



Torch the Case

The NYU Stern Consulting Casebook

2007 Edition

Introduction

To land a job at a top-tier consultancy, you must survive and thrive in a case-based interview. Much has been thought, stated, and written about the various aspects of the case interview. From framing the problem to delivering the perfect conclusion, MBA candidates wishing to prepare for interviews face no shortage of competent, and in many cases excellent, ideas on how to master the various aspects of a business case interview.

For the most part, the cases in this book are organized in the following way: Opening, Background, Areas of Discussion, Analysis, and Recommended Conclusion; however, the format may vary based on the content of the case. It may be helpful to the interviewer to read through the entire case before giving it to the interviewee.

To successfully use this casebook, one should follow this format:

1. The interviewer should first read the Opening of the case aloud.
2. The interviewee should then develop a framework for the case.
3. As the interviewee goes through the framework and asks specific questions, Background Information should be provided, but only if specifically requested by the interviewee.
4. The framework may evolve throughout the case, but this conversation should then lead into Areas of Discussion that the interviewee may want to explore.
5. From Areas of Discussion the interviewee will begin the Analysis, which may involve some calculations.
6. Based on the case discussion and calculations, the interviewee should then be able to summarize the case with a Recommended Conclusion.
7. Cases vary in length from 20 minutes – 1 hour.

This work is the result of the efforts of MBA candidates from the Stern class of 2008. The cases within this casebook are representative of the top consulting firms, including a few private companies. We wish you the best of luck in your interview preparation. May your projects be interesting, your clients accommodating, and your flights never delayed.

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1. Customer Service @ WebAds Inc.

Type of Case: Strategy & Business Development

Opening

Your client *WebAds Inc.* is a technology company that is in the business of online advertising. They generate revenue by placing ad links on websites of web content publishers such as the Wall Street Journal's *WSJ.com*. *WebAds* currently has 500,000 clients who are grouped into three tiers. [Provide data in the box if asked.]

Tier	A	B	C
% customers	5%	15%	80%
Total Revenue	\$500M	\$300M	\$200M

WebAds recently implemented a program that optimized customer service for customers in Tier A and resulted in increased revenue per publisher (customer) within that Tier by 20% (based on initial data). The program involves a customer service representative looking at a customer website and offering customized design recommendations for each publisher. How would you think about rolling this out to the other two Tiers?

Areas of Discussion

- The return over the cost of capital should be similar across Tiers.
- Net and gross margins are similar across all Tiers
- How might the Customer Service models differ across the 3 Tiers?
 Think about the revenue per customer generated at each Tier (See Analysis below for calculation). Human customer service reps invest more time in high value customers of Tier A. Reps will spend less time in Tiers B and C and more automation will be used given the large number of customers and low revenue per customer.
- What budget would you estimate for the implementation to Tier B and Tier C?

The implementation budget for each Tier (since return on cost of capital is the same) should be proportion to the total revenue in that segment. Implementation budgets should be in a ratio as follows:

$$\text{Tier B: } \frac{\$300M}{\$500M} = 60\% \text{ of A}$$

$$\text{Tier C: } \frac{\$200M}{\$500M} = 40\% \text{ of A}$$

1. Customer Service @ WebAds Inc. continued...

- *Revenue per Customer in each Tier:*

- *Tier A:*

$$\frac{\$500M}{(5\% \times 500,000)} = \$20,000$$

- *Tier B:*

$$\frac{\$300M}{(15\% \times 500,000)} = \$4,000$$

- *Tier C:*

$$\frac{\$200M}{(80\% \times 500,000)} = \$500$$

- How much (What proportion) does WebAds spend on servicing each customer in the different Tiers?

The amount in time or dollars spent on the service upgrade should be in proportion to the revenue generated per customer in each Tier (since a uniform margin is maintained across all Tiers). See analysis below for calculation of revenue per customer. The cost to service each customer should be as follows:

$$\text{Tier B: } \frac{4,000}{20,000} = 20\% \text{ of A}$$

$$\text{Tier C: } \frac{500}{20,000} = 2.5\% \text{ of A}$$

- Which Tier would you chose for the next implementation of the optimized customer service model? Why?

The next implementation should be done within Tier B. Tier B together with Tier A accounts for 80% of all revenue and will therefore result in the largest lift through the optimized revenue model. Since Tier C represents only 20% of sales, WebAds could take the time to leverage further learnings from the implementation in Tier B before rolling it out to Tier C. This is critical if WebAds finds that the increase in revenue in Tier B is lower than the expected 20%.

1. Customer Service @ WebAds Inc. continued...

- How can WebAds implement the new program to improve performance in Tiers B & C when service time/cost per customer in those Tiers is significantly less than in Tier A?

WebAds should identify a scalable service optimization solution by analyzing the process used during the implementation in Tier A. The analysis should identify trends along the vertical (up that customer Tier) and horizontal (similar customers across Tiers) segments. Several opportunities for process improvement exist:

- Develop best practices for customer service representatives to more efficiently identify the most common optimization opportunities in each vertical or horizontal segment. This would help improve efficiency during the process.
- Identify optimization opportunities in Tier A that can be automated. Service in Tier B is likely to be semi-automated and the service in Tier C is likely to be fully automated.
- Outsource parts of the process (especially the labor-intensive portions).
- Charge a price for the program, if the redesign process increases traffic to the publisher/customer website.

Recommended Conclusion

Summary of Findings for the CEO:

- The analysis showed that Revenue per Customer in Tier B is 1/5 of Tier A and Tier C is 1/40 of Tier A.
- Recommend finding ways to automate and leverage experience from Tier A implementation to lower cost per customer in proportion with revenue per customer in each Tier.
- Implement next in Tier B with a budget that is 60% of Tier A. It's very possible that reducing cost to 1/40 for Tier A for Tier C is not feasible without relying on full automation.

2. Downtown Lawn and Gardening

Type of Case: Profitability

Opening

Your client today is “Downtown Lawn and Gardening (L&G)”. They are a consumer packaged goods company which manufactures lawn and garden consumable products such as lawn and plant fertilizers, grass seeds, and weed and insect control products. This accounts for a majority of the business and is \$1.9 B of their \$2.7 B annual sales. They also have other divisions in the outdoor living category such as professional lawn services and retail stores with outdoor furniture, garden tools, and accessories, which earns the remaining revenue. Downtown L&G has seen their profitability in the CPG business decline and has approached you to find out why and recommend a solution.

Bonus Question (for the star candidate who completes the case on time):

Downtown L&G is a publicly traded company that has promised top-line growth in the near term to its Wall Street investors. How can the company achieve this?

Areas of Discussion

Industry Landscape

- This product category is mature with growth of 4% per year. (This is important to understand the source of declining profitability.)
- Downtown L&G is the market leader, with about 61% market share on average across their categories.
- The other two big players in the market are Midtown L&G and Uptown L&G.
- Some additional smaller players exist.

Competition 1: Midtown L&G

- Annual Sales: \$800 MM
- Market Share: (Candidate can calculate this) ~26%
- Other information:
 - Products: The majority of their business is in producing private label or exclusive lines for Home Depot, Lowe’s and Wal-Mart. They are a lower-cost producer of value products.

Competition 2: Uptown L&G

- Annual Sales: \$500 MM
- Market Share: (Candidate can calculate this) ~16%
- Other information:
 - Products: Strong in grass seed segment.
 - Region: Primarily in the South.

2. Downtown Lawn and Gardening continued...

Retail Distribution Channels

- 75% of CPG sales are through Home Depot, Wal-Mart, and Lowe's
- Remaining 25% of sales are through what are called independent stores: hardware stores, nursery centers, regional chain mass merchant stores, and grocery and drug stores.
- *Do you have any information about product sales or trends at Home Depot?*
While retail sales continue to be up slightly at Home Depot, wholesale sales have been flat to declining because they had built up excessive inventory and are now unloading that before purchasing more. This is expected to continue in 2008.
- *Do you have any information about product sales or trends at Lowe's?*
Sales are increasing quickly at Lowe's, mostly following their store expansion and also due to more of the client's products being sold there.
- *Do you have any information about product sales or trends at Wal-Mart?*
Sales at Wal-Mart are growing, but slower than the growth we estimate for the overall market.
- *Do you have any information about product sales or trends at Independent Retailers?*
Sales at independents are growing, slightly, even though these outlets are losing market share to Home Depot, Lowe's, and Wal-Mart overall. This growth is due to the optimization of the go-to-market approach (selling direct to bigger accounts and going to distributor in others, with a pay-for-performance incentive for distributors).

Product Customer

- Consumers who buy the client's products are traditionally male, but increasingly female or the purchases are influenced by females.
- They are predominantly home owners.

Company: Downtown L&G

- Annual Sales: \$1.9 B
- Market Share: 61%

- Revenue: Has been increasing over the past few years.
- Price: Increased for the first time in a few years on the premium product segment.
- Volume: Total product sales have increased.
- Costs:
 - Variable Costs: Have increased due to increases in raw material costs and freight. Downtown L&G has been able to pass these along to the Premium product.
 - Fixed Costs: Have stayed constant.

- Distribution Regions: Stronger in the Northeast and Midwest because their core products align with the climate and growing conditions in this region. Downtown L&G has been expanding product line to offer products suited specifically for other regions as well.

2. Downtown Lawn and Gardening continued...

- Advertising: Advertises significantly to educate consumers on the importance of the product category.
- Benefits due to scale: Bargaining power with retailers to influence on display and promotion space. Savings due to efficiencies in supply chain.
- Products: Downtown L&G has two main segments.
 - a. *Premium Products*: This has been their core business for a while. Downtown L&G is known as a high quality producer and leads the industry in innovation.
 - b. *Private Label Products*: Downtown L&G recently launched a number of new private label or exclusive products at the request of retailers. (If asked what a Private Label is, it is a store branded product.)
- *Has the Private Label product cannibalized the Premium product?*
No it hasn't.
- *How has volume grown for the individual product lines?*
The Private Label product has grown volume. Premium brand has stayed constant and has not been cannibalized by Private Label.
- *Why sell Downtown L&G Private Label brands? (The Interviewer should present the information below one bullet at a time; at that point the interviewee should challenge that and ask for further rationalization which would prompt the interviewer to reveal the next reason)*
 - Downtown L&G makes private label brands because the retailers have requested it, in order to differentiate themselves from their competitors and reduce pricing pressure.
 - Downtown L&G wants to take existing business from competitors such as Midtown L&G, and also prevent them from gaining new business in the industry.
 - Downtown L&G hopes to use these products to negotiate other benefits such as additional control of the inventory process (with advance orders and better forecasting, Downtown L&G can reduce costs for themselves as well as the retailers. However, retailers are often reluctant to turn this over).
- *Do the Private Label and Premium Brand products share the same cost structure/manufacturing processes?*
No. The Private Label is sourced to a third party who is able to produce the products at a much lower costs than Downtown L&G. This affects costs for the Premium brand product because Downtown L&G frees up more excess capacity and is unable to utilize supply chain efficiencies and scale economies.
- *Are margins the same across both product segments?*
No. The Private Label products earn a lower margin than the premium products because Downtown L&G has to give their clients, the retailers, a greater portion of the margin.

2. Downtown Lawn and Gardening continued...

- *How are product sales teams structured? How are they incentivized?*
Product sales teams are divided into client-specific business development teams, and are incentivized on meeting aggressive top line growth targets (which are set significantly above the product category market growth rate). Sales of the Private Label products help the sales teams achieve these targets.

Case Takeaways:

- *Interviewer Question: What is the source of declining profitability?*
Top-line has been increased, while the overall product margin has decreased over the years. This is the root cause of the decline in profitability.
- *Interviewer Question: What can you say about Downtown L&G's decision to enter the Private Label product market?*
When the benefits are quantified and considered against costs, Downtown L&G is giving up more than they are gaining. This has been happening because they have been introducing these lower margin private label or exclusive lines, with little real justification.

Recommended Conclusion

Potential solutions to declining profitability:

- Change incentives for product sales teams to be weighted in terms of product margin.
- Require more rigorous study of the economics of private label/exclusive brand plays before making the commitment to the customer—all “strategic” benefits should be quantified
- There is an inevitable tradeoff between revenue growth and margin. Identify which is more important, top-line growth for Wall Street or the ultimate bottom-line? Potentially abandon private label business to restore margins.

Recommendations for Bonus Question: Increase top-line Revenue by:

- The client can leverage its strength in R&D to innovate in new areas such as effective and budget-friendly organics
- The client can gain top line growth by encouraging more frequent usage of products

3. Wine in Boxes

Type of Case: Increase Profits

Opening

Our client is the CEO of an Australia-based winemaker that is the market leader in its country. The company has two types of products: bottled wine and boxed wine. Recently, profits have been decreasing, and the CEO believes that this is due to losses in the boxed wine division. We need to assess the situation and provide a recommendation.

