliver the service that will convince users to switch)
      - **** Getting this is 40% of the case. This is the reason why two previous attempts were unsuccessful**.
      - When an injection molding machine breaks down, its needs to be fixed right away, so a technician will have to be flown in the same day to avoid costly loses

MACHINE COMPANY

- Economics/Breakeven
  - Each Service center will cost $1 MM/year
  - Current fuel injection molding machine in the US costs $150K
  - Machine Co. would like price its machines at $450 K (which is equivalent to European prices)
  - Every year about 100 machines are ordered, only 10% are put to high quality manufacturing
  - Machines reduces waste by 10%, each machine wastes 1 tons of product daily, Each lbs of molten plastic costs $2.50 cents.
    - Breakeven for consumers in 2 years (** 40% of the case)
- Life of each XG43 is 10 years.

MACHINE COMPANY

Recommendation

My recommendation is a definite GO for US market entry

- Previous attempts have failed because of a lack of service infrastructure in the US, which is key to service machines on same day (needed to convince customers)
- Value Proposition
  - For 10% of machine buyers, value prop is strong (high quality)
  - For remaining 90%, reduction of waste will be enough to break even on the XG43's $300K price premium in two years.
- High probability of success
  - Should capture almost all the high quality segment (10 machines per year)
  - Should capture significant portion of the remaining segment due to waste reduction cost savings and high quality products
- Next Steps
  - Hiring, training and retaining technical staff will be key
  - Will need to develop a US based sales staff to convince customers

CASE 19:
NON-PROFIT REVENUE DECLINE

Firm Style	Interview Round
All	1

Case Question:

Non Profit organization has seen declining profitability and has asked for our help in determining the reasons for the decline and ideas to improve.

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
Sources of revenue	• Membership dues • University subsidy • Fiscal sponsorship revenue for accounting services
Costs	Costs have been steady across the organization (approximately $1 mil for the entire organization). If an interviewee is interested, the major costs for the organization are almost entirely fixed: labor, rent and utilities, printing a magazine, software licensing, and postage for mailings
Changes in revenue	• Subsidy ($200,000) and Membership ($300,000) have been steady and fixed. The fiscal sponsorship revenue has seen a decline ($500,000-400,000) • No product mix changes

NON-PROFIT REVENUE DECLINE

Framework / Structure

This is a profitability case. The analysis may include, but is not limited to, the following areas:

- Analysis of the causes of profitability decline
  - The first key insight should be that the declining revenue has led to declining profits since the costs are unchanged and service mix has not changed.
- The candidate should then ask for the details of fiscal sponsorship so as to come up with potential causes of revenue decline in this area:
  - **Fiscal sponsorship can follow several different models but in this case operates as a fee for service model, providing tax-deductible gift processing and accounting services for other organizations within the university community. Fees are based on a percentage of assets held under management. Revenue has declined from $500,000 to $400,000, and the fee is based on 50 basis points of assets under management.**
  - **The interviewer can then ask the candidate to come up with potential causes of fiscal sponsorship revenue decline. Some answers can be:**
    - Fewer clients
    - The same client with less assets
    - Deterioration of asset value without withdrawal (decline in investment value)

NON-PROFIT REVENUE DECLINE

- **The client has seen a significant decline in asset value due to significant investment losses. What is the net value of the asset markdown?**
  - \$100,000/.005 = \$50,000,000
  - The original value must have been \$250 mil under management and is now down to \$200 mil, which means the client needs to acquire \$50 mil in additional assets to manage.
- **In what ways do you think the client could boost revenue to compensate for the asset losses? – This is a good place to ask "what else?"**
  - New clients (ask where)
  - Additional funds from currents clients
  - Other sources of revenue:
  - Magazine ads
  - Rental space
  - Increase membership donations
  - Try to increase membership participation through marketing
  - Direct donations
  - Increased subsidy

