RETHINKING
THE BOUNDARIES

DUKE
THE FUQUA SCHOOL OF BUSINESS

The Duke MBA Consulting Club Casebook 2016-2017

DMCC 2016-2017 sponsors

DUKE
THE FUQUA SCHOOL OF BUSINESS

Sponsor Categories	Firms
Platinum	Deloitte.
Gold	BAIN & COMPANY; pwc; L.E.K.; accenture strategy
Silver	BCG THE BOSTON CONSULTING GROUP; ZS ZS ASSOCIATES; McKinsey&Company

Editor’s Note

Welcome students:

The Duke MBA Consulting Club (DMCC) is proud to present the 2016-2017 DMCC Casebook. This year we have included over 20 brand new cases and “greatest hits” section featuring some of the most acclaimed cases from previous Fuqua casebooks. The objective of this book is to help you prepare for your upcoming consulting case interviews. Case interviews are an integral part of the hiring process for consulting firms. These interviews give you the opportunity to showcase your communication, client, creative and analytical skills to your interviewer. This book was developed to complement the Duke MBA Consulting Roadmap curriculum. We hope that using both will help lead you to success during the upcoming recruiting season.

Included are industry one pagers to give you an overview of each industry. Although we cannot prepare you for everything you might encounter during your case interviews we went to great lengths to diversify the case content. Current cases cover a wide variety of topics from healthcare to travel, across several problem types. Finally, we have included a resource page and feedback form to help you prepare and help us improve the casebook.

This casebook could not have been completed without all of the wonderful cases submitted by your classmates. We would also like to thank our friends at other MBA programs for sharing with us their old casebooks to supplement the cases herein.

We wish you luck with your preparation and would like you to remember that your fellow DMCC members are here to help! Please reach out to anyone on the cabinet if you feel that you are not “cracking the case”. Lastly, to the students of other top MBA programs using this casebook during their preparation, we warmly welcome you to “Team Fuqua.”

Good luck!

Logan Besuden, Aniket Panda and Andrew Wong

The DMCC 2016 Casebook Team

Acknowledgements

This casebook would not have been possible without the case contributions from the following second year students:

Logan Besuden, Adair Clayton, Rylan Collins, Russell Glorioso, Rohan Hooda, John Huisman, Shreyas Jayanth, Chris Kostyla, Johnson Lee, Anthony Lewis, Maxim Marakov, Aniket Panda, Sam Pierce, Kate Ramsey, Binata Ray, Sam Shaprio, Chris Sheehan, Matt Thacker, Andrew Tuttle, Chris Wells, Adrian Wilson and Andrew Wong

In addition, we would like to thank Deloitte, BCG, and Accenture for providing cases for this year's book.

Casebook Overview

- The first section provides key industry one pagers followed by a case table of contents and practice cases

- Qualitative and quantitative case difficulty is identified within the case table of contents; difficulty is rated as easy, medium and difficult. Medium is considered to be at the level of a typical interview case.

- Ask the behavioral questions EVERY TIME you give a case!

- Most cases are adaptable, so try to familiarize yourself with the case prior to giving it

- Print exhibits before giving the case or be prepared to share digitally (we tried to ensure that all exhibits are effective when printed in black and white, but recommend double checking your print outs to be sure!)

- **HAVE FUN!**

Industry Overviews

Consumer Packaged Goods (CPG)

Products/services	CPG companies provide consumers with a range of household products such as cleaning agents, beauty products, snacks, pet foods, etc.
Revenue	Volume of goods sold; Price premium on branded goods
Costs	Sales and Marketing (branding, discounting); COGS (raw materials, packaging, and processing)
Competitive landscape (competitors, substitutes, new entrants)	Procter & Gamble (P&G), Unilever, Clorox, Mondelez, Frito Lay Private label products, home remedies Chobani
Customers	Walmart, Sams, Costco, Target, Grocery stores, Convenience stores
Distribution channel(s)	Wholesale to customers (Walmart, etc.) Direct (limited web distribution through Amazon and others)
Suppliers/ supply chain	Supply chain varies widely by product and region; plants are owned/operated or contract manufactured
Key trends	Activist investors push cost cutting and selling non-core brands; private label growth; innovation/brand is critical to fight product commoditization

Oil & Gas

Products/services	Products are categorized along the value chain as upstream and downstream. Upstream: oil and natural gas. Downstream: chemicals and plastics
Revenue	Volume of goods sold; Price is generally determined by global indices
Costs	Extraction costs, COGS, labor, technology and licensing
Competitive landscape (competitors, substitutes, new entrants)	Upstream: BP, Shell, Aramco, Exxon Mobil Oilfield services: Schlumberger, Halliburton, Baker Hughes Downstream: BASF, Dow, SABIC
Customers	Governments, CPG producers, Utilities companies
Distribution channel(s)	Wholesale to customers: in large quantities Traders: in smaller quantities
Suppliers/ supply chain	Products are mostly transported in large quantities by vessels and require long lead times.
Key trends	Oil prices have been volatile over the past two years. The recent American shale oil boom, and slowdown have seen the price of oil have high variance.

Manufacturing

Products/services	Manufacturing sector includes companies that are in the business of mechanical, physical, or chemical transformation of materials/substances/components into new products
Revenue	Volume of goods sold; Price premium on branded goods
Costs	Process efficiency, supply chain management, labor, raw materials/commodities, channel management, marketing, capital investment
Competitive landscape **(competitors, substitutes, new entrants)**	General Motors, Chrysler, Ford, Toyota, Honda, Boeing, Airbus, GE, Phillips, Siemens, Caterpillar, Honeywell, Dow, Corning, HP, Intel
Customers	Varies by industry and position in supply chain, can be consumers or raw goods to businesses
Distribution channel(s)	Retail to consumers (Walmart, etc.) Wholesale to businesses
Suppliers/ supply chain	Supply chain varies widely by product and region; plants are owned/operated or contract manufactured
Key trends	Increased automation increasing cyclical nature, location is sector and customer dependent (“next-shoring”)

Financial Services

Products/services	Deposit-based services, credit cards, consumer loans (personal and business), payments, insurance, securities, private wealth management, underwriting for IPOs, retirement accounts, real estate loans
Revenue	Net revenue is the spread between bank's borrowing cost and the interest rates charged to borrowers; fees
Costs	Overhead (branches, administration, compliance); Salaries; Bad Debt Expense; Marketing
Competitive landscape (competitors, substitutes, new entrants)	Large national players (Wells Fargo, Bank of America, Citi) compete with regional banks. Largest players' services extend well beyond commercial banking to investment banking, securitization, proprietary trading, etc. with services that are increasingly opaque
Customers	Individual consumers High net worth consumers (priority segment) Small/medium businesses without sufficient size for larger investment banking financing services Private companies going public looking for underwriting
Distribution channel(s)	Still large face-to-face presence with bank branches, tellers, etc. Increasing use of ATM services, online banking Banks increasingly offer credit cards, home loans, etc. as means to increase asset base
Suppliers	Private deposits from individuals and corporations
Key trends	Consolidated, mature industry with primary growth through acquisitions Demographic shift (baby boomer aging) creating large market for retirement products Offshoring of various functions to reduce expenses (e.g. call centers, back office functions)

Private Equity/Investments

Products/services	Equity that is not publicly traded Common forms include Leveraged Buyouts (LBOs), Venture Capital (VC), Mezzanine Capital, Distressed Investments, and Growth Capital
Revenue	Return on investments, management fees Levers pulled to increase revenue: timeframe, identifying efficiencies, new management
Costs	Investment expenses, legal, technical assistance to firms, administrative expenses, travel, labor is very costly (few and highly paid employees), taxes
Competitive landscape (competitors, substitutes, new entrants)	Supply of capital greater than demand Large (e.g. KKR, Carlyle, Blackstone, TPG), Mid ($250M to $5B), and Small Market PE shops
Customers	New customers of PE deals may be corporations Institutional investors Customers can range from small family-owned companies to large corporations
Distribution channel(s)	Leveraged Buyouts: controlling interest (of equity) is acquired through high borrowing Venture Capital: investors give cash in exchange for shares/control; typical with start-ups Mezzanine Capital: financing that contains equity based options and subordinated debt (e.g. convertible loans) Growth capital: financing to expand, restructure, or enter new markets with little change in management Distressed Investments: investing in financially stressed companies
Suppliers	Private investors, large corporations, foundations
Key trends	Larger amounts of equity required for each deal, Startup financial performance not always meeting high valuations Health care and tech are seeing most of the activity Buying and selling of current PE commitments likely to increase over the next few years Growing need for PE firms to have cash margins

Pharmaceuticals

Products/services	Brand name/originator drug manufacturers produce original patent-protected (for a certain period of time) drugs for human and animal diseases. Generic drug producers produce 'copy-cat' drugs (with the same medical result) at a lower development cost when the originator drug's patent expires.
Revenue	Size of specific treatment area / level of competition; Buy-in from doctors that will prescribe; Speed to market (1st to market is important)/ expertise in difficult products (for generics). Dosage and frequency of drugs can alter revenue. Revenue can come directly from patients, but most is received from third party insurers)
Costs	VC: sales and marketing (doctor visits, sponsored studies); FC: R&D (drug discovery, formulation, clinical trials; a lot of this is now outsourced; generic companies only need to perform clinical trials and are therefore fast to come to market once a patent expires)
Competitive landscape (competitors, substitutes, new entrants)	Success contingent on drug effectiveness, adoption/buy-in from doctors, coverage approval from private and public insurers, patient adherence and ease of use. Products compete within various treatment areas (T): cancer, cardiovascular, psychology etc. US, Europe and Japan are largest markets although emerging market opportunity (eg. China, India, Brazil) is growing. In the US, the Food & Drug Authority (FDA) needs to approve all drugs before sale. Generic drugs are treated as substitutes and usually receive more favorable reimbursements by insurers.
Customers	Doctors who prescribe these medicines Insurance companies that pay for them (i.e. private insurers, Medicare (over 65), Medicaid (low-income/disabled) Patients/consumers who need these drugs/medicines In some emerging markets officials (provincial and central government) may control channel access
Distribution channel(s)	Over the counter ("OTC", can be sold without prescription); Retail outlets – CVS, Walgreens; Mail order/online; hospitals; pharmacies; doctor's offices; B2B: Distributors/intermediaries
Suppliers/ supply chain	Drug manufacturer → Drug wholesaler/distributor → retailer/pharmacy/doctor's office/hospital → patient
Key trends	Price competition from generic drug manufacturers. Increasing pressure from health insurance companies and hospitals to reduce prices. R&D challenge of finding high revenue drugs ('Blockbusters' have annual sales > $1B). Weaker investments in R&D in recent years. Loss of patent on key drugs for many large pharma companies, especially for specialty biologic drugs in the next 5 years.

Airline

Products/services	Air transportation for passengers and cargo
Revenue	Ticket sales, baggage fees, food and beverage sales, freight fees
Costs	Fuel, food and beverage, ground crew, air crew, aircraft lease/payments, airport fees, IT/admin fees, frequent flier program fees, marketing and sales, offices, hangars
Competitive landscape (competitors, substitutes, new entrants)	Legacy carriers (Delta, United, American, Lufthansa, Air India, British Airways) compete with each other and are also competing with low cost carriers (Southwest, Allegiant Air, Frontier Airlines, Eurowings, Gogo Air). New entrants are more common in the low cost model. Barrier to entry include available gate space.
Customers	Individual passengers, corporate travelers, travel agents/websites
Distribution channel(s)	Direct from the airline (website, at the airport, over the phone), travel agents (website, in person, over the phone), through other providers as a bundle (cruise and flight bundle, hotel and flight bundle etc.)
Suppliers/ supply chain	Aircraft manufacturer, avionics manufacturer, aircraft leasing companies, fuel providers, airport operators, flight training providers, catering providers, aircraft maintenance providers
Key trends	Growth is limited in this market, in 2014 growth was 3%, total expected growth by 2019 in 8.3% over the passenger volume in 2014. Recent years have seen consolidation of legacy carriers (United and Continental, American and US Airways)

Media

Products/services	Media sector includes print, audio and video content generation and distribution.
Revenue	Advertising is a key revenue driver, additional revenue sources are subscriptions, one-time purchases (video on demand, DVD purchase), licensing fees
Costs	Production costs (salary, technology, location fees etc), distribution costs, marketing and advertising, promotions, capital costs (studios, equipment etc.)
Competitive landscape (competitors, substitutes, new entrants)	Highly competitive with a few major players owning most of the market. New entrants such as Hulu and Netflix are changing the market.
Customers	Individual viewers are part of the product for most ad-revenue driven models. The main customers there are the advertising companies. For subscription based models, the end viewer or consumer of the content is the customer.
Distribution channel(s)	Online streaming is the fastest growing channel, tradition distribution through retail outlets still exists. Additional distribution through theaters and other 'live' events.
Suppliers/ supply chain	Technology providers (particularly internet service providers are becoming key in allowing high speed streaming), actors, artists and musicians
Key trends	Online streaming and cord cutting is changing the industry. There is a large focus on creating and controlling content. Companies such as Netflix and Yahoo are starting to create original content to remain competitive

Technology

Products/services	Broad industry consists of PCs, servers, semiconductors, internet service providers, communications providers and equipment, IT services, software and application development, and internet companies. Is part of every industry
Revenue	Varies by type of product. For PCs revenue is primarily from sales of PC and also from support, for internet mobile applications revenue is driven by clicks on ads. IT services revenue is tied to staff utilization per employee.
Costs	Costs vary by the product, for software the initial R&D cost is high but the marginal cost for production is negligible. For PCs and servers input costs include component costs, labor costs, distribution and support costs. Semiconductors have high fixed costs.
Competitive landscape (competitors, substitutes, new entrants)	Few large competitors in the PC and server space, many competitors in the software and application development space. Internet companies have low barriers to entry and thus a highly competitive environment; acquisitions of smaller players are common by the internet giants.
Customers	Varies by product: ranges from individual customers and corporations to companies looking for advertising channels. Internet companies tend to be B2C (ad click revenue), while companies such as IBM, Oracle, Cisco focus on B2B.
Distribution channel(s)	Distribution through retail outlets and B2B channels for hardware, online distribution through app stores/ websites for software. Limited distribution of software through physical media
Suppliers/ supply chain	For hardware: various suppliers include raw material providers, semiconductor manufactures, machine and technology providers For software: supply chain includes software testing houses, distribution through 3rd party such as app store
Key trends	Acquisition of talent and technology by established industry players. Freemium and ad-driven revenue models for software. New technologies entering the business segment: Internet of Things, cloud computing, big data (predictive) analytics, mobile (computing everywhere), 3D printing, machine learning.

Resources & Feedback

Fuqua Casing Resources

- Prior DMCC and other schools' casebooks are accessible at:

https://orgsync.com/117005/files/1003075

- Included in this year's book are several cases from Deloitte, BCG and Accenture. In prior years other firms have provided sample cases. Please refer to older Fuqua casebooks for these examples, which are reflective of actual case interviews.

Feedback

- Every year, DMCC prepares a casebook for Fuqua students. Many of these cases are new and therefore may still have small edits or areas for improvement. Your feedback is welcome on any case and is particularly helpful for next year's casebook team.

- **To submit feedback, please fill out this form**: https://goo.gl/forms/ZI56YN7a5FhsYdx32

Case List

Case #	Name	Industry	Qual	Quant	Page
1	YachtCo	Consumer Products	Easy	Easy	20
2	Dam It	Public Sector/Infrastructure	Easy	Easy	29
3	Sam's Sushi	Services	Easy	Easy	37
4	Swipe Right for Canoodle	Technology	Easy	Medium	45
5	Cackalacky Construction	Infrastructure	Medium	Easy	55
6	Polar Bear Pool Float	Consumer Products	Easy	Medium	64
7	Sardine Airlines	Transportation	Medium	Medium	75
8	Run of the Mill	Industrial Goods	Medium	Medium	87
9	Critical Transportation	Transportation	Medium	Medium	100
10	Dealer Jack's	Retail	Medium	Medium	109
11	Duck Island Beer Company	Consumer Products	Medium	Medium	118
12	FoodXperts	Healthcare (Human Capital)	Medium	N/A	132
13	NileKart	Technology (Human Capital)	Medium	N/A	139
14	Fresher Breath	Consumer Products	Medium	Medium	152

Case List

“Greatest Hits” Case List

Case #	Name	Industry	Qual	Quant	Page
29	Mission Eternity (‘15-16)	Other	Difficult	Medium	296
30	Refinery in the Country of Georgia (‘15-16)	Oil & Gas	Medium	Medium	307
31	Walter Black Industries (‘15-16)	Chemicals	Difficult	Medium	319
32	Activist Action (‘15-16)	CPG	Difficult	Difficult	332
33	Buy Low, Sell High (’14-15)	Financial Services	Easy	Difficult	342
34	Orange Yoga Studio (’14-15)	Other	Difficult	Difficult	352
35	Coyotes (’14-15)	Non-Profit	Difficult	Difficult	363
36	The Everything Retailer (’14-15)	Retail	Difficult	Medium	374
37	Purple Pill Company (’14-15)	Pharma	Medium	Medium	382

YachtCo

Industry: Luxury goods
Quantitative Level: Easy
Qualitative Level: Easy

Behavioral Questions

Question 1:

- Tell me about a time when you had a disagreement with a colleague in which you *didn't* find an amicable outcome. How did you manage your relationship with this colleague going forward?

Question 2:

- What aspects of a job do you find most rewarding? Why?

YachtCo

Prompt #1:

- Your client is YachtCo, a US-based luxury motor yacht manufacturer. Started in 1958, they have grown into one of the largest and most prestigious yacht brands in the country. However, they have seen a gradual decline in their profitability in recent years. Their CEO has come to you to develop a turnaround strategy for the company, aiming to improve profitability for the medium-to-long term.

Interviewer Guidance (Provide only upon request):

- YachtCo has 2 core lines of business: (1) design and sale of new boats, (2) maintenance and/or renovation of existing boats.
- Their main buyers are high net worth individuals and companies, both domestic and abroad.
- *Competitors*: Stable revenues with slight decline in profits, but not to the same degree as YachtCo.
- *Customers:* market research shows that YachtCo is still maintaining its market share in the luxury yacht segment, despite competition from abroad.
- *Rev/Cost/Profit*: If asked about finances, say that you will return to this later and ask them to complete the framework

YachtCo

Prompt #2:

Provide the interviewee with the following information:

- New Yacht Sales
  - 2014: 100 sales, average sale price $3.2M, average cost $2.6M
  - 2015: 110 sales, average sale price $3.3M, average cost $3.0M
- Yacht Repair/ Renovations
  - 2014: 200 contracts, average contract $850K, average cost $710K
  - 2015: 300 contracts, average contract $900K, average cost $750K

Interviewer Guidance:

A good candidate will note that profits from new yacht sales have declined, largely due to the increased average costs. They will also note that yacht repairs/ renovations have seen profit growth, however not enough to offset the decline from new yacht sales.

Ask candidate for possible reasons as to why profitability has declined in new yacht sales

- Costs have increased: design, raw materials, transport, labor
- Competitor price pressures restrict increase in sale price

Once candidate identifies that increased costs are eroding profits, provide candidate with next prompt.

YachtCo

Prompt #3:

Given the increased demand for steel in Asia and the Middle East, the price of high-grade steel has jumped over 50% in the past year from $1100 to $1800 per metric ton. **Give candidate Exhibit 1**.

YachtCo's engineering department recommended that YachtCo transition from traditional steel hulls to newer fiberglass hulls to reduce the costs of construction. Is it worth doing this over the next 5 years?

Interviewer Guidance:

The idea here is to get the candidate to calculate the estimated costs associated with each method (stay with steel or transition to fiberglass).

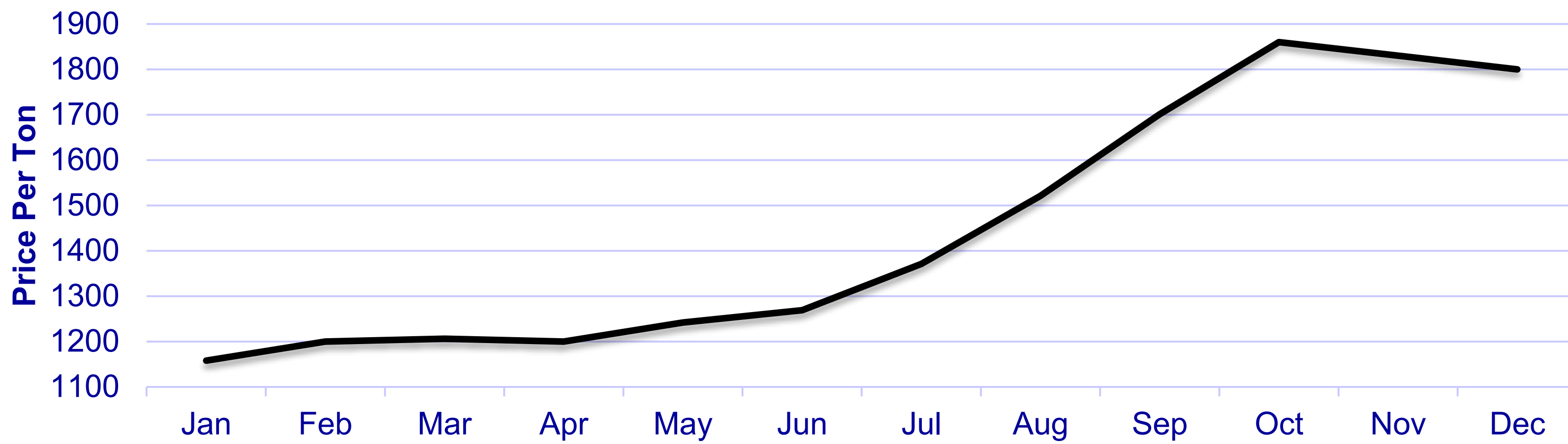
If asked:

- Number of new yachts expected to remain at 100/year over the next 5 years
- Average quantity of steel needed per yacht: 30 tons
- Predicted cost of steel: Stable at $1800/ton
- Assume no downtime in transition to fiberglass hulls
- Assume that labor costs are the same for both hull types
- Do NOT need to discount cash flows for the purpose of this calculation

YachtCo: Exhibit 1

Option 1: Continue with current steel hull design

- Steel prices:



- Steel price: $1800/ton
- Average requirements per yacht: 30 tons
- Estimated new yachts: 100 **per year** for 5 years

Option 2: Transition to fiberglass hulls

- Equipment and employee training for new fiberglass hulls: $4 million (one-time expense)
- Estimated construction cost per boat: $40,000
- *Assumptions:* Assume no shipyard downtime during transition

YachtCo: Interviewer guidance Exhibit 1

DUKE
THE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

The idea here is to get the candidate to calculate the estimated costs associated with each method (stay with steel or transition to fiberglass).