- 1) What factors should we consider to determine whether the boxed wine is a good business?
- 2) What is the profitability of each of the two divisions?
- 3) What is our recommendation?

Background (Provide the following information if requested by interviewee.)

- The company is currently losing money
- Sales are split evenly between the two divisions
- Bottled wine sells for Australian US\$ 5 p/unit; Boxed wine sells for AUS\$10 p/unit
- Bottled wine contains 750ml; Boxed wine contains 3 liters
- A plastic bag holds the wine inside the box
- Both products have an overhead of AUS\$0.50 p/unit
- Raw material, consisting of grapes, costs AUS\$2 for the bottled wine
- Packaging costs AUS\$1 for both products, while other variables (distribution and labor) are AUS\$1 per bottle and AUS\$2 per box.

Areas of Discussion

- How is revenue split between the products?
- What types of costs do the products carry, and what are they?
- What price is being charged for each product? To whom?
- Who is the target customer of each product?
- Are the same grapes being used for both products? Why?

Analysis (Calculations to be completed by interviewee.)

- If the grape cost for bottles is AUS\$2, for boxes it is AUS\$8 (1:4 ratio)
- Profit for bottles is AUS\$1.5; boxes have a loss of AUS\$0.5

Recommended Conclusion

The company should try to source grapes of lower cost for its boxed wine product line. Although the current raw material cost ratio is 1:4 when comparing bottled wine against boxed wine, the price ratio is only 1:2. We can assume that this is because the bottled line targets a superior market segment, and boxes cater to businesses that sell wine in bulk. This is another reason for not maintaining the same quality (and cost) of grapes for both product lines. If raw material cost for boxed wine could be lowered, even slightly, the line would be profitable.

4. Wild Card

Type of Case: Accounting

Opening

Here is information about Companies A, B, and C. What can you make of this data? And can you determine what type of industry each one is in?

	Net Income After Taxes	Revenues	Assets	Liabilities	Equity
Co. A	254M	2.6B	2.8B	1.0B	1.8B
Co. B	7B	77B	1.121T	1.085T	35B
Co. C	11B	348B	151B	89B	61B

Areas of Discussion

If interviewee is absolutely stuck, lead him/her to calculate ROA, ROE, Net Profit Margin, etc. The Current Ratio cannot be calculated here because Total Assets and Liabilities are provided, as opposed to Current Assets and Liabilities.

After calculations are complete, have the interviewee interpret the data. Based on the numbers, what kind of companies do you think these are?

Analysis (Calculations to be completed by interviewee.)

	ROA	ROE	Net Profit Margin	Debt-to-Assets	Debt-to-Equity
Co. A	9%	14%	10%	36%	56%
Co. B	1%	20%	9%	97%	3103%
Co. C	7%	18%	3%	60%	148%

Recommended Conclusion

Co. A has the highest ROA and Net Profit Margin. However, it has the lowest ROE, Debt-to-Assets ratio, and Debt-to-Equity Ratio. This suggests that Co. A is perhaps a low volume, high margin store...such as a jewelry store. (Co. A is in fact Tiffany & Co.)

Co. B has the highest ROE, and Debt-to-Equity is out the roof! Additionally, it has the highest Debt-to-Assets ratio, so it uses a lot of Debt, increasing the firm's risk-exposure. Co. B has the lowest ROA among the companies. Assets and Liabilities are pretty equal. All of this suggests that Co. B may be a financial institution of some kind. (Co. B is in fact Morgan Stanley.)

Co. C has the lowest Net Profit Margin, and Assets are almost twice the Liabilities. This suggests that Co. C is a high volume, low margin store...like a retailer of some kind. (Co. C is in fact Wal-Mart.)

5. Chemical Spill

Type of Case: New Business Model

Opening

Your client is a U.S. chemical manufacturer in the commodity chemicals business with single-digit market share. It recently emerged from bankruptcy and has limited capital available. The chemicals business is cyclical with pricing cycles of 7 years. The company is worried about how it will survive 2008 when it hits the bottom of the pricing cycle. The question is how this company can become sustainable, if at all possible.

The chemical manufacturer has hired you to develop a new business model, either through (1) acquisition into a non-cyclical chemicals market, (2) the manufacture of new products and services for customers, or (3) your own recommendations.

Areas of Discussion

Competitors

The market is highly fragmented. A large number of competitors are either stand-alone or small in size, or are a small division of a larger conglomerate. Acquisition is difficult because of limited capital.

Customers

Customers are highly fragmented, each of them purchasing no more than 10% of the chemical manufacturer's inventory annually.

Raw Materials

Your customer's raw material suppliers are increasingly turning to "greener" processes and products without increasing their total capacity. This trend is significantly reducing the supply of "non-green" raw materials which drives their cost up.

Infrastructure

Your client currently has 5 plants. 3 are performing well, one has been having problems of quality consistency recently and one plant has been historically a bad performer in terms of capacity utilization. All plants are over 10 years old and production is spread evenly over all the plants. (none are at capacity)

Government

Government: Push from environmental groups has caused additional government taxes and regulations on shipping to be enacted recently.

5. Chemical Spill continued...

Products

The chemical manufacturer produces two chemicals: X and Y. Chemical Y is a by-product of Chemical X with a weight ratio of $x = 1.5y$ (each 1.5 ton of X manufactured results in the by-production of 1 ton of Y).

	<u>2005 Prices per Ton</u>	<u>2006 Prices per Ton</u>
Chemical X	\$150	\$100
Chemical Y	\$175	\$100

	<u>2005 Costs per Ton</u>	<u>2006 Costs per Ton</u>
Chemical X	\$50	\$95

The Manufacturer expects to sell 100% of the chemicals manufactured. All of its plants operate below capacity; they currently manufacture 100,000 tons of Chemical X annually to meet the market demand. The pricing changes are normal.

Profit margin should be calculated, in addition to the dollar margin derived from Chemical X versus Chemical Y to determine if there is any advantage to changing the product mix.

In 2006, 100,000 tons of X are being manufactured at a profit of \$5/ton, deriving a profit of \$500,000 for Chemical X. The manufacturing of X results in the by-production of 100,000 / 1.5, i.e. around 66,667 tons of Chemical Y or 70,000 tons for rounding purposes. Since Chemical Y is a byproduct of X, one can assume a corresponding cost of \$0/ton. The client should thereby derive a profit of $\$100 \times 70,000 = \$7,000,000$ for Chemical Y, and a total profit of around \$7,500,000 for both chemicals.

Comparatively, the company generated a profit of $\$100 \times 100,000 = \$10,000,000$ for Chemical X in 2005, plus an additional $\$175 \times 70,000 = \$12,250,000$ for Chemical Y. This amounts to a total profit of 22,250,000 in 2005, and therefore a huge loss in profit. These results are summarized in the following Tables:

	2006	Volume (ton)	Price/ton	Cost/ton	Profit margin (%)	Dollar margin
Chemical X		100,000	\$ 100.00	\$ 95.00	5%	\$ 500,000.00
Chemical Y		66,667	\$ 100.00	\$ -	100%	\$ 6,666,666.67
					Total	\$ 7,166,666.67

	2005	Volume (ton)	Price/ton	Cost/ton	Profit margin (%)	Dollar margin
Chemical X		100,000	\$ 150.00	\$ 50.00	67%	\$ 10,000,000.00
Chemical Y		66,667	\$ 175.00	\$ -	100%	\$ 11,666,666.67
					Total	\$ 21,666,666.67

5. Chemical Spill continued...

Recommended Conclusion

This case is qualitative in nature and can take many directions.

Interviewee should first explore the root causes of the sales and profit cycles including the following topics: Why are costs increasing? Why is there a reduction in supply of raw materials and can it be addressed? Who are our customer's customers? Can the company pass them raw material increases? What are the new government regulations by the FDA? How efficient is manufacturing?

Interviewee should further review pros & cons of acquisition, joint venture, licensing, divesting a plant or two, and organic growth through new products/services (preferably with a pricing cycle opposite that of X and Y). The dimensions for evaluating each option should include impact on sales/profit, ROI, risk, feasibility, and timing.

In addition to organic and inorganic growth, there seems to be opportunities to improve the current business model. For example, since none of the plants operates at capacity and Chemical Y can be sold at a higher price/margin than Chemical X in the upside part of the pricing cycle, the interviewee may ask these questions:

- Can the plants increase their production of X and Y when the pricing cycle is up? Are there opportunities for cost reduction by increasing the volume of raw materials purchased?
- Can the more profitable chemical Y be produced in larger quantities in upside cycles?

Exploring the trend of raw materials suppliers turning to greener products:

- If the suppliers of raw materials for X and Y are switching to "greener" processes across the industry, can the client pass on the price increase along the value chain?
- Can the client use this as an opportunity to differentiate its products as "green" as well and therefore charge a premium?

Possible recommendation may include:

- Launch new products & services to differentiate from the competition, build customer loyalty, gain new customers, and leverage synergies through existing plants.
- Operating costs may increase with purchase of new materials/machinery for refining chemicals.
- Organic growth must be considered in addition to improving the client's current business model which does not seem to be working well.
- Possible exploration into joint ventures or divesting the company.

Any number of recommendations would work for this case as long as the interviewee properly explores all of the options.

6. Arbitrage!!

Type of Case: Labor and Staffing Optimization

Opening

Your client works in financial services in the arbitrage business, which is quite lucrative. It has no profitability problem and no competition. The company has 4 senior analysts, 3 junior analysts, and 1 admin. The activities in which they are involved include the initial stage, which comprises 20% of the work, the core stage which is 70% of the work, and the recommendation which is the remaining 10% of the work. These percentages are constant. How many junior analysts need to be added to free up capacity among the senior analysts, so they can focus on selling additional work?

Background (Provide the following information if requested by interviewee.)

The interviewee should inquire about how much of the three activities the three staff persons are engaged in. Senior Analysts do 60% initial, 20% core, and 80% recommendations. Junior analysts do 30% initial, 70% core, and 20% recommendations. Admin does 10% initial and 10% core, with no recommendations.

Analysis (Calculations to be completed by interviewee.)

If you multiply the percentages that the junior analysts are doing by the breakout of the activities, it looks like this:

30% of 20% = 6%
70% of 70% = 49%
20% of 10% = 2%

Therefore $6 + 49 + 2 = 57\%$ is being done by the junior analysts.

Recommended Conclusion

There are only 3 junior analysts. Currently each is doing $57/3$ or 19% of the total work for the firm.

How many junior analysts need to be added so that they are working at 100% capacity?
 $100/19 = \text{approx } 5$. There are currently 3 analysts. $5 - 3 = 2$ analysts need to be added.

Now that there is a total of five analysts, what is the new constraint in getting the work done?

Time.

7. Flying to Mango

Type of Case: Increase Revenues

Opening

Our client is the CEO of a mid-size passenger airline based in Mexico D.F. The airline operates on the Hub & Spoke model and is seeking to increase its revenue. It intends to do so by switching the only airplane currently serving the flight to Mango, Brazil (an agricultural outpost) to their existing New York line service. Is this a good idea?

Background (Provide the following information if requested by interviewee.)

- The airplane serving the Brazil line is a Boeing B757 with 200 seats
- Only one plane serves the Brazil line, making two round trips a day
- The occupancy rate of the Brazil line is 90%
- Each round trip ticket to Brazil costs \$350

- The New York line is currently served by 4 planes similar to the Brazil line plane
- The New York planes each make 3 round trips a day
- The occupancy rate of the New York line is 80%
- The ticket cost is the same, \$350
- If an additional plane (and flight) is added to the NY line, occupancy rate will drop to 70%

Areas of Discussion

- Are costs relevant for this case? (They are not)
- What is the revenue generated by each route?
- Is there enough demand for NY flights to justify another airplane?
- Does eliminating the Mango route have any repercussions on other flights to South America?

Analysis (Calculations to be completed by interviewee.)

- Current revenue is \$798,000
Brazil= $200 * 2 * 0.9 * \$350 = 126k$ & NY: $200 * 3 * 4 * 0.8 * \$350 = 672k$
 $126k + 672k = 798k$

- New revenue would be: \$735,000
NY only = $200 * 5 * 3 * 0.7 * \$350$

Recommended Conclusion

Calculations indicate that eliminating the Mango line would actually decrease overall revenues of the airline. This is because the occupancy rates for the New York route drops when an extra airplane is added to that line. In addition, removing the airplane that serves Mango completely eliminates a highly profitable flight, and may cause service quality repercussions due to unsatisfied customers.

8. Deal or No Deal

Type of Case: Profitability

Opening (deliver rapid-fire with no pauses)

Jeff Zucker, the CEO of NBC has asked you for help. In 2006 NBC had profits of \$3B on revenue of \$16.5B; these numbers have fallen 10% over the past three quarters. There has been an \$8M drop in ad-revenue due to the proliferation of specialized cable channels as well as changing viewer preferences in media consumption. NBC's goals include achieving double-digit growth, reducing costs by \$750M, and spending \$150M in digital initiatives in order to grow \$400M in revenue (from digital delivery) to \$1B. Programming costs for television shows have risen as shows average 60 scenes (vs. 40 scenes previously). Big-budget shows such as Heroes cost \$2.5M/episode and charge \$200K/spot (there are 20 spots/hr). In addition, on-demand media has cut into revenues although live entertainment is still a draw.