NON-PROFIT REVENUE DECLINE

- **The client has discovered the possibility of extending fiscal sponsorship beyond the current client base. What issues do you think need to be considered before they open their services?**
  - Revenue – within the community, the client believes it can obtain an additional 20 clients who bring approximately $1.5 mil each for the client to manage.
  - Cost – The acquisition costs are minimal, but the client would have to hire an extra analyst ($50,000 fixed) to help manage the new clients' accounts.
  - Capacity – the client's current staff would be insufficient and would require hiring a new analyst at $50,000 (see cost)
  - Legal – the client is allowed to offer its services to other non-profits whose mission fits with its own
  - The new project would bring in $1.25 mil * 20 = $30 mil in assets, which would produce .005 * $30 = $150,000 in revenue.
  - The new project would cost $50,000.
  - The net result is an additional $100,000, which compensates for the revenue lost.

Additionally, since the client revenue is tied to invested assets, hopefully these assets will provide positive returns in the future and additional revenue growth.

NON-PROFIT REVENUE DECLINE

Recommendation

The recommendation should include the following:

- The answer – The client has seen a decrease in profitability driven by a decrease in revenue associated with fiscal sponsorship. This is in turn because of the decrease in asset value due to significant investment losses. To counter this decrease, the client needs at least $50 million in additional assets to manage. The client should increase the current client base to gather additional assets to manage – the costs are manageable and the client will be able to salvage lost revenue. Additionally, this approach will potentially provide long-term future returns.

CASE 20:
GAS LIQUEFACTION

★ ★ ★ ★ ☆

Firm Style	Interview Round
BCG	2

Case Question:

Our client is a U.S. regional power company. They currently use natural gas fired power plants to produce electricity which is then transmitted via the existing power grid. Our client currently gets their gas directly from a field located in the Gulf of Mexico, but they are concerned about the capacity of this supplier going forward. They are considering investing in capabilities to allow them to utilize liquefied natural gas.

Natural gas is a cleaner burning and relatively low cost fuel, however in gas form cannot be transported over long distances. The gas can be liquefied essentially through a combination of dropping the temperature and pressurizing the gas. The compression factor for LNG vs. normal gas is 1/600th of the gas volume.

How would you go about analyzing this decision and what would you recommend.

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	• Answer
How do you utilize LNG?	• Extraction • Liquefaction • Transport • Gasification

GAS LIQUEFACTION

Additional Information to Give when Asked

- Our client currently just pays for the extraction costs. Cost of gas from their current supplier is shown in the graph on the following page. Interviewer should be directed to use a cost of $5 per mcf.
- Unit of measure is 1000 cubic feet: mcf.
- We are looking to utilize gas from a field in Nigeria.
- Extraction cost is $1/mcf
- Liquefaction cost is $1/mcf
- Transport- Interviewer should push back…ask 'How would you go about estimating transport costs?'
- Transport breakdown:
    - Charter tanker cost: $60,000/day
    - Speed: 10 mph
    - Miles: 6000 miles
    - (So total tanker cost per trip comes to $1.5 M)
    - Tanker volume: 300,000 meters cubed.
    - So per mcf of GAS you would have to run the following conversion:
- 300,000 meters cubed liquid X ((3 ft ^3)/(meter ^3)) X (1/1000) X (600 gas/1 liquid) = 4,860,000.00
- Which is the total mcf of Gas per tanker trip.
- Transport cost per mcf = $3,000,000/4,860,000 = Approximately 0.31.
- Gasification is $1/mcf