If asked:

- Number of new yachts expected to remain at 100 **per year** over the next 5 years
- Average quantity of steel needed per yacht: 30 tons
- Predicted cost of steel: Stable at $1800/ton

Candidate may identify several other financial factors to consider: depreciation of new equipment, labor costs, etc.

Analysis:

- Calculations for Option 1:
  - 30 tons/boat * $1800/ton = $54,000/boat
  - $54,000* 100 boats * 5 years = $27M
- Calculation for Option 2:
  - $40,000 boat *100 boats * 5 years = $20M
  - $20M + $4M up-front cost = $24M
- Based on these calculations, it is ideal to go with option 2

Prompt #4:

Given your recommendation of __________, what other factors should you YachtCo consider when changing hull types?

Feel free to take a minute to organize your thoughts before presenting

Interviewer Guidance:

The key here is to approach this in a systematic method. If the candidate just starts listing things off, ask them to bucket them (if using the case as a teaching exercise rather than a full practice case). *One* such method is below:

1) Customer: customer preferences and willingness to pay for different hull type (i.e. is any one type superior?), versatility in design and construction, down-time for yacht construction and potential complications associated with this
2) Company: cost of transition, repair and maintenance of boats (will this new hull type reduce the need for maintenance, thereby reducing other profit streams), ongoing training requirements, fluctuations in steel costs over time, depreciation opportunities for equipment, brand reputation, etc.
3) Competitors: What is the market standard? Is there a shift towards fiberglass, or possibly even a new material?
4) A strong candidate will identify that the rising cost of steel does not account for the entire increase in YachtCo's costs. If the candidate addresses this, inform them that their firm is addressing other costs in a different workstream.

YachtCo

Recommendation

- The CEO has asked you to summarize your findings and present them to the board. Please make your recommendation

Interviewer Guidance:

- Candidate should summarize several key findings here:
  - Identify the unit (new construction) that is adversely affecting company profitability
  - Recognize that the rise in steel prices is driving construction costs up
  - Note that swapping to fiberglass hulls will be more profitable over five years
- Outstanding candidates may also explore:
  - Outsource hull construction to 3rd party to keep costs down
  - Look into ways to reduce cost of steel: bulk buying, recycle hulls from old boats, etc

- *Candidate should recognize that switching to fiberglass hulls will not provide adequate savings to offset drop in revenue. This is one of the **key learning points** of the case: the recommendation needs to achieve the CEO objective from Prompt 1.*

Dam It

Industry: Public Sector/Infrastructure

Quantitative Level: Easy

Qualitative Level: Easy

Behavioral Questions

DUKE THE FUQUA SCHOOL OF BUSINESS

Question 1:
• Tell me about a strength you posses that can turn into a weakness under pressure

Question 2:
• Tell me about how you deal with competing priorities

Dam It

Prompt #1:

- California is dealing with very harsh drought conditions. It is economically impacting the lives and businesses of its residents. The state financial committee has been presented with a project to capture more water by increasing the size of a current dam, especially given the constraints on their budget and a set of competing state projects in other domains. Currently, California is buying water from Nevada. Though the new project seems promising, the committee wants to ensure the investment is sound. Can you help the state of California evaluate this proposal?

Interviewer Guidance:

- The water purchased from Nevada is used across the state to fulfill all needs including wineries and residential use
- There is only one other project for which the state is considering funding with this allocated money
- The second project is an additional wing to the state hospital to be built from the ground up
- The second project is just as socially important as the dam
- Framework should include (a MECE framework will have Financial, Social & political/other alternatives):
  - Candidate should draw on Finance knowledge to compare projects (NPV, IRR, Comps, Multiples)
  - Should include Costs and Revenues as this case is centered around profitability for the state at the core
  - Other buckets can include macroeconomic issues, regulatory issues, voting/citizen rights issues etc.

Dam It

Prompt #2:

If candidate does not drive to NPV:

The state would like to find out the current value to compare projects equally.

Interviewer Guidance:

- This is a question of a growing perpetuity. The candidate should realize that they need the investment's cost and revenue information.

Interviewer guidance on NPV

NPV Guidance:

- Initial Investment = 15M
- Yearly Revenues from things like power generation = 1.5M/yr
- Yearly Cost of supplies and Upkeep = 250K
- Yearly SG&A = 750k
- All taxes can be ignored
- Cost of purchasing water from Nevada = 100K
- Candidate should request discount rate and growth rate
  - Discount Rate = 5%
  - Growth Rate = 3%

Analysis:

- Candidate should use perpetuity formula ($\frac{FCF}{R-G}$)
- Total Revenue = 1.5M + 100K
- $FCF = Revenue - (Cost\ of\ Supplies + SG\&A)$ = 1.6M – (250K + 750K) = 600K
- NPV = $\left(\frac{FCF}{R-G}\right) - Initial\ Investment$ = $\frac{600K}{(5\%-3\%)}$ $- 15M$ = 15M

Dam It

DUKE THE FUQUA SCHOOL OF BUSINESS

Interviewer Guidance:

- Candidate should drive towards comparing this project to project 2 and request information to attain the NPV of that project.
- NPV of Project 2 (A new hospital) = 15.1M

The likely outcome is that from a financial standpoint project 2 is the most attractive but only slightly.

Dam It

Prompt #3:

- What non-financial factors should we consider when deciding between these two projects?

Interviewer Guidance:

- This is a structured brainstorming exercise
- **Examples can include**: ability to generate more revenue channels from another project like hospital (research etc), building a project from ground up compared to adding on to a project (the dam) for only a 100K difference may not make sense, considering the most critical social and political issues is equally important.

Dam It

Recommendation

- Your main client, the Governor of California is walking into the room. What is your recommendation?

Interviewer Guidance:

- There is no right answer for this case and either project can be selected. Both projects are viable and should be supported by sound reasoning found through brainstorming of the non-financial aspects and calculating the financial impact independently.

Sam's Sushi

Industry: Services

Quantitative Level: Easy

Qualitative Level: Easy

Behavioral Questions

DUKE THE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time you made the wrong decision. Why did you make the decision, and what did you do when you realized it was a mistake?

Question 2:

- If I were to ask your friends about you, what would they say?

Sam's Sushi

Prompt #1:

- You are out to dinner with a colleague at Sam's Sushi, a Michelin-starred sushi restaurant in Wichita, Kansas. Sam's rose to prominence due to it's unerring commitment to both quality and simplicity (Sam prides himself on only serving two items: sushi and sake). After a few sushi rolls and more glasses of sake than you care to count, your colleague asks you how much you think the restaurant is worth and whether or not buying it would be a good investment.
- How would you go about determining the value of the restaurant?

Interviewer Guidance:

- Candidate should use a revenue – cost framework to determine cash flows. The value of the restaurant is the present value of the future cash flows.
- Once candidate has demonstrated that they want to use a revenue – cost framework, prompt them to provide detail about what the revenue and cost buckets consist of:
  - For revenues, bucket consists of the number of items (sushi + sake) ordered and their respective prices
  - For costs, there are two components: fixed and variable
    - Possible fixed costs: rent, maintenance, insurance, labor, license fees, etc.
    - Variable costs: COGS (rice, fish, soy sauce, wasabi, sake)
- **Additional Info:**
  - Only one restaurant

Sam’s Sushi

Prompt #2:

1. How would you estimate Sam’s average revenues? (have candidate lay out potential approaches)
2. What factors might cause variation in revenues? (brainstorm)
3. Present Exhibit 1 and have the candidate calculate the annual revenue

Interviewer Guidance:

- Ways to estimate average revenues:
  - By product (e.g., # of rolls sold * avg. price per roll)
  - By customer (e.g., # of customers per day * avg. spend per customer)
  - By **timeframe** (e.g., avg. sales per day * total number of operating days per year)

Exhibit #1: Daily Sales

	Fridays and Saturdays (per day)	Rest of Week (per day)
Spring and Summer	$4,800	16.667% of Friday and Saturday (Spring and Summer)
Fall and Winter	¾ of Spring and Summer (Fridays and Saturdays)	85% of Spring and Summer (Rest of Week)

Interviewer guidance on Exhibits

Analysis:

	Fridays and Saturdays	*Rest of Week*
Spring and Summer	$4,800 * 2 days = $9,600 for Friday and Saturday Spring and Summer = 25 weeks (2/4 seasons, 50 weeks per year) $9,600 * 25 weeks = **$240,000 total**	16.667% is 1/6 $4,800 * 1/6 * 4 days (Sam's is closed on Mondays) = $3,200 $3,200 * 25 weeks = **$80,000 total**
Fall and Winter	¾ * $240,000 = **$180,000 total**	0.85 * $80,000 = **$68,000 total**
Totals	$240,000 + $180,000 **= $420,000**	$80,000 + $68,000 = **$148,000**
	$420,000 + $148,000 = $568,000	

Exhibit #1 Guidance:

- Variability is due to days of the week (Fridays and Saturdays are busier) and seasonality (people tend to want lighter meals like sushi in the summer).

Sam's Sushi

Prompt #3:

- Now let's think about Sam's cash flows. We have the following information about their cost structure and growth rates:
  - Staff: A hostess, a waiter, and a sushi chef. All 3 work the entire evening.
  - Tax rate: 40%
  - Discount rate: 13%
  - Annual growth rate of cash flows: 3%
  - Variable costs: 20% of total revenue
  - Fixed costs: $120,000/year
- What are the annual cash flows?
- What is the value of the restaurant?

Interviewer Guidance:

- Revenues = $568,000
- Costs = $120,000 + (0.2 * $568,000) = $233,600
- Revenues – Costs = $334,400
- To determine net present value, we need the after tax cash flow number
  - $334,400 * (1-40%) = $200,400
- Candidate should use the perpetuity formula to perform the valuation.
  - Cash Flows / (Discount Rate – Growth Rate)
  - $200,400 / (.13 - .03) = ~$2M

Sam's Sushi

Recommendation

- So, your colleague needs an answer. What do you tell them about the profitability and valuation of the restaurant? Is it a good investment?

Interviewer Guidance:

- Candidate should state the restaurant has $200K annual cash flow and is worth $2M based on the previous valuation exercise.
- $2M is a lot for a single restaurant in a small market, and appears to have healthy annual cash flow and low overhead, thus making it a solid investment.
- Extra points if candidate also considers strategic angles (restaurant must have significant competitive advantage to be doing so well in such a small market with limited access to fish, is most likely sole high-end sushi restaurant in the greater Wichita area, etc.) to further bolster investment rationale.

Swipe Right for Canoodle

Industry: Technology

Quantitative Level: Easy

Qualitative Level: Medium

Behavioral Questions

Question 1:

- What is your biggest weakness?

Question 2:

- Describe a time when you created personal impact

Swipe Right for Canoodle

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #1:

- Your client is Canoodle, a revolutionary mobile dating service which utilizes swipe technology allowing users to easily select mates based on their online profiles. Canoodle was started 2 years ago and now operates across the United States. Despite its success and mass popularity, Canoodle has remained unprofitable, and investors are starting to put pressure on the CEO, Stevie McDreamy, to turn the business around. McDreamy has come to you to help out Canoodle. What should they do?

Interviewer Guidance:

- Canoodle only operates within the United States with ambitions to expand internationally
- The app is free to download off all mobile application stores. Canoodle's main source of revenue so far has been through ad sales
- The company must show a profit within 2 years
- Canoodle is already an LGBT friendly dating app and caters to the sexual orientation of all its users
- The market for dating applications consists of ~4 major national competitors. Most users typically have 1-3 dating apps, and all 4 competitors have roughly the same number of users within the United States
- Canoodle does not consider traditional online dating websites in the same market

Exhibit #1: Canoodle's Previous Performance

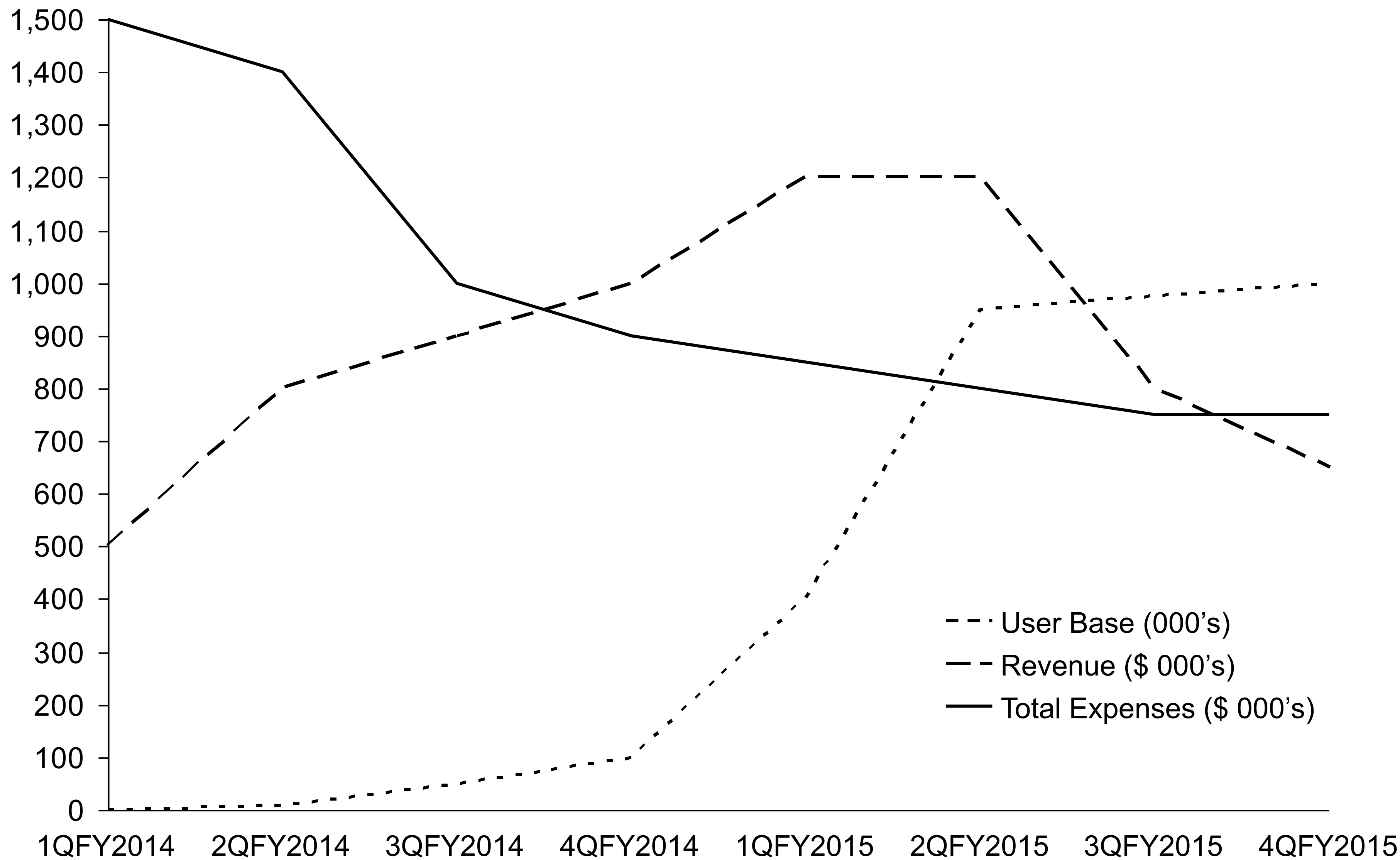


Exhibit #1: Explanation

Interviewer Guidance:

- Interviewee should pick up on the fact that revenues have fallen with the slower growth in the user base. Additionally, costs have stabilized. This is a Revenue problem
- Ask Candidate to brainstorm sources of revenue:
  - Selling user demographic data (risk of potential privacy issues)
  - Selling outside services (i.e. emojis/stickers)
  - Selling a premium upgrade to its users
  - Charging on the application store

Swipe Right for Canoodle

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #2:

- Upon hearing your suggestions, McDreamy is inclined to pursue a "premium" service for consumers to use. The development teams estimates costs at $500,000 and would take 6 months to develop. What factors should McDreamy consider before committing to the investment?

Interviewer Guidance:

- Candidate should pick up on difficulties entering new market:
  - Price
  - Market size
  - Adoption rate
  - Marketing
- Bonus points if they pick up on the following:
  - Customer churn/impacts on current customer base
  - Transaction costs
  - Implementation timeline and competitive response

Swipe Right for Canoodle

Prompt #3:

- Due to staff and server capacity issues, McDreamy has decided that he would like to launch in just one city this year before rolling out nationwide. Which city would be the best for CanoodlePremium to launch in?

Interviewer Guidance:

- Provide candidate with exhibit. If the candidate asks, the price for the premium service per month is $3. Candidate should know to ask what the price per month would be.
- McDreamy wants the initiative to breakeven within 6 months of launching

Exhibit #2: Projected performance of CanoodlePremium

City	User base (thousands of users)	Adoption rate
New York	300	9%
Los Angeles	350	8%
Chicago	200	10%
Houston	175	9%
Washington D.C.	230	7%

Exhibit 2: Guidance

Exhibit #1 Guidance:

City	User base (thousands of users)	Adoption rate	(6 mo revenue)
New York	300	9%	$ 486.00
Los Angeles	350	8%	$ 504.00
Chicago	200	10%	$ 360.00
Houston	175	9%	$ 283.50
Washington D.C.	230	7%	$ 289.80

Analysis:

- LA is the only city that breaks even in 6 months

Swipe Right for Canoodle

Recommendation

- Canoodle should launch a premium service in Los Angeles

Interviewer Guidance:

- Concerns:
  - Sensitivity around adoption rate
  - Risk of launching in one city versus all at once
  - Extra maintenance costs for premium service
  - Competitive response
- Next Steps
  - Development (in house or contracted)

Cackalacky Construction

Industry: Infrastructure
Quantitative Level: Easy
Qualitative Level: Medium

Behavioral Questions

DUKE
THE FUQUA SCHOOL OF BUSINESS

Question 1:

- What is the best class at Fuqua? Why?

Question 2:

- When was a time you had to interact with a particularly difficult client or coworker?

Cackalacky Construction

Prompt #1:

- Cackalacky Construction is a small general contractor in the southeast US. They build schools exclusively. In 2016 Cackalacky generated $20M in revenue, but they have seen stagnant growth in recent years. Cackalacky Construction is looking to double their revenue in the next 3 years and has hired you to advise them how to do it.

