

# WHARTON CONSULTING CLUB



Interview Study Guide

*Revised 2003*



## TABLE OF CONTENTS

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Introduction.....	
.3	
Wharton MBA Consulting Club	
Information.....	4
How to Use this	
Guide.....	5
The Fit Interview	
.....	6
Case Interviews: The Big Picture	
.....	9
Solving the Case: Business	
Cases.....	11
Frameworks.....	
13	
Solving the Case: Estimation	
Cases.....	17
How to Give a Good	
Case.....	19
Practice	
Cases.....	20



## INTRODUCTION

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Welcome to Wharton's revised Case Interview Study Guide! The Guide was compiled by your consulting club members to help you prepare for the first step towards your dream consulting job – the interview. Typically, candidates encounter both a fit interview as well as a case interview. The latter comprises an example of the type of problems that consultants generally face. It is important to remember that there is no “right” answer for case interviews. Instead, the successful interviewee is one that is able to think through the issues, develop a structured response and confidently communicate these to the interviewer. This Guide is meant to help you in that process, and we encourage you to practice as many sample cases as possible, from this source as well as others, in order to tackle the case questions you will encounter.

This Guide outlines a description of the types of cases that you will likely encounter. It also provides frameworks that will help you construct a structured response. The final section of the Guide includes a number of sample cases that were given to first and second years during the past recruiting season. They represent the latest arsenal of cases interviewers have used on students. You should view them as being representative of the type of cases you will get during your interviews. Keep in mind, however, that interviewers draw on their actual consulting experience to create their interview cases, and that the interviewer will modify the case based on your responses. Thus, each case is different for each student.

Our sincere thanks go to Nina Barton and the class of 2003 consulting club members for initiating this Guide. We also thank the members who contributed their cases for the benefit of all candidates this year.

Please provide your suggestions on this Guide so that we may continue to improve it for coming years. A section on Web Cafe will be devoted to feedback, so please go to the website to submit your comments.

Good luck on your interviews!

Wharton MBA Consulting Club Officers

## WHARTON MBA CONSULTING CLUB INFORMATION

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To learn more about the Wharton MBA Consulting Club and our activities, please visit our website: <http://dolphin.upenn.edu/~consultg/>.

You can also contact one of the Wharton MBA Consulting Club Officers:

President: Neel Bhatia	neel.bhatia.wg04@wharton.upenn.edu
Executive Vice President: Creighton Schenkel	creighton.schenkel.wg04@wharton.upenn.edu
Executive Vice President: Ryan Koch	ryan.koch.wg04@wharton.upenn.edu
Vice President of Social/Treasurer: Anton Hanebrink	anton.hanebrink.wg04@wharton.upenn.edu
Vice President of Employer Relations: Roshanie Adhin	roshanie.adhin.wg04@wharton.upenn.edu
Vice President of Events: Angela Ge	angela.ge.wg04@wharton.upenn.edu
Vice President of Events: Tracy Teoh	tracy.teoh.wg04@wharton.upenn.edu
Vice President of Intellectual Property: Shaila Khan	shaila.khan.wg04@wharton.upenn.edu
Vice President of Internal Strategy: Jason Peters	jason.peters.wg04@wharton.upenn.edu
Vice President of Member Education: Christina Hsu	christina.hsu.wg04@wharton.upenn.edu
Vice President of International Consulting: Hartanto Tjitra	hartanto.tjitra.wg04@wharton.upenn.edu

## HOW TO USE THIS GUIDE

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Before you begin to practice case interviews, get familiar with the case interview format. Spend some time reviewing the *Solving the Case* sections of this guide which describe how to approach each type of case. Then read through some of the practice cases and solutions in order to get a feeling for what the cases are like. Try to get a sense of how the author of the solution framed the case, asked questions, and proceeded with his or her analysis. But don't think that the solutions provided are the only solutions or even the best solutions. They just provide an illustration of how one person approached the case.

When you're ready to practice interviews, it may be best to start with another first-year student. Take turns playing the roles of interviewer and recruit. The interviewer should read the question and solution to him/herself in full before starting the interview. By doing this, the interviewer will be better able to answer the recruit's questions. The interviewer should also be prepared to make up facts and ask additional questions as the case proceeds. Any facts are fine just as long as they are consistent with the other facts that have been revealed thus far. When the case is over, the interviewer should give the interviewee candid feedback. Discuss what went well and what didn't. The interviewer should share any impressions s/he may have had, such as when the recruit was repeating him/herself, not listening closely to hints, etc. It may be helpful to tape the interviews on video so the recruit can watch his/her body language and reactions to the interviewer's comments and questions.

You should also consider practicing creating cases using your own work experience. Interviewers have been known to ask you to solve a current business problem based on your work experience as one of your case questions, especially in second and third round interviews.

## THE FIT INTERVIEW

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You may feel prepared to tackle the cases in your interview, but have you prepared for the personal interview as well? Too often, candidates leave that to chance; however, it is an integral part of the interview process, and it is to your advantage to spend time preparing for the fit questions.

The personal interview may be conducted as a separate process, which usually lasts from 30 to 45 minutes, or it may be part of the few minutes the interviewer spends chatting with you before the case. Either way, the fit interview is meant to determine your interest in a consulting career and the firm, as well as to gauge how well you would fit in with the firm's culture. While these are not malleable things, there are ways to ensure that you get those positive aspects of yourself across that you want to stress to the firm.

Similar to case interviews, the only way to succeed in the fit interview is to practice. A sample list of common fit interview questions is provided at the end of this section for this reason. Additional resources that can help you tackle this part of the interview process are also provided below:

[www.job-interview.net](http://www.job-interview.net)

[www.interview-secrets.com](http://www.interview-secrets.com)

“Case in Point: Complete Case Interview Preparation 2nd Edition” by Marc P. Cosentino

“Power Interviews: Job-Winning Tactics from Fortune 500 Recruiters, Revised and Expanded Edition” by Neil M. Yeager (Author), Lee Hough (Author)

“201 Best Questions To Ask On Your Interview” by John Kador

The day of your interview can seem stressful, but it doesn't have to be. Practicing and being prepared with knowledge of the firm as well as your own story will help take away some of this stress. Keep the following in mind when preparing:

Know your resume. Make sure that you're able to talk about the decisions you made that led you to Wharton, and the reasons why. Show how your goals have developed to lead you to the firm with which you are interviewing.

Know why you want to work with the firm. Do your homework. Speak knowledgeably about specific areas of the firm's practice in which you are interested. Check recent articles and reports about the company to ask pertinent questions.

Remember the following tips on interview day as well:

Don't be late!

Pay attention to your personal appearance.

Show confidence, interest and enthusiasm.

Do not emphasize money in the interview.

Avoid speaking negatively about past employers.  
Make eye contact when conversing.  
Ask pertinent questions about the job.  
Be firm in your responses to questions.  
Avoid the "know it all complex."  
Pay attention to voice diction and grammar; express yourself clearly.

## **Sample Fit Interview Questions:**

### **Personal**

- Tell me about yourself.
- Walk me through your resume.
- What are you most proud of on your resume?
- Where do you see yourself in 5/10 years?
- Describe a situation in which you had to convince others in your previous job.
- Talk about a project from your resume in which you had to solve a problem.
- What would other members of your learning team say about you?
- Explain to me why you made your previous job changes.
- What are the three most important events in your life?
- Give me three words to describe yourself.
- If you could do 'it' all over again, what would you do differently?
- In what kind of work environment do you do your best work?
- What are the attributes of an ideal job for you?
- Did you get an offer from the firm you worked for this summer?
- Do you have other offers, including one from your summer job? Why would you take our offer over one of the others?
- What do you enjoy doing outside of work in your free time?
- If you had six months ahead with no obligations and no financial constraints, what would you do?
- If you could trade places with someone for a week, who would it be?
- What is your favorite book/movie/song/painting or author/actor/singer/artist?
- Which magazines/newspapers do you read regularly?
- Which books have you read recently?

### **Management/Leadership Style**

- Define leadership.
- What is your management philosophy and leadership style?
- Give me an example of a leadership role you have held when not everything went as planned.
- Tell me about a time when you successfully resolved a conflict.
- What are some key lessons you have learned about motivating people?
- Give me an example of a time you were able to change a manager's opinion.
- Why are you a good manager?
- Tell me about your past experience working in teams?



### **Strengths/Weaknesses and Skills**

- What is your greatest weakness?
- Give an example of something you have done that shows initiative.
- What can you do for us that someone else cannot do?
- Name one thing you learned from your previous experience/internship.
- Give me an example of one of your successes.
- Give me an example of one of your failures.
- Describe the accomplishment of which you are most proud.
- What has been your greatest challenge?
- What strengths and attributes would you bring to this position?
- Tell me how you overcame an especially difficult challenge?
- Why should we hire you?
- Are you creative? Give me an example.

### **Education**

- Why did you decide to get an MBA? Why Wharton?
- What made you decide to major in \_\_\_\_?
- What have you learned at Wharton that will help you on this job?
- What extra-curricular school activities are you involved in? Do you hold any leadership positions?
- What electives have you taken? Which did you enjoy the most?
- What is your favorite class?
- Describe the course that has had the greatest impact on your thinking.

### **Job/Company/Industry**

- Discuss what attracts you to a career in consulting.
- What do you predict is going to happen in this industry in the next 5 years?
- What parts of the job do you think you would find least satisfying?
- How will consulting help you get where you want to be in ten years?
- What do you like about our company? What differentiates it from other firms for you?
- What do you believe are the key issues and problems in our industry today?
- What do you think it takes to be successful in this field?
- What other jobs/fields are you considering?
- What industry publications do you normally read?

### **Locations**

- Do you have a geographical preference?
- Why do you want to relocate to \_\_\_\_\_?
- Are you willing to relocate every two years or so?
- How do you feel about travel?