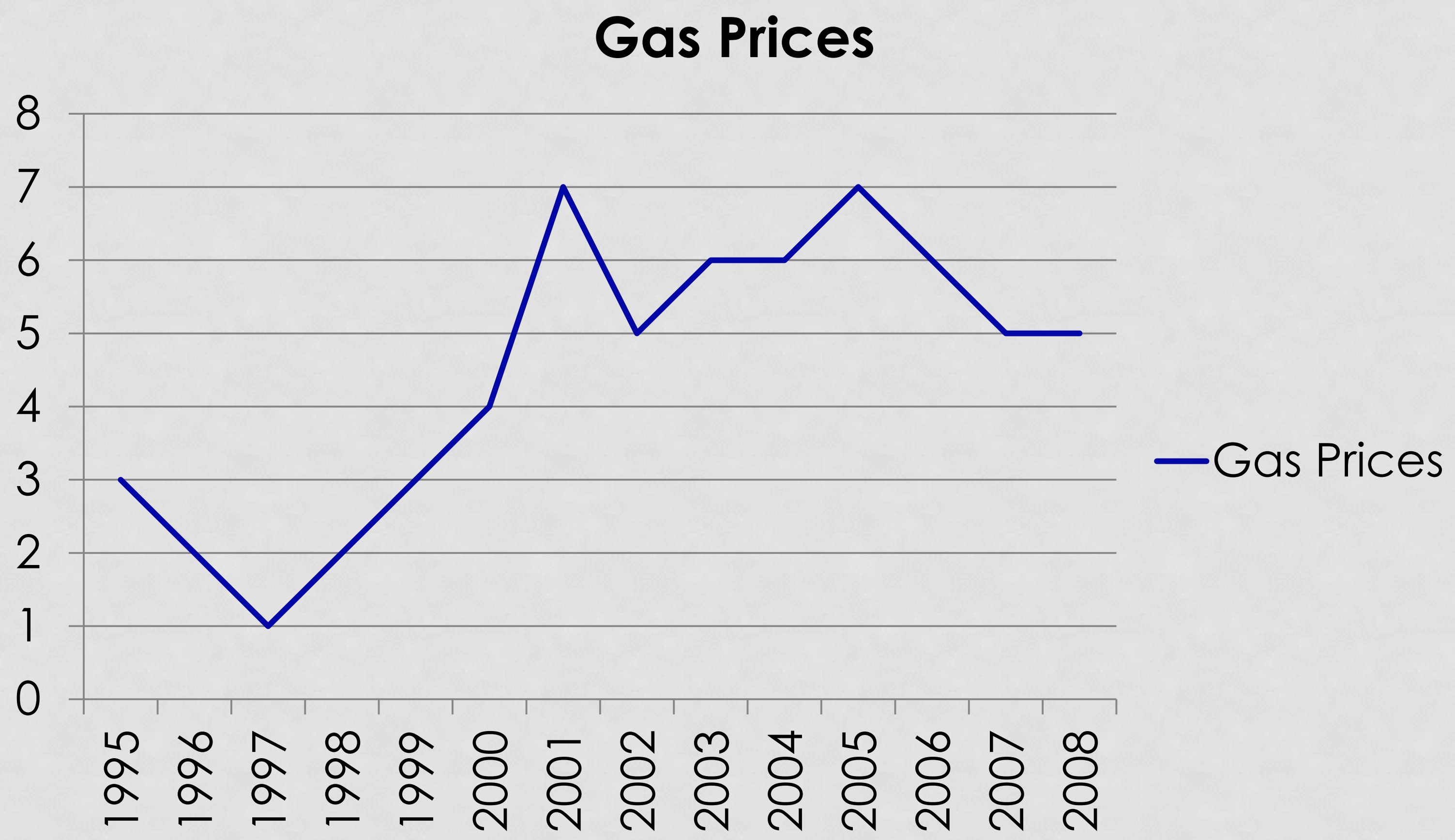
GAS LIQUEFACTION

Recommendation

- Because of the compression factor, the transport costs for LNG are relatively low and as such there are significant savings to be had by switching to LNG. We would need to look at our current volumes to see if this would justify investments in gasification facilities. Because LNG is an already traded product, we shouldn't necessarily invest in our own liquefaction capabilities, but treat it as a variable cost included in what we pay LNG suppliers.
- Conclusion: This was a second round BCG case, given by a principal. The main thing she seemed to be trying to test was the ability to keep up with all of the conversions. I had done two relatively low-quant cases earlier in the day and this was a number crunching exercise.

GAS LIQUEFACTION

Exhibit



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