Interviewer Guidance:

- General contractors are responsible for all building activities but not design or engineering. They supervise subcontractors who perform physical construction work
- Cackalacky clients are local governments that receive federal and state funding to build schools; Cackalacky only builds public schools and there aren't any private clients
- Cackalacky Construction has been in the southeast US for 20 years
- Contractors who build schools in this region are facing similar problems

- ***Next step: The discussion on the initial framework should lead to analyzing potential markets to enter. Handover Exhibit # 1 at that point***

Exhibit #1: Potential Markets

	2016 School Construction Funding ($M)	Pop Growth	Major Industry	Literacy Rate	Projected YoY Funding Growth[1]	Anticipated 3 YR Market Penetration[2]
Michigan	100	4%	Automotives	87%	10%	Med
Texas	150	6%	Oil & Gas	81%	20%	Med
Georgia	30	2%	Tourism	73%	50%	High

1. School construction funding
2. Low = 5%; Med = 10%; High = 20%

Interviewer guidance on Exhibit 1

Exhibit #1 Guidance:

- Funding amount is the total market size for schools in respective state, no other funding
- Funding growth rate is the same every year for 3 years
- Anticipated market penetration for Cackalacky is based on historical GC entrance into market
- *Rounding is acceptable for funding $*
- **Important for Interviewee to remember goal of doubling revenue in three years (additional $20M)**

Analysis:

- Interviewee should do math to get state funding (I e: market size) for three years
  - Potential time consuming approach: Interviewee multiplies penetration rates for every year instead of just 2019
- Interviewee should multiply 2019 state funding by appropriate penetration rates
- Texas should offer the biggest market opportunity ($26M)
- Georgia should also meet goal ($20M) of doubling revenue by 2019
- Interviewee should realize Texas and Georgia meet goal
  - Rationalize best opportunity and provide recommendation

	2017 Funding	2018 Funding	2019 Funding	2019 Cackalacky Proj Add Rev
Tennessee	$110	$121	$133	$13
Texas	$180	$216	$259	**$26**
Georgia	$45	$68	$101	**$20**

Cackalacky Construction

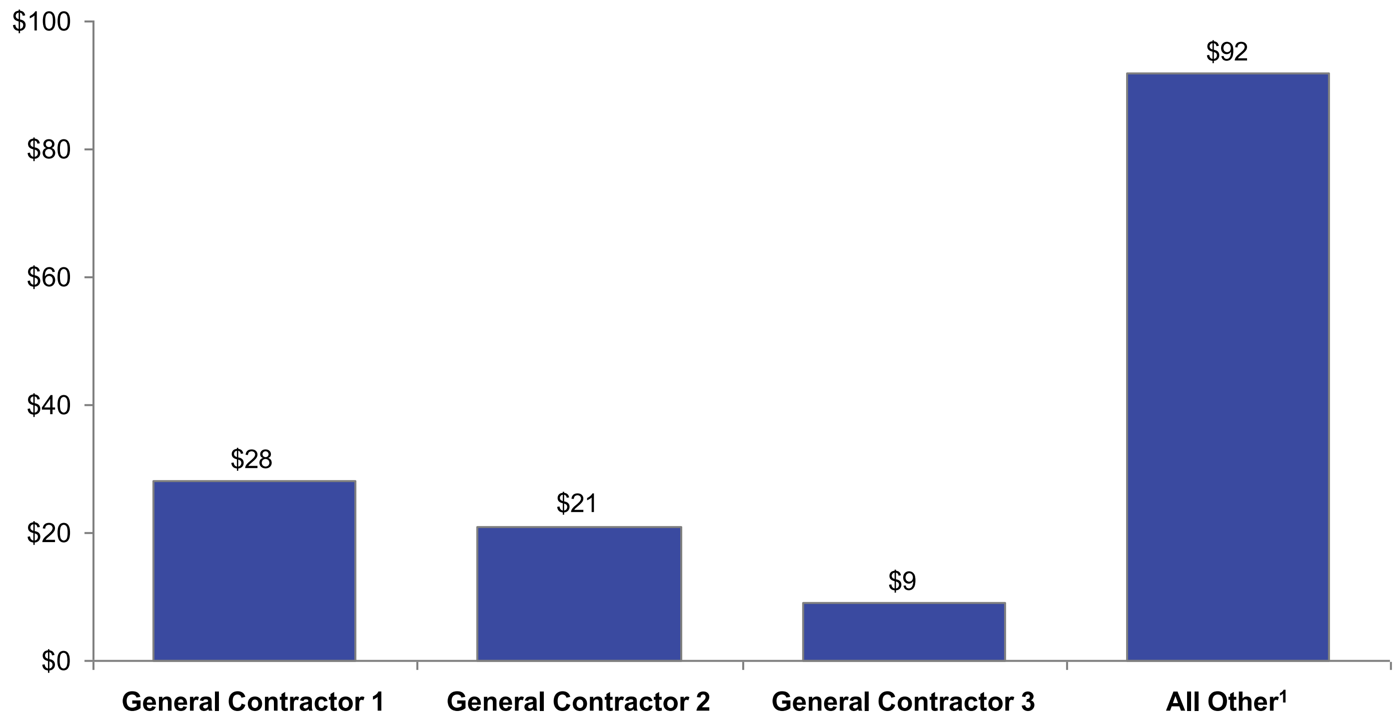
Prompt #2:

- Cackalacky Construction has decided to enter the Texas market
- What are some of the considerations to enter? What is the best way to enter the market?

Interviewer Guidance:

- Interviewee needs a new framework; some form of Build, Borrow, Buy
- The consideration to enter will include understanding the market forces, including the competition.
- When the discussion is around Competition, handover Exhibit # 2 and *analyze the competitive landscape in Texas*

Exhibit #2: Texas Competitive Landscape



	General Contractor 1	General Contractor 2	General Contractor 3	All Other[1]
Market Share	19%	14%	6%	61%
School Specialty	Community College	K-12	K-12	All types
Years in Texas[2]	3	5	14	1-40 years
CAGR	23%	35%	6%	12%

1.GCs with less than 5% of market
2. Number of years general contractor has been building in Texas

Interviewer guidance on Exhibit 2

Exhibit #2 Guidance:

- *Qualitative* analysis needed, no quantitative
- Looking for interviewee to use his/her framework to analyze new information
- Interviewee should give recommendation on how to enter market, based in analysis of competitive landscape
- If asked how GC 1 and GC 2 entered market, both acquired several small players

Analysis: Key Takeaways

- Market is very fragmented
- Top two players have entered market in past 5 years and are consolidating (based on relatively high CAGR)
- Extremely high CAGR
- Look at acquisition targets/ benchmark the strategy to GC 1/GC 2 if applicable
- Find a niche, relatively less crowded school market

Cackalacky Construction

Prompt #3:

- What are the potential challenges Cackalacky Construction will face as they enter the Texas market?
- What are ways to mitigate some of these challenges?
- What is the final recommendation ?

Interviewer Guidance:

- Examples of potential challenges: personnel, legal and regulatory environment, labor unions (don't exist in Texas), industry relationships, IT integration, language, corporate culture
- List down different ways of entering the market with pros and cons of each with a recommendation to evaluate each one of them

Polar Bear Pool Float

Industry: CPG / Leisure

Quantitative Level: Medium

Qualitative Level: Easy

Behavioral Questions

DUKE
THE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time when you had to persuade people under challenging circumstances

Question 2:

- Tell me about a time you had solve a complex problem

Polar Bear Pool Float

Prompt #1:

Your client is Hot Koala, a leading producer of outdoor lifestyle products (e.g., games, towels, chairs, umbrellas) based in Dubai. It is looking to make a “splash” (pun intended) with its newest product line– the Polar Bear Pool Float (PBPF). Its current and loyal customer base is entirely in the Middle East, but it is strongly considering new market opportunities.

The founder / CFO (Chief Fun Officer) is torn on where to launch the PBPF and has asked us how we would evaluate new geographies.

Additional Info:

- **Competitors:** Hot Koala has several smaller, niche competitors, but none offer the breadth of products.
- **Global Market:** Reiterate point about the Middle East
- **Annual Revenue:** $10M per year
- **Existing Distribution Channels:** exclusively ecommerce

Polar Bear Pool Float

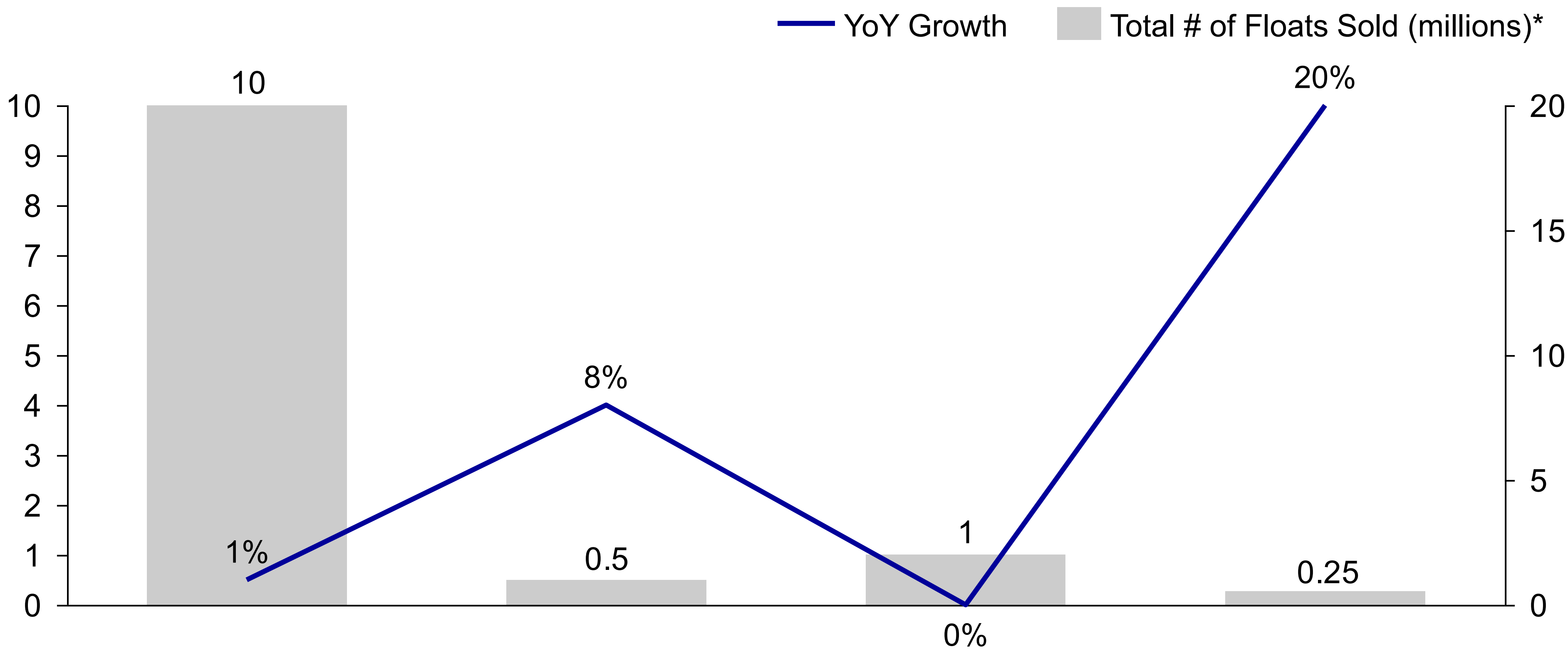
Interviewer Guidance:

This case is intended to open up pretty vaguely. This is driving towards a new market entry framework. Potential considerations for each geography:

- Existing competition
- Revenue potential (i.e., market size & potential pricing)
- Costs – production, taxes, shipping, insurance
- Time to market (i.e., longer timeframe to enter a new market than an existing one)
- Distribution channels (i.e., do people buy in-store, online, or 50/50)
- Misc. – weather, access to pools / beaches, % of population that can swim

After the caser has prepared and presented his/her framework, present Exhibit 1, which highlights the four primary markets that the CFO is considering.

Exhibit #1



Avg. Price per Float	$50	$40	$30	$99

USA	**South Africa**	**Australia**	**UAE**

*industry-wide

Interviewer guidance on Exhibits

Exhibit #1 Guidance:

- Exhibit 1 presents the four primary geographies that the CFO is considering and the data he has been able to gather to date:
  - # of pool floats sold in 2015
  - Annual growth from 2014 to 2015
  - Average price of a raft sold in 2015
- **Based on Exhibit #1, which countries should Hot Koala prioritize (i.e., top 2) to explore further and why? What other factors should be considered?**
  - Market size
  - Growth
  - Pricing opportunity
  - Production and shipping
  - Taxes
  - Intellectual property restrictions (trademarks / patents)
  - Distribution channels
  - Reputation (if any)

Next Steps:

- You could argue for each geography based on a variety of factors, but direct the caser to the following:
  - **US:** significant market size
  - **UAE:** extensive experience and brand recognition in the Middle East, strong market growth, premium pricing

Polar Bear Pool Float

Prompt #2:

Now that we have focused on the US and UAE, let's explore production and shipping costs of each geography.

Hot Koala works with a manufacturer in China for its other product lines and would like to continue partnering with this manufacturer for the PBPF. The manufacturer handles production and can handle shipping to the UAE, but previous research has shown that it would be price prohibitive to use the manufacturer to ship directly to customers in the US. As a result, bundles of PBPFs would have to be shipped to a US entity that would handle storage and fulfillment of orders for a fee.

What are some potential cost drivers?

Interviewer Guidance

Run through a quick brainstorming of the potential cost drivers in this situation that includes cost of production, overhead, transportation etc.

From there, present Exhibit 2.

Exhibit #2

Materials	$15 / float
Labor	$10 / float
Packaging	$5 / float

USA

Shipping	Storage	Taxes	Distribution Fees
$8,000 / 1000 floats	$2,000 / 500 floats	$6.00 / float	50% of storage fee per float

UAE

Shipping	Storage	Taxes	Distribution Fees
$5.25 / float	$1500 / 750 floats	$2.75 / float	N/A

Interviewer guidance on Exhibits

Exhibit #2 Guidance:

- **Interviewee should calculate the unit cost**
- **US = $50**
  - COGS: $30 / float
  - Shipping: $8 / float
  - Storage: $4 / float
  - Taxes: $6 / float
  - Distribution: (0.5 * $4) = $2 / float
- **UAE = $40**
  - COGS: $30 / float
  - Shipping; $5.25 / float
  - Storage: $2 / float
  - Taxes: $2.75 / float

Next Steps:

N/A

Polar Bear Pool Float

Prompt #3:

We currently have initial inventory of 50k floats. If we were to sell all of these at a 10% premium over costs, what would our initial market share be in each target market?

Guidance:

- **US Revenue:**
  - 50,000 * $50 * 1.1 = $2,750,000
- **US Market Share:**
  - $2.75M / ($50 * 10M) = $2.75M / $500M = 0.55%
- **UAE Revenue:**
  - 50,000 * 40 *1.1 = $2,200,000
- **UAE Market Share:**
  - $2.2M / ($100 * 250k) = $2.2M / $25M = 8.8%

Polar Bear Pool Float

Recommendation

Make a recommendation as to where Hot Koala should attempt to commercialize its PBPF.

Interviewer Guidance:

Look for structured logic and justifications that pull in all the points from the case. He or she should take into account market size, growth rate, breakeven prices, existing presence, and average pricing.

A good candidate will notice that costs are at par with the average selling price in the US markets and hence, even a 10% margin does not sound attainable, unless the new product is highly differentiated. The approach should be to enter the US market through an alternate strategy and continue to double-down on UAE since the client's market share is still low, the average selling prices are high, and there is scope for consolidation

DUKE THE FUQUA SCHOOL OF BUSINESS

Sardine Airlines

Industry: Transportation
Quantitative Level: Medium
Qualitative Level: Medium

DMCC Case-writing Competition Winner 1st Prize

Behavioral Questions

Question 1:

- What in your career has prepared you for consulting?

Question 2:

- What is the best reason that I should hire you?

Sardine Airlines

Prompt #1:

- Sardine Airlines is an ultra low-cost carrier with flights throughout the continental United States. They have hub airports in Oakland, California; Tulsa, Oklahoma, and Hartford, Connecticut. Sardine Airlines is facing increased pressure from other low cost carriers such as Cattle Car Air and Soul Airlines. Sardine Airlines has faced declining profit for the past year. Sardine's CEO, Penny McPincher, has asked your team for advice on how to reverse the profitability trend.

Interviewer Guidance:

- Additional information to give the candidate if asked:
  - Sardine Airlines competes primarily on having the lowest cost fares and offering minimal service
  - Due to its business model Sardine Airlines has a culture of cost savings that can be passed to the customer
  - Sardine Airlines is trying to grow profit margin to 20% (INTERVIEWER GUIDANCE: net income/total revenue)
  - If the interviewee asks about revenues/costs give them Exhibit 1, Statement of Operations

Exhibit #1 – Statement of Operations

Unaudited, in millions

	2015	2014	2013	2012
Operating Revenue				
Passenger	$ 1,088	$ 1,092	$ 908	$ 793
Non-ticket	$ 1,055	$ 968	$ 862	$ 769
Total Revenue	**$ 2,143**	**$ 2,060**	**$ 1,770**	**$ 1,562**
Operating Expense				
Fuel	$ 589	$ 583	$ 625	$ 718
Landing Fees	$ 383	$ 370	$ 332	$ 296
Maintenance	$ 214	$ 164	$ 106	$ 67
SG&A	$ 428	$ 309	$ 185	$ 171
Special Charges	$ -	$ -	$ 225	$ -
NI Pre Tax	**$ 529**	**$ 634**	**$ 297**	**$ 310**
Taxes	$ 158	$ 189	$ 88	$ 92
Net Income	**$ 371**	**$ 445**	**$ 209**	**$ 218**

Exhibit #1 – INTERVIEWER GUIDE

	2015	2014	2013	2012
Operating Revenue	YOY CHANGE IN REVENUES FROM PRIOR YEAR			
Passenger	-.37%	20.26%	14.47%	
Non-ticket	9%	12%	12%	
Total Revenue	**4%**	**16%**	**13%**	
Operating Expense	EXPENSES/NI AS A PERCENT OF TOTAL REVENUE			
Fuel	27%	28%	35%	46%
Landing Fees	18%	18%	19%	19%
Maintenance	10%	8%	6%	4%
SG&A	20%	15%	11%	11%
Special Charges	0%	0%	13%	0%
NI Pre Tax	**25%**	**31%**	**17%**	**20%**
Taxes	30%	30%	30%	30%
Net Income	**17%**	**21%**	**12%**	**14%**

Interviewer guidance on Exhibit 1

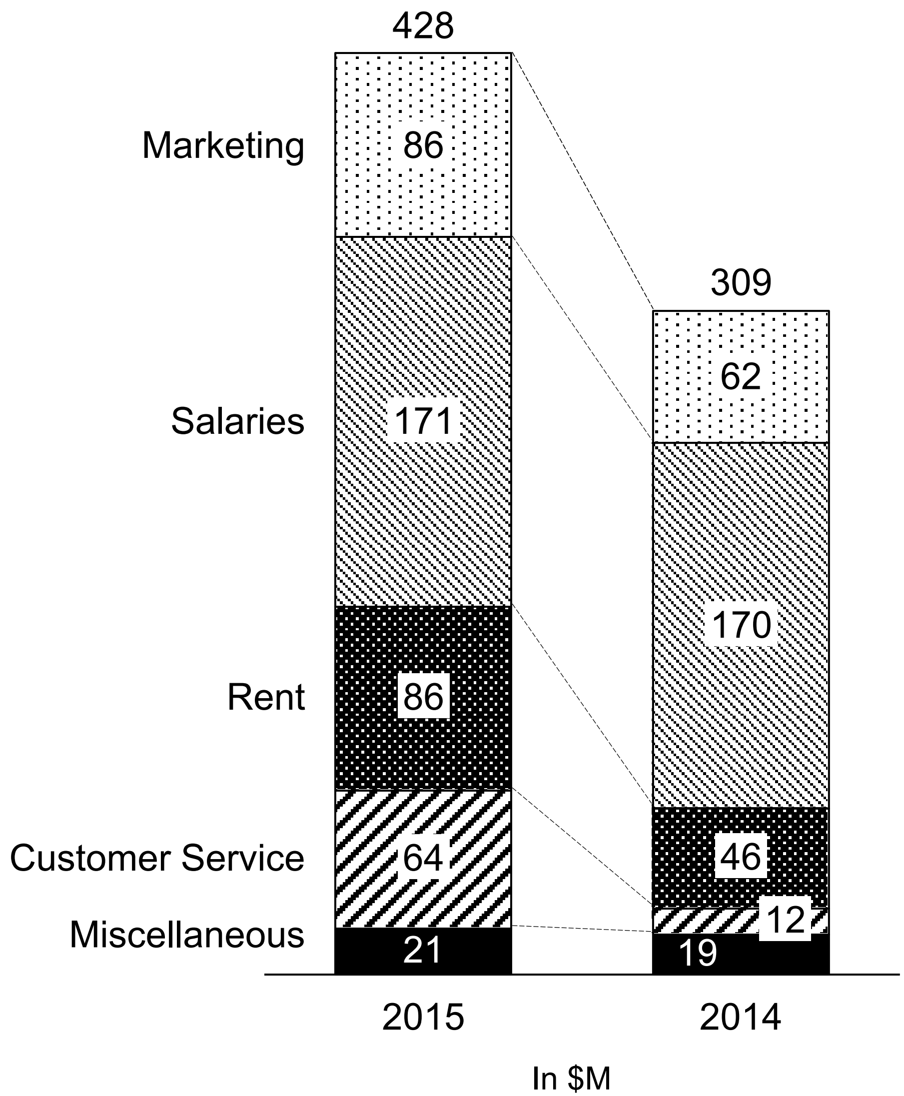
Exhibit #1 Guidance:

- The exhibit is designed to have too much data to synthesize in a reasonable amount of time
- Additional information:
  - Non ticket revenue are things like bag fees, food, beverages, customer service charges, paper tickets, etc.
  - Landing fees are what Sardine Airlines pays to use airports

Analysis:

- The candidate should keep in mind the 20% profit margin that the CEO wants, which given the NI, is $57.6M
- The candidate should see that revenue has continued to grow, albeit slower than in the past
- The candidate should see that SG&A as a proportion of revenue increased from 15% to 20% and is the primary driver of declining profit – once identified give them Exhibit 2
- If the candidate identifies maintenance costs proportionately increasing give them Exhibit 3 – if exhibit 3 never comes up, you do not need to push it to the candidate

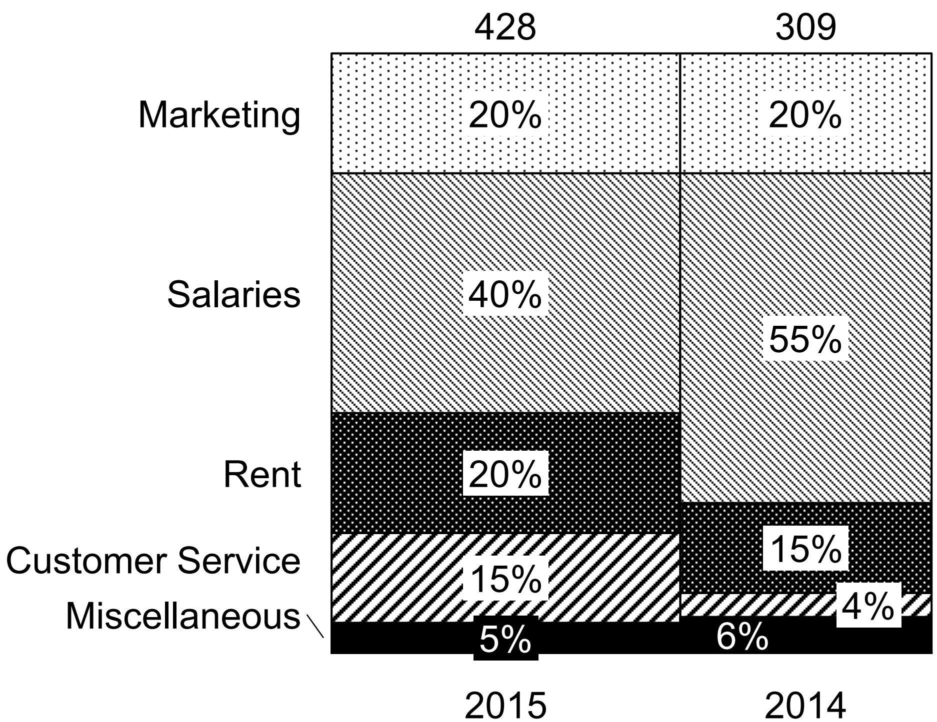
Exhibit #2 – SG&A Breakdown



Interviewer guidance on Exhibit 2

Exhibit #1 Guidance:

- The percent of total SG&A and absolute increases are below



Analysis:

- The candidate should identify that 3 areas are driving growth in SG&A: Marketing, Rent, and Customer Service
- The other areas are not large enough increases to focus on to get to the $57.6M profit increase the CEO is looking to achieve

	YoY Change
Marketing	$ 24
Salaries	$ 1
Rent	$ 40
Customer Service	$ 52
Miscellaneous	$ 2

Exhibit #3 – Sardine Maintenance

DUKE
THE FUQUA SCHOOL OF BUSINESS

TO: Penny McPincher, CEO of Sardine Airlines
FROM: Michael Huerta, Administrator of the Federal Aviation Administration

DATE: June 30th, 2015
SUBJECT: Sardine Airlines Maintenance Record

This memorandum is to notify that as of today, Sardine Airlines is no longer under maintenance supervision from the Federal Aviation Administration (FAA). The FAA believes the improved maintenance program no longer warrants FAA intervention.