### **Wrap-Up**

- What would you like me to know about you that is not on your resume?
- What would you like your lasting impression to be?
- Do you have any questions you'd like to ask?

## CASE INTERVIEWS: THE BIG PICTURE

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### What Consulting Firms Are Looking For

Consulting firms use case interviews to gauge how well a candidate will perform on the job. As you practice cases, keep in mind what skills and attributes the recruiters are looking for and take it upon yourself to demonstrate them. The following are three questions most recruiters are probably trying to answer when interviewing a candidate:

*1. Can the candidate solve problems for our clients?*

Use the case interview to demonstrate your analytical skills, logical reasoning, business savvy, and creativity. Show the interviewer that you can listen closely to the question being asked of you, break the problem down into components, formulate meaningful questions, proceed logically through an investigation, and draw reasonable conclusions.

*2. Can I put this candidate in front of a client?*

Too often, candidates are only concerned with demonstrating problem-solving skills and forget that consulting is a service industry which values communication and presentation skills. Use the interview to demonstrate composure, maturity, and confidence. Show that you are tactful and friendly and that you can present your thoughts using clear, concise language.

*3. Will I want to work with this candidate?*

Candidates should remember to be themselves so the interviewer can get to know them. The “airport rule,” often quoted by consultants during interviews, refers to the test of whether they believe a candidate is someone they would not mind being stuck in an airport with for a few hours during a layover. While it may sound hard to believe at this point, case interviews can and should be a fun experience. Successful candidates will show the interviewer that they are interested in the case and empathetic to the client, and that they have a lot of enthusiasm and energy.

One additional note: Don’t forget that a case interview is first and foremost an interview. Everything you’ve ever learned about interviewing still applies. Try to connect with the recruiter and establish a positive rapport. Be candid, pleasant, and maintain eye contact. Regardless of how uncertain you are of a response, try to remain calm and confident as well.

### Types of Case Interviews

There are two major types of cases: business cases and estimation cases. By far the most popular are business cases, in which the interviewer describes a business situation a firm is in and asks you to help the client face that situation. Most often, the case is an actual engagement that the interviewer is currently working on or has worked on in the past. Estimation cases, if they are given, are usually embedded within a business case. In an estimation case, you are asked to estimate something that you could not possibly know, such as the weight of a Boeing 747.

## Additional Resources

The following list provides resources for more information on the consulting industry and case cracking. In addition, don't forget to check out Wharton's MBA Career Management website.

[Abbott, Langer & Associates](#) - *Salary and Benefits Survey Report* for consultants

[Association of Management Consulting Firms](#) - Information, major events, etc.

[Business.com](#) - Business Search Engine for News and Jobs

[ConsultingCentral.com](#) - News about the consulting industry

["Crack the Case: How to Conquer Your Case Interviews"](#) by David Ohrvall (former Bain manager and Wharton MBA grad) - Available at [www.consultingcase.com](http://www.consultingcase.com)

[Expert Marketplace](#) - Resource for those in need of consulting services

[Hoover's Online](#) - Management Consulting Services Directory

[Institute of Management Consultants](#) - Information, major events, etc.

[Job Juice](#) - Interview flash cards to help prepare for interviews

[Jobs in the Money](#) - Good industry profile

[Kennedy Information](#) - An Overview and Profile of the Consulting Industry (size, fees, future outlook. Publishes "Consultants News")

[Management Consultants Network International](#) - Management Consulting Worldwide

[MBA Jungle](#) - Some valuable insights and experiences

[MBA Zone](#) - Careers for the MBA

[Vault Reports](#) - Career guide to Consulting; valuable for case preparation

[Wall Street Journal](#) - WSJ Consulting Careers and

[Compensation data Wet Feet Press](#) - Read about the firms, purchase case guides. An excellent resource for interview preparation

## **SOLVING THE CASE: BUSINESS CASES**

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### **Listen to the Question**

While it sounds obvious, you need to listen very closely to the business situation described by the interviewer. Often imbedded in what the interviewer is saying are helpful hints about how to proceed with the case.

### **Gather Information**

The first step in the information gathering step is to make sure you understand the question. While it is not important to repeat back the question to the interviewer, question anything that you are not clear about.

Your approach will depend on the amount of information you receive up front, which can differ greatly depending on the style of the interviewer and the type of cases you get. Some interviewers will give a lot of detailed information up front and will volunteer relatively little additional information later. In such cases, it may make sense to write down some quick notes to help you remember the pertinent facts. Other interviewers start out with a simple two-sentence summary, and expect you to probe for more information by asking thoughtful questions.

Remember, it is expected that you ask questions; one of the most valuable skills of a successful consultant is the ability to ask probing questions. Sometimes it helps to preface a series of questions with a statement describing where you are going with your questioning. So you may say something like, “Now I’d like to ask some questions about the client’s distribution channels.”

### **Analyze the Problem**

When you have gathered your initial information, think clearly about the problem you are being asked to solve. It is fine to take a moment to collect your thoughts, but don’t forget how important it is to maintain eye contact. A major consulting firm said that many interviewing students spend too much time at the beginning of the case with their facts buried in their notes. You should ponder the case to yourself just long enough for you to lay out a framework for analyzing the case step by step. Then clearly layout how you will approach the problem – interviewers cannot read your mind, so the more that you tell them about your thought process the better.

Remember that the purpose of using a framework is to structure your thinking logically and to make your logic transparent to the interviewer. Do not get the impression that there is a “right” framework that you can learn in class and memorize. The textbook frameworks of your introductory business school classes (some of which are summarized at the end of this section) should only be a guide in helping you start to think about frameworks. Blindly applying a

framework will make your solution seem canned. Keep in mind that creativity and originality are also highly valued by consulting firms. Think logically about what a good way to approach the problem would be, relying as much on your life experiences to develop your approach as on any standard framework.

An attribute of a good framework is that it be “MECE,” which stands for Mutually Exclusive and Collectively Exhaustive. This means that your framework should provide you with a number of different options that do not overlap (the ME of MECE) and together account for all possible causes (the CE of MECE). For example, if you are being asked to solve a problem about declining profitability, do not just look at the expense side of the income statement. Profitability is a function of revenues and expenses, and these two factors are separate while together they make up the entire formula for profitability.

Listen carefully to any clues the interviewer may give you. If you go down the wrong path, the interviewer will often try to redirect you. For example, when the interviewer says: “Are you sure about that?” or “Is that the only possible solution?” you should probably reevaluate your analysis. Do not be afraid to discard your framework or line of questioning and use something else. For example, if you initially interpreted the problem to be a marketing problem, but then realize from subsequent information the interviewer provided that it is really an operations problem, just say that you will use a different approach to probe deeper into that aspect of the case. If you get stuck, summarize what you have found out up to that point. That helps the interviewer trace your line of thought and buys you some time to think about where to go next.

Finally, use simple language. Consultants are not looking for you to use buzz words. Talk to the interviewer as if you're talking to your friends, family, or former coworkers. It will make you seem more natural, and give the interviewer confidence that you can communicate clearly with clients.

## **Summarize Your Findings**

This is the step that many interviewees miss – make sure that you answer the question that they asked you at the beginning. For example if they asked you what to recommend to their client, do not give an answer that summarizes their situation only. They will be looking for you to take the step towards framing the findings into a client solution.

Because of the complexity of some of the cases you will be presented with, it may not be possible to get to the point where you start making suggestions for improvements in the time frame allotted. This does not matter, as long as you demonstrated your ability to think clearly and to apply the correct business tools to get to the causes of the problem. The firm probably took weeks rather than just thirty minutes to get to the point where you stopped in the interview. Just push back and give a “big picture” summary of what you have found out up to that point and how you would proceed with your analysis. Try to be especially articulate when giving your wrap-up summary of the case.

## FRAMEWORKS

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The following pages provide some of the frameworks that may help you to start thinking about how to frame a problem. Please note that there is not one framework that will work for each situation – you must apply the right framework to the right case as appropriate, or develop your own framework that works for you.

### **1: Income Statement**

*Used for analyzing changes in profitability.*

A simple income statement is often a very useful framework. By analyzing profitability through its component factors such as revenues, cost of goods sold, and operating expenses, you can quickly direct your analysis. For example, if profits are declining because of a fall in revenues, you may want to focus on marketing issues; if profits are declining because of rising expenses, you may want to look into operations and financing issues.

Below are three ways a company can increase profits and the issues you may want to consider:

#### **Increase Unit Price**

- Demand elasticity
- Market power
- Product differentiation
- Whether a price premium is justified?

#### **Increase Sales Volume**

- Increase sales to current customers with current products
- Increase sales to current customers with new products
- Increase sales to new customers with existing products
- Increase sales to new customers with new products

#### **Decrease Total Costs**

- What costs are fixed and what costs are variable
- To what extent and in what time frame are costs avoidable
- How are costs allocated

## **2: Fixed vs. Variable Cost**

*Used to analyze cost structures and changes in profitability and to assess economies of scale and scope.*

The distinction between fixed and variable cost is extremely important, and you are bound to encounter at least one case centering on this issue during your consulting interviews. Make sure you understand the cost structure of a company in analyzing its profitability. Capital intensive industries such as manufacturers typically have high fixed costs which makes capacity utilization a crucial part of their business. When fixed costs are high, there are often opportunities for economies of scale or scope. Use your common sense to understand what the important input factors are for a company, and whether these are likely to be fixed or variable. Carefully analyze the allocation of overhead expenses in this framework.

## **3: Four C's**

*A general tool for analyzing a company and its environment.*

To analyze a company's strategy in terms of its chosen market position, you have to evaluate the different factors that will determine its success. Customers' needs have to be known and the firm's capacity and cost structure need to be able to satisfy those needs at an acceptable level of profitability. This capacity and cost structure should be difficult to imitate by the firm's competitors in order to sustain the profitability.