Background (Provide the following information if requested by interviewee.)

For question 3, keep stonewalling if the interviewee pursues any avenues related to ad revenue. For example, if they say that advertisers will be less attracted to the demographic for shows like Deal or No Deal, say “that’s already reflected in the price”. Concede answers involving long-term strategy, competition, etc. but make it clear that those are not satisfactory answers.

Areas of Discussion

1. What are your initial thoughts about NBC’s troubles? (ask immediately, do not allow for questions or any time to gather thoughts)
2. If a low-budget show like Deal or No Deal costs \$1M per episode, how much less revenue per spot can NBC afford to charge and still retain the profitability of big-budget shows?
3. Given this info, should Zucker redirect resources towards low-budget shows? What else should he consider?
4. Brainstorm a bit about how to best use the funds set aside for digital initiatives.

Analysis (Calculations to be completed by interviewee.)

For question 2: Big budget revenue = $\$200K * 20 = \$4M$. Big budget profit = $\$4M - \$2.5M = \$1.5M$. Therefore low-budget revenue must be $\$1M + \$1.5M = \$2.5M$. Assuming there are still 20 spots/hr., NBC can afford to charge \$125K/spot.

Recommended Conclusion

Questions 1 and 4 are more behavioral and test whether you’ve thought about digital media and its impact on the entertainment industry. For question 3, the “answer” is to explore the impact on sources of revenue other than advertising, such as syndication or DVD sales.

9. Online Publishing

Type of Case: Competitive Response, Increase Profits

Opening

A magazine publisher has seen their circulation drop and their ad revenue drop. They currently have \$700M in revenue spread across three types of magazines: fashion and beauty for teens, fashion and beauty for women ages 24-40, and specialty magazines with 10-20K in subscribers. Their online presence generates \$21M in advertising revenue (of the total \$700M) and \$9M in profit. They have brought us in to try to solve their circulation problem and possibly boost their ad revenues. [*For the interviewer: the real question at hand is, how can we improve profitability for this client and adapt to the current marketplace?*]

Background (Provide the following information if requested by interviewee.)

Viewers and advertisers are both moving online. The publishing company's two major competitors have both invested a lot of money in online initiatives.

Current operations: they use a partner that charges them a portion of the hosting costs. They do not have complete control over what ads are being shown with their contents.

Areas of Discussion

1. Should they be more aggressive online and what capabilities do they need?
2. Brainstorm a bit about what else you could do other than simply moving your content to a web server.

Recommended Conclusion

The interviewee should not immediately jump to the conclusion that the online portion of the business is the cause of the problem (although this turns out to be the case, they should note that the proportion of revenue from online activities is relatively small). Otherwise, the answer is fairly open-ended, but should show an understanding of technology.

Topics the interviewee should address include:

(1) IT Organization - It is not enough to mention that they will need "IT people"—a better answer might be "a designer that is well-versed in web-design software but will also be able to create an online presence with a consistent look with the print magazine".

(2) Project Phasing - Recognize the difficulty of launching new IT projects by suggesting that since there are so many magazines in the publishing company's portfolio, moving these magazines online could be done in a phased manner, perhaps by doing trial runs with the specialty magazines before moving on to their more valuable brands.

9. Online Publishing continued...

(3) Vendor Relationships - Evaluate other hosting options or solutions. If the client is dependent on a 3rd party service provider, can they bring the hosting in-house? Or issue an RFP for a new provider with more favorable contract terms?

(4) Sources of Revenue - Is the client currently charging consumers for access to their online portal? How do they track usage and unique visitors? The interviewee should explore whether the client leverage new advertisers to reach the customers who are “really” using their online channel.

(5) For the brainstorming component, the interviewee should mention the ability to cross-sell magazines across demographics and the opportunities for mass customization.

Mini Case

Type of Case: Competitive Response

Your client is a major metropolitan newspaper. The newspaper runs advertisements for employers seeking employees (job ads/help wanted ads). Recently, the newspaper has realized that to compete it must offer the ad space on its online addition as well. Online, it doesn't have traditional competitors – its competitors are sites like Monster.com and Craigslist.com. It is looking to you to tell it how to manage the migration from print to online.

Specifically it would like to know:

1. How should they match the pace of the market as more employers go online?
2. Should they push employers to spend for online ads?
3. How can it maintain the revenue generated by printed advertising while still pushing for more online revenue?

Background (Provide the following information if requested by interviewee.)

- Revenue from job advertising breaks down into 70 percent revenue from print ads and 30 percent revenue from online ads.
- Print ads are currently more profitable - \$800 profit per print ad versus \$400 profit per online job ad.
- Of jobseekers who use this newspaper (and the newspaper's website) for job seeking, 70 percent currently use print, 30 percent use the website.
- Different companies are adopting online advertising at different paces: the early adopters of the website job ads are technology companies and professional service companies. The slower to adapt are government agencies, health care organizations.

Recommended Conclusion

- Keep both print and online advertising as package options, especially as print is twice as profitable as online.
- Target print advertising towards slower adaptors, while also developing a great site to serve clients that only want to go online (can be creative here – what would you do with the site to distinguish it from a site like monster.com?).
- Train sales force to plug both opportunities, but to understand the client's needs and build a package that suit's them best. Once the client is hooked to one option, it will be easier to sell the alternate option.
- Use the print vs. online packages as an opportunity to bundle advertising print and online ads.

10. Coca Cola Vending Machine

Type of Case: New Product Delivery Device

Opening

You are meeting with the head of new product development for Coca Cola to discuss a new delivery platform Coca Cola has developed. Coca Cola does not generally make its delivery platforms – it is usually delivered through fountains or vending machines. But Coca Cola has recently been looking into developing a new vending machine. It's at the first level of screening. It was born out of an idea the engineers at Coca Cola came up with and this executive needs to know whether to use the vending machine or kill the idea.

This vending machine can change prices as the temperature changes. If it's hotter outside, the price to the consumer will be higher. If it's cooler, the price goes down accordingly. Assume there is no extra cost to making these vending machines and that they are easily implemented. How would you evaluate this idea and what is your recommendation?

Background (Provide the following information if requested by interviewee.)

- Coca Cola sales are seasonal – about 60% is bought in summer.
- A Coke sells for around \$1.00. Costs to produce are: 20 cents manufacturing and 75 cents in marketing. So there is 5 cents profit on each can.
- Coca Cola does not expect to make more money on sales through this vending machine. It expects the high prices (in hotter weather) and low prices (in colder weather) to even out to be similar to current revenues.

Areas of Discussion

- (If the interviewee is really struggling) What problem at Coke might the engineers have been reacting to when they decided to develop this machine?
 - What were they trying to solve?
 - Was it an attempt to reduce frequency with which Coke becomes “flat” in the summer?
 - Was there an existing delivery problem that prompted Coke to take a shot at delivering Coke themselves?
 - Anything else?
- (If the third bullet has been revealed) Coke isn't expecting to make more money, but what might they be trying to achieve? Think about the profit tree.
- (If the interviewee thinks this is a no-lose idea) What might Coke want to think about before introducing this delivery system? How might people react to it?

Recommended Conclusion

This is really a problem about two things:

1. supply chain management/forecasting
2. how customers will react.

10. Coca Cola Vending Machine continued...

The benefit of this machine is that it allows Coke to better forecast demand (by stabilizing demand throughout the year) and therefore better manage its supply chain and make distribution easier. While that might cut costs slightly, only 20 cents of every 95 cents is from manufacturing. The major cost is marketing. If it needs to cut costs it should look at marketing. Why? Because the reaction the public could have to this machine is dangerous. Coca Cola is thought of as an all-American product. Changing prices with weather is not aligned with the way people see the product. They might feel cheated by the machine. The interviewee should definitely have touched on: cost savings, supply chain/forecasting issues and public perception.

*** One point that the interviewee may want to explore is the fact that the machine only monitors the temperature and price for Coke – it doesn't necessarily generate more or less demand when it's hotter or colder – that trick is still confined to consumer behavior. ***

11. School Bus Business

Type of Case: Increasing Profitability

Opening

Your client is a school bus fleet operator. This means public schools outsource this function to them. This client operates at a national level, and is the market leader at 50% market share of the outsourced school bus fleet operation. Exhibit 1 shows the positioning in further detail.

Problem Statement: As you can see from Exhibit 2, the client operates in an industry with razor-thin margins, and is now experiencing stagnant revenues and profits. In fact, smaller fragmented players have even worse margins. What would you recommend to the client to help it realize 5% profitability growth within a 2-year period?

Background (Provide the following information if requested by interviewee.)

- On the revenue side, the client does not have extraordinary pricing power, market share is maximized and further expansion has not come easy. In the background, realize that customer (the school system) is also a price-sensitive entity
- On the cost side, economies of scale and scope are already met, financial structure is optimal, and operational best practices have been implemented successfully
- *[Explain Exhibit 2 line items to the student]:*
 - o Capital Investment refers to buses, etc.
 - o Maintenance Services refers to fleet maintenance and repair
 - o Information Technology refers to fleet and driver scheduling, payroll, etc.
[Tell student that small operators will often use inefficient, expensive, in-house development]
 - o Personnel training means training of drivers on security, safe driving, and other regulations. Quality of drivers needs to meet a certain high threshold, or schools will switch to another operator – making this quite important.
[Tell student that fragmented operators will often under invest, as their margins are already tighter As a result, they will often lose business to other fragmented operators.]
 - o Wages, etc. are fairly similar across this unionized industry

Areas of Discussion

- Consider the client's core capabilities and competencies
- Draw out client's entire value chain (procurement, training, servicing, operation, relationships with institutions...)
- Exhaust argument that dramatic improvement not possible in current business model, either on revenue or cost side
- Eventually, lead in the direction that selective competencies should be developed into business models and higher-growth, better margin, revenue streams (such as driver training, procurement, auto service, etc. – served to the fragmented portion of the market, which would then benefit from its economies of scale and learning)

11. School Bus Business continued...

- What are the relevant portions of the value chain to focus on: (case writer's notes are in Exhibit 3)
- Target the fragmented portion of the supplier base (~ 10%), and offer them B2B and consulting services in maintenance, training, procurement, etc.

Analysis and Recommendation

What are the possible new revenue streams?

- o Leverage existing business model for additional revenue (dual use of bus fleet for non-school customers?)
- o Extend use of same assets into other business models and revenue streams (consulting, outsourced services?)
- **What is the biggest opportunity here?**
 - o Fragmented operators under invest in personnel training; client could offer outsourced services to train personnel in fragmented operators band
[Ideal, optimized market size for this service = the amount an optimized, mature player spends = 20%]
 - o Fragmented operators over invest in IT; client could offer packaged applications to shave off these excess costs
[Market size in this space = IT budget of optimized players = 10%]
 - o Fleet maintenance is another area that can be outsourced
[Market size = 20%]

Then, what is the size of this consulting/outsourcing market?

\$ 10 Billion (size of industry)

x 20% (market share of fragment)

x 50% (market size of opportunities from training, IT, maintenance)

= \$ 1 Billion

Adjustments

Assume that client will capture 10% of this opportunity in 2 years;

Assume that consulting, outsourcing has average margin of 25%;

- o Current profit dollars of client = \$ 10 B x 50% market share x 10% margin
= \$ 500 M
- o Additional profit by end of 2 years = \$ 1 B x 10% market share x 25% margins
= \$ 25 M
- o This meets the 5% profitability growth target over a two year period

11. School Bus Business continued...

Exhibit 1: Sector and Market Share information

Operator Type	Share of operation	Contract Fleet Operators	Market share
Captive (School owned and operated)	20%		
Outsourced (Contract Fleet Operators)	80%	<i>This Client</i>	50%
		Competitor A	15%
		Competitor B	15%
		Fragmented balance	20%

Exhibit 2: Financial information of client and market

Revenue		
	Industry	\$ 10 Billion
Cost Structure (typical market-leading operator)		
	Capital Investments and Depreciation	20%
	Maintenance Services	20%
	Personnel Training	20%
	Information Technology	10%
	SG&A, wages and other	20%
Cost Structure (typical fragmented operator)		
	Capital Investments and Depreciation	20%
	Maintenance Services	25%
	Personnel Training	5%
	Information Technology	25%
	SG&A, wages and other	20%

Exhibit 3: Relevant portions of the Value Chain for this discussion

[Personnel Hiring] >> [Fleet Procurement] >> [Personnel Training] >> [Information Technology]
 >> [Operational Know-how] >> [Fleet Maintenance] >> [Sales, Marketing]

12. The Water-Fueled Engine

Type of Case: New Market Entry/Pricing

Opening

You have invented a car engine that is fueled by water. What would you do now?