Any future decrease in maintenance standards will result in FAA supervision or sanctions.

Interviewer guidance on Exhibit 3

Exhibit #1 Guidance:

- The Federal Aviation Administration (FAA) is the U.S. Government regulatory agency responsible for the safety of U.S. airlines

Analysis:

- The candidate should put together that the increase in maintenance spending is directly tied to the fact that previous maintenance spending was not sufficient to be considered safe
- The candidate should move off of maintenance cost cutting
- If the candidate still is interested in pursuing cost cutting in maintenance give them this prompt, “Our client is adamant that the recently improved maintenance program is running at peak efficiency and any cuts would invite unwanted scrutiny from regulators.”

Sardine Airlines

Prompt #2:

- Sardine Airlines has been aggressively advertising to combat competitive pressures. Both the CEO and the Board believe this is a critical expenditure. Recently the landlord for the firm's headquarters in Oakland raised rent by $35M. Customer service complaints have increased nearly 3,000%, which the company believes is due to the new 12 inch seats that were installed in the entire fleet. This has caused Sardine's call center provider to increase billing by 520% from 2014's $12.36M. What can Sardine Airlines do to address these issues?

Interviewer Guidance:

- Neither the CEO or Board will take any recommendations on cutting the marketing expenses
- The firm does not have to be headquartered in Oakland, but does want to be in a location where it has major operations
- The firm is not interested in increasing seat sizes. They are actually looking to pilot 8 inch seats in a new class of service called, "steerage"
- The call center vendor charges rates that are on average 60% higher because their call center's are based in the United States and staffed with native English speakers
- Rent in Tulsa or Hartford would be 40% less than current 2015 rent (INTERVIEWER GUIDANCE this equates to $34.4M)

Sardine Airlines

Recommendation

- The CEO, Ms. McPincher is going to be joining us in just a few minutes to hear your recommendations on how to improve profitability.

Interviewer Guidance:

- Candidate should have a recommendation that includes the following:
  - To increase profit margin to 20%, Sardine Airlines should focus on cutting SG&A costs
  - There are two key ways to cut SG&A, customer service and rent
  - Recommend that the call center vendor should transition to an overseas based vendor, which would save approximately $38M
  - Move the headquarters to either Tulsa or Hartford, which will have less expensive office real estate markets and thus find major cost savings
  - Given the relative low increase in revenue from installing 12” inch seats, recommend against 8” seats
- Risks should include: one-time expenses in moving the headquarters, unhappy customers from decreased customer service quality

The Run of the Mill NOWOCO

Industry: Industrial Goods

Quantitative Level: Medium

Qualitative Level: Medium

Behavioral Questions

DUKE THE FUQUA SCHOOL OF BUSINESS

Question 1:

- Describe a time when you worked with large amounts of data to support a decision and/or action?

Question 2:

- Describe a time when you demonstrated leadership?

The Run of the Mill NOWOCO

Prompt #1:

Our client is a Germany-based, material manufacturer called 'The Run of the Mill NOWOCO' specializing in a range of products for the construction industry. In recent months, our client has benefited from anti-dumping taxes on the import of similar products. This has resulted in a demand surge for our client and other domestic competitors; however overall profitability is going down and customer complaints about order fulfilment are at an all-time high. As an integral part of your team, what do you think is going on here?

Interviewer Guidance (provide only if asked):

- The ultimate goals are to maximize overall profitability & order fulfilment % for key customers.
  - Key customers will be the ones contributing the most to profitability.
- The client sells products (specific product lines are irrelevant for this case) for the construction industry. It sells directly to customers & through distributors in Germany only.
- The client is one of the 3 largest domestic producers with almost 30% market share
- The client defines:
  - **Profitability** over variable costs, that is, profitability = R – VC
  - **Order fulfilment %** is defined as: (% of tons delivered on time / total tons ordered)
- Framework that captures:
  - Financial aspects (revenues, variable costs) to address profitability
  - Operational issues (manufacturing issues, utilization, logistics, issues in downstream/upstream) to address customer complaint issues
  - External factors (geography, competitors, macroeconomic factors)

The Run of the Mill NOWOCO

Prompt #2:

- What are some ways the client can increase the order fulfillment as defined previously?
- What are some of the trade-offs of doing that?

Interviewer Guidance:

- Relying on the framework created in the initial prompt, the interviewee should brainstorm to create a new structure/buckets that should touch upon the following points:
  - Reduce process time, transportation time, and/or other lead times
  - **Increase inventory levels**
  - More accurate forecasting
  - Improve supplier engagements and distribution / transportation planning
- Challenges/Trade-offs:
  - Increased inventory will imply higher working capital and inventory cost
  - Will put additional pressure on manufacturing
  - Reducing lead times may compromise on the robustness of the current process/may not be feasible
- **Push the discussion towards increasing inventory levels by ramping up production**

Interviewer guidance on Exhibits

Exhibit #1 Guidance:

- Present **Exhibit 1** to the candidate after the discussion on **increasing inventory levels by ramping up production.**
- From the exhibit, the candidate should be able to observe that:
  - The client has 3 manufacturing locations
  - The total utilization is 100% (that is, the plants are running at full capacity)
  - That the total available time for production is split into production time and scheduled and unscheduled maintenance.
- Since the units are all constrained (that is, they are running at full capacity), we need to focus on **reallocating volumes to the most profitable customers** (profitable in terms of Profitability/Hour).

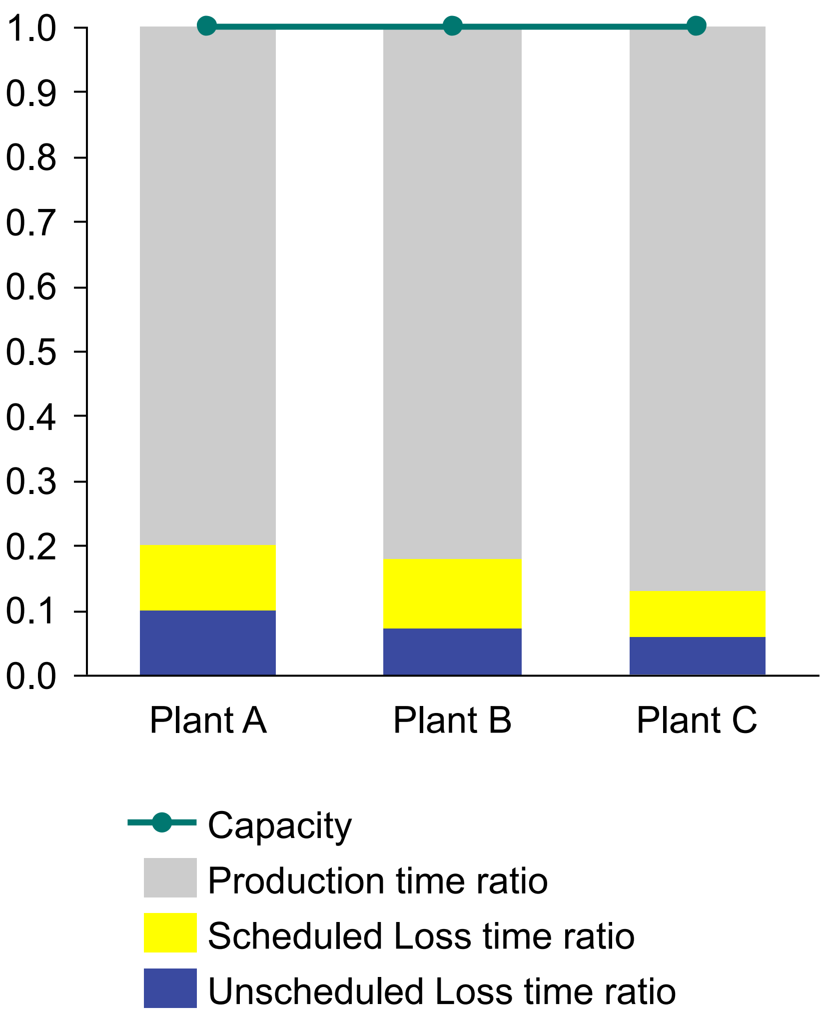
Background

- **Production ratio** is the ratio of the total time available when the production happened
- **Schedule loss ratio** is the ratio of time lost due to scheduled maintenance
- **Unscheduled loss ratio** is the time that is lost as a result of **unanticipated breakdowns and quality issues**
- Though the actual production is only about 80% of the total time, it is consistent with the industry standard and the scope for improvement may be minimal
- Products are similar, and hence the cost structures are not too different (take a customer approach)

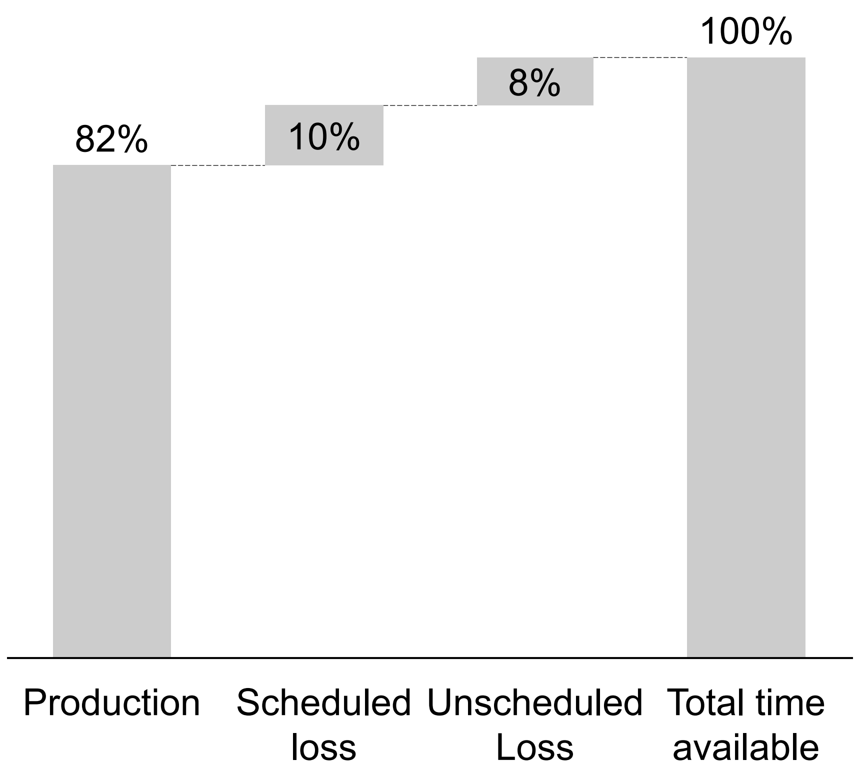
Exhibit #1 – Production & Loss Time Info

DUKE THE FUQUA SCHOOL OF BUSINESS

Utilization & operational efficiency at Run of the Mill NOWOCO Plants



Industry average (per the research published in the Industry journal)



The Run of the Mill NOWOCO

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #3:

- How can the client prioritize customers and improve the order fulfillment?
- What information will be required to make this decision?

Interviewer Guidance:

- The client can prioritize based on how profitable (over variable cost) the different customers are and then reallocate production to these customers
- The information required will be:
  - Revenues
  - Costs
  - Volumes ordered
  - Volume fulfilled for different customers.
- After this discussion, handover Exhibit 2 to the interviewee

Exhibit #2

Commercial Construction Customer	Revenue (Millions of Euros)	Volumes Ordered (thousands of tons)	Order Fulfilment %
A	6	5	65%
B	90	45	60%
C	20	10	80%
D	10	5	80%
E	30	25	75%
F	150	60	55%
G	40	20	70%
Others	25	20	95%

Since the process for manufacturing the product is similar, assume a constant cost of 1,250 Euros/ton

The Run of the Mill NOWOCO

Prompt #4:

- Based on Exhibit 2, calculate the best case profitability and order fulfilment % for the customers assuming no demand constraints

Interviewer Guidance:

- The candidate should make initial observations about how fulfillment for orders for high-value customers are low and there needs to be a re-allocation of volumes for these prioritized customers
- When asked for clarification, explain that:
  - Revenues are the total revenues
  - Volumes Ordered is the total quantity ordered by the customer
  - Order fulfilment % is defined as the tons of orders fulfilled/total number of tons as a % for a customer
- Guide the interviewee to calculate the current profitability and reallocate volumes to the most important customers based on the highest profitability per ton.

Exhibit #2 (Interviewer Guidance 1 of 2)

DUKE THE FUQUA SCHOOL OF BUSINESS

- The candidate could set up a table as shown below
  1. **Volume Fulfilled** = Volume Ordered * Order Fulfilment %
  2. **Profitability / Ton** = (Revenue/Volume Fulfilled) – Variable cost per ton = (Revenue/Volume Fulfilled) – 1250
  3. **Total Profitability** = Profitability/Ton * Volume fulfilled
- Rank the customers on the basis of profitability/ton
  – Observe that a number of high-value customers (by profitability) are under-served (i.e., low order fulfilment %)

Customer	Revenue (Millions of Euros)	Volume Ordered (thousands of tons)	Order fulfilment %	Volume fulfilled (thousands of tons)	Profitability (Euro/Ton)	Total Profits (Millions of Euros)	Rank (by Profitability per ton)
A	6	5	65%	3	596	2	6
B	90	45	60%	27	2083	56	2
C	20	10	80%	8	1250	10	4
D	10	5	80%	4	1250	5	5
E	30	25	75%	19	350	7	7
F	150	60	55%	33	3295	109	1
G	40	20	70%	14	1607	23	3
Others	25	20	95%	19	63	1	8
Total				**127**		**212**	

Exhibit #2 (Interviewer Guidance 2 of 2)

- The candidate calculates a best case scenario to maximize profits and order fulfilment for all customers by reallocating volumes to the key customers F, B, and G
- In this case, the order fulfillment for F, B, and G will be 100% (60, 45, & 20 kt respectively), and the residual capacity of 2 tons will go to C.
  - The total capacity of 127 kt is a constant.
- This increases overall profits from 212 M to 326 M (an increase of 54%) and an order fulfillment of the top 3 customers of 100%
- A good candidate will also talk about the potential risks with this strategy (go to prompt #5)

Customer	Revenue (Millions of Euros)	Volumes Ordered (thousands of tons)	Volume fulfilled (thousands of tons)	Profitability (Euro/Ton)	Total Profits (Millions of Euros)	Order fulfillment %
F	150	60	60	3295	198	100%
B	90	45	45	2083	94	100%
G	40	20	20	1607	32	100%
C	20	10	2	1250	3	20%
D	10	5	0	1250	0	0%
A	6	5	0	596	0	0%
E	30	25	0	350	0	0%
Others	25	20	0	63	0	0%
Total			**127**		**326**	

The Run of the Mill NOWOCO

Prompt #5:

- What are the risks of suggesting this strategy to focus on the top 3 customers only?
- What are some of the ways these risks could be mitigated?

Interviewer Guidance:

- The answer should be bucketed (e.g., risks can be bucketed into risk involving de-prioritized customers and risks associated with the currently defined key customers)
- **Risks:**
  - Future potential and growth of some of the currently less-preferred customers
  - Volatility of the prioritized key customers
  - Risk arising out of less customer diversification
  - Customers served only 20% will likely migrate to another supplier
- **Mitigation:**
  - Fulfillment of 100% may not be necessary – identify customers’ expectations and match those
  - New production - outsourcing or set-up
  - Increase the lead time requirement in the contract
  - Reduce orders
  - Prioritize the most crucial parts and deliver them
  - Have different supply chains for different products.

The Run of the Mill NOWOCO

Recommendation

You walked into an elevator with the CEO. What would your final recommendation be?

Interviewer Guidance:

- Recommend undertaking a prioritization exercise & reallocation of volumes to the most profitable customers that would increase profits by 54%.
- The prioritized customers at this time will be defined as the "Big 3" (F,B & G), which will have 100% order fulfillment. The other customers will not be served or served minimally after demand for F,B & G is met adequately.
- Risks and mitigations were discussed in the previous prompt and can be quickly summarized
- There should be careful and sensitive communication with the sales team and all customers (esp. ones that are deprioritized)
- There should be a weekly process arrangement to implement and coordinate this recommendation & measure the results

Critical Transportation

Industry: Transportation
Quantitative Level: Medium
Qualitative Level: Medium

Behavioral Questions

Question 1:

- What are your three greatest weaknesses?

Question 2:

- Please provide an example of a time where your moral and/or ethical standards were tested in a prior work experience. How did you handle the situation? What would you do differently in retrospect?

Critical Transportation

Prompt #1:

Your client, Critical Transportation (CT), provides logistical support for the rail industry on the West Coast of the United States. Due to the recent Panama Canal expansion, CT is expecting a shift in rail volume to the East Coast once the expanded canal opens in early 2016. CT has retained our firm's services to determine if it should make the investment to expand its business to the East Coast.

Interviewer Guidance:

- Background information if the interviewee asks:
- **Objective:** CT wants to determine if their current business model would be profitable on the East Coast; and whether entry into this market makes sense given the shifts in the market.
- **Current Market:** Currently, CT is a market leader with 25% market share; there are 5 competitors in the West Coast market and the total market size is $2B
- **Business Model:** CT provides rail transportation services from major port locations on West Coast to distribution centers all over the Western U.S. Once cargo is loaded (completed by port personnel), they transport via rail to a final location where it is unloaded by their client. CT does not provide any additional services.
- **Trends:** It is estimated that 25% of West Coast container traffic will shift to the East Coast beginning in 2016. Over time, the West and East Coast ports are expected to equalize in revenue earned per year.
- **Possible Market:** There are only 3 other comparable companies on the East Coast that focus on CT's core competency, and these companies have no West Coast presence.
- **Costs:** CT estimates that entry into the East Coast market will cost a minimum of $450M, but once entered, East Coast operations will cost approximately the same as West Coast operations.

Critical Transportation

DUKE THE FUQUA SCHOOL OF BUSINESS

Interviewer Guidance:

- This case is meant to be driven by interviewee, allow him/her to drive the case after each prompt and respond with "ands" if depth of explanation does not make path forward clear.

- Most candidates will recognize that this is a profitability case. A good candidate will see aspects of market entry and tailor their problem solving accordingly. Additionally, he or she will focus not only on current business model but additional value add activities.

- Interviewee should develop a MECE framework. Some example buckets are:
    - **External:** market factors, customer demand, regulatory concerns
    - **Revenue**: pricing strategy, volume, service offerings
    - **Costs**: ID variable and fixed cost, benchmarking competitors
    - **Market:** Competition, market share, barriers to entry
    - **Entry:** acquisition, JV, build from ground up

- Drive the interviewee to think outside of the box in terms of product offerings. CT has only operated in the rail transportation industry, but there could be opportunities in trucking, providing value add services (e.g. repackaging for end vendors, pricing updates for tag), etc.

Critical Transportation

Prompt #2a:

HAND INTERVIEWEE EXHIBIT 1. Our client is chiefly concerned about the profit margins in the East Coast market after its entry. Based on the provided information, what should CT's profit margins be in the East Coast?

Interviewer Guidance:

- A good candidate will describe the logic of their calculation before jumping directly into computing. If the candidate jumps in first, do not provide guidance unless asked to collaborate by interviewee.

- **Answer: 20% profit margin**
- **Calculations:**
  - 40% Market Share = \$400M; \$400-\$320M= \$80M profit or 20% profit margin
  - 35% Market Share = \$350M; \$350-\$280M= \$70M profit or 20% profit margin
  - 25% Market Share = \$250M; \$250-\$200M= \$50M profit or 20% profit margin
  - 1 – (Sum of Costs / Industry Revenue) = 1 – (\$800M / \$1000M) = 1- 0.8 = 0.2 = 20%

- **Takeaways:**
  - Knowing the East Coast profit margin is 20%, the candidate should want to look at West Coast profitability to determine is the East Coast is an attractive market. **This info isn't provided, but a good candidate will ask about this.**
  - The candidate should also consider the initial investment to enter the market and the portion of the market that CT can expect to capture in order to conduct a break-even analysis.