### **Customers**

- What do the customers want and need?
- How will we satisfy those needs?
- What is most important to them?
- How much will they pay for it?

### **Competitors**

- What are your competitors doing?
- What are their strengths and weaknesses?
- How are they meeting the customers' demands?
- What is their cost structure?

### **Capacity**

- What is your company's financial, organizational, production and marketing capabilities?
- What are your strengths and weaknesses?

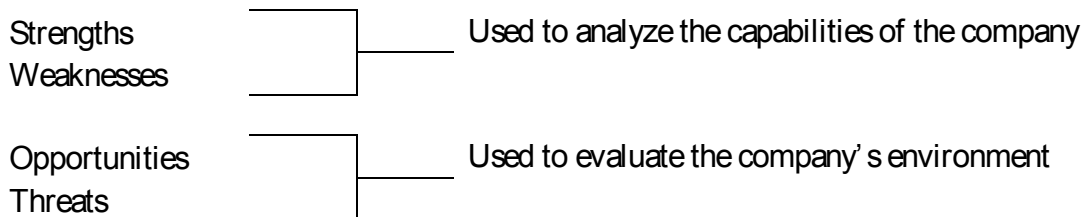
### **Costs**

- What is your cost structure?
- How is overhead applied?

#### 4: SWOT

*Another general tool for analyzing a company in its business environment.*

This tool is similar to the Four Cs above. It is important not only to analyze what the firm can and cannot do, but also how these capabilities can help the firm take advantage of any opportunities, or ward off any threats that occur in the environment.



#### 5: Four P's

*Useful for marketing related cases such as new product introductions, new market developments, and market share increases.*

Everyone should be familiar with the four Ps of marketing: product, price, place, promotion. They are used as a framework for putting together a marketing plan. Remember that the four Ps are the implementation of a strategy that first depends on the selection of a target customer segment and product positioning.

#### 6: Porter's Five Forces

*Used to evaluate the attractiveness of an industry in terms of the ability to earn high returns.*

The ability to earn above market returns depends on the degree of efficiency of the market. In a perfectly competitive market, no producer will be able to earn super natural returns. Porter's framework is a way to assess the competitiveness of a market, and thus the ability to earn super natural returns.

Suppliers – Bargaining Power of Suppliers

Substitutes – Threat of Substitutes

Buyers – Bargaining Power of Buyers

Potential Entrants – Threat of Entry

All of these affect the intensity of Industry Rivalry between firms.

Source: Michael E. Porter, *Competitive Strategy* (New York: Free Press, 1980)



## 7: Value Chain Analysis

*Useful to analyze how value is created for the customer and which parties are involved. Often used to determine which party extracts the highest returns in creating the goods or services for the end customer.*

Another one of Porter's contributions, the value chain analysis, is helpful in trying to understand how an industry is structured. A prime example is the personal computer industry. The goods that the end customer receives are a combination of hardware, software, and support services. Intel supplies components, IBM builds the case and provides the services, and Microsoft supplies the operating software. Since the component supplier (Intel) and the software supplier (Microsoft) both operate in more or less of a monopoly position, they are able to extract most of the value added which goes into the final product. IBM has to compete in a market place with many competitors and low barriers to entry, and will thus receive a much smaller portion of the cumulative value added.

MARGIN = TOTAL VALUE TO BUYERS - COST OF PRODUCING VALUE

Firm infrastructure				
Human resource management				
Technology development				
Procurement				
Inbound logistics	Operations	Outbound logistics	Marketing & sales	Service

Source: Michael E. Porter, *Competitive Strategy* (New York: Free Press, 1980)

## 8: Seven S's

*Useful in defining sources of competitive advantage for a company.*

Peters and Waterman's Seven S framework helps you understand the factors internal to a company that can create a source of competitive advantage. It emphasizes that all these attributes need to form a network in order to reinforce and sustain each other. While it may be possible to duplicate any one of these attributes, it will be very hard to copy the entire network.

“Hardware”

Strategy  
Structure  
System

“Software”

Style  
Staff  
Skills  
Shared Values

Source: Thomas J. Peters and Robert H. Waterman, *In Search of Excellence* (New York: Warner Books, 1982)

## **SOLVING THE CASE: ESTIMATION CASES**

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In estimation cases you are asked to come up with an “educated guess” of some number, such as the all-time classic: “How much does a Boeing 747 weigh?” While the questions may sometimes seem “off the wall,” this is an important skill to possess in consulting work. As a consultant, you will often have to make decisions based on incomplete or unavailable data, in which case it becomes important to generate reasonable estimates. For example, there may be no direct data available on the number of gas stations in the state of Pennsylvania, but this may be of great importance to your client in the oil and gas industry. You will have to make an estimate based on data that you can get (number of cars sold, population, and average gas mileage, just to name a few) and use logical inference to estimate the number you are looking for.

### **Making Assumptions**

In these types of exercises it is not important whether your assumptions are right or wrong (in the real world you have a research department to find that out for you), but make sure that your estimates are at least reasonable based on common sense. For example, if one of the assumptions you make is about the U.S. population, do not say that you assume it is 10 million. It is important that you use easy numbers for your assumptions because you will have to do some arithmetic off the top of your head. If you start out with an estimate of the U.S. population of 267 million, you will probably start sweating profusely when you have to divide or multiply this number. Use 250 million, it is a lot easier to work with.

### **Logical Reasoning**

Estimation problems are based on logical reasoning applied to a number of known data points (your assumptions) to arrive at the desired answer. Since it is your logic that is being tested, lay it out clearly for the interviewer. Before you start making assumptions, tell the interviewer what your logic is going to be to figure out the answer. Once you have done that, make the assumptions and do the math.

To come up with a logical approach to answer an estimation problem, start with the answer and reason backwards about causal relationships. Think of this as a tree diagram. For example, if you are asked to estimate the number of basketballs purchased by the NBA and its teams each year, start out by thinking what basketballs are used for (the cause for purchasing basketballs). Most likely, they are used for games and practice. These are then the first two branches of your tree diagram. To continue to solve this problem, attack one branch at a time. Do not try to move down different paths at the same time; it will only lead to confusion.

To continue with the basketball example, let's take the “games branch” of our tree diagram. We know that the number of balls is a function of the number of games and the number of balls per game (the causal relationship). What does the number of games depend upon? It depends on the number of teams and the length of the season. (See, it doesn't take a rocket scientist or

basketball coach to figure this out; common sense is sufficient.) You can make an assumption about the number of teams and length of the season or you can continue to go down the tree to find the root causes for those numbers. Make sure, however, that you do not make the problem too complicated. If you have a reasonable idea of the numbers, go with the assumption and start filling in the equations. Examples of digging deeper into the drivers of the number of games are estimating the number of teams by the number of major cities in the US, or estimating the number of games by the length of the season in weeks and an estimate of the average number of games per week per team.

Once you have figured out the first branch, do not forget to do the second one. It is easy to get wrapped up in a long chain of reasoning and completely forget about the "practice branch" in this case. Write the number you came up with for the game balls on a piece of paper so you do not have to use valuable brain space to remember it. Most interviewers won't mind if you take simple notes. A similar reasoning approach as above for the practice balls would try to estimate the number of teams, the number of players who practice on each team, the number of practice sessions, and the average life of a ball.

## Doing the Math

Once you have come up with the logical approach, you have to fill in the numbers. Again, choose easy numbers for your assumptions. Even though the length of the NBA season might be 82 games, choose 80 because it is easier to use. It is important that you use the right equations to calculate your answers. The number of games, for example, was determined to be a function of the number of teams and the length of the season. Say that there are 25 teams (easy number) and 80 games in a season, that makes  $25 \times 80 = 2,000$  games played per year, correct? Wrong! Since one game takes two teams to play, you have double counted the number of games. The correct answer is 1,000.

Since most of us are used to calculators and don't often add up large strings of numbers in our heads, it is useful to practice your arithmetic. Calculators are not allowed, and it can be quite embarrassing to stumble on a simple calculation in an interview. This danger is especially prevalent since you will probably be a bit nervous, and thus less able to think clearly. Take your time, and take that extra second to double check your math. The only way to get better at it is by practice, lots of it.

## Sanity Check

When you have come up with a final answer, do a quick check to see if it is reasonable. You don't want to say with a big smile on your face that you have calculated the number of basketballs in the NBA to be 10 million. Think first whether it sounds reasonable, and possibly do a quick check. For example, you could multiply the number of balls by an estimate of the average price for a basketball, and see if the resulting figure is reasonable in relation to what you would estimate the total NBA budget to be. If it turns out to be around 50%, you have probably made a logical or calculation error somewhere along the way.

## HOW TO GIVE A GOOD CASE

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The key to giving a good case is to understand what the key point of the case is, and then slowly guide the candidate to the main point. You basically must act as an all-knowing guide that only reveals the good path at the right moment.

This is not easy. Your instinct is to help the candidate too much. Try and be realistic with your information, most real interviewers try and give a balanced approach of information and letting the interviewee figure it out for themselves.

### **Strategy Cases**

These are the big picture questions. Don't let the candidate get bogged down in the details of the case. The purpose of these cases is to see if the candidate can assemble a set of data in a logical manner and then construct a logical recommendation based on the given data.

Your role as interviewer is to discuss with the candidate the case at a high level and slowly provide him/her with the data they will need. Remember to keep the candidate focused on the issue at hand.

### **Estimation Cases**

Estimation cases require precision and mathematics. You should push the candidate away from the big picture and towards the math. You should only provide enough data so the interviewee can do the math.

### **Data Hunt Cases**

Another case-giving methodology is to not provide any data. This technique can be used in any type of case. Essentially, you the interviewer barely give any data. When the interviewee asks a question, you can reply with, "What do you think," for example.