Areas of Discussion

Product

There are no differences in the production costs of a regular gas fueled engine and a water fueled engine

No differences in performance.

Infrastructure

Gas station can be switched to water easily

Water costs are minimal. How would this impact gas station business models? What are the implications for sale to a specific company or industry wide? Consider network effects.

What options do you have?

Start a firm and manufacture engines for vehicles (cars, boats, planes, etc)

Think about:

Access to capital

Management capabilities

Sell the patent. To whom? Specific industry: car vs planes vs boats, etc. Military vs private.

(Case is continued on the next page.)

12. The Water-Fueled Engine continued...

How would you price your patent?

This technology is a disruptor. Water engines will completely replace gas engines.

Use car industry as an example. The price of the engine should be equal to the extra profit derived from the delta price that car manufacturer(s) can apply to a water fueled car. The delta price that the car manufacturer(s) can apply depends upon a quantification of the lower costs that customers will face by not having to pay for fuel. In order to determine such number it may be useful to know:

Size of car market

100M households

50M urban * 2 cars per household

50M suburban * 3 cars per household

200M cars, replaced every 10 years

20M cars per year, 80% new, 20% old

16M new cars per year

150k miles per car

25 miles per gallon

6k gallons over life of car

\$3 / gallon

\$18k in gas

Willing to pay \$5 to \$10k in premium (tax benefits / green image)

\$80B to \$160B potential market just in cars

Patents

Are patents generally enforceable? How complex is the technology? What are the implications for sale to a specific company or industry wide?

Recommended Conclusion

Sell patent/technology instead of starting firm from scratch.

Sell to as many industries as quickly as possible. Target the largest players because they have the capital to buy the technology and the resources to integrate the technology quickly. Use competitive bidding to raise the price.

13. Shipping Economics @ Online Toy Store

Type of Case: Profitability / Data Analysis

Opening

Your client today is a global specialty retailer of children's toys and baby products with annual worldwide revenues totaling over \$11 BN. After a recent buyout by Private Equity, the firm has been pursuing aggressive growth targets across all three of its divisions. The e-commerce division has about \$400 MM in total revenue and a major area of growth has been identified within Shipping & Handling (S&H) of customer orders.

Your client offers its customer's two S&H options; "2nd Day Expedited" or "Ground", and each of those are further divided into "Lower 48 States" or "Alaska & Hawaii" depending on the order destination zip code. Annual S&H revenue from each product offering is as follows:

- Ground to Lower 48: \$ 32 MM
- Ground to AK & HI: \$ 180 K
- Expedited to Lower 48: \$ 3.73 MM
- Expedited to AK & HI: \$ 90 K

The e-commerce division hopes to increase S&H profits by ~115%. You are part of the team studying their S&H economics and are asked to make a recommendation to impact immediate growth and meet their goals.

Background (Provide the following information if requested by interviewee.)

- Total revenue of ecommerce division during previous year = \$400 MM. Divided as follows:
 - S&H Revenue = 9% (\$36 MM)
 - Merchandize Sales Revenue = 91% (\$364 MM)
- Your client ships customer orders from a single distribution center in Groveport, OH.
- Your client ships products in 8 different box sizes.
- Total Annual S&H revenue from each product offering
 - Ground to Lower 48: \$ 32 MM
 - Ground to AK & HI: \$ 180 K
 - Expedited to Lower 48: \$ 3.73 MM
 - Expedited to AK & HI: \$ 90 K
- Your client is currently priced on par with competitors.

13. Shipping Economics @ Online Toy Store cont...

Areas of Discussion

- *Explore the revenue and pricing structure:*
 1. Select SKU's (items) in inventory have fixed S&H prices for each of the four delivery options regardless of delivery destination.
 2. 21% of all orders include SKU's using these fixed prices.
 3. The majority of inventory is priced according to the weight of the order against a "weight table". Weight table pricing is as such:
 - Ground shipments to the Lower 48 states begin at \$ 4.84 for the first 1 lb and increases at \$0.85 for each additional pound.
 - Ground shipments to AK & HI begin at \$ 6.84 for the first 1 lb and increases at \$0.85 for each additional pound.
 - 2nd Day shipments to the Lower 48 states begin at \$ 10.98 for the first 1 lb and increases at \$0.99 for each additional pound.
 - 2nd Day shipments to AK & HI begin at \$ 20.98 for the first 1 lb and increases at \$0.99 for each additional pound.
 - This weight table is a blended price that aggregates the zone-based cost table that the carrier charges and adds a 25% markup.
 4. 73% of all orders are priced against the weight table. Another 6% of orders include a mix of items with fixed price S&H and weight table pricing.

- *Guide the Interviewee to explore items with Fixed Pricing:*

Further analysis into the SKU's that have fixed shipping prices shows that 44 items represent 10% of merchandise revenue of all fixed price items and represent 59% of the losses in that segment.

- *Explore the cost structure:*

Your client uses a single package delivery vendor to ship all orders. The vendor charges your client for each order based on the following factors:

 - **Distance.** The lower 48 states are categorized into 8 zone distances, with 1 being the closest and 8 the furthest. Alaska & Hawaii are divided into 2 zones; Metro and Remote.
 - **Size.** Small packages (less than 3 cubic feet) are billed based on its weight. Large items are billed based on volumetric dimensions.

- *Have the interviewee brainstorm about other shipping cost drivers per order:*
 - **Number of Shipments.** A large order with smaller items is likely to be more "combinable" and may ship in fewer boxes than one with larger items.
 - **"Over-boxed" items.** Manufacture's packaging of some items is not durable for cargo shipping and therefore needs to be put in another box, or "over-boxed".

13. Shipping Economics @ Online Toy Store cont...

- *Explore the following after graphs have been shared with the interviewee:*
 - 1. The largest loss bucket in S&H is Ground shipments to the Lower 48 states. Why should your client not increase its S&H prices for this group? Why should they increase prices on the other three S&H offerings?**
 - Ground shipping also constitutes the largest portion of your clients business and increasing prices could negatively affect demand for items and orders.
 - Expedited shipping is a premium product and the customer is likely to be less elastic to an increase in price. Therefore an increase in price might not impact demand too much.
 - Alaska and Hawaii constitutes a small fraction (less than 1%) of your client's total business while contributing to ~5% of losses. Unless it is a business decision to maintain a presence in that region at such a cost, there is no reason to do so.

 - 2. Your client's shipping prices are on average 25% more than their vendor's price table. Why do you think your client is seeing egregious losses in certain categories? How can they tackle this?**
 - The egregious losses are primarily due to "over-boxing" of items due to the limited number shipping boxes. The client would need to better understand the demand on various items, their dimensions, what items are most frequently combined and then determine the optimal assortment (number and dimensions) of shipment cartons they use. This would be a longer-term solution.

 - 3. If you were to recommend a new pricing strategy that raises prices, how much would your business be at risk? How much of you estimated losses can you save?**
 - The percentage of business at risk is the ratio of the total merchandise dollars shipped through the segments that the candidate is recommending a price change to over the total business. If the interviewee recommends raising prices to Alaska & Hawaii, Expedited shipments and the 44 fixed price items the interview should identify approximately 11% of the business at risk (calculations below).
 - Percentage of loss saved for the segments to AK & HI, Expedited shipments and the 44 fixed price items is approximately 30% (calculations below).

 - 4. Should raising prices be a long-term solution? Why or why not?**
 - Raising prices is not a long-term solution because it leaves your client at a competitive disadvantage. The long-term goals should be to reduce costs by further analyzing each of the cost drivers.
 - *Some longer-term solutions are:*
 - Conducting a "carton-size study" to determine the optimal assortment of boxes used
 - Look to expand the distribution network to also ship items from distribution centers on the east and west coast
 - Negotiate lower shipping costs with the vendor

13. Shipping Economics @ Online Toy Store cont...

Analysis (Calculations to be completed by interviewee.)

- Margin on each product is calculated with the following formula:

$$\frac{M \text{ arg inOnWins} + M \text{ arg inOnLosses}}{\text{Total RevenueInCategory}}$$

Margin on Ground to Lower 48:	13%
Margin on Ground to Alaska & Hawaii:	-142%
Margin on Expedited to Lower 48:	-17%
Margin on Expedited to Alaska & Hawaii:	- 39%

- Percentage of business at risk:

$$\frac{\text{MerchandiseToAK \& HI} + \text{MerchToExpedited} + (10\% \times \text{TotalMerchWithFixed Price})}{\text{TotalMechandizeDollars}}$$

$$= \frac{200K + 30,000K + 1,800K + (10\% \times 76,440K)}{364MM} = 10.89\%$$

- Percentage of Loss Saved:

$$\frac{\text{LossM arg inToAK \& HI} + \text{LossM arg inToExpedited} + (59\% \times \text{LossM arg inWithFixed Price})}{\text{TotalMechandizeDollars}}$$

$$= \frac{257.2K + 1,010K + 38.18K + (59\% \times 892.6K)}{6,172.2K} = 29.68\%$$

Handouts/Figures

1. Business Shipped to Various Segments. (See Below)
2. Gross Margin on Category Wins and Losses. (See Below)

Key Takeaways (What interviewee should glean from handouts/figures. There may be some calculations here as well.)

1. Business Shipped to Various Segments.

- Approximately 1/3 (~28%) of the business is shipped to customers at a loss
- Approximately 2/3 (~78%) of all business to Alaska and Hawaii (Ground & 2nd Day) are shipped at a loss
- Approximately 1/3 (~34%) of all orders that have items with a fixed price are shipped to customers at a loss

13. Shipping Economics @ Online Toy Store cont...

2. Gross Margin on Category Wins and Losses.

- Orders shipped by Ground to the Lower 48 states (which is ~91% of the business) accounts for ~79% of Losses
- Orders with only items with fixed S&H pricing (which is 21% of the business) accounts for ~14% of Losses
- Orders shipped Expedited to the Lower 48 states (which is ~8% of the business) accounts for ~16% of Losses
- Orders shipped by Ground to Alaska and Hawaii (which is ~0.5% of the business) accounts for ~4% of Losses
- Orders shipped Expedited to Alaska and Hawaii (which is ~0.05% of the business) accounts for ~0.6% of Losses

Recommended Conclusion

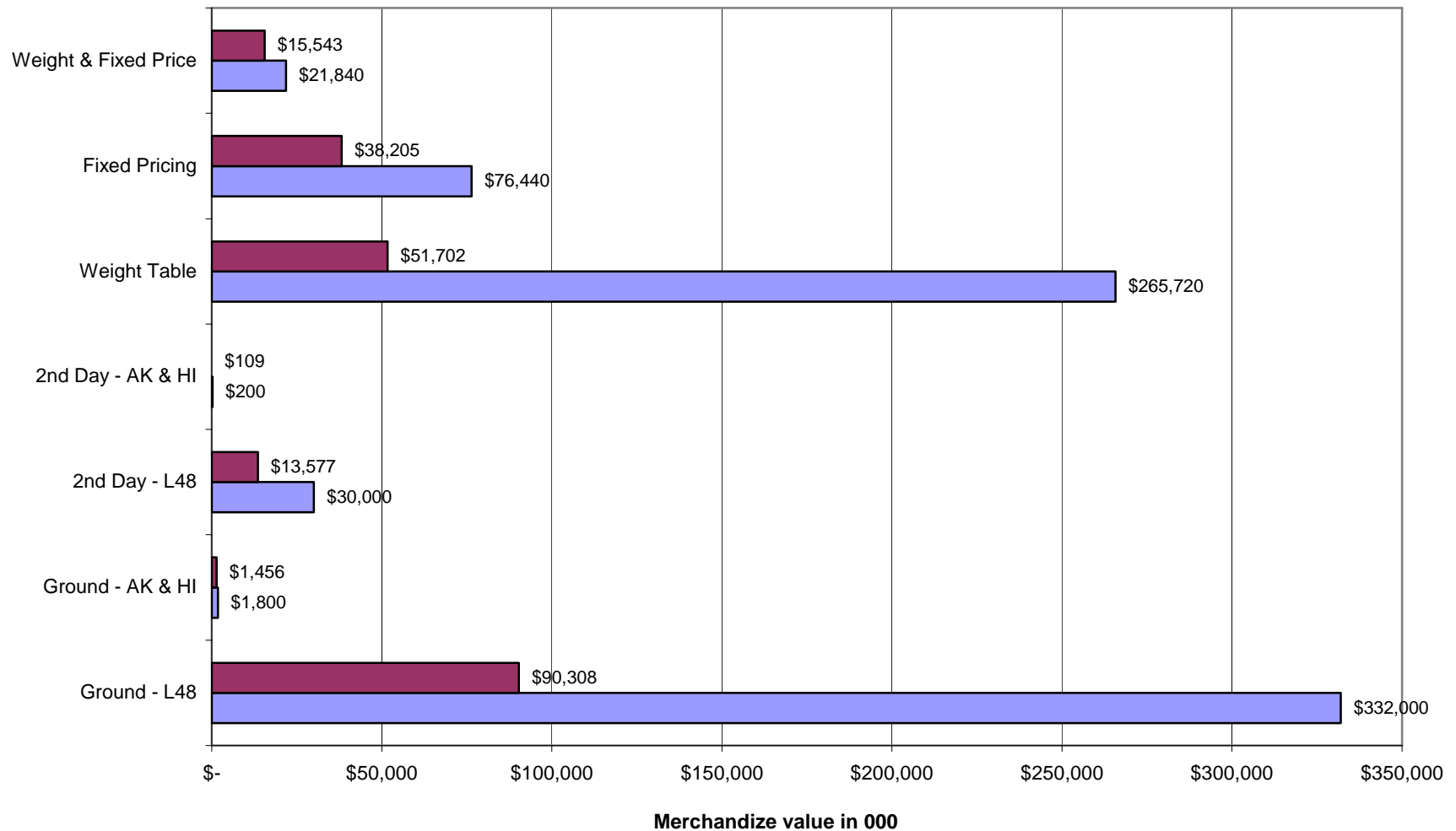
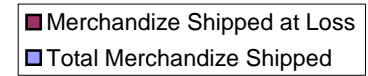
In the short-term the client can save ~30% of losses by:

- Increasing fixed S&H prices on 44 SKU's.
- Raise weight table prices for Ground orders to AK & HI and Expedited orders to both the Lower 48 states and AK & HI.