Exhibit #1

Initial Market Analysis for 2015 Port Shipping by Rail (East Coast)

	% Market Share	Total Costs (Estimated)
Company A	40%	$320 M
Company B	35%	$280 M
Company C	25%	$200 M

Total Market Revenue (East Coast)

Year	Revenue ($M)
2015	1000
2014	950
2013	920
2012	900
2011	820

Critical Transportation

Prompt #2b:

Our internal analysts believe that CT can only capture 10% of the East Coast market upon entry in the first year. The West Coast market size is $2B, and 25% of that market is expected to shift to the East Coast after the canal opens in 2016. The initial investment to begin operations on the East Coast would be approximately $450M. Based upon this information when would CT break even? Ignore time value of money and assume no growth.

Interviewer Guidance:

- **Answer: 15 years**
  - $1.0B East Coast market in 2015 becomes approx. $1.5B in 2016
  - Client expects to have 10% of East Coast market share, or $150M in revenue w. 20% profit margin.
  - $30M profit in Y1, but initial invest was $450M.
  - Breakeven time period would be 15 years (i.e., $450M / $30M = 15), and the client's comfort with that horizon would lead next steps

- A good candidate will describe the logic of their calculation before jumping directly into computing. If the candidate jumps in first, do not provide guidance unless asked to collaborate by interviewee.
- A strong candidate will connect 2015 data and project 2016 after 25% shift from West Coast and drive to the "so what" of the prompt.

Critical Transportation

Prompt #3:

Given that it would take many years to recoup initial costs unless CT could gain a larger market share, what are some other recommendations for CT to increase profitability in the East Coast after the Panama Canal expansion?

Interviewer Guidance:

- A good candidate could mention several options, including:
  - Buy/Borrow
  - Increasing the number of services provided by CT (e.g. providing additional value add services such as repackaging or tagging)
  - Potential substitutes for rail (e.g. transport trucks)
  - Aggressive expansion of customer base through pricing strategy and leveraging existing West Coast network
- After candidate finishes, ask if there is anything further that they might consider as a measure to test their confidence.

Critical Transportation

Recommendation:

John Gray, CEO of Critical Transportation, is expected to walk in the room in about 5 minutes and wants to hear our thoughts about the direction his company should take in the future. What do you recommend?

Interviewer Guidance:

- A good candidate will take a moment to structure his or her thoughts. These thoughts might include:
  - Leading with recommendation first to invest or do not invest.
  - High-level explanation of the basis of this decision
  - Possible opportunities that could be explored in East Coast market
  - Risks
  - Next Steps

Dealer Jack's

Industry: Retail
Quantitative Level: Medium
Qualitative Level: Medium

Behavioral Questions

Question 1:

- Tell me about an area you've been able to improve during business school. How did you make that improvement?

Question 2:

- What is something you haven't been able to do yet while in business school but plan/hope to do before beginning work full-time?

Dealer Jack's

Prompt #1:

Your client is Dealer Jack's, a large US based grocery retailer with stores located on the East Coast. Dealer Jack's stores provide a full grocery offering with produce, deli, and fresh bakery departments and a mix of national and private label brands. The company, affectionately referred to as "DJ's" by its customers, experienced strong growth for the better part of the past two decades outpacing the industry until recently.

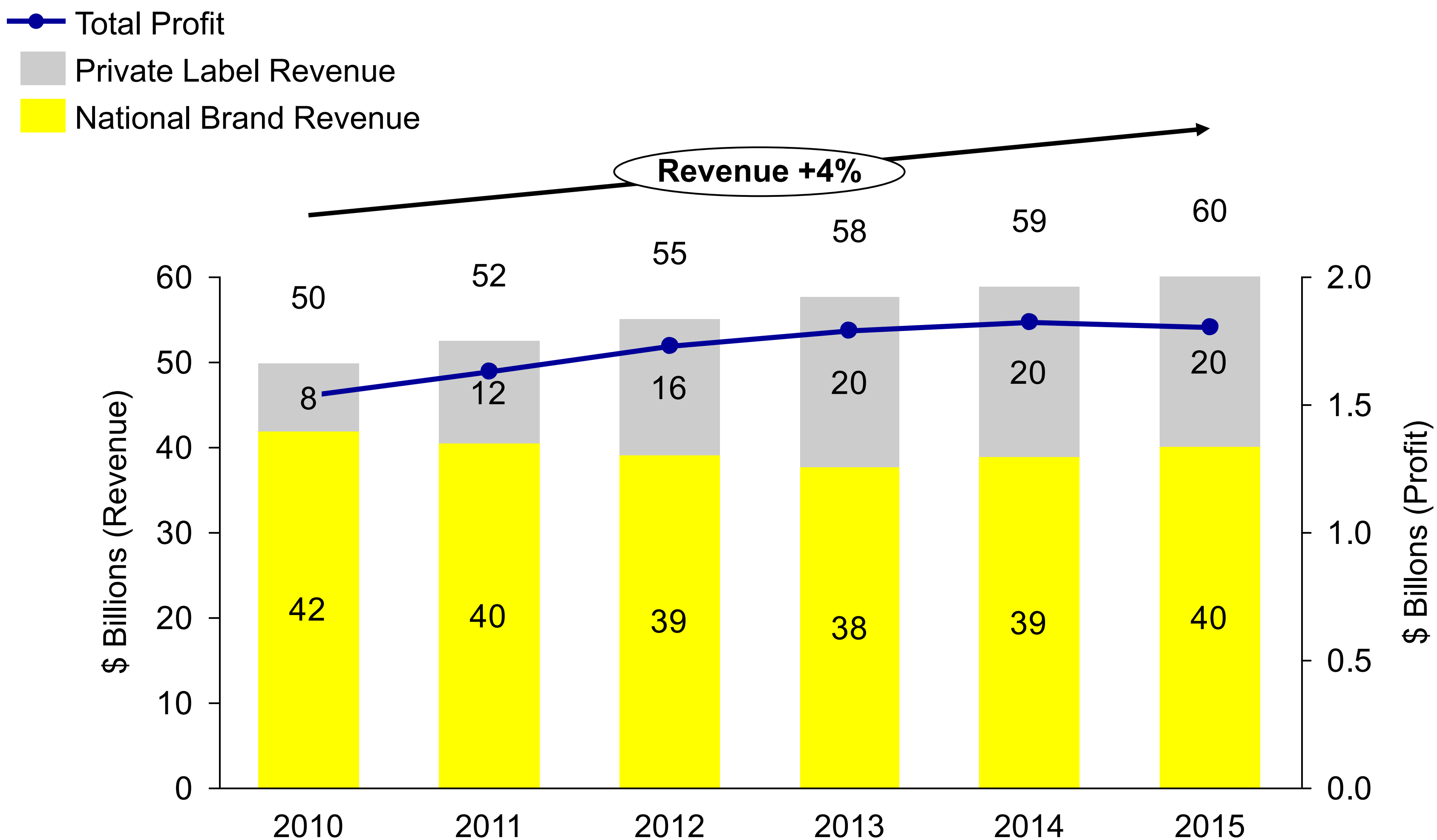
Over the past three years however, Dealer Jack's annual profits have stagnated and even declined in the past year while the grocery industry has continued to grow with hard discounters such as Trader Joe's leading the way. The CEO has been getting increasing pressure from the board to turn things around, and we have been hired to diagnose the cause of DJ's profitability issues and find ways to improve it.

Dealer Jack's

Interviewer Guidance:

- Candidate should recognize this is a profitability case and should develop a MECE framework that addresses both revenues and costs.
- Dealer Jack's management has examined same store sales for all of its 300 locations, and profitability appears to be a pervasive issue across all stores. They do not believe targeting and closing underperforming stores is an appropriate solution.
- While the Dealer Jack's brand is strong on the East Coast, management sees geographic expansion as too capital intensive in the short term.
- All non-operating expenses/costs are appropriately benchmarked to the industry.
- Private label brands are commonly referred to as store brands like 365 at Whole Foods or Kirkland's at Costco. Hard discounters such as Trader Joe's rely heavily on private label brands. National brands come from CPG firms such as General Mills or Kraft. CPG firms require a margin on their products that's not applicable to private label brands.
- DJ's had **2016 revenue of $60 billion** with 30% gross margin and **3% profit margin**.
- Management wants to **increase the profits by 10% within the next year**.
  - *Note for Interviewer: Target profit increase is $180 million = $60 billion x 3% x 10%*
- ***After a complete framework (that leans towards either product mix or margins), the candidate should be handed over Exhibit # 1***

Exhibit #1: Historical Revenue & Profit



Interviewer guidance on Exhibit #1

Exhibit #1 Guidance:

- Exhibit represents high level revenue broken down between national brands and private label brands as well high level profit.
- Provide information about national brand vs private label brand differences from Interviewer Guidance on prior page if candidate asks and it wasn't previously covered.
- Candidate should make connection between the stagnating private label growth and stagnating profits in the last three years. Interviewer should guide them in that direction if needed. Move to Prompt #2 when appropriate.

Analysis:

- Candidate should draw the following insights:
  - Private label brand growth was driving profit growth in earlier years
  - Profits declined in the past year despite continued increases in revenue
  - Margins on private label brands might be more attractive than national brands and worth exploring further

Dealer Jack's

Prompt #2:

Only 33% of all Dealer Jack's sales come from the higher margin private label brands compared to industry leader, Trader Joe's, which has 45% penetration. Management expects revenues to be flat in the coming year, but believes that by re-focusing on private label brands, Dealer Jack's could increase its private label sales penetration by 3 percentage points without losing any sales dollars.

Private label brands have a gross margin of 40% while national brands have a gross margin of 25% for Dealer Jack's.

What do you think of management's hypothesis?

Interviewer Math Guidance

Interviewer Guidance/Analysis:

- Candidate might ask about changes to other annual expenses. SG&A and other operating expenses are not expected to change by increasing private label penetration. Only COGS and taxes will change. Previous prompt does not provide tax info – candidate should ask for this. The tax rate is 30%.

- A good candidate will recognize that the total size of the revenue pie will not increase and the impact to profit is just the net increase in margin that comes from the transition from national brands to private label brands minus any increases in taxes.

- Analysis:

2016 Revenue	$60 billion
x Private label penetration increase	x 3% (= $1.8 B)
x Difference in gross margin	x 15% that is, (40% - 25%)
= Increase to gross margin	= $270 million (= $1.8 B * 15%)
- Taxes	- $81 million : ($270 million x 30%)
= Increase in Profit	**= $189 million**

Dealer Jack's

DUKE THE FUQUA SCHOOL OF BUSINESS

Recommendation

- The CEO is about to walk into the room. What is your recommendation and what else should the management team consider?

Interviewer Guidance:

- Candidate should recognize that executing management's plan to increase private label penetration by 3 percentage points will meet and exceed the 10% or $180 million profit increase goal.
- A good candidate will:
  - Identify the need to pressure-test the assumption on 3% sales increase estimate
  - Identify risks such as needing to understand more about any upfront/onetime costs that will be associated with re-focusing on private label brands.
  - Suggest next steps such as rolling out a pilot program in select stores.
- An excellent candidate might also note:
  - There will still a significant gap in private label penetration between Dealer Jack's and industry leader Trader Joe's implying some additional room for upside.
  - Increasing private label penetration could strain sourcing relationships with national brand/CPG suppliers or how sourcing fewer national brand products could diminish economies of scale, further decreasing margins for remaining national brand sales.

Duck Island Beer Co.

Industry: Consumer Products
Quantitative Level: Medium
Qualitative Level: Medium

Behavioral Questions

DUKE THE FUQUA SCHOOL OF BUSINESS

Question 1:

- Describe a time when you were challenged? How did you handle the situation?

Question 2:

- What is the most creative thing you have ever done?

Duck Island Beer Co.

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #1:

- Your client is a craft beer company called Duck Island Beer Company out of Austin, TX. They are an international craft beer company beloved by craft drinkers around the world. They are looking to start selling beer in the United Kingdom. They want to know which style of beer to sell and if it would be profitable.

Interviewer Guidance:

- Guidance- Candidate should do a profitability analysis and determine if this is fits their strategy and also if it will be profitable.
- Background Information if asked:
  - Market Share – See Exhibit 1
  - Profit/Revenue - $43B in Revenue, $10B in Profit
  - Portfolio of beers – Over 50 brands split between lagers, ales, IPAs, and stouts.
  - Current Strategy – Seeking rapid expansion and revenue in any way possible
  - UK shows potential as a craft market
  - Duck Island currently operates everywhere in the world except the UK, Africa and Australia

Interviewer Guidance

- This case is meant to be driven by interviewee, allow him/her to drive the case after each prompt and respond with “ands” if depth of explanation does not make path forward clear.

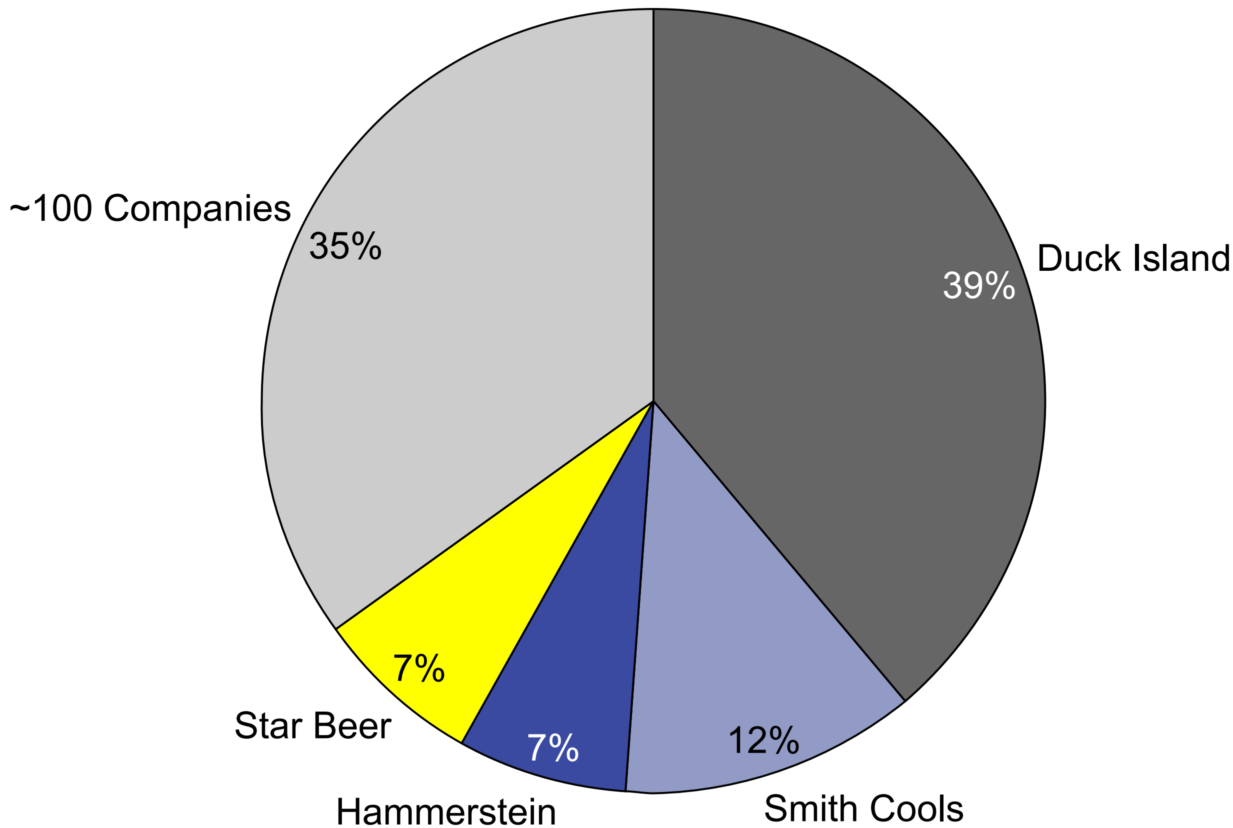
- Most candidates will recognize that this is a profitability case. But a good candidate will see aspects of market entry and tailor their problem solving accordingly. Additionally, he or she will focus on the qualitative aspects of the beer industry.

- Interviewee should develop a MECE framework, some example buckets are: **External:** market factors, customer demand, regulatory concerns; **Revenue**: pricing strategy, volume, service offerings; **Costs**: ID variable and fixed cost, benchmarking competitors; **Market:** Competition, market share, barriers to entry; **Entry:** acquisition, JV, build from ground up

- Drive the interviewee to think about trends in the beer market in the US and if those will apply abroad. You can coach the interviewee to use real life examples of what they know about the craft industry.

- Exhibits should be handed out as the interviewee asks for certain aspects. They should realize that the client has a large market share (and power), that there is potential in the UK for craft and specifically for the style of beer known as India Pale Ale (IPA).

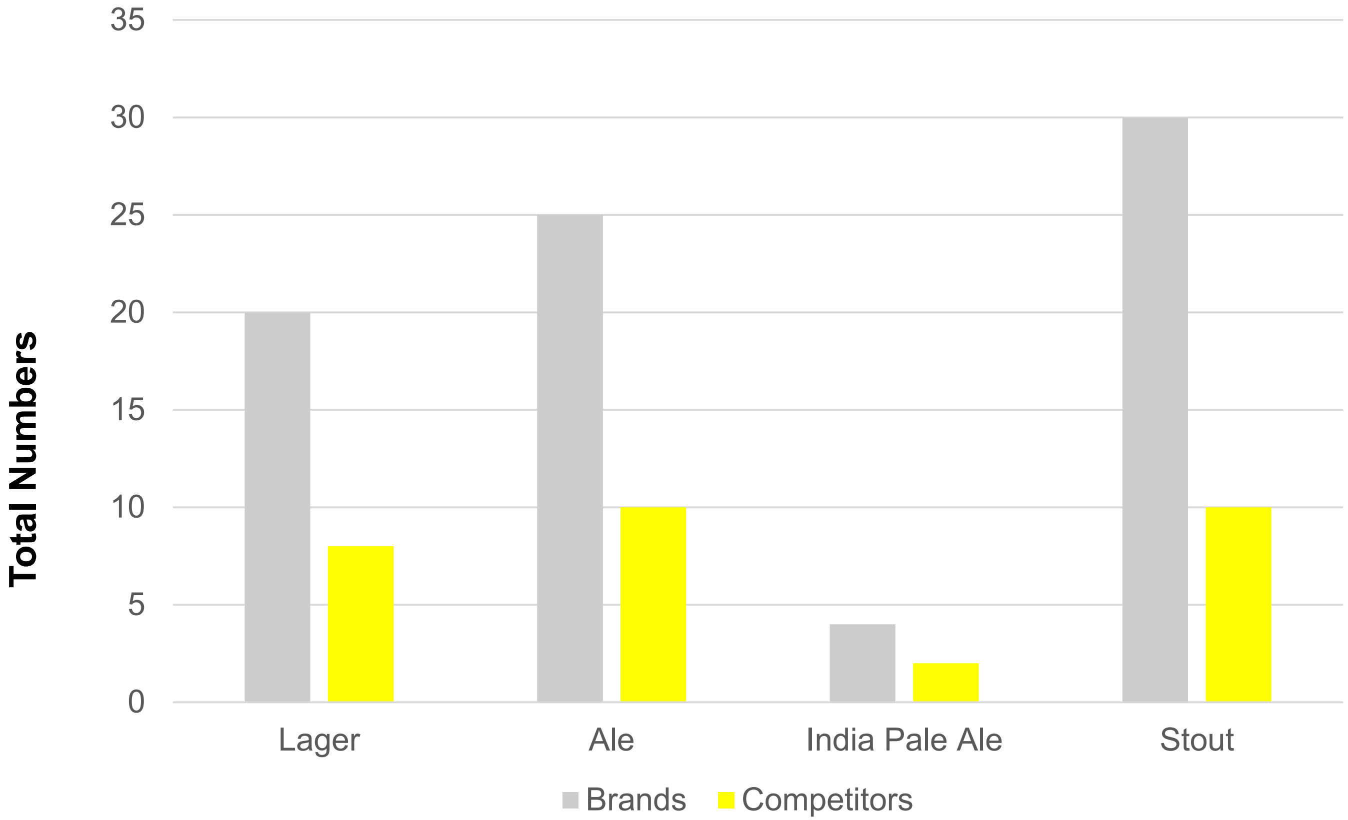
Exhibit 1- Global Market Share



Interviewer guidance on Exhibit #1

Exhibit #1 Guidance:	Analysis:
• To be handed whenever asked about market share	• Biggest insight is that the client has the largest piece of the pie and few competitors • The market is an oligopoly between a few players with a lot of the power

Exhibit 2- Beer Market in UK



Interviewer guidance on Exhibits

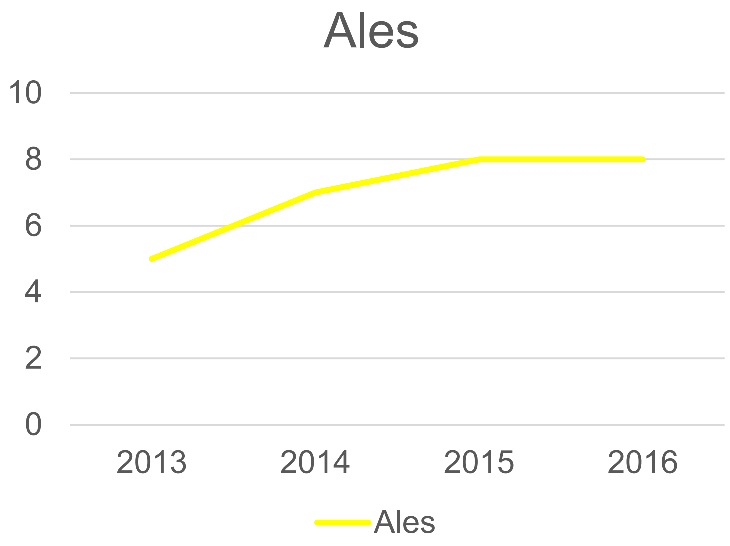
Exhibit #2 Guidance:

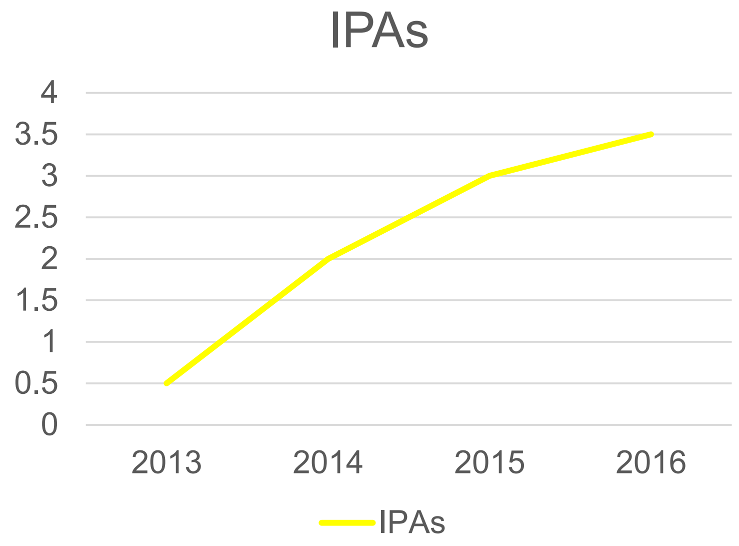
- Exhibit shows total amount of brands by style in the marketplace and how many competitors own those brands

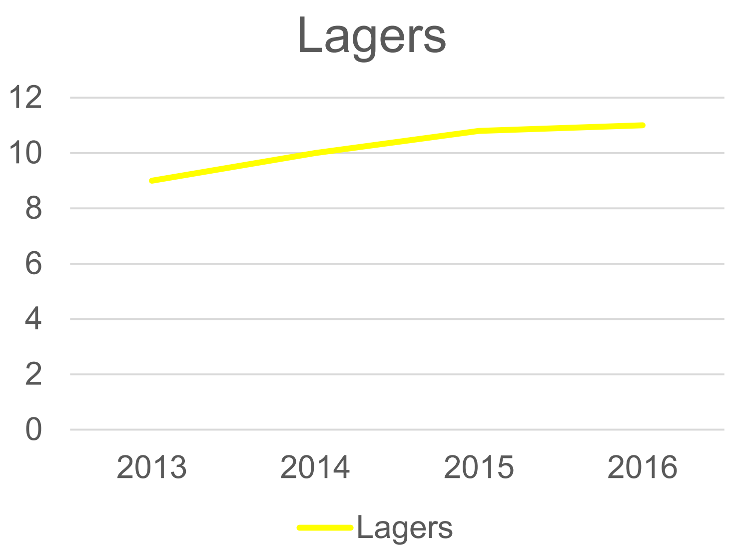
Analysis:

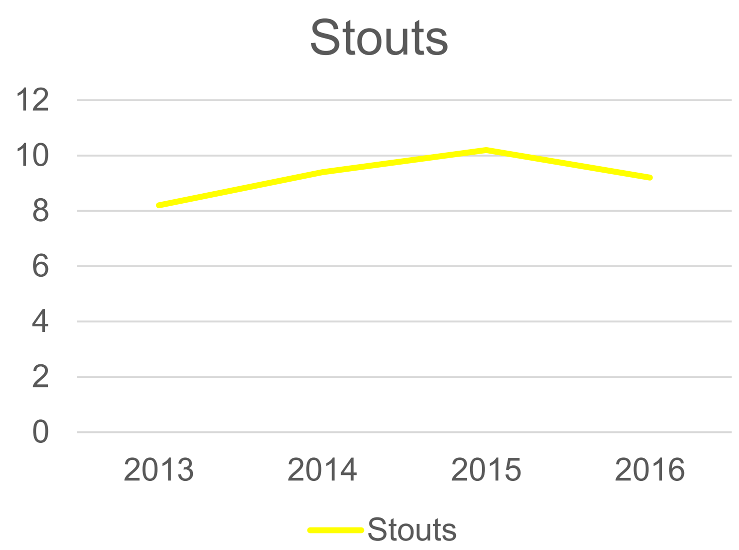
- The IPA category has the least amount of brands and competition

Exhibit 3- Beer Sales in millions of USD in the UK









Interviewer guidance on Exhibits

Exhibit #3 Guidance:

- Exhibit shows recent trends in sales by style of beer

Analysis:

- The IPA category has shown the biggest increase in sales
- A good candidate will connect this with the lack of competition in a style of beer that is increasing in popularity
- This should lead the candidate to want to specifically choose the style of India Pale Ale (IPA) as the style to analyze for potential export
- At this point, the interviewee should explore entering the UK craft market with an IPA as the product.

Duck Island Beer Co.

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #2:

- What factors would influence this decision to go abroad?

Interviewer Guidance:

- Interviewee should be allowed to take a few minutes and brain-storm in a MECE fashion. Some of the factors could be as following
- Internal: Cash on hand for CapEx, Knowledge of the UK market &Marketing strategy
- External: Competition, Barriers to entry, Distribution channels, Tariffs, Regulatory concerns, Converting a traditional beer culture into a more craft-oriented culture, Shipping costs if brewed in the US, Costs if brewed locally in the UK, US price points vs. UK price points, Added costs to expand the supply chain (more hops, bottles, packaging)
- Other: Legal drinking age in UK, Brexit, USD to Euro conversions and volatility

Duck Island Beer Co.

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #3:

- Our internal strategy team has decided that:
  - The market is favorable for entry
  - We want to launch our flagship beer the "Duck Island IPA"
  - We want you to provide your analysis on one of two methods of entry
    1. Brew in the US and export to the UK
    2. Brew locally in the UK and brand it as a US Beer
  - Which one do you recommend and why?

Interviewer Guidance:

Share the following data estimated by the internal strategy team verbally with the caser. Coach him/her to come up with profitability and recommendation

- General Data
  - Estimated sales in 1st year = 2,000 Barrels
  - Price = $10 per 6 Pack
  - 165 12 oz. Bottles in a ½ Barrel

- Imported from US
  - Cost of brewing = $0.50 per Bottle
  - Cost of shipping = $0.50 per Bottle
  - Tariffs for a 6 pack of bottles = $1 per 6 Pack

- Brewed in UK
  - Cost of Brewing = $0.50 per Bottle
  - Cost of shipping = $0.50 per Bottle
  - No Tariffs
  - CapEx for new brewery operations = $110,000

Interviewer guidance on Prompt #3 (continued)

- The profitability should come out as $330,000 for both scenarios calculated as follows:
  Total number of bottles = 2000 Barrels x (165 x 2) Bottles/Barrels = 660,000
  Revenues: $ 10/ six pack * 660,000/6= $ 1.1 M

Cost of importing from the US: (Cost of brewing/bottle + Cost of shipping per bottle + Tariff per bottle) x Number of bottles = (0.5 + 0.5 + (1/6)) x 660,000 = $ 770,000

Total cost of brewing in UK = (0.5+0.5) x 660,000 + 110,000 = $ 770, 000

Total Profits in both case = $ 1.1 M - $ 0.77 M = $ 0.33 M = $ 330,000

- The candidate can choose to brew in the US and see the potential growth as it being marketed as an “imported US beer”
- The candidate can also choose to brew in the UK and recognize that after the first year CapEx, they can have higher profit with lower costs

Duck Island Beer Co.

Recommendation:

Jason Stamm, CEO of Duck Island, is expected to walk in the room in about 5 minutes and wants to hear our thoughts about the direction his company should take in the future. What do you recommend?

Interviewer Guidance:

A good candidate will take a moment to structure his or her thoughts. These thoughts might include:

- Leading with recommendation first in launch or do not launch.
- High level explanation of the basis of this decision
- A clear decision as to why go towards one recommendation over another (both options have the same profit of $330,000
- Risks
- Next Steps

FoodXperts (Human Capital)

Industry: Healthcare
Quantitative Level: Not applicable
Qualitative Level: Medium

Behavioral Questions

DUKE THE FUQUA SCHOOL OF BUSINESS

Question 1:

- Why are you interested in Human Capital consulting?
  - The candidate should emphasize why they are drawn to HC consulting (likely with Deloitte) rather than S&O or Tech. They should emphasize past work experience, or interests peaked in business school in working specifically on people related problems.

Question 2:

- What city do you want to be in and why?
  - Interviewee should have good reasons for targeting specific city/office:
    - Personal connections to city: family/friends
    - Talked with people from specific office and feel like it is a good fit
    - Industry interests specific to office

FoodXperts

Prompt:

- Your client CARE FIRST (CF) is a large hospital system, comprising 100 acute general medicine hospitals across the US employing over 200,000 people nationwide. CF's patient mix are covered by a variety of insurance providers, however, the majority of patients are covered by Medicare and Medicaid. In the last five years, CF has acquired 70 hospitals in rural regions, increasing the number of patients it serves by 40%. For the last 10 years, CF has been outsourcing their foodservice needs to one contract vendor, FoodXperts. FoodXperts handles all in-room patient dining, cafeteria, retail dining and employs all staff and management as they relate to foodservice in CF's hospitals.
- Due to policy changes and emphasis on value based care, patient satisfaction, measured through HCAHPS scores, is now factored into hospital reimbursement rates from Medicare and Medicaid. CF has recently seen a decline in their reimbursement rates and believes it may be due to the low quality food and service that FoodXperts has been providing. CF has decided to end their contract with FoodXperts at the end of the next year and to begin self-operating foodservices on their own. By making this shift, CF will have to replace all staff and management that has been employed by FoodXperts.
- CF is worried that CEO's at individual hospitals will not be invested in this decision and will likely push back to keep outsourcing foodservice at their individual hospitals.

FoodXperts

Prompt (continued):

- CF has asked your team to help them in planning for the transition to self-operating foodservices across the entire hospital system and replacing FoodXperts management and staff. How would you assist CF through this large scale change?
- Guiding Questions:
  - Who are the stakeholders involved?
  - What phases would you propose to roll out this transition to self-operate foodservice?
  - What are the anticipated challenges you foresee?

Interviewer Guidance:

- This case is meant to mimic a typical Deloitte human capital case with a longer prompt and includes more information than necessary. Make sure to read the prompt at a normal pace so that the candidate can practice taking quick abbreviated notes.
- Different than strategy cases, the candidate should summarize the prompt telling you the “story” and problem facing the client.
- Human capital cases are meant to be conversational, after reviewing the prompt and asking follow up questions, the candidate should take a few minutes to framework their thoughts before beginning their explanation.

FoodXperts

Additional Information (if requested):

- What is CF's organization structure?
  - CF headquarters is located in New York and has hospitals across the US in both rural and urban areas. Most decisions are made centrally at headquarters but CEO's of individual hospitals have some flexibility to modify plans if they can prove that it will be better for their patients overall.
- How many FTE are employed by FoodXperts?
  - 5% of employees at CF are currently under FoodXperts management and would leave at the end of the contract.
    - Candidate should know there are 200K employees and therefore know CF will need to hire 10K people across all of their hospitals.
- Has CF ever done something like this in the past?
  - Yes, CF used to outsource healthcare technology to another vendor and decided to self-operate this division a few years ago. The decision was abrupt and they lost a lot of great talent from the current vendor (that might have stayed on) due to poor messaging from leadership. Some CEO's of individual hospitals disagreed with the decision and have been weary of other changes mandated from headquarters.
- Why is this change taking place? What are the main objectives of this change?
  - The candidate should have this information from the prompt and should emphasize these in their explanation. If not: the change is happening because of declining patient satisfaction scores and thus lower reimbursement from Medicare and Medicaid. The main objective is have a smooth transition to self-operating foodservice in an effort to increase patient satisfaction and reimbursement rates across the system.

FoodXperts

Recommendation

Candidate can use assess, design, deploy framework. Candidate may have some but not all listed below in their framework. 3-4 workstreams are suggested for timing purposes.

- Assess
  - Stakeholder Analysis: Conduct a stakeholder analysis to identify key stakeholders at each individual hospital: CEO's/Foodservice managers, FoodXpert staff/management that might be retained after contract is terminated.
  - Change Impact Assessment: Conduct a change impact analysis (i.e. a forum for those impacted stakeholders) to identify concerns about the self-operating foodservice, especially those that might come from the recent healthcare technology change. Document all procedural changes that will need to be addressed via hiring and communications.
- Design:
  - Hiring plan: Work with hospital CEO/Foodservice managers to create plan to retain management and staff currently employed by FoodXperts. Develop plan with central HR to fill remaining gaps at hospital level.
  - Communications: Design a communications plan documenting all communications that will be delivered to stakeholders. This plan should outline what group of stakeholders should receive what message, the frequency of the communications, the vehicle of communication and the due date.
  - Learning & Development: plan for the integration of new employees to include onboarding, training, and future development needs.

FoodXperts

DUKE THE FUQUA SCHOOL OF BUSINESS

Recommendation (continued):

- Design (continued):
  - Change Management: For such a large-scale change, it would be advantageous to create a Change Agent Network made up of "change agents/champions" who will lead the new structure of foodservice operations and can be subject matter experts on the new system to self-operate foodservice and be the main point of contact that hospitals can go to with questions and concerns. The Change Agent Network would meet several times before the contract with FoodXperts is terminated to manage transition to self-operating foodservice and get the opportunity to answer any questions or address any concerns arising from colleagues.

- Deploy:
  - Hiring: Roll out hiring plan from central office and assist CEOs in retaining high quality talent from FoodXperts (especially hospitals located in rural regions where talent might be more scarce).
  - Communications: Execute on the first communications that are meant to build awareness and investment from CEO's at hospital level. Work with CEOs to deploy messaging to FoodXperts staff/management that they want to be retained.
  - Change Management: Facilitate Change Network Meetings and inform all employees that the change agents will be the go-to people for questions regarding the change in foodservice so that management can carry on with day-to-day activities.

- Note: candidate may want to have a trial run with small set of hospitals early on in the process to gather information and learn from the transition prior to rolling out to the entire system.

NileKart (Human Capital)

Industry: Technology

Quantitative Level: Not Applicable

Qualitative Level: Medium

Behavioral Questions

Question 1:

- What has been your best non-work accomplishment?

Question 2:

- Tell me about a time you had to convince someone senior in the organization. What was the situation, how did you convince him/her, and what was your learning from it?

NileKart

Prompt #1:

- Your client NileKart located in the Research Triangle Park (RTP) in Durham, is the nation's fastest growing e-commerce player with over $3 Billion in revenues in 2015. Most of this growth is inorganic with NileKart leveraging its seemingly endless cash reserves to acquire companies which strategically align with its long term vision of becoming the largest e-commerce company in the world.
- NileKart's recent acquisitions include a fast growing logistics company based in Memphis, a 600 seater call centre based Austin and a Fintech start-up based in Silicon Valley.
- In January 2016, under tremendous pressure from its VCs to continue its rapid growth, NileKart reluctantly completed the acquisition of WishDeal, a niche e-commerce company with over $500 Million in revenues in 2015. Wish Deal is based in Silicon Valley and was built by a young team of data scientists and developers which sells quirky, one-of-a-kind products at low prices.
- The rationale behind this merger was to exploit economies of scale in operations, expanding consumer base and developing a diverse product portfolio as sources of competitive advantages in the highly saturated e-commerce industry in USA.

NileKart

Prompt #1:

We have been engaged to help with creating a comprehensive technology integration plan with the following key considerations:

- Who are the key stakeholders that need to be considered in order to achieve success of the technology integration?
- Integrate NileKart's and WishDeal's technology systems into a single centralized platform where the combined entity can leverage economies of scale in operations.
- What phases would you propose to roll-out the integration with broad timelines?
- Highlight any key risks that NileKart faces in this integration.

Interviewer Guidance:

- Human capital cases are conversational, but the candidate should take a few minutes to set up a framework for how they will approach EI's adoption of the new system. Prior to setting up their framework, the candidate is permitted to ask a few questions. If solicited, the interviewer can provide additional information provided in the slides to follow. If the candidate asks a question for which the answer is not provided, just reply that the information is not available.

NileKart

Additional Information (If solicited)

- The case is going to test the candidate's ability to think of both the strategic as well as the tactical aspects of integration from a human capital lens. The candidate may need the following additional information:

1. Please describe the culture at NikeKart and WishDeal.

- NileKart has a collaborative and entrepreneurial culture and its the leadership team is made up of seasoned industry veterans who control majority of the decision making and usually most initiatives in the firm have to receive a signoff from the leadership team before they get implemented. However, WishDeal has an agile, entrepreneurial and de-centralized culture where product managers and business heads are given a lot of freedom to implement initiatives and run their divisions independently.

2. Why was NileKart reluctant in acquiring WishDeal?

- NileKart's management felt that the company cultures were very different and rushing into a new, sizable acquisition without first consolidating its existing portfolio of acquired companies would not be beneficial to the company in the long run.

3. How has NikeKart fared in its previous acquisitions?

- 80% of NileKart's acquisitions have been successful in achieving the desired objectives.

NileKart

Additional Information (If solicited)

4. Why is this integration important to both the companies? And is the Leadership Team aligned with the integration?

- The rationale behind this merger was to exploit economies of scale in operations, expanding consumer base and developing a diverse product portfolio as sources of competitive advantages in the highly saturated e-commerce industry in USA.
- The Leadership Team at NileKart is highly committed to make this merger successful but the Leadership Team at WishDeal is apprehensive about losing their agile culture and its focus on selling unique, quirky products to a younger customer base.

5. What are the current technology systems at both the companies?

- While both the companies use SAP as their ERP system, NileKart uses Salesforce.com's proprietary CRM system and WishDeal uses Zoho CRM's SaaS CRM system. Unifying both the CRMs will be a critical piece in ensuring the successful integration of the customer data and developing future business strategy for both the companies.

6. Has NileKart given any specific timelines? (given the influence of VCs)

- The Board comprising of several VC partners is hoping to successfully complete the integration of WishDeal into NileKart's operations in the next two years.

NileKart

Additional Information (If solicited)

7. Are both the players selling similar products? Or what are the differences in customer base or go-to-market approach for both the companies?

- While NileKart sells everything from a pin to a plane on its e-commerce platform with its customer base between the age groups of 21 – 45, WishDeal focusses on selling unique, quirky items at low prices to its customers who are typically between the age groups of 16 – 28. WishDeal leverages customer data analytics to deliver targeted marketing to its customer base and massive social media campaigns on Instagram, Pinterest and Snapchat. NileKart leverages traditional social media marketing

8. Who are the end users of the unified CRM?

- The end users will be the 800 employees of the Austin based call-center of NileKart along with a 60 member customer support team of WishDeal. The preference would be to migrate WishDeal's CRM data to the Salesforce.com CRM used by NileKart.

9. Are there any change champions identified for the ERP and CRM integration project?

- Yes, the CTOs of both the companies are championing the cause along with a special task force comprising of senior project managers along with the technology team and customer satisfaction team from the Austin based call-center.

Case Solution: Interviewer Guidance

- Note that there is a lot going on in the case which is typically the scenario during mergers and acquisitions. The key to effectively solving the case in 30 minutes is to acknowledge the breadth of issues upfront and identify 2-3 key issues that you would like to solve for given the limited time of the case discussion.
- The interviewer needs to check for business acumen, identification of the key business issues in the case which are Technology and Culture Integration and the candidate's understanding of Human Capital concepts. Additionally, the candidate must address all the 4 questions raised in the beginning of the case, in some capacity during the case discussion. The case discussion will mostly be a conversation focussed on the candidate's approach to solving business problems using a Human Capital Lens
- **This table shows the typical structure for a 30 minute case**

Section	Time	Details
Case Question Introduction	3-5 Mins	Listen to the case and take brief notes on details Take 20 seconds to verify case details as you understand them ALWAYS ask few clarifying questions Ask for a few minutes to collect your thoughts
Structure Creation Approach Development	15 – 20 Mins	Present your approach to the problem (high level first, go into detail when prompted) You are expected to drive the case from here but be alert to cues / guidance from the interviewer; he/she will likely ask clarifying questions Continue to ask relevant questions should they arise
Case Summary /Recommendations	2 – 3 Mins	Summarize the case by giving a recommendation back by details / insights from the case

NileKart

Recommended Human Capital Frameworks

- A technology and culture integration case like this can be approached through the following four Human Capital casing frameworks:

1. Lifecycle framework

- The solution is shown as a series of next steps, with appropriate level of detailing, that need to be achieved over a defined period of time which can be in the form of a Gantt chart.

2. Work Streams framework

- The solution is given by going deeper into all case specific HC work streams.

3. People – Process – Technology framework

- The activities are divided by the areas of impact. For example People header has all the activities that will have an effect on people.

4. Assess – Design – Deploy - Measure framework (with relevant workstreams)

- The activities are divided according to various phases of the project implementation with a minimum of two workstreams in each phase with potential overlaps.

NileKart

Recommended Human Capital Frameworks (Continued)

Lifecycle

Integration Plan	Month 1-6	Month 7-12	Month 13-18	Month 19-24
Activity 1				
Activity 2				
Activity 3				
Activity 4				
Activity 5				
...				