## **PRACTICE CASES**

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One the following pages there are examples of Business Cases and Estimation Cases. The Business Cases have been divided into a number of different categories: Pricing, Profitability, Operations, Market Sizing (a super sized estimation case) and Strategy. Where possible, information was provided to give perspective on which firm gave the case and in which round.

It is really important to note that the solution given is just one possible solution. There are many different ways to approach the cases, and the actual answer is not as important to the interviewer as the process that you took to get to the solution.

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## THE VIDEO STORE

Category: Profitability; Four C's

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### Question (posed by interviewer):

Two business school classmates laud their entrepreneurship intentions and mock your interest in entering the management consulting industry. They decide that despite recent trends, what is needed is a video rental store closer to the Wharton campus. They try to convince you to join, but in your infinite wisdom you join a prominent strategy consulting firm in Philadelphia.

Well, their first two years meet unprecedented success. They buy matching Porsches and a townhouse in Society Hill. Needless to say, each time you meet up for social occasions, they share with you (mostly with tongue in cheek) their success and a sort of “I told you so” attitude. You handle their jabs well, as you feel you have had a terrific experience at your consulting firm.

The story, however, changes in about 12 months. Despite two and ½ years of dramatic profit and revenue growth, profits have dramatically fallen. They call you (with a fair amount of egg on their face) and say “we don’t know what happened and our mortgage and car payments are getting tougher to meet. Can you help us? we know that you help CEO’s of large companies get to the bottom of their issues”. With more than just a little satisfaction and justice in your voice you say sure.

What do you think the problem is?

### Suggested Questions:

This is an example of a case where the student must probe to get to the heart of the matter. The student needs to ask questions which first diagnose the situation and then (and only then) talk about causes of the situation and then (and only then) talk about areas of improvement.

Here are questions that the student should ask to get to the analysis that will help them diagnose the problem:

- Have costs increased?
- Have revenues declined?
- Have prices been changed?
- Have new video stores opened in the area?
- Are fewer customers coming to the store?
- Are customers renting fewer videos?
- Have other entertainment venues opened in the area?
- Have there been economic changes in the area?

These key questions will get behind what is happening (competitive changes, pricing adjustments, macro factors, people not coming to your store, or people just not renting as many videos, etc)

**Suggested “Excellent” Response:**

This is an example of a case that is founded in 4C’s type issues. The student has to diagnose the problem and find out what is exactly going on and then find out what is causing it. This is how efficient analysis is performed:

If profits have declined then I assume that either revenues have declined or costs have increased, what is the case?

*Revenues have decreased. Why would you think that cost is probably not the problem?*

Video rental is a high fixed cost business (Rent, Videos and Labor) are all fixed in the context of rental revenue. Thus, the business’ profits will be susceptible to changes in revenues (capacity utilization).

Revenues are made up of number of videos we rent in a year and the price we charge. Has the management changed the price of the videos?

*No. What does that tell you?*

That means that either fewer customers are coming to the store or each customer on average is renting fewer videos. Which is it?

*How would you figure that out?*

The security system probably has a counter so that could tell us store traffic, and clearly the register receipts could give us number of videos rented per day. We can look at that data last year vs this year and see whether we have a traffic problem or share of wallet problem.

*Excellent. If you found out it was a share of wallet problem, what would you think might be the problem?*

Share of wallet problems are often driven by internal execution problems (bad selection, poor service, etc) whereas, traffic is often external (or market) problems.

*Again, excellent. The data shows that traffic has fallen. What now?*

**Here the student should begin to think about hypothesis development. They have diagnosed the problem... i.e. fewer customers are coming into the store.**



If traffic has fallen, it is either due to a macro factor or a competitive situation. My inclination is that video rentals are not that impacted by economic factors, so it is probably a competitive situation. Has a new store opened in the area?

*No*

Has a new movie theatre opened?

*No*

Mmm... That is surprising. I was sure that this was a competitive situation and we have a fixed pool of rental community (or movie interested community) and that once a new store opened regardless of how good it was, it took share from my client's store.

*Let me ask you something and maybe this will help you along. What business is your client in?*

They are in the video rental business or the entertainment business or leisure business... I see there could be other entertainment preference shifts or options, etc.

*That is good intuition, but have you fully defined your client's business. What does your client do? What purpose do they serve?*

They rent movies for people to watch at home. They are in the home entertainment business and specifically in the home movie entertainment business. That means that the competitive set is anybody who provides movies in the home. Not just video stores.

*Excellent. What do you think is going on?*

**Here the student has now diagnosed the problem and can make a very good hypothesis that either Delivery, Cable, PPV or new Movie on Demand technology has infiltrated the market or is experiencing rapid growth. Thus, the market size for store video rentals has been reduced.**

### **Summary Comments**

There is no one right way to approach cases. Structure your case interviews to (1) perform structure analysis and fact gathering to properly diagnose the problem. You could start by saying, I would interview customers to find out what they think of the store, however, that is probably not efficient, as you don't know that customers are the problem. It could be cost, or prices, or new stores, or other choices (2) share your logic and hypothesis whenever you can (3) drive to an answer/assessment.

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## THE ENGLISH CHURCH

Category: Four C's

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### Question (posed by interviewer):

Assume you are the new pastor of a rural English church in the late nineteenth century. Over the last three years attendance has been going down. Your boss has just come to town to tell you that she is considering shutting down the church. You have two weeks to diagnose the problem and go to your boss with possible solutions.

How would you think through what these problems might be and the possible solutions?

### Suggested Sample Response:

There are many potential reasons why the churchgoers of the parish have stopped going to church. First, I will talk about the possibility of competitive churches; secondly, I will talk about the possibility that people in the area have simply stopped going to church.

First, I will talk about competing churches. There are two reasons why competing churches could be taking our parishioners away: better location, "better" religion, or better services. I remember from my history classes in college that some churches were located far away from pockets of the population, and churchgoers often would establish churches closer to home. Also, sometimes people change what they believe or newfangled ways of thinking emerge. This could also be driving people to other churches.

I would also want to figure out if the nearby churches are preaching different religions. There is at least a chance that these churches are offering parishioners different kind of religious viewpoint that is more attractive than the religion we have been preaching. Their rules regarding behavior, for instance, may be different from ours.

Lastly, I would want to understand the different services being offered at "competing" churches. There may be different things these other churches offer that we do not. For instance, these churches might offer childcare, adult education and job training, or singles dances. These churches may offer more personal attention and guidance from the pastors.

Now I would like to talk about the possibility that people who live in the area around the church simply may have stopped going to church. Off the top of my head, I can think of two reasons why people may stop going to church: progress and inconvenience. As science and communication advance, people may rely less on the church to explain the world and more on scientific findings and written forms of communication such as books and newspapers. This could be happening in our parish. On the other hand, going to church may be becoming inconvenient or economically nonviable. Maybe our parishioners feel that they need to stay at home to work in the fields in order to maintain subsistence. I would want to talk to these parishioners to find out why they have stopped going to church.

There are many ways I could test my hypotheses. I think the most important thing is to talk to the former parishioners to ask them why they have left the church and what we would need to do to entice them back. After that, I would want to send someone (or myself) to the other churches in the area during services to understand what is being preached at these churches. To help prove if the issue is location, I would draw a map of our current and former parishioners and analyze how distance from the church affects attendance. To understand if there are other churches in the area taking away our parishioners, I would also map these new churches on my newly created map.

Once I understand why people are leaving, I would devise a plan to bring the parishioners back. I would want to be focused on the needs of my parish, by offering enhanced services, such as day care as well as flexibility, such as offering services at different times of the day. If distance is a factor, I may want to consider having services at different locations at different times, making our church more accessible.

### **Summary Comments**

This would be a very good answer. The candidate came up with a number of hypotheses, identified ways to test those hypotheses, and formulated an action plan to address the issues. This answer shows thoughtfulness, creativity, and structured thinking. While there may be some issues that this candidate did not identify, he/she does a good job structuring a comprehensive answer. For a 3Cs answer to be good, a candidate does not have to address every single issue.

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## WHARTON AS A BUSINESS

Category: Income Statement

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### Question (posed by interviewer):

You are Dean Harker. A wealthy benefactor has come to you with the news that she will give Wharton \$100 million. The grant is contingent, however, upon you using the money effectively. You have 1 week to propose to the benefactor where you would use the money before she will finalize the transfer.

How would you, as Dean Harker, propose to use this money?

### Suggested Sample Response:

First, as Dean Harker, I need to think through what does spending the money effectively mean? This is a not-for-profit learning institution, but that does not mean that it is not a business. For Dean Harker to be successful, he needs to understand what drives his business and where he can achieve the biggest return for his investment.

There are currently four major “business units” that provide a revenue stream for Wharton. These include:

- WMBA program

- WEMBA program

- Publishing

- Grants and donations

While there are many budding initiatives, including distance learning, these are the four largest sources of revenue.

If you rank the relative profitability of these revenue streams, you would likely find that the least profitable of the four is the WMBA program. Publishing is a very profitable business but it seems to have high reliance on the education business. WEMBA is very profitable, as the fees charged to the executives are quite large when compared to the length of program. Grants and donations are virtually pure profit.

At first glance one might conclude that Wharton should focus their resources and efforts on the highest return areas of securing grants, publishing and expanding the WEMBA program. It would follow then, that the WMBA program would fall as the lowest priority for resource allocation. That would be incorrect, however. Consider what draws people to the executive education program, for example. The brand cache of Wharton drives the attendance and enables the price premium. Similarly for publishing, the value of the Wharton brand provides

the credibility behind the content and drives sales. So what drives the Wharton brand? Clearly it is the WMBA program.

Dean Harker must focus on maintaining the reputation of Wharton as the premier WMBA program to attract the best and brightest professors and students. It is then the academic and professional work of these people that contributes to the integrity and value of the brand. Obviously the professors publish, hence enabling that revenue stream. The WMBA students graduate and achieve notable success, further driving the brand. Finally, the alumni are responsible, to a large extent, for the grants and donations that Wharton receives.