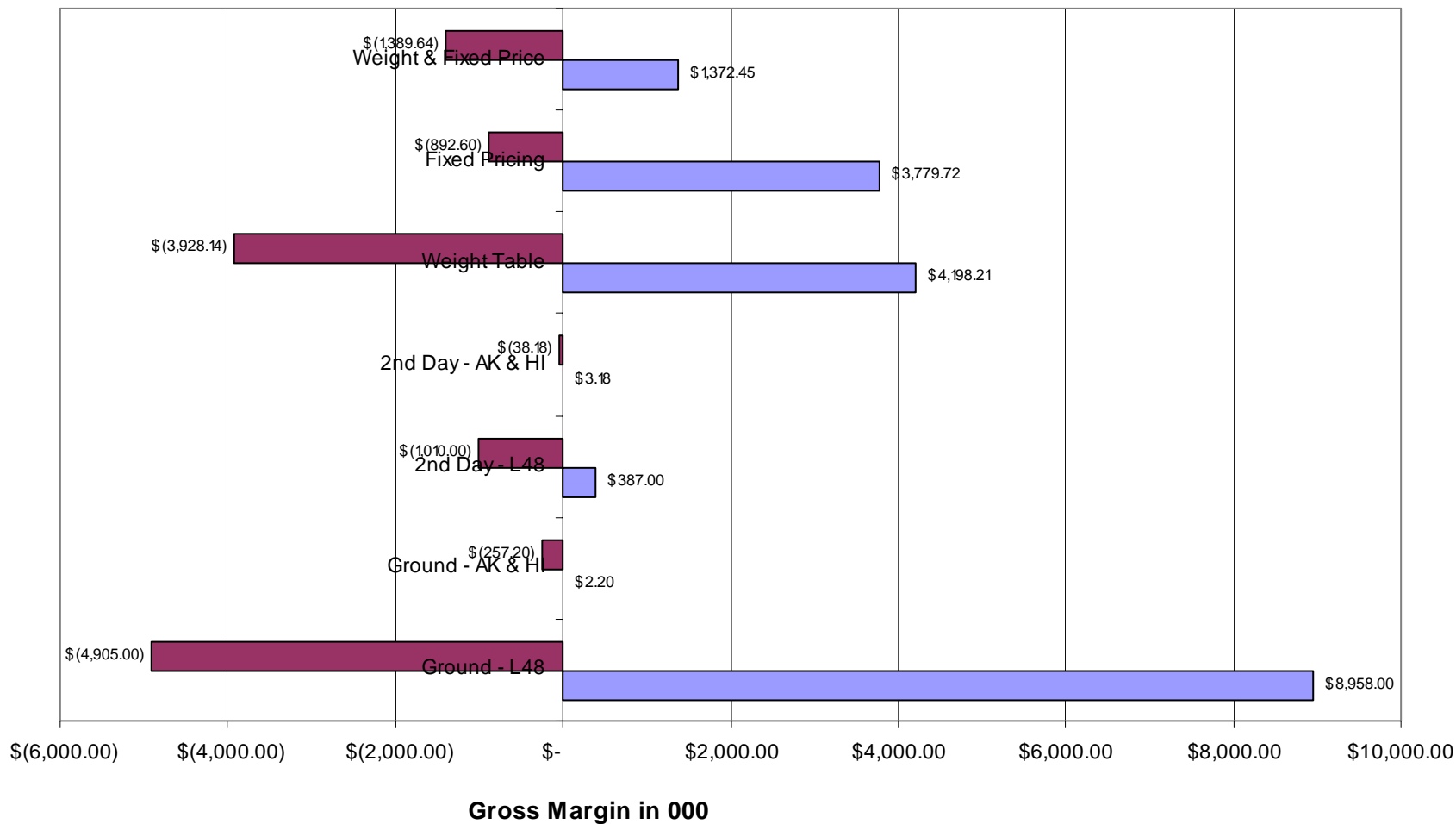
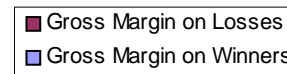
The higher prices might leave the client at a competitive disadvantage and therefore the long-term goal should be to reduce costs and return prices to normal. The client can look to reduce costs by:

- Conducting a "carton-size study" to determine the optimal assortment of boxes used
- Look to expand the distribution network to also ship items from locations in the east and west coast
- Negotiate lower shipping costs with the vendor

Business Shipped to Various Segments



Gross Margin on Category Wins and Losses





Our Favorites from the 2006 MCA Casebook...



14. Credit Cards at Commercial Bank

Type of Case: Market Sizing and Segmentation

Opening

Our client is Commercial Bank which is analyzing growth strategies for its credit card business in a developing country. The Bank wants to focus on individual clients to whom it offers internet banking and retail channels. The Bank wants to measure the opportunities in individual credit cards as a stand alone business.

The target country has a population of 100 million. The most representative demographic segments are as follows:

- Hi Income: >\$3,000/month
- Mid Income: >\$1,000/month and <\$3,000/month
- Low Income: <\$1,000/month

Our client has asked us for the following two analyses:

- Estimate the Market Size of the individual credit card business for each of the demographic segments
- Identify the most attractive segments for the Bank

Before we commence that analysis tell me how you would go about assessing the potential of this new business.

Answer

One way to measure market potential is by annual revenues. The different sources of revenue for credit cards are:

- *Interest Income: interest rate x average outstanding balance*
- *Transaction Income: transaction fee x average consumption*
- *Membership Fee Income: Annual membership fee x number of credit cards*

The interviewee should also suggest other factors he/she would take into account including:

- *Costs associated with the different segments; such as Administrative Costs, Risk Cost, Service Cost and Marketing Costs*
- *Competitor analysis: who are the key players in the market and which segments are most competitive?*
- *Brand positioning: is current brand positioning compatible with the most attractive segments?*
- *Current coverage: is the bank ready to serve the most attractive segments in terms of geographical coverage for retail and in terms of customer service (e.g. sophisticated support for High income and straightforward support for Low income)*

14. Credit Cards at Commercial Bank continued...

Analysis 2

Let's now turn to the first analysis our client has requested. What is the approximate market size in dollars for this business?

Answer

Below is one suggested answer, but obviously a number of approaches might legitimately be used.

The first step is to go from population to number of credit cards. The interviewee should realize that not everybody will have a credit card; people under-age or without any income should be excluded. In a developing country we can assume that 50% of the population might have access to a credit card. Next we should breakdown the qualifying population into the three demographic groups to then calculate the number of credit cards:

- *Hi Income: 10% of qualifying population, average of 2 credit cards per person*
- *Mid Income: 20% of qualifying population, average of 1 credit card per person*
- *Low Income: 70% of qualifying population, average of 0.5 credit cards per person*

The number of credit cards by segment and total would be:

Total population = 100 M

Total Credit Card Customers

Customer Segment	Customers (M)	Credit Cards per Customer	Total Cards
<i>Hi</i>	<i>5</i>	<i>2</i>	<i>10</i>
<i>Mid</i>	<i>10</i>	<i>1</i>	<i>10</i>
<i>Low</i>	<i>35</i>	<i>0.5</i>	<i>17.5</i>
Total			37.5million

The next step is to calculate the Bank's potential revenues from different sources.

14. Credit Cards at Commercial Bank continued...

Interest Income. At this point, the interviewee should be provided with the monthly interest rates and average outstanding balances per credit card for the three segments:

- Hi Income: 4% interest rate, \$0 average outstanding balance
- Mid Income: 7% interest rate, \$300 average outstanding balance
- Low Income: 10% interest rate, \$140 average outstanding balance

Transaction Income

For this calculation, provide the interviewee with the following information: the transaction fee is 1%, and the average annual consumption per credit card for the three segments is:

- Hi Income: \$3,000/year consumption
- Mid Income: \$2,000/year consumption
- Low Income: \$1,000/year consumption

Annual Membership Fee

Provide the interviewee with the following information when he/she gets to this point: the annual fee is fixed and is different for the three segments:

- Hi Income: \$70 membership fee
- Mid Income: \$50 membership fee
- Low Income: \$30 membership fee

Based on this information, the total revenue for the credit card market is summarized as follows:

Customer Segment	Total Cards	Interest Income				Transaction Fee			Annual Fee	
		Interest Rate	Average Balance	Interest Income / Customer	Total Interest Income	Trans. Fee (%)	Cons. per Customer	Total Trans. Income	Annual Fee (\$)	Total Annual Fee Income
Hi	10	4%	\$0	\$0	\$0	1%	\$3,000	\$300	\$70	\$700
50 Mid	10	7%	\$300	\$252	\$2,520	1%	\$2,000	\$200	\$50	\$500
Lo	17.5	10%	\$140	\$168	\$2,940	1%	\$1,000	\$175	\$30	\$525
Total	37.5				\$5,460			\$675		\$1,725

Based on this, the total income for each segment is:

Customer Segment	Total Income
Hi	\$1,000
50 Mid	\$3,220
Lo	\$3,640
Total	\$7,860

14. Credit Cards at Commercial Bank continued...

Analysis 3

What is your assessment of the most attractive segments for the Bank?

Answer

The figures show that the biggest segments are the Mid and Low income segments. But to make a final recommendation the interviewee should take other aspects into account, some of them mentioned above.

The Low income segment is the largest in terms of income opportunity but will require the following considerations:

- Higher default probability (discounted in the interest rate but not in terms of administrative costs)*
- Higher costs because it requires a higher number of cards and clients to serve*
- Higher marketing expenses if the current Bank brand positioning is not compatible with the segment (as hinted by the Bank description)*
- Higher cost to serve, since this segment is less likely to use low-cost automated channels (e.g. Internet or phone banking) and will require new branches to service the segment*

On the other hand, the Mid income segment is slightly smaller in terms of income opportunity but may be more attractive given the factors mentioned for the Low income segment. The cost advantages are impossible to quantify with the available information. However, they are strong enough to conclude that the Mid income segment is the most attractive to the Bank. The interviewee should be able to identify some of these items or additional ones and reach to me same conclusion.



15. Cutting Costs at To-Dye-For Fabrics

Type of Case: Cost Reduction

Opening

Our client is a fabric producer called To-Dye-For Fabrics. The company purchases fabric in bulk from overseas and then dyes batches of fabric in colors ordered by clients. It produces 1.4 million square meters of product each month and its average variable cost is \$0.60 per square meter.

Processed batches have the following distribution:

- 40% of the batches are greater than 5,000 square meters
- 30% of the batches are between 3,000 and 5,000 square meters
- 30% of the batches are less than 3,000 square meters

To-Dye-For uses two different processes to dye its fabrics:

Continuous Dyeing: where washing and dyeing are integrated in a continuous process. This process is used for 70% of the company's production and is cheaper for batches of over 5,000 square meters.

Batch Processing: in which the washing and dyeing machines are independent. The machines in this line need to be set up prior to each batch being processed. Batch processing is used with the remaining production and is cheaper for batches under 5,000 square meters.

If a batch has to be processed using a more expensive process, the cost is \$0.05 per square meter.

Our client has asked us to recommend how it might reduce its total costs. How would you approach this problem?

Background

Provide the following information if requested:

Client orders

Clients usually make one or two orders during a month. Those orders are aggregated and usually fulfilled within 15 days.