People-Process-Technology

People	Process	Technology
Core Objectives	Performance Management	SAP vs. Oracle
...	...	...
...	...	...
Organization Design	Process Design	Outsourcing
...	...	...
...	...	...

Work Streams

Talent Management	HR Operations	Recruitment
➢...	➢...	➢...
➢...	➢...	➢...
➢...	➢...	➢...
Culture	**Rewards**	**Organization Design**
➢...	➢...	➢...
➢...	➢...	➢...
➢...	➢...	➢...

Assess-Design-Deploy-Measure

	Assess Current State	Design Future State	Deploy & Measure: Implementation
PEOPLE	Stakeholder Analysis Culture Analysis Organization Structure Skills Gap Analysis	Identify Change team Talent Retention Dealing w/ Resistance Reduction in Headcount	Surveys Focus Groups Create milestones Managing Goodwill
PROCESS	Comms. Training	Comms. Strategy Training programs	Productivity
TECH	Data Strategy	IT Techsupport	Help desk

NileKart

Case Solution

1. The key stakeholders of this technology integration project include:

- Executive leadership teams of NileKart and WishDeal
- Executive leadership teams of the logistics company based in Memphis, call centre in Austin and the Fintech start-up in the Silicon Valley – to ensure seamless integration of services and to unlock the economies of scale in operations across both the firms
- The VC partners who hold strategic interests in both the companies
- CTOs and technology teams at NileKart and WishDeal
- The employees at NileKart' call-center in Austin and the WishDeal's customer support team

2. Integrating Technology systems into a single centralized platform:

- **Leadership Alignment:** Survey leaders to see who would be allies to the project and start implementations by piloting across their divisions first; consider having positive leaders talk to other leaders who are not as enthusiastic; communicate with leaders how they will benefit from the system, what their role should be and how they will be awarded.

NileKart

Case Solution (continued)

- **Communications:** Determine what messaging need to go out to different stakeholders, when it needs to go out and who should deliver it; consider having most messaging in in the call-center and in customer support teams to come from local office leadership and cascade down from there; communicate benefits of having a unified CRM platform; manage expectations by communicating that there will be a learning curve and an initial loss of productivity during the transition

- **Incentives:** Come up with visible ways to award and recognize stakeholders that move the project forward (e.g., recognition to the office that have the highest level); celebrate milestones and achievements

- **Stakeholder Engagement:** Find change champions, who are positive and understand the business, to engage employees and listen for feedback on the implementation; consider that there are different languages and cultures in each office and a "one-size-fits-all" approach may not work

- **Training:** Revamp trainings so they address specific business needs of the local offices, which will take a thorough understanding of the current business processes and how they will change with the migration of WishDeal's customer data to Salesforce.com CRM platform

NileKart

Case Solution (continued)

3. **<u>The key risks that NileKart faces include:</u>**

- Attrition of Top Talent especially in the engineering and product management teams
- Loss of WishDeal customer base who might switch to competitors fearing loss of quality and changes in customer service standards
- Loss of employee morale due to differences in company cultures and leadership styles
- Competitors moving in rapidly to capture market share in case of a failed integration
- Loss of brand value of the firm due to a failed integration resulting in lower valuation of NileKart which leads to potential losses for the VCs

Fresher Breath

Industry: Consumer Goods
Quantitative Level: Medium
Qualitative Level: Medium

Behavioral Questions

Question 1:
• Tell me about a time you had to push back on / disagree with a supervisor or client?

Question 2:
• What would your previous manager say are 2 natural strengths? Provide an example of how you leveraged your strengths to succeed in a difficult project or situation.

Fresher Breath

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #1:

- Your client, Minty Fresh Co. has been the dominant leader in Oral Mouthwash for over a century since inventing a unique four oil combination that kills 99% of germs and leaves consumers with a “dentist fresh” clean feeling. Minty Fresh has consistently held 80-90% of the market share for mouthwash, but in the last 3 years, share and profit has been rapidly declining. Your client, the CEO of the US division, has hired you to determine what is driving the decline and how to quickly reverse this trend.

Interviewer Guidance:

- This case will only be focused on US sales, global impact is ignored.
- If asked, assume you are in January 2016. In later parts of the case it will be helpful to keep in mind that results need to be achieved within the 11 remaining months of the 2016.
- Minty Fresh only sells mouthwash, not other oral care products
- Most common framework would be centered around revenue and profit. The case will go towards revenue drivers, but interviewee should explore both. Competition should be included in the framework as share is mentioned.

Interviewer guidance on Exhibits

Exhibit #1 Guidance/Prompt #2:

- The "key question" to provide exhibit 1 would be around competitive landscape. If they go towards a different path or two, it is ok to say "There has been major competitive activity in the last few years, so the CEO wants us to start there"
- The interviewee should identify:
  - Minty Fresh is declining
  - 2 new competitors have quickly taken share in the market in the last 3 years
  - The category is relatively flat thus this is a case of stealing share, *not* growing the entire category.
- **<u>AFTER the interviewee</u>** reviews, move forward with the following prompt:
  - Mouthwash is a consumer category that has had relatively flat household penetration for almost a decade, thus the new competitors are stealing share rather than growing the market. Given the fierce competitive environment, our client needs a quick action to help turn around the decline. Our client has aligned with the board that she will turn around the decline and even grow share by 3 percentage points in 2016.

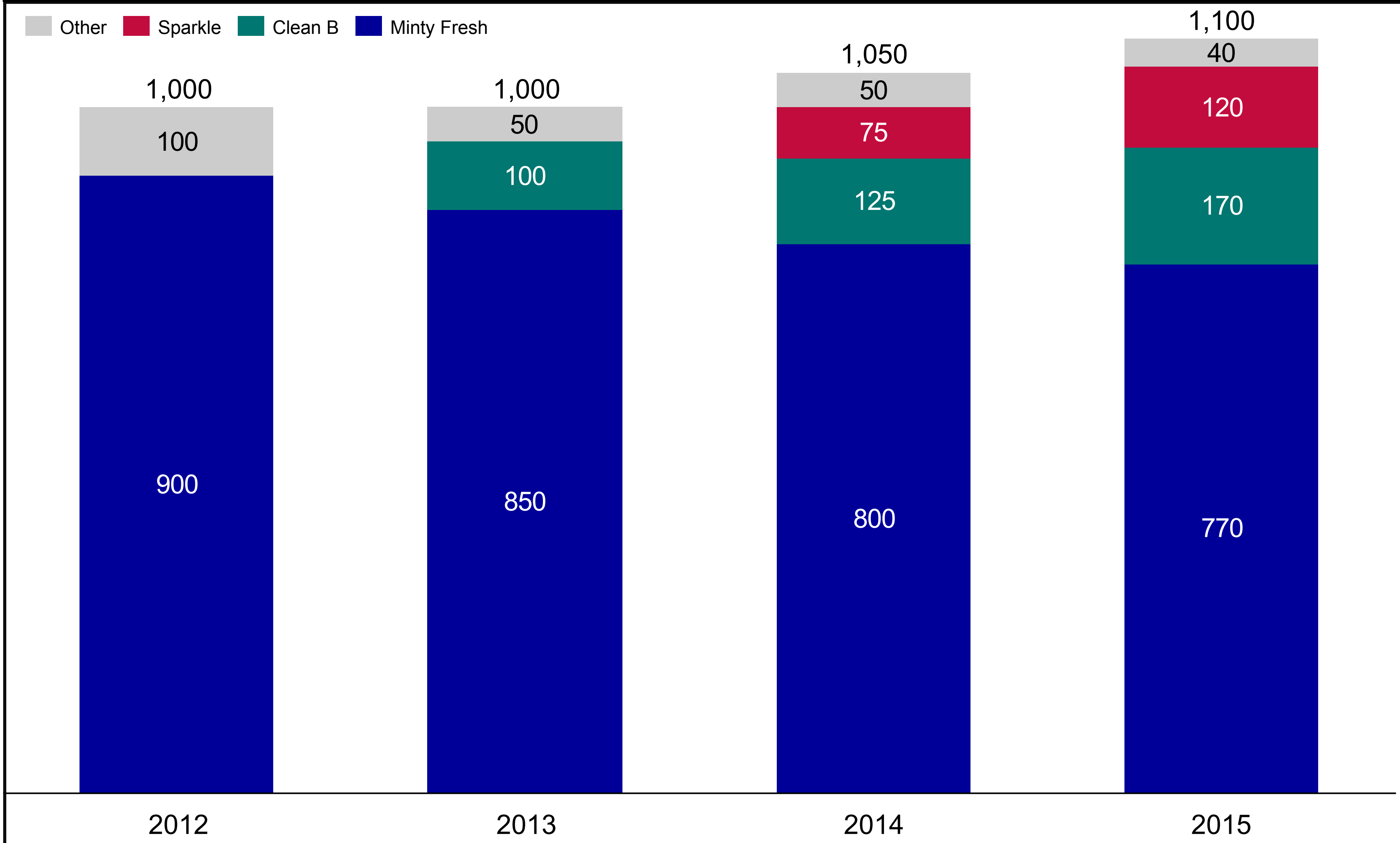
1. Assuming the category remains flat, what is the increased revenue needed to hit a 3 percentage point market share growth?
2. What are some strategies Minty Fresh should consider to quickly regain the share?

Analysis:

- **Q1 Math**: Current share in 2015 is 770/1100 or 70%; Assuming the category is flat, 3 percentage points equals ~$33MM (this number will be needed in later questions)
- For **Q2** the interviewee should have some elements of a marketing and/or revenue framework: price and volume, volume could be broken into new products, increase buy rate of current users, new retail customers (i.e. gas stations, beauty stores)
- An good interviewee will keep in mind the time line and recognize that a new product launch or even new retail customers may be difficult to achieve in the short time frame. Thus, **pricing** will be the quickest way to move towards increased share

Exhibit #1: US Mouthwash landscape

Revenues by Company, $Millions



Interviewer guidance on Exhibits

Exhibit #2 Guidance:

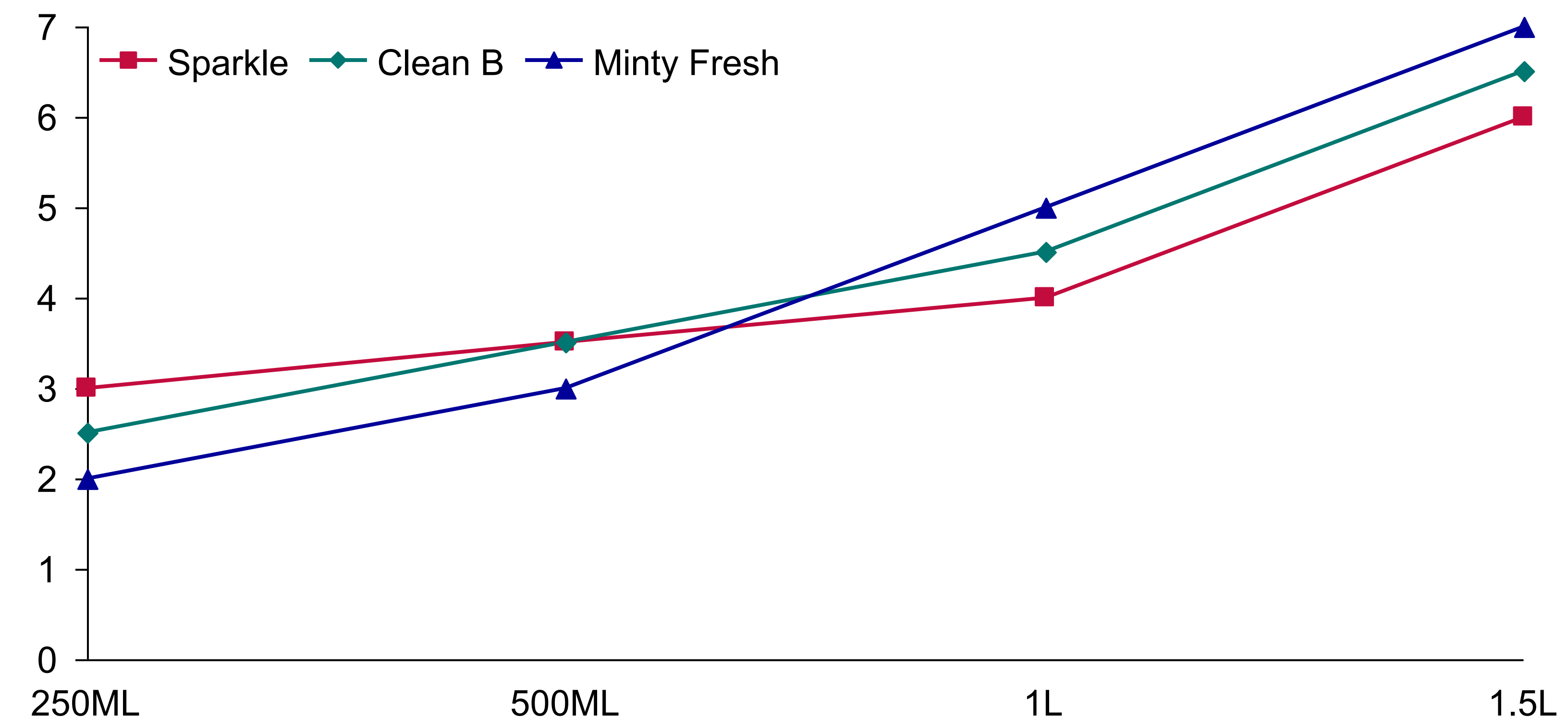
- **Prompt:** Given that pricing will be a quick way to impact 2016 share, your team pulled together list prices for Minty Fresh and its 2 top competitors. They were also able to obtain 2015 volumes for Minty Fresh.

Analysis:

- Interviewee should recognize there are different bottle sizes and price points, which vary across competitors
- Ultimately, the goal is to notice:
  - Minty Fresh is underpriced versus competitors in 250ML and 500ML and has an opportunity to increase price
  - Minty Fresh is over priced in 1L and 1.5L; Interviewee could argue that they are a premium brand and should maintain a higher price, but should be going towards exploring the impact of elasticity on price
- A good interviewee should mention elasticity and how that could help improve revenues/share
- The bottom chart will be used in Prompt 3 analysis, but interviewee may note that 1 and 1.5L are much bigger impact to revenue than 250 and 500 ML. They could also calculate the 2015 revenue by size

Exhibit #2: Competitive Pricing

List Price by Company, $



Minty Fresh Price and Volume Data

Minty Fresh Size	Minty Fresh 2015 Volume (Millions)	Minty Fresh List Price
250 ML	30	$2.00/bottle
500 ML	20	$3.00/bottle
1 L	60	$5.00/bottle
1.5 L	50	$7.00/bottle

Fresher Breath

Prompt #3:

1. An analyst on your team calculated price elasticities of different sized bottles of Minty Fresh. The proposed changes are within the boundaries of retailer contracts and are what your team thinks are the max price changes Minty Fresh could make without negative profit impact. With the following data, can Minty Fresh hit their incremental sales target? Assume that 2015 sales and volume are the starting point.
   – For 250 ML, 20% price increase drives a 10% volume decrease
   – For 500ML, a 15% price increase drives a 10% volume decrease
   – For 1ML, a 20% price decrease drives a 30% volume increase
   – For 1.5ML a 15% price decrease drives a 20% volume increase
2. *__After calculations__*: What factors would need to be considered to implement a price change?

Interviewer Guidance:

- The interviewee will need to use the data from the previous exhibit to do this analysis. It is not expected to do this in his/her head; a good organized table will be needed (one example below). If struggling, interviewee could just calculate 1L and 1.5L and talk to other ways to get to the revenue increase
- For analysis, assume competitors don't change their prices (put should be a factor in Q2).

Size	Old Price	New Price	Old Volume (Millions)	Incremental/Lost Volume (Millions)	Change in Revenue (Millions)
250 ML	$2.00	$2.40	30	-3	(27 * $2.4) – (30 * $2.00) = $64.80 - $60 = **$4.80**
500 ML	$3.00	$3.45	20	-2	(18 * $3.50) - (20 * $3.00)= $63 - $60 = **$3.00****
1L	$5.00	$4.00	60	+18	(78 * $4.00) – (60 * $5.00) = $312 - $300 = **$12**
1.5 L	$7.00	$6.00**	50	+10	(60 * $6.00) – (50 * $7.00) = $360 - $350 = **$10**
TOTAL					**$29.8MM**

*The math will get to $5.95, and you can guide them to round to 6.00

** Can round $3.45 to $3.50

- Q2: End Consumers, Retailers, Internal Supply chain, Profit Impact, Competitor Reaction (not exhaustive)
- The interviewee should have the $33MM from Prompt 1; this analysis gets you to ~$30MM which is close enough to move forward. However, interviewee can recommend to *not* move forward if they defend their argument.

Fresher Breath

Recommendation

The CEO walks in to get a status update. What would you say is your recommendation to improve her business?

Interviewer Guidance:

- Response should include results, risks/watch outs and next steps
- Summary results should include if the sales target is achievable and by what actions. It should also include risks of consumer/retailer reaction to price increases, “price wars” with competitors, etc.
- Next steps could include working with retailers to roll through changes, aligning new volumes with supply chain, thinking through other marketing efforts (TV ads, digital), etc.

Off-Broadway Blues

Industry: Media & Entertainment
Quantitative Level: Medium
Qualitative Level: Medium

Off-Broadway Blues

Prompt #1:

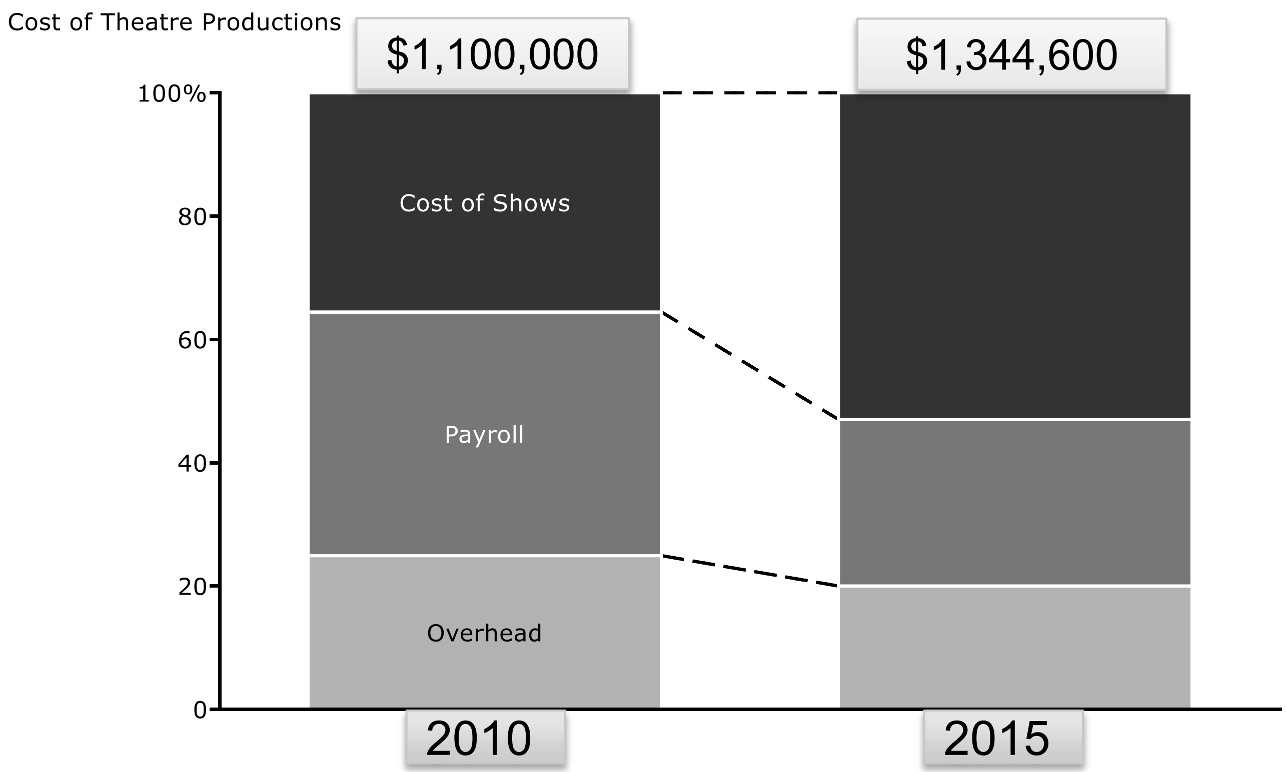
The CEO of a nonprofit performing arts theatre has approached us because despite increasing attendance, the theatre's profit margins have been declining over the past 5 years. The CEO wants you to help him identify what may be causing the decline and what steps he might take to turn around the trend. What would you recommend the CEO consider to help ensure sufficient operating funds for the theatre into the future?

Interviewer Guidance:

The interviewee may ask the following questions; provide the following information only if requested:

- The theatre produces its own shows, and has an in-house crew and cast of actors and actresses. It also recruits actors from New York who are part of the Actors Equity Association to perform in certain musicals.
- The theatre only produces professional musicals for which it pays a one-time licensing fee to obtain the scripts and musical books.
- In the summer, the theatre also produces children's shows, but they are much simpler productions and the cost of production is negligible.
- Overall goal is to achieve the profit margins the theatre had in 2010 (12%).
- The theatre has 850 seats.
- Broadly speaking, the musical theatre industry has seen increasing attendance in recent years as a result of increasing youth interests. We've seen an uptick of 2% attendance overall over the past 5 years.
- There are no competitors of similar size or quality in the area.
- The theatre's ultimate objective is not to maximize profitability, but the CEO wants to ensure that there are sufficient reserves for future repairs and to cover losses on certain musicals.