In the end, the WMBA program effectively ties in every other revenue stream both directly and via the resulting brand cache. Clearly the \$100 million is best spent on the WMBA program.

### **Summary Comments**

This is not a particularly difficult case but it does assess the candidate's ability to think through the school as a business and reason through to the underlying driver of that business. A superb candidate will need little to no prompting to think through this case in its entirety.

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## **FAST FOOD RESTAURANT**

Category: Income Statement

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### **Question (posed by interviewer):**

Six months out of Wharton a frustrated classmate calls you to complain that the fast food burger joint that he bought has been steadily losing money for the last 3 months. He wants to know what you think he should do about it.

Where do you start?

### **Suggested Questions:**

This is an example of a case where virtually no information is provided and the student needs to take a minute to figure out where to start probing. In this type of case, the student is evaluated based on the number of factors questioned up front plus the ability to logically pare down that list to get at the heart of the matter.

Here are some of the initial questions the student should ask:

Have revenues decreased?

Have costs increased?

Have prices increased?

Was the store making money 3 months ago? What has changed?

Is there new competition?

Has there been a major economic change in the area?

Was there a major event like someone getting sick? Health code violation? Crime?

These answers will help to frame the extent of the required analysis.

### **Suggested “Excellent” Response:**

What do you mean by “losing money?” Have profits declined or is the business in the red?

*Profits have declined.*

Have revenues decreased? Costs increased? Or both?

*Revenues have decreased.*

If revenues have decreased, there are either fewer paying customers or the customers are spending less when they visit. Which is the case?

*While they could both play a role, in this case, there are actually fewer customers.*

Fewer customers could be due to external factors like new competition, change in eating habits, local changes like a major business closing in the area. There are also internal factors to consider such as poor food quality, higher prices, or a major event like someone getting sick or a health code violation. Recognizing that there are likely many factors involved, is the issue primarily internal or external?

*The issue is external and is driven by a new competitor that opened across the street.*

This new competitor must be offering a better value to have made such an impact on the burger joint. What is their value proposition? Are they offering a different type of food? Is it better quality? Is there a price disparity?

*They serve chicken dinners and appear to offer a completely different experience. How would you get a deeper understanding of their value proposition?*

First, I would visit and learn everything that I can from what I see and experience first hand. How is the quality of the food? Are the prices reasonable? Do they offer healthier options and more variety? How is the service? Cleanliness? How is the facility laid out? Do they have more parking? Easier access?

Once I get a first hand view of the competition, I would take a hard look at the burger joint and the value proposition they are offering. The same questions would apply.

Next, I would do some primary research including customer interviews at both locations. The focus of these interviews is to discern the differences in perception between the two locations. I would pay some customers to go to each restaurant and rate the food and experience. I would also determine how many of the customers are former burger joint customers but now exclusively chicken customers, versus how many visit both and how many are completely new to the chicken place but would not visit the burger joint.

Armed with the data on what customers' value, I would then create a set of options to evaluate. There are likely a number of areas that need improvement including new menu options, improved facility layout, better taste/quality. Which will drive most traffic back into the restaurant fastest? Which give the largest return on investment? After analyzing the alternatives based on the chosen criteria, I would prioritize them and develop an action plan to include timing and responsibilities.

**At this point the case could go in several directions from leadership and project management issues, to brand marketing and promotion, to financial decisions whether to close the facility.**

## **Summary Comments**

This type of case can be very intimidating since it is broad and ill-defined up front. The interviewer may not provide much guidance or detail; increasing the stress level. When faced with an interview of this type, the student should try to remain calm and methodical. Writing down the alternatives and crossing them out as they are ruled out is a good way to show their thought process. Thinking aloud is encouraged. The student should take a little time in the beginning to frame the issue so as not to develop a hasty hypothesis and head down the wrong path.



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## **AUTOMOBILE MANUFACTURER**

Category: General

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### **Question (posed by interviewer):**

The director of marketing at an automobile manufacturer suggests changing the current design, where two separate keys operate the ignition and the doors to a design where one key operates all lock mechanisms.

How do you think about whether this a good idea or not?

### **Suggested Sample Response:**

The goal of any business including automobiles is profit throughput that can be measured by the Net Present Value impact of the proposed change. For the proposed change to have a positive impact on profit throughput, the change must be a net positive of change in cost structure or product demand weighed against the investment needed to implement the change. Increased demand in this case must come from the product meeting customer needs better than that of direct competitors or substitutes. Customer needs that this change might impact are simplicity, security, and cost of ownership (related to security). It should also be considered if the improvement in meeting customer needs, if evident, is defensible or would be easily copied.

For cost structure, the relative expense of using what is assumed to be the more complex locking mechanism of the ignition on the door and trunk (assumed 5 locks that would be more complex) would have to be weighed against the reduced cost of developing or purchasing separate key and lock mechanisms. As most automobile manufacturers are very large, it is assumed that the simpler locking mechanism needed for the doors could be reused across many product lines or purchased from large parts suppliers who supply the industry as whole and the development cost of a separate locking mechanism would be low. Therefore, the change in cost structure will be driven by the relative cost difference of buying 6 complex locking mechanisms vs. 5 simple locking mechanisms and 1 complex mechanism. It is assumed that a more complex locking mechanism is needed for the ignition is a primary customer need is security. Therefore, the hypothesis is that the net change of cost position is negative. It is also assumed that the market power of buying more complex locking mechanism would not significantly impact the price charged by suppliers or cost basis if developed internally. This hypothesis would be easy to check by looking at the relative cost position of the different locking mechanisms and the discount structure available for mass purchasing the various locking mechanisms.

On the demand generation side, the product would have to create a net positive in demand across the customer needs of simplicity, security, and cost of ownership. The fact that the marketing director suggested this change hints at the fact that the intuition is that customers may demand the increased simplicity of only carrying one key. This does not seem intuitively true as the two keys are almost always carried on the same key ring so the relative improvement to simplicity is probably minimal.

For security, there are two factors to consider, the theft of valuables in the car and the car itself. If more complex locking systems were to improve the security to valuables, then the value of going with the more complex locking system on the doors of the car may be a positive. The assumption, however, is this is not the case as door locks are typically compromised not by picking the lock but by compromising the areas around the lock (i.e. Slim Jim). Also, security systems, which are becoming more common on cars, mute the affect of a more complex locking mechanism, as the key lock mechanism becomes the non-primary mode of defense. I do not see how moving to one key would impact the chance of theft of the entire car, as in either case the same locking mechanism would have to be beaten. This also means the cost of ownership, which could have increased if the change of car theft increased due to insurance premiums, would exhibit no affect.

The customer reaction to a single key mechanism could be tested through surveying or product pilots where a sample set of customers are given actual cars with one key and asked to gauge their reaction. Or larger regional pilots could be run and the change in demand affect measured.

The investment required to implement the change of eliminating a separate key and lock for the doors and ignition is assumed to be minimal as key locking mechanism are fairly standardized and the ignition key lock, which is probably more complex, could be transferred to the doors and trunk with minimal amount of rework of the parts assembly infrastructure for building the auto. The primary investment cost would then be the cost of piloting or surveying for the increase in customer demand by implementing the change. Surveying and piloting costs can be significant, but it is assumed a cheaper survey would suffice in this case to gauge demand so investment costs would be minimal.

Three final possible points to consider on demand generation. One, an increase in demand is necessary but not sufficient to improve profit throughput, as the company also needs to be able to meet the new demand generated. As auto manufactures almost always have an excess of capacity, this is not an issue. Two, even if this change was beneficial it could be easily copied by competitors and it is assumed that the change would not provide any lasting brand advantage in the customers mind or raise the demand of the sector as a whole. Therefore, in the long run, the cost reduction benefits would override the decision to go forward and we have already argued the affect would be negative. A final factor that should be considered is the assumption that the majority of cars sold in the US in the past have included two keys and the two keys have most likely generated a lot of unanticipated use that may be hard to anticipate that might cause customers to reject the change. So, from a customer perspective, I would want to see the demand for this from customers to be strong and the benefits large before implementing a change.

Because it does not appear the proposed change would positively impact cost position or increase demand significantly, the recommendation is against the proposed change. Recommend even against investing to gauge customer demand as the long run benefit would be in cost position and the assumption here is that the affect is negative.

**Summary Comments**

Starts with a framework and works through to a hypothesis and how the answer might be tested. All the customer factors or cost impact that could be considered are obviously not included, the interviewer should look for a structured presentation that arrives at a hypothesis with ideas how to test and a proposed answer.

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## LA GUARDIA AIRPORT

Category: Estimation

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### Question (posed by interviewer):

A client has just started operating vending carts that sell novelty items in high traffic areas, such as at airports, train stations and subway stops. The client is considering installing a cart at La Guardia airport. He wishes to analyze the potential market of this location and has therefore hired you to help him find a way to determine how many people fly in and out of the La Guardia Airport daily.

**This is a good example of a case in which an estimate is required to gauge market size. The interviewer here does not wish for the candidate to go through the calculation and arrive at a number; instead, the question tests the interviewee's ability to make form a structured approach that can be used to find an answer. The best way to approach this question is to make reasonable assumptions and communicate them to the interviewer as you proceed.**

### Suggested Sample Response:

In order to get to the number of travelers that come through the airport, I'm going to try and estimate the number of flights that take off and land daily and multiply that by the number of average seats per flight.

*That sounds like a reasonable assumption. What kind of information would you need to do that?*

To begin with, I would need to know the hours of operation of the airport, and how many of those are peak hours versus off peak hours. Would the client be able to provide me with this information?