(If the interviewee wants to progress this issue, advise him/her that the 15 day fill time is not crucial to customers ...they are okay with having orders filled within a month)

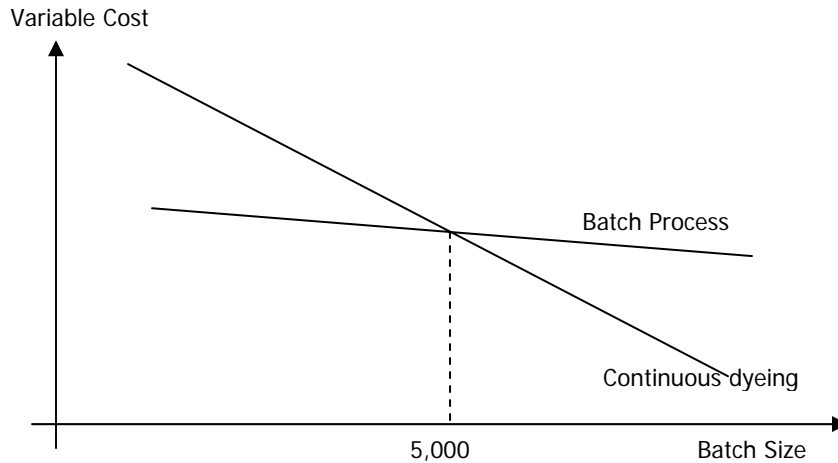
Processes

The set-up time for the Batch process machine is one hour and the installed capacity for that process is 700,000 square meters/month (assuming no set-up downtime).

15. Cutting Costs at To-Dye-For Fabrics continued...

Answer

The variable cost curve for the two processes can be represented as follows:



In other words, it is more expensive for the company to process batches under 5,000 square meters in size via the continuous dyeing.

The interviewee should calculate the monthly production of 1.4 million square meters is currently being split into batches as follows:

- batches less than 3,000 m² = 30% of 1.4m = 420,000 m²
- batches between 3,000 m² and 5,000 m² = 30% of 1.4m = 420,000 m²
- batches greater than 5,000 m² = 40% of 1.4m = 560,000 m²

He/she should also calculate that currently the company is processing 70% x 1.4million = 980,000 m² of fabric using the continuous dyeing process.

This means that the company is incurring an over-cost of $\$0.05 \times (980,000 - 560,000) = \$21,000$ per month by having to use the continuous dyeing process for batches smaller than 5,000m².

The interviewee should be able to infer that this means that the Batch Processing machines are working at full capacity. Given the total capacity of the Batch processing process is 700,000 m²/month and only 420,000 m²/month (1,400,000 - 980,000) are produced, that means that part of the time the machine is not producing because of set-up time. In fact we can calculate that 60% (700,000 / 420,000) of the time the machine is producing and 40% of the time it's being set-up.

15. Cutting Costs at To-Dye-For Fabrics continued...

Recommendation to reduce costs:

Having identified the nature of the problem, the interviewee should turn to recommending a solution.

One option is to buy another Batch Process machine. Even optimizing production, the 40% non-producing time won't be enough to accommodate the additional 420,000 m²/month that should be produced via Batch Processing. Only one machine is needed since the larger orders would need less set-ups than the <3,000m² batches.

If the interviewee reaches this point, you might ask them following question:

What would be the maximum price to pay for the new Batch process machine, knowing that the discount rate for the company is 10%?

Answer:

*Assuming perpetual life for the new machine, the maximum price is \$2,520,000 ($\$21,000 * 12 / 10\%$).*

A second option involves considering client needs and in particular their willingness to accept longer order fulfillment time. If that is possible, order aggregation is possible and thus, larger batches can be processed. This is likely to avoid the need to purchase an extra machine. Larger batches will be processed using the continuous dyeing technology that seems to be the most cost efficient.

Further recommendations for creating larger batches include integrating planning processes with clients; training the sales force to encourage order optimization; and designing incentives for both clients and the sales force.



16. Marketing and All That Jazz

Type of Case: Increase Revenues

Opening

Your client is the Jazz at Lincoln Center (JALC), a leading not-for-profit arts organization located in New York City. Under the artistic direction of legendary jazz musician Wynton Marsalis, JALC is committed to providing top quality Jazz performance and education to the world.

JALC has been in existence for 25 years. Until 2003, JALC had been housed in the Lincoln Center Complex along side the Metropolitan Opera, New York City Ballet, and Julliard School for the Performing Arts. In 2004, JALC moved to the Time Warner Center – a high end commercial and corporate complex located on Columbus Circle. The move provided JALC with new, state-of-the-art facilities, greater capacity (from 3000 to 4000 seats), and performance venues with expansive views of Central Park.

JALC receives three primary revenue streams: subscriptions, single ticket sales, and donations. JALC, like all major performing arts organizations, relies on patron subscriptions to smooth demand and provide up-front cash flows. The general rule of thumb is that 50% of tickets should be sold to subscribers and 50% to single ticket holders.

The move to Time Warner Center has been a mixed blessing for JALC. In response to significantly higher fixed costs (rent, utilities, etc.), JALC had to increase ticket prices an average of 75%. However the move has also generated significant press attention and general buzz across New York City. Although attendance has been up since the move, subscription rates have declined in each of the first two years in the new venue.

You have been hired by JALC's Director of Marketing to assist in boosting subscription rates. On your way to the initial client meeting, you take a second to compose your thoughts and brainstorm on the problem at hand.

16. Marketing and All That Jazz continued...

Answer

This is meant to be a very open ended question so push the interviewee to be exhaustive in his/her analysis. The tendency will be to focus in on pricing. That's fine, discuss pricing but then get beyond it to identify all outlying issues. Many frameworks will work, here is one approach:

Internal

Pricing

- *Obviously the increased prices are beyond customers' willingness to pay.*
- *How do margins compare with the old scheme?*
- *What would happen if we lowered prices? Less revenue, unpredictable cash flows, no upfront cash, low attendance at non-marquee shows*
- *Can we maintain elevated prices but boost willingness to pay? More perks for subscribers, look for higher-end customers*

Product

- *How has the product changed since the move?*
- *Does the new venue attract the same caliber of performer?*
- *Is the new venue as or more comfortable as the old venue?*
- *How does the location affect consumers' willingness to pay?*
- *What else are we selling beyond a show? Drinks? Merchandise?*

Parking?

Promotion

- *Is the advertising plan consistent with new location?*
- *Are we leveraging PR as effectively as we can?*

Customers

- *Marketing research to understand why old subscribers are leaving*
- *Why do people seem to prefer single tickets to subscriptions*

Company

- *Do we have fixed costs as low as possible?*

External

Competition

- *What new competitors/substitutes exist because of the move?*
- *How did old competitors respond to the move?*

Macroeconomic

- *Do people still enjoy watching jazz? Going to performances?*
- *Is the general economic downturn affecting people discretionary spending?*
- *How is tourism doing? Are we over the 9/11 backlash?*
- *Was there a shift in regulations because of the move? New taxes/zoning reqs?*

16. Marketing and All That Jazz continued...

Analysis 2

At the client meeting, the Director of Marketing is convinced that JALC needs to significantly reduce ticket prices. She is particularly worried about subscriber retention. From 1993 to 2003, JALC had an average subscriber attrition rate of 10%. Over that same period, JALC had maintained subscription rates at 50% of house capacity. Since 2003 this situation has changed. The Director of Marketing presents you subscription data from 2003-2005 (figure 1) as proof that JALC needs to reduce prices. She asks you to take a look at the numbers and see if you agree. She further asks you to project what 2006 rates will be if prevailing trends continue.

Answer

The first key is to recognize that this picture looked very different in the past. Typically, 90% were resubscribers and 10% were new subscriptions. In 2004, this ratio shifted to about 50/50. In 2005 it moved to 70/30. How does this insight change your view of the case?

Next, notice that the new subscribers in 2004 resubscribed in 2005 (with 10% attrition). This is a good trend.

Now, let's project 2006. (Ed note: On the surface this seems like a gross assumption to make based on the limited data available. Lucky for us, consultants do this all the time. Press the interviewee to state his/her assumptions and forge ahead.) Break the 2006 subscribers into four groups:

- 2003 and prior subscribers: They left in droves over the past two years, but those that remain are likely dedicated jazz fans and should stick around. Assume 10% attrition giving us 350 subscribers*
- 2004 subscribers: 10% attrition from 2005 numbers gives ~550 subscribers*
- 2005 subscribers: Again 10% attrition from 2005 numbers gives ~380 subscribers*
- 2006 new subscribers: This is the most difficult to estimate. Looking at the last two years, in 2004 we had 650 new subscribers, 2005 we had 425. Based on this trend a reasonable estimate is 200 subscribers. Prior to 2003 we were regularly able to attract 150 new subscribers. The case mentions buzz and free PR so maybe we will be closer to the 2005 number of 425 new subscriptions? All in all, 200 seems like a reasonable estimate.*
- Adding it all up, a conservative projection is 1,480*

16. Marketing and All That Jazz continued...

Analysis 3

Thanks to your convincing logic and comprehensive thought process, the Director of Marketing is convinced that your team can turn around JALC. As you shake hands and joke about the weather, a pained look comes over her face. "Wait a second. If we can grow our subscriber base by 10% a year we will soon have to move again," she says. Calculate how long it will be until JALC is at capacity with subscribers.

Answer

This is a rule of 72 problem: at 10% compounded annual growth a population will double every seven years.

JALC currently has 1,400 subscribers; capacity is 4,000 seats. In seven years there will be 2,800 subscribers and in 14 years there will be 5600 subscribers. Therefore the answer is around 10 years. You would get an "exact" number as follows:

$$2^{\frac{N}{7}} = \frac{4000}{1400}$$

$$\ln\left(2^{\frac{N}{7}}\right) = \ln\left(\frac{4000}{1400}\right)$$

$$\left(\frac{N}{7}\right)\ln(2) = \ln(2.857)$$

$$N = \frac{7 * \ln(2.857)}{\ln(2)}$$

$$N = 10.6 \text{ years}$$

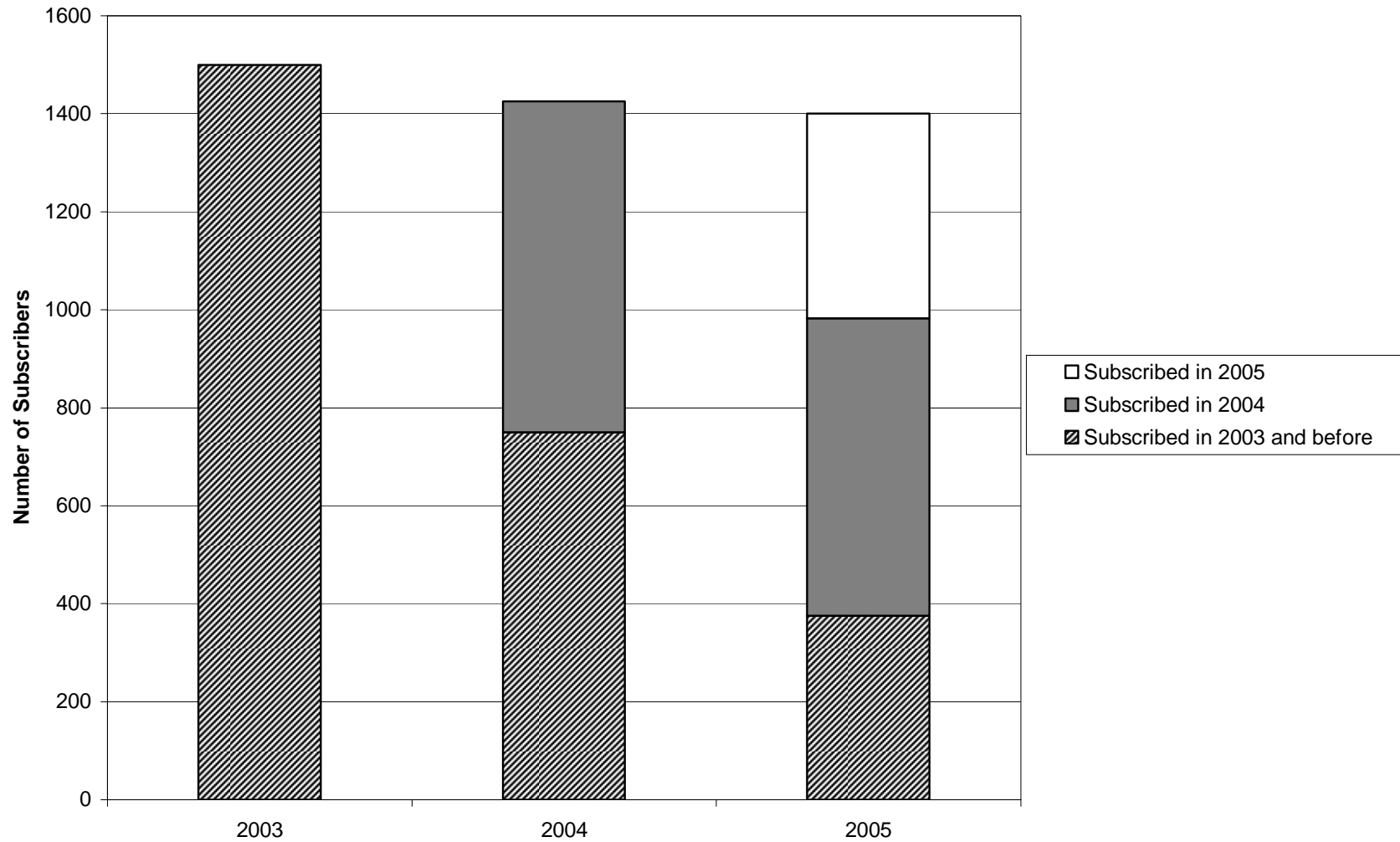
Conclusion

At the end of your first day on the study, you happen to run into Wynton Marsalis in the elevator. He asks how the study is going so far.