*Unfortunately, the client has no information on airport operations since this is an entirely new venture for them.*

In that case, I would make an assumption based on my own experience. Let's assume that the airport operate 16 hours a day, 8 of which are peak traffic hours and 8 of which are off-peak hours.

*I think that's a reasonable assumption. What other assumptions would you need to make?*

I would also need to know how often planes take off and land during those two types of hours. I'm going to assume, again based on my own experience, that a plane takes off (or lands) every 2 minutes during peak hours, and every 5 minutes during off-peak hours. In order to get the

total number of planes, I would need to multiply by the number of runways. This would give me a total number of planes per day.

*That also sounds reasonable, what else would you need to know?*

In order to get to the number of travelers, I would need to multiply my number of total planes by the number of passengers per plane. I would assume that every plane, on average, can seat a maximum of 200 people. In addition, I would assume that during peak hours, a plane is 90% full, while during off-peak hours, a plane is 70% full.

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## GAMING CASE

Category: Profitability

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### Question (posed by interviewer):

A friend approaches you to invest in a software gaming company that he is starting. He is a programmer and has developed a computer game that he says “will sell like hotcakes.” He wants you to make an investment of \$500K. Your \$500K will buy you a 50% stake in the company. (Assume he is taking a 50% stake in equity for his work in developing the game). You consider investing, but have some other investment options that can potentially give you a 50% ROI over the next year with the same risk as this company. Assume this investment is a one-year investment and no money from the company will be reinvested for the following year. Should you invest in your friend’s company or in the other investment options that you have?

**The purpose of the case is to see how well the candidate can ask the right questions to get important facts of the case and work through relatively simple, but detailed calculations.**

### Suggested Sample Response:

In order to decide which investment to pursue, I’m going to surmise the gaming company’s potential profitability for this product over the next year. In order to do so, I’m going to need some more information about the company. To start with, how many people will be running the company and what will they earn this year?

*Assume that your friend has recruited two friends from business school that will be handling all the aspects of running the company and marketing the product. They have prior experience in software sales. He is paying each of them \$100,000 per year. (The founder is not taking a salary, just his 50% equity stake).*

What about possible competitors? Are there similar products in the market?

*There are three companies that make similar games. There are six titles in all in this space. Each title currently has an equal share of the market.*

Ok, now I will try to estimate what this company’s potential share of this market could be by products sold per year. In order to get to this number, I will estimate the target market size and then multiply that by the number of games bought per person in that market per year.

*That sounds like a reasonable approach. How would you go about getting to those figures?*

I’d start by assuming that the primary gamer demographic is male, and between the ages 15-35. To figure out how many people fit that category, I’d start with the total US population. Let’s say it’s about 300 million for ease of calculation. I would assume that the 15-35 age group

comprises about a third of the total population, or about 100 million people. Males would number half that population, so the market will be 50 million people. Of these, I would assume that about 20% are gamers, so that they number about 10 million. Of these gamers, I would assume only 20% will like this game, which equates to about 2 million people. That's my total market size. To get to the total number of potential unit sales of these types of games per year, I'll assume that the number of games purchased by this group per year is only 1. As a result, I would assume 2 million per year in unit sales of this type of product for the rest of the case.

*That's the total market for these types of games. What about for this company?*

Well, total games bought per year are about 2 million, and there are seven possible choices of similar games. I'll assume that the company can get an equal market share at market saturation, which equals about 14% of unit sales. Since we are only looking at the first year, however, this number is too aggressive. It is more reasonable to assume they can reach 10% of the market now, or sell 200K games.

(Note: The specific numbers are not as crucial as the thought process of getting to the final number)

*Ok, now you have a number for total unit sales. What would you do next?*

Based on this potential sales number, I would try to estimate the potential revenue from this product per year. Assuming that the company will charge the going rate for video games, which usually cost about \$30 to \$50, I'm going to estimate that the company can charge \$40 dollars per game for the rest of the case. To get to the profit margin, however, I will also need cost information. Does the company have an idea of what the manufacturing, packaging and shipping costs per unit will be?

*Unfortunately, the company does not yet have that information. How would you estimate it?*

Since this is not a capital intensive product, I would assume these costs per unit to be about 10-15% of revenue. That would equal about \$6 per unit. However, I would also want to get a better sense of their distribution costs. Does the company have an estimate of what these may be?

*They do. In their first year, they don't want to develop a direct to consumer channel due to the warehousing/distribution elements involved. Instead, they must sell the software through retail stores, such as Bestbuy. The retail stores take 30% margin on the selling price. There is also a consumer marketing support charge from retailers that comes to 10% of selling price. This marketing fee covers all costs necessary to market the product.*

Ok, so the fee to retail stores is  $30\% \times \$40$ , or \$12. The consumer marketing support charge is another  $10\% \times \$40$ , or \$4. Are there any other variable costs?

*No, these are all of the variable costs.*

Are there any fixed costs associated with the company?

*No, assume the fixed costs are zero.*

*Are there any taxes that need to be paid?*

Assume there are no taxes.

Ok, with this information, I can calculate the expected profits for the first year. The company will expect to sell about 200,000 units at a contribution margin of \$18 ( $\$40 - \$12 - \$6 - \$4$ ), which yields a profit of \$3.6 million. Subtracting the salaries of \$200,000, we are left with \$3.4 million. My share of this is 50%, or \$1.7 million, which is more than three times the initial investment of \$500,000. Based on these metrics, I would make the investment.



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## HELICOPTER

Category: Profitability

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### Question (posed by interviewer):

The firm's new client has come to you with a new business idea. He wants to start a helicopter service between midtown Manhattan and JFK airport. How would you begin to evaluate this opportunity and what are the basic economics behind it? He has asked you to brief him on your conclusion in a 1 minute elevator ride from the 50<sup>th</sup> floor to the ground floor.

**This question requires a cost/benefit analysis as well as an estimate for market size. Because the interviewer explicitly asked for the "economics," you know you will have to do some basic number crunching. While coming up with an analysis, the candidate should also make sure to include alternatives as to what else the client could do with the helicopter. One possible approach would begin by asking why the client wants this new route, in order to try and keep in mind the company's objectives.**

### Suggested Sample Response:

Does the client's helicopter service idea have anything to do with the company's current business activities?

*Yes, the client has a fleet of helicopters it purchased during the dot-com boom days and has excess capacity*

So the fixed costs for purchasing the helicopters are already sunk. Can you tell me the costs involved with the upkeep of one helicopter?

*What would you expect the costs involved to be?*

I would assume some of the costs that go along with owning a helicopter include:

- Pilot salary/benefits
- Maintenance
- Gas
- Insurance
- Taxes

*That's a good list. Let's just say that these all cost about \$20,000 per helicopter per month.*

How many helicopters does the client have?

*They recently sold off most of the fleet, but retained two helicopters for company use.*

**At this point you have determined the cost portion, you should now move on to the revenue stream.**

The people who would most value the time saving and convenience of this offer would be top executives. The economics are similar to a limo service. In order to determine the revenue, I will need to know how much to charge per person and the number of people who would use this service. For the latter, I can estimate this based on the total possible capacity.

To begin, I'll assume the service is used mainly during rush hours when convenience is most greatly valued. This includes four hours in the early morning and four hours in the evening, or eight "rush hours" worth of flights a day. Assuming a helicopter can land every 15 minutes, there would be 32 flights per helicopter with potential passengers to pick up (four 15-minute intervals in each hour \* eight relevant hours = 32).

Assuming 10 passengers per flight and a 10% usage rate, I would expect each flight to carry about one person ( $10 \times 0.1 = 1$ ), which equals 32 passengers per helicopter per day. I would also assume that the service is not used through out the week, but only early on and late in the week. Let's say it's most needed about 16 hours per week. This gives me a weekly customer potential per helicopter of 64 customers and a monthly potential of 256 passengers per helicopter ( $64 \times 4 = 256$ ). For ease of calculations, I'll round this to about 250 people per month per helicopter.

Now that I have a number for customers, I'll need to figure out how much to charge them. At the very least, the price should cover the \$25,000 monthly costs per helicopter. As an initial price, let's assume we charged \$100 per person. This would yield  $\$100 \times 250 = \$25,000$  in revenue per helicopter. For a month, this would give us a profit of \$5,000 per helicopter ( $\$25,500 - \$20,000 = \$5,000$ ). For two helicopters, that's \$10,000 in total profit per month.

*So what other issues are involved?*

Well, I would like to know the alternatives to running this service, such as selling the helicopters. To see whether it's a good investment, I would find out the life of the helicopters as well as their saleable value, and see if the discounted cash flows during the life of the helicopters exceeds what I could get by selling them today.

*That's a good way to consider the investment. Assume it makes sense to run the service. What else should you consider?*

I would want to know what additional sources of revenue the helicopter could generate when it's not being used. For instance, the client can rent it out for private use, especially in the summer when the wealthy are looking to be out in the Hamptons or other vacation homes in the area. In addition, the client could work with the city to set up an emergency helicopter service for hospitals during off hours.

*That's a good idea. So what would you recommend to the client?*

At initial glance, this seems to be a good business idea. Given initial assumptions that will need to be validated, annual profits could be \$120,000. There may also be other revenue streams to consider since there will be excess capacity during off airport transport hours. However, there are other issues that will need to be tested to see if they will affect the cost structure such as legal and regulatory issues. My suggestion for next steps would be to validate all economic assumptions and to look into legal rules and restrictions.

**Remember that it's okay to make certain assumptions but always do a sanity check at the end. The interviewer will look for that. Also, you don't have to do complicated calculations. No one expects you to cover all issues in the economic model, as long as you've brought up the pertinent issues. Lastly, remember to "think out loud".**

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## WIRELESS LICENSE

Category: Profitability

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### Question (posed by interviewer):

Your client is thinking of bidding for a new wireless license in a small country. The minimum bid is USD\$50 million, and the license will last for five years. There are currently three other wireless operators in the country. Should your client bid for the license? If yes, what is the appropriate amount?

### Suggested Sample Response:

**This is a rather open-ended case that requires the interviewee to ask several key questions in order to understand the economics of the industry. Please note that there really is no right or wrong answer. The numbers are also less important than asking the right questions to determine the potential profitability of the venture in order to estimate the right price. A list of possible questions to ask the interviewer is as follows.**

#### Key Sample Questions:

##### Revenue Questions

What is the population of the country?

What is the current cellular penetration? What is the cellular penetration for the most advanced country? What will be the penetration trend for the next five years?

What is the average annual revenue for a single user?

What is the market share of the 3 other wireless operators?

##### Cost Questions

What other fixed costs do we need to invest in?

How long will they last before another round of investment have to be made?

What are the variable costs per user?

##### Competitive Questions

What might happen if the other 3 wireless operators go to a price war knowing the entrance of a 4th competitor? How much will the revenue potentially fall?

How will our cost compare to the existing wireless operators? Do they enjoy current economies of scale that we don't?

Does our client have the capabilities to enter the industry?

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## GAS OPERATOR

Category: Profitability, Value Chain

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### Question (posed by interviewer):

Your client is the biggest downstream gas operator in the country (i.e., operates petrol stations). In the last three years, the industry has been liberalized and competitors have entered the market. In particular, one competitor has been extremely aggressive in the market. In fact, they have from the very start charged a lower price for gas than our client even though the client is the biggest player in the market. This has caused your client's market share to erode. How is the competitor able to do this? What should our client do to mitigate competitive actions?

### Suggested Sample Response:

My first instinct is to understand why the competitor has been able to charge a lower price than us. I will need to know the prices my client and the competitors are charging. I also would want to understand our cost structure and our client's cost structure. To begin, what are the prices charged by the two companies?

*Assume that our client's price per gallon is \$1.25 while the competitor's is \$1.05.*

Ok, then to understand the cost structure, it will be useful to use the value chain framework. The value chain is comprised of largely two segments: the first is the delivery of oil through pipes and oil trucks; the second is operation of the petrol stations. I would assume that there is no difference between our client's and the competitor's cost in oil delivery. Do we have a figure for this cost?

*Yes, the client has told you it's approximately \$.050 per gallon.*

For the petrol station operations, are there any big differences? What are the hours of operation of our client versus the competitor?

*The main difference is that our competitors do not operate between the hours of 1am and 5am, while our client operates 24 hours.*

Then that would mean a greater cost to our client than the competitors in operations. Do we have a figure for the cost to our client for operations?

*Yes, it's about \$0.70 for our client, and about \$0.11-\$0.12 cheaper for the competitors.*

Ok, then rounding to \$0.60 per gallon for the competitors operating cost and \$0.50 per gallon for their delivery cost, the total cost per gallon for the competitor is around \$1.10, which is higher than the price that they charge of \$1.05. The next step is to understand why the

competitor is undercharging. Is the competitor losing money deliberately in order to gain market share?

*No, it has been doing this for the last three years and has been making money.*

That would lead me to believe the competitor is making money from other offerings than petrol. Perhaps it has a snack or grocery shop or some other items to sell. Is that the case?

*Yes. Other profits come from the sale of groceries & snacks from the station's mini-mart. For every gallon that it sells, it makes \$0.15 in other profits.*

What about our client? Do they have other sources of revenue?

*Our client has a few vending machines from which it earns about \$0.02 in profit.*

This means that the competitor's strategy is to reduce the price of oil to attract customers who will purchase more profitable snack & grocery items. My initial recommendation would be for our client to also embark on such a strategy, and include grocery and snack items in their petrol stations.

*Excellent.*

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## WHITE GOODS CASE

Category: Pricing

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### Question (posed by interviewer):

Your client is a national manufacturer of white goods (fridges, stoves etc). They have approached us because their market share has been declining over the past few years and they want to know what they should do.

### Information to be given if asked:

#### Industry Dynamics

- Competition has been flat
- New entrants into the retail channel (Best Buy) have put pressure on the client's business

#### Pricing

- Product is currently premium priced at 25% above market price
- There are two other price tiers, mid and low

#### Profit

- Retailers make on average 10%, manufacturers 20%

#### Operations

- Several manufacturing facilities
- Capacity at roughly 85 – 90%
- Relatively optimized business right now

### Solution:

Best Buy is putting increasing pressure on the margins of our client. In order to negate this power they should look into three key areas. First, potentially they should investigate opening their own retail shops. Second, investigate building an incentive plan for Best Buy to push their products at a higher price point. Third, try and build the customer base by building a commercial/contractor business.

## Category: Pricing



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## HEAVY TRUCKS

Category: Profitability

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### Question (posed by interviewer):

A heavy truck manufacturer with operations in Europe and the U.S. has experienced growing market share combined with declining profitability. An HBS expert has declared that outsourcing is the wave of the future while a Stanford business professor has claimed that it's not the panacea some make it out to be. Your client wants to know what they should do. What issues would you need to consider in order to make a recommendation?

### Information to be given if asked:

(Note: very little information was given. The interviewee was tasked with developing a framework for making a recommendation.)

#### Competition

Several competitors have begun to outsource pieces of the truck

#### Product

There are "non-viewable" components such as frame rails that are low-cost, low-tech and "viewable" components such as the cab that are high-cost and high-tech (heavy labor and material content).

#### Costs - Cabs

The company has invested a significant amount of money in a stamping machine for cabs.

Variable costs per cab include:

Materials	\$30
Labor (includes stamping and assembly)	\$30
Overhead	\$10
Depreciation	<u>\$30</u>
Total	\$100
 Total less Depreciation	 \$70

**Solution:**

The following issues should be considered when deciding whether or not to outsource:

1. Amount of cost reduction
2. Difficulty of maintaining quality control (cost of legal expenses, management time, etc.)
3. Capacity constraints of suppliers
4. Number/ type of suppliers
5. Brand/ quality perception of customers
6. Proprietary process/ product?

In this case, it is easy to verify that the low-cost, low-tech components should be outsourced. Therefore, we spent most of the time reviewing the impact of outsourcing cabs.

To do this, we examined the cost components and found that it would be desirable to outsource if the price to the company would be below \$700. The depreciation expense is unavoidable and thus, should not be included in the decision-making process. As it turned out, a price below \$1,000 was easily attainable but not one beneath \$700.

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## SHAMPOO

Category: Profitability

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### Question (posed by interviewer):

You are consulting for a manufacturer of hair products. You have launched a new shampoo product with projected sales of 10,000 units, but sales have now reached a plateau at 5,000 units. The company has experience in this business and believes its model to be very accurate. Further, it believes that its advertising campaign was very effective.

### Information to be given if asked:

#### Price

The product is in the mid-price range for the category.

The product sells for \$3.00 per bottle.

	Your Product	"Natural" Product	"Pro-Vitamin" Product
Price to Consumer	\$3.00	\$3.50	\$1.75
Price to Retailer	\$2.00	\$2.50	\$2.50

	Your Product	"Natural" Product	"Pro-Vitamin" Product
# of Facings	10	30	80
Depth	10	10	10

	Your Product	"Natural" Product	"Pro-Vitamin" Product
Sales	5,000	10,000	20,000
Revenue (manufacturer)	\$10,000	\$25,000	\$50,000

#### Competition

You have two major competitors in the market and a lot of minor competitors. Firm A has a 35% market share. Firm B has a 20% market share. You have a 15% market share.

#### Consumer

The consumers seem to want to buy the product (this is not the problem)

### Distribution

You distribute to major retailers who tend to keep central warehouses and replenish stock directly from these warehouses about once a week. When pressed, the interviewer will show the attached spreadsheet to show how store distribution works. A “facing” is defined as the number of rows of a product on a store shelf.

### **Solution:**

The retailers were running out of the product because they did not give the product enough facings, and hence, enough shelf space. The interviewer then asked me to determine how many facings we need and structure an argument for getting those facing from the retailers. She also asked which brand we should take the facings from. After crunching the numbers, you figure out that there is plenty of shelf-space for “Pro-Vitamin,” which is a low margin product anyway. The interviewer then asked if we were given the opportunity to buy a facing for a one-time payment of \$1,000, should we do it. You should figure out the break-even period, and just make a mention that this should be discounted.

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## EUROPEAN BANK

Category: Profitability

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### Question (posed by interviewer):

A European bank specializing in M&A has been losing share and experiencing declining profitability. What's going on?

### Information to be given if asked:

#### Industry

- 25-30% growth annually
- Some players are very successful

#### Products (Types of Transactions)

	Small	Medium	Large
Average Transaction Size	\$100MM	\$1,000MM	\$3,000MM
Fee Structure	1.25%	0.75%	0.25%
Number of MDs	0	1	1
Number of VPs	0.5	1	2
Number of Associates	2	3	4

#### Pay Structure

All receive a base pay of \$100K

Bonuses: MD = 400% base  
VP = 200% base  
Associate = 100% base

### Solution:

The large deals are much more profitable (you should calculate this during interview). The client is not attractive to companies looking for Investment Bankers for large deals because it is not global. The European bank should expand globally by (1) joint venture; (2) internal growth; or (3) purchasing local banks around the world.

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## PAGER COMPANY

Category: Profitability

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### Question (posed by interviewer):

A paging services company has been experiencing declining profitability. What's driving their profitability problem? What should they do?

### Information to be given if asked:

#### Company/ Product

- Both local and national plans offered
- Fixed monthly rate
- # 3 company in industry in terms of number of customers

#### Customers

- Business
  - Buyer power leads to aggressive pricing
  - Dedicated sales/customer service group required by large businesses
- Retail
  - Must pay incentives to retailers to generate sales
  - Short customer lifecycles
- Both business and retail customers are currently unprofitable

#### Competition

- Strong competition (pricing strategies) around both business and retail customers

### Solution:

The company needs to focus on either business or retail customers, as the needs of the different groups are vastly different. In the interview, you could choose either segment and prove a case for it.