Answer

The interviewee should give a concise and complete summary of the key insights from the case. Press them to synthesize rather than summarize. A discussion of the next steps should also be included.

Figure 1: JALC Subscriber Data From 2003-5



17. Decline of Core Control

Type of Case: Product Evaluation

Opening

Our client is Comstock Telecom Company, a diversified technology corporation producing primarily telecommunications support equipment. You have been hired to evaluate a product known as “Core Control.” This product handles basic call connectivity—recognizing phone numbers dialed and connecting outgoing calls to recipients. The customers of this product are AT&T and the like, and our client competes against companies like Lucent and Alcatel for sales. This is an IP-driven business, and the market has experienced a significant downturn in the last year.

The CEO of Comstock Telecom has asked your team to evaluate the future of Core Control. How would you approach this problem?

Answer

The interviewee should quickly identify that this is a mature product and choose a framework that identifies the potential issues. One approach may look like this:

1) Company

- a. *What is Comstock’s strategy? Where does Core Control fit?*
- b. *How LEAN is Core Control? A mature industry often requires price leadership*
- c. *What are the financials of Core Control? Are we making money?*
- d. *What is Core Control’s outlook:*
 - i. *can we sell it off?*
 - ii. *can we milk it to fund R&D of new technology?*
 - iii. *can we bundle Core Control with a more profitable service?*
 - iv. *should we cut our losses?*

2) Competition

- a. *Who are they?*
- b. *Are they taking market share or leaving this declining market? how easily will they cede market share to us?*
- c. *Do they have advantages over us (cost leadership; brand strength; customer relations)?*

3) Customers

- a. *Who are they?*
- b. *Why aren’t they buying IP components (new technology, declining industry)?*
- c. *Can we grow the market?*

17. Decline of Core Control continued...

Analysis 2

The CEO wants to use Core Control revenues to fund new R&D. Last year, our client earned 15% EBIT on revenue of \$8b from Core Control. This year, our client's revenues are expected to decrease with the market rate (quantified: Year 1 = \$50b; Year 2 = \$25b). You've been asked to come up with a rough estimate of what the business might look like this year from a financial standpoint, and offer some thoughts on what this could mean going forward.

Answer

This is primarily a "numbers case," with the underlying exercise of estimating a cost structure. The essential task of this case is to estimate a cost structure for this year, determine what the EBIT will be, and discuss what this could mean for the business going forward. The interviewee's thought process in allocating costs is a crucial component of evaluation, and should involve some discussion of how and why he/she decides to allocate costs into the respective line items.

Revenues

Very simply, the interviewee can assume that revenues will decrease by the market "downturn" (i.e. 50%, from \$8b to approximately \$4b)

Costs

Interviewee should begin by identifying the following basic costs items (he/she can identify others, but if so, interviewer should suggest that he/she bucket them into the following 4 basic items):

- CoGS
- R&D
- S&M
- G&A

A logical next step would be for the interviewee to determine the total costs from last year

- *EBIT was 15%, so total costs were 85% of sales, or \$6.8b*

The interviewer should then ask how these total costs might have been allocated to the 4 basic costs items

17. Decline of Core Control continued...

One useful method is to first estimate how much each cost item will be as a % of sales (with total costs summing to 85% of sales). General breakdown should roughly align with:

- *CoGS = 50% of sales*
- *R&D = 20% of sales*
- *S&M = 10% of sales*
- *G&A = 5% of sales*

Generic logic:

- *CoGS will be largest cost item*
- *Since product is "IP-driven," R&D will be next biggest expense*
- *S&M and G&A will be smallest cost items*

As long as interviewee defends his/her reasoning, these percentages can be more/less than specified above.

Next, using these %'s, the interviewee can derive actual cost amounts for last year (total costs = \$6.8b):

- *CoGS = 50% x \$8b = \$4.0b*
- *R&D = 20% x \$8b = \$1.6b*
- *S&M = 10% x \$8b = \$0.8b*
- *G&A = 5% x \$8b = \$0.4b*

To extrapolate costs to this year, the interviewee should separate the above costs as fixed or variable (interviewer should prompt the interviewee to do so if not done on their own):

- *All or significant majority of CoGS will be variable (i.e. some small portion of CoGS may not vary with sales)*
- *All or significant majority of R&D will be fixed*
- *All or significant majority of S&M and G&A will be fixed (i.e. some small portion of S&M may vary with sales)*

Next, interviewee should split the calculated costs into fixed vs. variable. Exact cost breakdown will vary, but should fall within basic parameters outlined above (i.e. majority fixed vs. variable, or vice versa). For example:

- *CoGS = \$3.8 (var) + \$0.2 (fix) = \$4.0b*
- *R&D = \$1.6 (fix) = \$1.6b*
- *S&M = \$0.6 (fix) + \$0.2 (var) = \$0.8b*
- *G&A = \$0.4 (fix) = \$0.4b*

Thus, the interviewee will have derived (or thereabouts):

- *\$4.0b in variable costs*
- *\$2.8b in fixed costs*

17. Decline of Core Control continued...

The interviewee can then derive EBIT for this year:

- *With the 50% decrease in revenue, variable costs will decrease by 50%, with fixed costs remaining the same*
- *Thus, \$2.0b in variable costs, \$2.8b in fixed costs*
- *\$4.8 in total costs*
- *EBIT = (\$0.8)b*

Conclusion

Now that you have evaluated the outlook for Core Control, how would you advise the CEO to proceed from here?

Answer

- *Based on costs and revenue, interview should find that business will lose money this year.*
- *Interviewee should provide commentary (outside of limited case facts) about why it may or may not be a good idea to get out of this business, such as:*
 - *"market downturn could be an indication of the product's obsolescence"*
 - *"since this is an IP-driven business, business is cyclical and this year's investment in R&D could generate a rebound next year"*
 - *propose modifying the cost structure*
 - *Answers will vary, but the focus of this case in the EBIT calculation*



18. Taking Just Jets to Market

Type of Case: New Product Entry

Opening

We have been approached by the CEO of a start-up company called Just Jets. The company has developed a small jet and needs our assistance in formulating a strategy to take its product to market.

To date the company has spent \$500 million in developing a prototype of the jet it calls the Fusion500. The Fusion500 seats six people and comes appointed with leather seats and the safety features of a Boeing or Airbus jetliner. However it has little legroom for passengers and no bathroom. It is simple enough to be flown by only one pilot and travels at over 430 miles an hour - which is much faster than other light aircraft that carry a similar number of passengers.

The Federal Aviation Administration says it's on track to complete the certification of the jet within the next two months.

The CEO has asked us for advice on a strategy to take the Fusion500 to market.

We are meeting with the CEO in twenty minutes. What issues would you want to explore with him initially?

Background

Provide the following information if requested:

Price

Just Jets plans to sell the Fusion500 for \$1.5m.

Costs

<i>Rent per annum</i>	<i>\$5m</i>
<i>Financing costs per annum</i>	<i>\$14m</i>
<i>Plant & equipment per annum</i>	<i>\$25m</i>
<i>Salaries of full time permanent employees</i>	<i>\$1m</i>
<i>Variable labor cost per jet</i>	<i>\$100,000</i>
<i>Materials per jet</i>	<i>\$1m</i>
<i>Fixed overhead per annum</i>	<i>\$5m</i>
<i>Variable overhead per jet</i>	<i>\$300,000</i>

18. Taking Just Jets to Market continued...

Competition

Boeing and Airbus do not produce a jet similar to the Fusion500 and there are no indications that they intend doing so.

Gulfstream, Cessna, Bombardier and Dassault all make corporate jets, although none of them presently manufacture a jet of the size and performance of the Fusion500.

Just Jets understands that three companies may be developing a very light jet, namely Cessna, Honda and a start up Canadian company.

Answer

You are looking for the interviewee to construct a logical and coherent framework to analyze this new product and its prospects.

Many answers will be appropriate. This is an opportunity to drill down into an interviewee's answers and get them to explain their reasoning and why issues are important.

One approach is to use the 4Ps of price, promotion, product and place to set out issues to be discussed with the CEO.

Also very relevant is the customer segment the company is targeting (which will lead onto the second question).

Finally, the interviewee may want to explore the relevant supply chain and how the company intends extracting value from it.

Analysis 2

The CEO has indicated an interest in two potential markets in particular: the corporate jet market and the Air Taxi market. The latter market is made up of operators who intend using the Fusion 500 to ferry passengers between cities currently underserved by the big airlines.

Just Jets does not have the resources to position itself in both markets. The CEO is convinced it must choose one.

The corporate jet market is well-established with big players such as Gulfstream, Cessna, Bombardier and Dassault dominating. This year the market for small to mid-size jets is estimated at \$4 billion. Just Jets believes it could be a niche player and secure $\frac{3}{4}$ of one percent of that market.

18. Taking Just Jets to Market continued...

The Air Taxi market is very much in its infancy and harder to estimate. Present estimates indicate sales will be in the range of \$200m to \$600m. If we take the midpoint of this range, what market share would Just Jets need to secure to generate the same sales as the corporate market?

Answer

*Estimated sales in corporate market = 0.75% x \$4 billion
= \$30 million*

Midpoint of Air Taxi market = \$400 million

Market share required in Air Taxi market = 7.5%

Analysis 3

Aside from just potential revenues what issues should Just Jets take into account when choosing between the Air Taxi and Corporate markets?

Answer

The interviewee can discuss numerous considerations here. You should engage him/her in discussion and probe the answers you are given. Ask why, dig deeper, and test understanding. The interviewee should be able to rationally and confidently discuss issues such as:

- *potential competitor response, including the strength of the competitors*
- *market growth*
- *geography - location of key customers*
- *supply chain issues*
- *power of customers*
- *risk- the Air Taxi market is considerably riskier than the corporate jet market*
- *profitability - the air taxi market has few if any competitors and Just Jets may be able to command a higher margin*

Porter's five forces is a useful framework to employ in comparing the two markets.

Analysis 4

The CEO has also indicated he wants to know how many Jets the company needs to sell in its first year to breakeven ignoring sunk costs. It would be helpful if you could provide a rough estimate.

18. Taking Just Jets to Market continued...

Answer

Breakeven Volume = fixed cost / net profit margin per unit
= fixed cost / (price - variable cost)

If the interviewee does not recall the formula then give it to him/her and still require him/her to perform the calculation.

The interviewee will need to ask appropriate questions to obtain the information he/she needs to perform the calculation. Price and cost information are provided above.

Annual fixed costs = \$50m

The price of a jet is \$1.5m

Variable costs are \$1.4m.

Breakeven volume of jets = 50 / (1.5 - 1.4)
*= **500 jets***

Conclusion

The CEO has just entered the room. He looks at you and says "So, what are your thoughts on my new plane?" How do you answer?

Answer

You are looking for the interviewee to be structured and concise here. He/she should pull approx three key points you have discussed and summarize them appropriately for the CEO. The interviewee should also indicate the next steps they would take in the project (e.g. confirm estimated financials, conduct marketing research to refine market; etc.)



Market Sizing Facts

Population Figures:

▪ World.....	6.6 B
• Web users who speak English.....	3.3 B (1/2)
▪ United States.....	300 M
• Adults.....	200 M (2/3)
• Children.....	100 M (1/3)
• Households.....	110 M
• Size of US Household.....	2.5 people
• Median US household income.....	\$46,000
• Average US household income.....	\$63,000
• Average US life expectancy.....	78 years
• GDP (Economic Output of US).....	\$13.5 TR
• GDP per capita.....	\$45,000
• New York City.....	8 M
○ Manhattan.....	1.6 M
○ Visitors each year.....	45 M
▪ Los Angeles.....	4 M
▪ Population with Internet access.....	150 M (1/2)
▪ Number of Cities & Towns.....	30 K
▪ ATMS.....	200 K
▪ Europe.....	730 M
• Western Europe.....	185 M
• UK.....	60 M
○ London.....	7 M
▪ Asia.....	3.9 B
• China.....	1.3 B
○ Beijing.....	15 M
○ Shanghai.....	19 M
○ Hong Kong.....	7 M
• India.....	1.1 B
• Japan.....	125 M
○ Tokyo.....	12 M

Market Sizing Facts

Age Groups:

- Baby boomers: born between 1946 and 1964 (18 years)
- Generation X: born between 1965 and 1975 (10 years)
- Generation Y: born between 1976 and 1981 (5 years)

Customary Markup Percentages for Retail Businesses:

- New cars..... 15%
- Used cars..... 75%
- Electrical Appliances..... 30%
- Clothing..... 50%
- Trend Clothing..... 59%
- Cosmetics/Fragrances..... 75-80%
- Crystal Ware..... 60%
- Gifts and clocks..... 55%
- Food Retailers..... 45%

Solution to Sudoku on p. 61

1	9	4	8	7	2	3	6	5
6	3	8	1	9	5	4	2	7
2	5	7	4	6	3	1	8	9
4	8	2	7	5	6	9	1	3
7	1	3	2	8	9	5	4	6
9	6	5	3	1	4	8	7	2
5	4	9	6	2	1	7	3	8
3	7	6	9	4	8	2	5	1
8	2	1	5	3	7	6	9	4

Formula Review

Time Value of Money:

$$\text{Value to Perpetuity} = \frac{\text{ValueOfAsset}}{\text{DiscountRate}}$$

$$NPV = \sum_{t=0}^n \frac{\text{AnnualCashFlow}_t}{(1+r)^t}$$

Rule Of 72:

$$\text{Time for Invested Principle} = \frac{72}{r} \quad *r = \text{Rate of Return}$$

- At 7% r the investment will double every 10 years.
- At 10% r the investment will double every 7 years.

Inventory:

A financial measure of a company's performance that gives investors an idea of how long it takes a company to turn its inventory (including goods that are work in progress, if applicable) into sales. Generally, the lower (shorter) the DSI the better, but it is important to note that the average DSI varies from one industry to another.

$$\text{Inventory Turns} = \frac{\text{COGS}}{\text{TotalSalesOfInventory}}$$

$$\text{Days Of Inventory} = \text{Inventory Turns} \times 365$$

Profitability and Breakeven:

$$\pi = Q(P - VC) - FC$$

$$\text{Breakeven Quantity (BEQ)} = \frac{FC}{P - VC}$$

Working Capital:

$$ROI = \frac{\pi}{K}$$

*K = Capital Invested (Assets, Working Capital)

$$\begin{aligned} \text{Working Capital} &= \text{Assets} - \text{Liability} \\ &= \text{Cash} + \text{Inventory} + \text{Receivables} - \text{Account Payable} - \text{Liabilities} \end{aligned}$$

Formula Review

Margin & Markup:

$$\text{Gross Margin} = \frac{P - C}{P}$$

$$\text{Markup} = \frac{P - C}{C}$$

$$P = \frac{C}{(1 - \text{Gross Margin})}$$

$$P = (\text{Markup} + 1) \times C$$

$$\text{Percentage Increase} = \frac{\text{New Price} - \text{Old Price}}{\text{Old Price}}$$

Income Statement:

<i>Sales</i>
– <i>COGS</i>
= Gross Profit
– <i>SG&A</i>
=EBITDA
– <i>Depreciation</i>
= Operating Profit
– <i>Interest Expense</i>
=EBIT
– <i>Tax Expense</i>
Net Income

FINANCIAL ANALYSIS TOOLS
Profit Ratios:

Measure the efficiency with which the company uses its resources. Useful for comparing performance to competitors or benchmarking performance over time.

$$\begin{array}{ll} \text{Gross Profit Margin} = & \frac{\text{Sales Rev.} - \text{COGS}}{\text{Sales Rev.}} & \text{Return on Total Assets} = & \frac{\text{Net Income}}{\text{Total Assets}} \\ \text{Net Profit Margin} = & \frac{\text{Net Income}}{\text{Sales Rev.}} & \text{Return on Stockholders' Equity} = & \frac{\text{Net Income}}{\text{Stockholders' Equity}} \end{array}$$

Liquidity Ratios:

Measures the company's ability to meet short-term obligations. Results <1 suggest solvency problems.

$$\begin{array}{ll} \text{Current ratio} = & \frac{\text{Current Assets}}{\text{Current Liabilities}} & \text{Quick Ratio (Acid Test)} = & \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}} \end{array}$$

Activity Ratios:

Measures how effectively the company is managing its assets.

$$\begin{array}{ll} \text{Inventory Turnover} = & \frac{\text{COGS}}{\text{Inventory}} & \text{Average Collection Period or Days Sales Outstanding (DSO)} = & \frac{\text{Accounts Receivable}}{\text{Total Sales}/360} \end{array}$$

Leverage Ratios:

Measures the balance between debt and equity, or the *capital structure*. Too little use of debt can suggest that stock is being overly diluted; too great a use of debt increases risk to firm since bankruptcy can occur if firm is unable to make principal and interest payments. Typical capital structures vary significantly by industry, so it's useful to compare to competitors or industry average. Some people prefer to look only at long term debt, while others include short-term debt or total liabilities.

$$\begin{array}{ll} \text{Debt-to-Assets Ratio} = & \frac{\text{Total Debt}}{\text{Total Assets}} & \text{Times-Covered Ratio} = & \frac{\text{EBIT}}{\text{Total Interest Charges}} \\ \text{Debt-to-Equity Ratio} = & \frac{\text{Total Debt}}{\text{Total Equity}} \end{array}$$

Shareholder Return Ratios:

Measures return to shareholders from holding stock in the company.

$$\begin{array}{l} \text{Total Shareholder Returns} = \\ \frac{\text{Stock Price (t+1)} - \text{Stock Price (t)} + \text{Sum of Annual Dividends per Share}}{\text{Stock Price (t)}} \end{array}$$

$$\begin{array}{ll} \text{Price-Earnings Ratio} = & \frac{\text{Market Price per Share}}{\text{Earnings per Share}} & \text{Dividend Payout Ratio} = & \frac{\text{Annual Dividends per Share}}{\text{After-tax Earnings per Share}} \end{array}$$

$$\text{Dividend Yield} = \frac{\text{Dividend per Share}}{\text{Market Price per Share}}$$

Cash Flow:

Measures cash available to the firm, available for investment. If this figure is less than proposed expenditures, firm will either require external financing or must curtail investments.

Internally Generated Cash Flow = Profits after Interest, Taxes and Dividend Payments + Depreciation

Brain Teasers

Want a job at Google? Try these brainteasers first

Google, Microsoft, and eBay are looking for engineers who can think on their feet. Here's how they find them.

By [Michael Kaplan](#), Business 2.0 Magazine
August 30 2007: 9:17 AM EDT

(Business 2.0 Magazine) -- Dream of landing a coding job at an A-list tech company? It might be a good idea to prep for your interviews by pondering how many golf balls can fit inside a school bus. Or how much you would charge for washing all the windows in Seattle. Or why, exactly, manhole covers are round and not, say, square.

Seemingly random questions like these have become commonplace in Silicon Valley and other tech outposts, where companies aren't as interested in the correct answer to a tough question as they are in how a prospective employee might try to solve it. Since businesses today have to be able to react quickly to shifting market dynamics, they want more than engineers with high IQs and good college transcripts. They want people who can think on their feet.

[Microsoft](#) ([Charts](#), [Fortune 500](#)) often gets credit for bringing so-called open-ended logic-problem screening tools into vogue in the late 1980s, when Redmond interviewers peppered job candidates with offbeat questions like How much does a 747 weigh? "We want to gauge people's creativity," says Warren Ashton, recruiting manager at Microsoft. The manhole cover problem is Ashton's personal favorite.

The most common answer, he says, is that a square manhole cover, tipped at an angle, could fall through the hole. "But some people recognize that you can roll a round manhole cover from site to site. Others figure that you save money by making it round because of tooling requirements. You want to see people taking their conclusions as far as possible."

Such questions are more relevant to a high-tech job interview than you might think. "Employers want to see if you can make an estimate in the ballpark, within an order of magnitude," says Mark Jen, a former [Google](#) ([Charts](#), [Fortune 500](#)) employee who is now a program manager at Tagged. Coders are constantly making educated guesses rather than calculating exact answers, so a good interview should probe how well a candidate handles such estimates. That's why [Amazon.com](#) ([Charts](#), [Fortune 500](#)) interviewers, for example, have been known to ask job candidates to guess how many gas stations there are in the United States or to ballpark that bill for washing all of Seattle's windows.

But today's interviews go beyond seat-of-the-pants estimation. Author, design consultant, and veteran coder Bruce Eckel likes to have job candidates describe a chicken using a programming language. [eBay](#) ([Charts](#), [Fortune 500](#)) often hits candidates with a word problem that goes like this: You have five pirates, ranked from 5 to 1 in descending order. The top pirate has the right to propose how 100 gold coins should be divided among them. But the others get to vote on his plan, and if fewer than half agree with him, he gets killed. How should he allocate the gold in order to maximize his share but live to enjoy it? (Hint: One pirate ends up with 98 percent of the gold.)

But no company has taken brainteaser recruiting quite as far as Google, which famously reeled in engineers three years ago by posting complex math problems on a billboard along Highway 101 in Silicon Valley. Passing motorists were invited to submit their solutions to an undisclosed website. (The site's URL was hidden in the answer.)

If you got to the site, you were asked a second, more difficult question. If you answered that one correctly, you were invited to submit your resume. Once you got to the Googleplex for an interview, a favorite question was this: You are shrunk to the height of a nickel and your mass is proportionally reduced so as to maintain your original density. You are then thrown into an empty glass blender. The blades will start moving in 60 seconds. What do you do?

It's not just employees who have to adjust to the new screening processes. Employers are also prepping for interviews in ways they never did before. When LinkedIn founder Reid Hoffman was searching for a new CEO earlier this year, he took an unusual approach to checking references. Having set his sights on a particular candidate, he used the LinkedIn network to find what he calls "off-balance references": 23 former associates who were not preapproved by the candidate. Some were friends of friends - two degrees removed, in LinkedIn parlance. Some had no idea who Hoffman was or why he was calling.

The unscripted references helped to prepare the team that interviewed Hoffman's final choice. Equally important, Hoffman got unfiltered information about a potential top-tier employee, minimizing the likelihood of getting duped. "Normally it's a low bar for someone to give you two or three people who'll say nice things about them," Hoffman says. "Our way of doing it requires a bit of detective work, and you need to put a story together. But you quickly sense if a person is good or a sham."

Getting a handle on a candidate's people skills can be just as important - and just as tricky. At aQuantive, a digital marketing company, job applicants go through an extensive interview loop and in most cases must win the approval of everyone who met them before getting an offer. "We jokingly liken it to organ rejection," says Kem Day, director of recruiting. "But by reaching a better decision up front, we make sure that whoever we hire will get support from within the company."

Clearly, technical skills alone are not going to cut it in today's high-tech environment. "It used to be that if you could spell 'engineer,' you got a shot," says Beverly Principal, assistant director of Stanford University's Career Development Center. "Now there is much more concern about employees being able to work with the company and grow to the next level." That, and being able to survive when shrunk to the size of a nickel.

How many golf balls can fit in a school bus?

About 500,000, assuming the bus is 50 balls high, 50 balls wide, and 200 balls long

You're shrunk and trapped in a blender that will turn on in 60 seconds. What do you do?

Some options:

1. Use the measurement marks to climb out
2. Try to unscrew the glass
3. Risk riding out the air current

How much should you charge to wash all the windows in Seattle?

Assuming 10,000 city blocks, 600 windows per block, five minutes per window, and a rate of \$20 per hour, about \$10 million.

Brain Teasers

To test logical thinking:

You have 12 boxes of beer. Each box has 12 beers. Each beer has twelve ounces. Except for one box. This box's beers are each under or over filled by exactly 1 ounce. (We don't know which but they are all the same). We have a bathroom scale on which we can weigh the beer to find out which box is incorrectly filled. Unfortunately this scale only has enough batteries left for one weighing.

How do you use the scale to find out which box has the incorrectly filled beers and whether those beers are over or under filled?

(Tare weight of the bottles is 0)

To test outside the box thinking:

What is next in the series?

1 11 21 1211 ?

To test Collectively Exhaustive thinking (or trial and error):

You have 9 balls that each weigh the same, except for one which is heavier. You have a see-saw style scale that can be used only twice to determine which is the heavy one.

What is a guaranteed plan to identify the heavy ball.

An Example of MECE: Sudoku

		4				3		
	3		1		5		2	
2				6				9
	8		7		6		1	
		3				5		
	6		3		4		7	
5				2				8
	7		9		8		5	
		1				6		

Some Brainteaser Links:

http://www.vault.com/nr/newsmain.jsp?nr_page=3&ch_id=421&article_id=18574&cat_id=1481

<http://worsethanfailure.com/Articles/Riddle-Me-An-Interview.aspx>

<http://www.techinterview.org/>

<http://perplexus.info/>