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## CREDIT CARD COMPANY

Category: Profitability

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### Question 1 (posed by interviewer):

You are a consultant hired by a credit card company to analyze the better way to increase profitability on an individual account basis.

### Solution:

Profit structure for a credit card company on a customer basis comes from

- Revenue = interest rate charged to customers on the outstanding balance + annual fees + usage of CC balance statements as an advertisement vehicle + late fees.
- Variable Costs = opportunity cost of capital (passive rate) + operations costs (monthly statements) + [non-recoverable credits] \* [probability of permanent loss].

Advertising, fixed costs and the rest of period costs are not taken into account as they impact the profit structure independently of the profitability on an individual basis.

In order to increase profitability on a per account basis, the credit card company can either focus on increasing the revenue side or lowering the cost side.

To increase the revenue of the company, the company can:

- Lower the APR to attract consumers with high outstanding balances as these are the profitable ones.
- Promote the balance statements as a direct to home marketing vehicle (although impact would be minimal).
- Increase late fees to promote a higher minimum payment success and reduce the risk in the client portfolio.

To decrease the costs of the company, they can:

- Lower operations costs with minimal impact as they are currently in line with industry benchmarks.
- Lower the percentage of the customer base with non recoverable credits.

### Question 2:

You have talked about the composition of the credit card client pool made of different customers, please go more deeply into that and tell me how it affects profitability.

### Solution:

There are three types of clients:

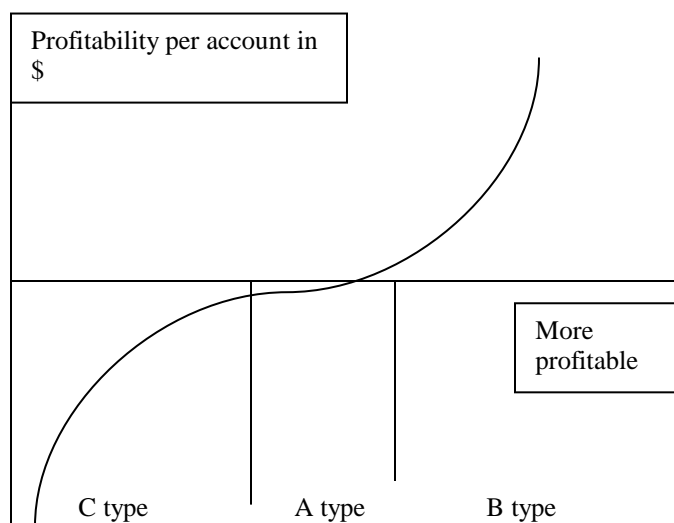
- a- Clients that purchase in line with their income and make full payments every month. These clients are the least profitable as the profit source from the rate differential is lost.

- b- Clients that have future income growth expectations and thus spend above their current means. These clients usually have a significant outstanding balance and thus are highly profitable.
- c- Clients that default on their payments behind spending above their means. These clients are the costlier ones as the probability of not recovering the outstanding balance grow with the increase in the latter.

### Question 3:

Now that you have defined the client base, how would a chart with account profitability on the Y axis and rank from least profitable to more profitable on the X axis look?

### Solution:



### Question 4:

What would you do to improve the customer base mix?

### Solution:

The first thing would be to attract more profitable customers. That is to go after the ones that have a higher probability of having an income increase. To do this you could do targeted marketing towards students, people that just got a job offer, people having a child. To attract the general public that usually has a high outstanding balance you could lower the APR rate if the elasticity of the market is high and thus increase the number of users that would benefit from a lower rate (B type). To avoid attracting Type A customers you can have a higher annual fee and thus make it non worthy for them to apply for a card but worthwhile for the B type.

To cleanse the portfolio of the C types, you could increase the late fees (through high interest rates) to such levels so as to promote on time payment.



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## GRAPE JUICE

Category: Operations

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### Question (posed by interviewer):

Your VP has just left you a voicemail about a potential client meeting that he has tomorrow morning. He would like to you generate some hypotheses about the following issue without spending too much time doing unbillable research before his meeting.

A leading grape juice cooperative is facing declining profitability and the CEO comes to your firm for help. The manufacturer has been increasing its market share over time. What hypotheses would you generate to investigate this issue?

### Information to be given if asked:

Description of Cooperative: A group of farmers who work together to produce an end product from their raw materials (in this case grapes). There are generally no financial statements. Farmers own the company and sell grapes to company at the “market price”.

#### Product

- Concord grapes produced in Michigan. The grapes are typically produced in MI, WA, and NY.

#### Manufacturing

- In October, there is a 4 week harvest.

#### Cost

- Production costs have remained constant
- Marketing costs have been exploding!

#### Distribution

- The products are sold throughout the country to supermarkets, primarily.
- Trucking may be a large portion of the expense base.

### Solution:

#### Possible Hypotheses:

1. Seasonality leads to capacity issues
2. Using older machines
3. Labor issues (unions, re-training etc.)

Real Solution: Outrageous marketing expenses are helping the cooperative capture market share but mask a huge profitability issue. CEO has been spending so much money to advertise

in order to create demand because cooperative participants expect a certain price for their grapes.

Cut back on marketing efforts and investigate areas to reduce costs at lower levels of production. Negotiate with entire cooperative to produce fewer grapes for the benefit of all.

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## LAN CAPACITY

Category: Operations

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### Question (posed by interviewer):

In a corporate LAN there is a single web based application used by 1000 employees. The application provides employees with information for the next working day. There is one access link with a current capacity of 64kb per second. If a transmission rate of 2 seconds per web page is expected what should the link's bandwidth be in megabytes?

### Information to be given if asked:

Additional information:

- 60% of users use app. on last 3 hours of first day. 40% on first three hours of next day. Could assume they were evenly distributed within the 3 hours (ie: 200 per hour on first day)
- Each web page is 100 KB.
- It takes one user 15 minutes to download all the pages (if nobody else is using the app).
- Only look into modifying supply. Did not care about affecting demand patterns.

### Solution:

Maximum demand = capacity needed

Throughput

Maximum demand = page size x # of pages per user x maximum number of users

Time it takes to download one page =  $100 \text{ kb} / 64 \text{ kbps} = \text{approx. } 1.5 \text{ secs}$

Number of pages per user =  $15 \text{ minutes} \times 60 \text{ secs} / 1.5 \text{ secs} = 600 \text{ pages per user.}$

Max. number of users =  $200 \text{ per hour in busiest period} / 60 \text{ min} = \text{round up to } 4 \text{ users per minute}$

Maximum demand =  $100 \text{ kb per page} \times 600 \text{ pages per user} \times 4 \text{ users per min} / 60 \text{ secs} = 40 \text{ pages per sec or } 4000 \text{ kb per sec}$

Capacity needed =  $40 \text{ pages per sec} / 2 \text{ sec per page} = 20 \text{ pages or } 2000 \text{ kb} = \text{about } 2 \text{ mb}$

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## PHILADELPHIA MOVIE THEATRE

Category: Market Size

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### Question (posed by interviewer):

Your company runs a chain of movie theatres (think General Cinema) and is considering opening a movie theater in Rittenhouse Square. Your boss wants to meet with you shortly and wants an estimate of the number of seats the theater should have. What are the considerations regarding the market you would take into account and what is the number of seats you would recommend? The question is not whether or not they should open a movie theatre.

### Information to be given if asked:

The theater is a mainstream theater – not art house or similar  
Four screens – ended up asking for number of seats on a per screen basis.

### Solution:

Size the population of Philadelphians who would be interested in going to this movie theater and the capacity that you would need to meet this demand. Take into consideration distance, substitutes, client segmentation, competition, client demographic (age, income level, etc). Once you have number of potential patrons, then you need to figure out how many would go on a week, how many shows you have per week (which depends on how many screens you have), and how many people would go to one show. This gets you to number of seats per screen. I also threw in some comments about how this is average and you may have volatility so you may want to increase seats to account for heavy demand shows.

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## AIRLINE CEO

Category: Strategy

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### Question (posed by interviewer):

Our client is a CEO of a major airline company. He asks us to determine whether or not he should paint his fleet of planes.

### Information to be given if asked:

Cost to paint the planes	\$20,000 per plane
Additional costs	\$10,000 per year in additional fuel costs because of the added weight

Planes are owned, not leased

2M customers per year, \$500 on average per ticket

100 planes in the fleet

Planes were painted 5 years ago (the average for the industry)

### Solution:

This is a good case to show your creative skills at generating ideas.

The first step was to determine the benefits of painting the planes:

- Longer plane life
- Increased branding opportunities
- Possible advertising revenue if space was used as advertising space
- Increased premium image

The second step was to determine the costs of painting the planes:

- Paint
- Labor costs
- Time out of service

The third step is to balance out the costs vs. benefits of painting the planes. This is very qualitative case; so much of this will be based on your gut reaction vs. hard numbers. Finally, determine the increase in customers that would be needed to break even on the investment of the paint job and see if that seems reasonable.

## Extra Estimation Cases

These are easy to practice on your own – try figuring out a framework for each one and crack it!

How much paint would it take to paint a 767 airplane?

How many parking meters are there in Philadelphia?

How many cows are there in Montana?

How many packages of sugar does Starbucks use each day?

How much coffee is there in Chicago?

How many golfers tee off each day in California?

How many gummi bears would it take to fill a 1 bedroom apartment?

How many light bulbs does Huntsman Hall use each year?

How many births are there in England each year?

How many seats are there in Air Canada's airline fleet?

What is the revenue of McDonalds on any given weekday?

How many people live in Rittenhouse Square?