Exhibit #1



Cost of Theatre Productions
$1,100,000
$1,344,600
100%
80
60
40
20
0
Cost of Shows
Payroll
Overhead
2010
2015

Interviewer guidance on Exhibit

Exhibit #1 Guidance:

- Interviewer Prompt:

Our team has taken an initial look at the cost of operating the theatre in 2010 and 2015. Please look at this exhibit and tell me what you can extract from it.

Potential questions:

- **Overhead** includes expenses like accounting services, technical equipment, repairs and maintenance, building supplies, and rental space

- **Payroll** includes salaries, health insurance, and parking benefits for full-time administrative staff

- **Cost of shows** includes playbill printing expenses, advertising expenses, talent, rehearsal space, costumes, props, musicians, royalties and scripts

Guidance and Analysis, cont:

- After reviewing this chart, the candidate should immediately recognize that cost of shows has nearly doubled (as a percentage of the total) in the past 5 years and now accounts for more than 50% of the theatre's budget.
- **The interviewer should prompt the candidate to drive the case forward by hypothesizing about what may have caused the increase in cost of shows over the past 5 years.**

Reasons considered may include:

- Cost of obtaining rights to produce the shows
- Cost of staff
- Lodging for talent/actors
- Cost of marketing and promotion
- Once the candidate has identified the cost of talent (mainly, actors) as a potential key factor in operating income decline, you should move to prompt 2.

Off-Broadway Blues

Prompt #2:

The cost of production has increased dramatically because beginning in 2011, the theatre underwent a massive effort to improve the quality of its plays and musicals. This effort to “bring Broadway home” included bringing in members of the Actors Equity Association, a professional organization (think union) for Broadway-level actors that ensures them certain workers’ protections as well as a base level of pay.

Feedback related to the actors from patrons has been very positive, and reviews of the theatre’s performances have improved. The director is not interested in eliminating actors from the Actors Equity Association, but what other options (beyond cost) might he consider to help him boost his gross profit?

Interviewer Guidance:

Here, the candidate may list some of the following ideas during the brainstorm:

- Generate new revenue streams through in-house initiatives like adding concessions and alcoholic beverages or dramatically improving fundraising efforts
- Develop new strategies for generating revenue through entering adjacencies like showing movies on nights when there are no in-house productions
- Change the price of tickets to balance increased costs from new talent.

The candidate should be encouraged to arrive at the pricing component.

Off-Broadway Blues

Prompt #3:

The CEO agrees that it has been far too long since ticket pricing has been re-evaluated. What information would you need to evaluate current and new pricing strategies? (here, pause to let candidate generate ideas for what information would be helpful unless they've already mentioned everything in their framework).

The current tickets are priced on a two-tiered structure, $30 for seats on the main floor and $20 for seats in the balcony. There are 450 seats on the floor level, and 400 in the balcony. There are typically 16 performances of each show, and the theatre does 5 professional productions per year. Capacity is, on average, 85% for the floor level and 90% for the balcony.

Interviewer Guidance:

Interviewer guidance:

Total revenue:

- $30 x 450 x 85% capacity = $11,475
- $20 (balcony seat) x 400 balcony seats x 90% capacity = $7,200
- Total revenue per show (not including concessions) = $18,675
- $18,675 x 16 performances of each show = $298,800
- $298,800 max revenue per production x 5 productions per year = $1,494,000 total revenue from productions
- Gross profit = $1,494,000 revenue - $1,344,600 cost = $149,400
- Gross profit margin $149,400 / $1,494,000 = 10%

- Prompt on next page for continued analysis

Off-Broadway Blues

Prompt #3 cont:

Regarding new pricing model, the CEO is interested in adopting one price throughout the theatre so as to avoid the impression that the balcony seats are less desirable. However, he does not want the ticket price to be above $35/ticket.

Looking at the analysis you just performed, by how much would the CEO need to increase gross profit to hit 12% margins?

Interviewer Guidance cont:

Note: 90% utilization is assumed because of lower price

- 12% profit margin goal: Gross Profits/Revenues = 0.12 => (Revenue –Cost)/Revenue =0.12 where cost is $1,344,600
- => New revenue = Cost/0.88 = $1,344,600 / 0.88 = $1,530,000

Once the candidate has solved for the new revenue, they can find the necessary ticket price

- New ticket price: $1,530,000 = 0.9 (Seat utilization) x 16 (number of times a show plays) x 5 (total number of shows) x 850 (total seats including balcony and floor) x P (Price)
- => P = $25

Off-Broadway Blues

Recommendation

- The CEO will be coming in for a meeting later this afternoon. What is your recommendation?

Interviewer Guidance:

- The candidate can use creativity in developing an answer here. While the $25 price/ticket should be included, the candidate can mention that the CEO may have more bandwidth to increase price above that level given past success at selling tickets at $30.
- Candidate could also mention alternate strategies for increasing revenue, such as major fundraising efforts.
- Strong candidate will also tie in qualitative factors like the importance of selecting plays that the audience is interested in, optimized scheduling of performances, expanding presence in the community through other events like movie screenings or seniors' plays, etc.

Galactica’s Epic Struggle

Industry: Tech

Quantitative Level: Easy

Qualitative Level: Difficult

Behavioral Questions

DUKE THE FUQUA SCHOOL OF BUSINESS

Question 1:

- What is the most compelling reason why you're interested in consulting?

Question 2:

- What are you most proud of?

Galactica's Epic Struggle

Prompt #1:

Your client is Galactica, a market leader in on-premise data warehousing and analytics technology. It makes money by selling hardware and software to large companies, as well as assisting them with tracking, storing, and analyzing their data. Galactica has a decentralized organizational structure and has offices in 40 countries, each run independently without much interference from corporate.

Over the past several years Galactica's growth and profitability has declined due to large cloud providers, such as Amazon and Microsoft, taking a chunk of the market through their massive scale and resources. Last year, for the first time in its history, Galactica showed an annual loss.

We have been hired to find ways to cut costs while not sacrificing profitability.

Galactica's Epic Struggle

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #1 Guidance:

On Premise / Cloud

- On premise means that physical servers required to store and analyze data are housed at a client's office. Cloud providers, on the other hand, host data virtually and clients access their data through the internet. Think storing a file on your computer in your house vs. on Dropbox.
- Galactica competes primarily with other large tech companies such as IBM and Oracle in the on premise space.
- The on premise data warehousing market has had flat growth the last three years and it is not expected to grow significantly going forward.
- Galactica does have a **cloud** offering, but it is small and cannot match the cost and services of the cloud market leaders. It does not believe it will be able to change this in the near term.

Org.

- Galactica is based in the US, but has clients globally. It had roughly $3B of revenue last year and is publically traded.
- Galactica's decentralized organizational structure means that each country has near full autonomy on how operations are run in that country and also employs a full support staff of back office functions.
- R&D spend and executive comp. takes place at the corporate level and is allocated proportionately to each country.

Goals

- We have been hired to solely focus on cost cutting. Galactica is working on growth strategies internally.
- Interviewee should build a framework that focuses mainly on ways to cut costs along with suggestions to achieve those cuts.
  - After walking through their framework they should ask for data to perform further analysis. If they don't ask, nudge them in that direction.
  - Present Exhibit #1

Exhibit #1

	AUSTRIA	JAPAN	EGYPT	GERMANY
2015 revenue (Millions, USD)	$80	$200	$50	$350
Market size (Millions, USD)	$100	$1,200	$500	$900
Sales staff utilization %*	70%	100%	30%	90%
Market position	1st	2nd	3rd	1st

* Sales staff utilization % refers to how occupied the sales team was in 2015. For example 100% utilization would mean that they couldn't take any more leads, whereas 0% utilization would mean that they had no leads to work on.

Guidance on Exhibit 1 – Part 1

Exhibit #1 Guidance (Part 1):

1. Begin by asking the interviewee to walk you through the exhibit qualitatively. He or she should come to the following conclusions:
   - **Austria:** Galactica is the market leader in Austria, however there's limited room to grow due to the small market size and the fact that they already serve 80% of it. Furthermore, it's feasible that Austrian clients could be served from Germany.
   - **Japan** is the largest market shown and while Galactica isn't the market leader the high sales staff utilization indicates that they're actively chasing down new leads and have high potential to grow.
   - **Egypt** has the smallest revenue and while there is room to grow, there should be concern that due to low staff utilization and its position as the 3rd player in the market that it may have a hard time gaining traction.
   - **Germany** is the largest country in terms of revenue and the high sales utilization and top market position makes Germany look very strong.
2. After walking you through the exhibit, the interviewee **should identify that this is a cost case and that the exhibit contains no cost information. They should ask if we have this information so by country**.
   - If they ask for this immediately, ask them to walk through the exhibit before providing the cost information

- If the interviewee starts discussing ways to grow revenue or improving our market position nudge them back to remembering that this is a cost case.
- The interviewee may suggest that we could cut costs by reducing the sales staff in the low utilization countries. This is a reasonable idea, but it should be assumed that the staff levels have been cut as much as possible and the **low utilization is due to limited opportunities, not a bloated sales staff**.
- If the interviewee appears lost, ask if having additional cost information would help them in their analysis. If they say yes, then ask them what they'd like to know, don't just give it to them.

Guidance on Exhibit 1 – Part 2

Exhibit #1 Guidance (Part 2):

3. After the interviewee requests cost data, give them the following information upon request (don't volunteer anything that wasn't specifically asked for). He or she should move to calculate the profit by country, but if he/she doesn't, nudge them in that direction.
   - **COGS:**
     - Austria: $45M
     - Japan: $70M
     - Egypt: $30M
     - Germany: $195M
   - **SG&A:** $30M for all countries
     - if asked, it should be assumed that this includes all other costs associated with running the office including depreciation and all allocated corporate overhead
   - **Tax rate:** 40% for all countries
   - The interviewee might point out that the cost structure might increase if an office is closed due to increased corporate overhead being assigned to the remaining offices. This is a good point, however assume that all corporate overhead costs are unavoidable and as such shouldn't be considered for this decision.

4. Following the math, the interviewee should be able to immediately identify that **Egypt is a good country to exit**. Strong candidates might also point out that **Austria could also be exited due to its low margin** compared to Japan and Germany. Furthermore, since **Germany's sales staff is 90% utilized it could use the additional resources from Austria to further expand.** Lastly, the candidate could point out that it's feasible for Germany to support Austrian clients due to the close proximity and same language.

Math guidance on Exhibit 1

	Austria	Japan	Egypt	Germany
Revenue	80	200	50	350
Cost of Goods Sold	45	70	30	195
Contribution Margin	35	130	20	155
SG&A	30	30	30	30
EBIT	5	100	-10	125
Tax (40%)	2	40	0	50
Profit	3	60	-10	75

The interviewee may have the profit for Egypt as -6 instead of -10 by assuming the loss can be spread elsewhere in the company and so a negative tax is appropriate. This is fine.

Galactica's Epic Struggle

Prompt #2:

What non-financial factors should Galactica consider when exiting a country? How can they mitigate any risks associated with these factors?

Galactica's Epic Struggle

Interviewer Guidance:

- The interviewee can mention several factors here such as:
  - Difficulty in closing offices (severance, labor laws, other associated costs)
  - Bad signal to the market and Galactica's other customers
  - Loss of key talent
  - Potential death spiral of increased corporate overhead due to fewer offices to spread the cost across
  - Damage to morale
- Great candidates will also point out the political difficulties associated with exiting countries because of their decentralized organization structure and the fact that each country has been run largely independently.
- The interviewee should have reasonable mitigations for each factor they mentioned. Ideally they will have two or three for each factor. Both the risks and the mitigations should be expressed in as structured a way as possible (e.g. a grid outlining the risks and mitigations)

Galactica's Epic Struggle

Recommendation

The CEO is walking in the door now and would like to know what you suggest she do.

Interviewer Guidance:

- **Good recommendation:** Galactica should exit out of the Egyptian market due to numerous factors including a loss of $10 million a year, a low sales staff utilization, and that we're just the 3rd player in the market. Some risks associated with this decision is that it could have negative effects on morale and we could lose some key talent. Our next steps should be to prepare strong communication to explain the decision to counter the potential morale issue and approach key talent on transfer opportunities.

- **Great recommendation:** Galactica should exit out of the Egyptian and Austrian markets. Egypt is losing $10 million a year and we're not a major player in that market and seem to be struggling to gain traction. Austria is profitable, but just barely and due to the limited upside of its market and the fact that we could likely serve our current clients from Germany we could save substantial SG&A costs by closing the office. The biggest risk with this decision is working through the political nature of closing an office that has been run largely independently and may fight the decision, especially Austria due to their current profitability. Next steps should be to prepare a compelling financial model for exiting both markets and to ensure that we will be able to serve our Austrian clients from Germany.

Thrill Park

"Fun for all ages"

Industry: Travel & Leisure

Quantitative Level: Difficult

Qualitative Level: Medium

Behavioral Questions

Question 1:

- Describe a time when you failed and what you learned from it.

Question 2:

- What accomplishment are you most proud of?

Thrill Park

Prompt #1:

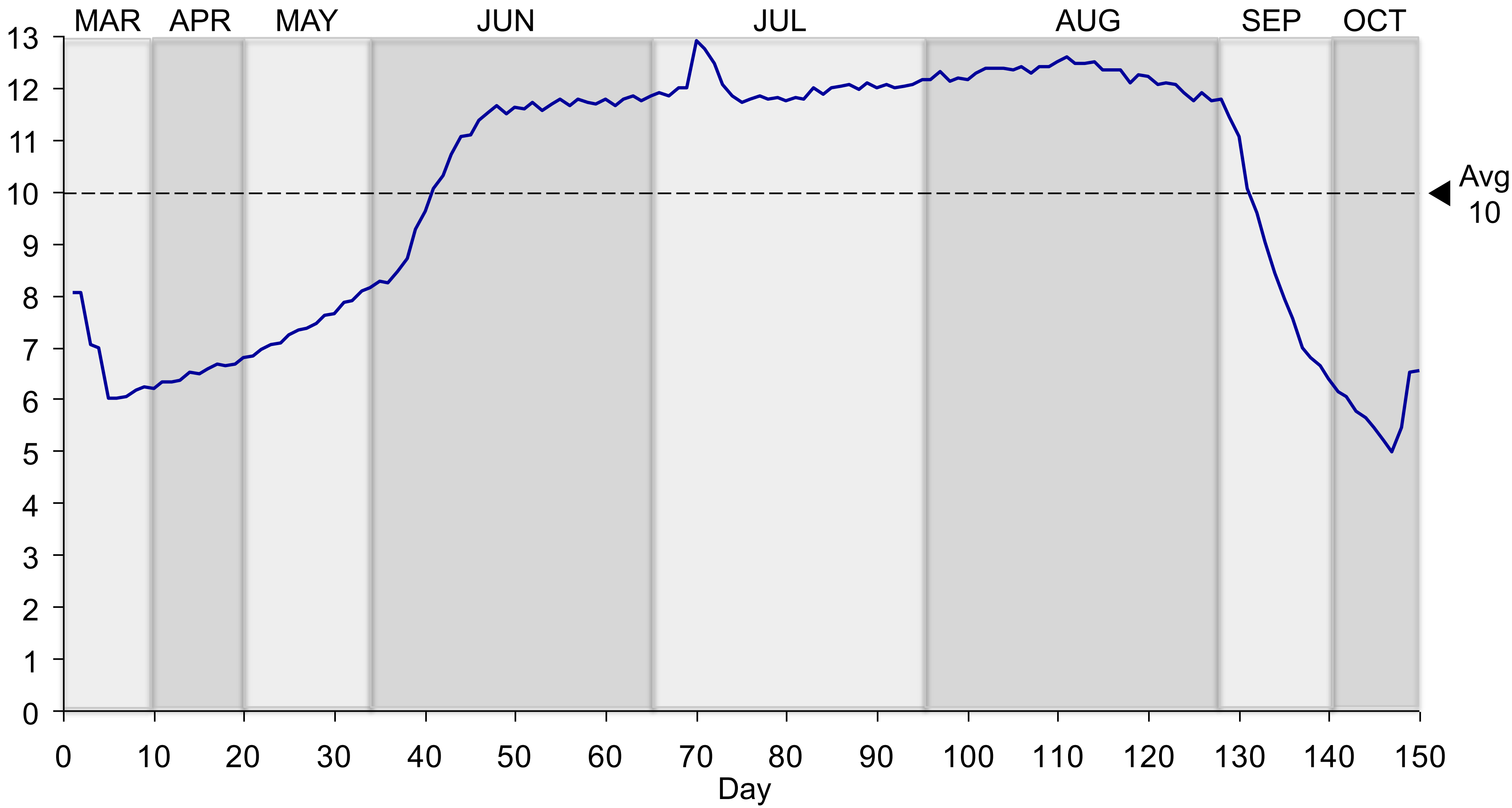
- Our client is Amusement Worldwide, an international amusement park company. Amusement Worldwide owns and operates dozens of parks around the world. These parks are regional parks, where visitors drive to the park for the day and not resort destinations, to which visitors travel great distances.
- Amusement Worldwide has been quite successful recently and is looking to grow inorganically, with a budget of up to $1.5B. We've been hired to evaluate whether or not they should acquire a local amusement park called Thrill Park, which is very popular in a region in which Amusement Worldwide is not currently present.
- What are the important considerations when evaluating Thrill Park?

Interviewer Guidance:

- This is an M&A case and the interviewee should come up framework that works towards a valuation
- Thrill Park is a single park in North Carolina and is privately owned. It caters to guests of all ages (e.g., attractions range from simple shows and rides for young children to extreme rollercoasters which make adults ask their friends "did you guys keep your eyes open the whole time?"). This is similar to current AW parks.
- Amusement Worldwide has excess cash on hand and would just like to make a positive investment.
- We can't get detail financial/operating data from Thrill Park, but fortunately Amusement Worldwide has lots of experience in this space and can provide us with estimates.

Exhibit #1

Estimated daily visitors, thousands



The daily entrance fee for Thrill Park is $50

Interviewer guidance on Exhibit #1

Exhibit #1 Guidance:

- We have come up with some projections for Thrill Park attendance this year
- Eventually ask what the total amount from ticket sales is
- If asked:
  - The park is open 150 days a year (seasonal)

Analysis:

- Revenue from ticket sales calculation:
  - 10000 guests/ day x 150 days / year = **1.5M guests/year**
  - 1.5M guests/year * $50/guest = **$75M/yr**

Thrill Park

Prompt #2:

- We have done some additional research on the costs of running a park of this size and what representative concessions and merchandise sales look like
  - Thrill Park costs $60M/yr to run, including operating, upkeep and administrative costs
  - The average guest spends $20/day on food, 50% of which is profit for Thrill Park
  - There are two types of guests in terms of souvenir purchases: Collectors and Casual guests
    25% of the guests are collectors spend an average of $36
    The rest of the guests are casual guests spend an average of $12

Interviewer Guidance:

- What is the annual profit for Thrill Park?
- Provide only if asked:
  - The profit margin on merchandise is two thirds (67%)
- Profit Calculation
  - Ticket Revenue = $75M, Running Costs = $60M, Profit = **$15M**
  - Food Revenue = $20 x 1.5M = $30M, Food Profit = $30M x 50% = **$15M**
  - Merchandise Revenue = ($36 x 25% + $12 x 75%) x 1.5M = ($9 + $9) x 1.5M = $27M, Merchandise Profit = $27M x 67% = **$18M**
  - Total Profit = $15M + $15M + $18M= **$48M**

Thrill Park

Prompt #3:

- What is the fair value of Thrill Park if the profit grows at 3% per year assuming an 8% discount rate?
- Alternatively, just give 5% discount rate with no growth.

Interviewer Guidance:

- Growing perpetuity formula = Dividend or coupon value / discount rate – growth rate
- $48M/(0.08-0.03)= **$960M**

Thrill Park

Prompt #4:

- What are some other factors Amusement Worldwide should consider when deciding to buy Thrill Park?

Interviewer Guidance:

- This is a brainstorm question, notes (non-exhaustive):
  – Great answers would note that there will likely be a premium paid in the acquisition, which could be recovered by both revenue and costs synergies and provide value to Amusement Worldwide strategically
  – Good answers will list risks (e.g., hurting Thrill Park brand, better alternatives to capital, inaccurate projections/estimates)
  – Other considerations could include:
    - Is Thrill Park older or newer? Old rides & equipment might require replacement
    - Does Thrill Park have any local competitors? Acquire for strategic reasons?
    - Benefits of branding, consolidation, etc.

Thrill Park

Prompt #5 (Optional):

- Our client claims that it would be able to make Thrill Park more profitable than it is currently, due to it's strong brand image, operational expertise, and purchasing power. Specifically, Amusement Worldwide thinks it could increase ticket sales of Thrill Park by 10%, while cutting the operating costs by 5% and the cost of food by 10%. Due to the existing supplier contract, they do not believe they will realize any savings in merchandise purchasing.

- What is the total economic benefit of Amusement Worldwide owning Thrill Park?

Interviewer Guidance:

- Assume all the synergies would be fully realized in year 1 and have same growth rate as before.
- Revenue (ticket sales) synergies: $75M x 10% = $7.5M
- Operating cost synergies: $60M x 5% = $3M
- Food cost synergies: ($30M - $15M) x 10% = $1.5M

- Total synergies = $7.5M + $3M + $1.5M = **$12M**/yr

- NPV of synergies = $12M/(8% - 3%) = **$240M**

Thrill Park

Prompt #6 (Optional):

- Thrill Park has told Amusement Worldwide it would be willing to sell itself for a price of $1.1B (a premium of $140M). Should Amusement Worldwide accept this offer?

Interviewer Guidance:

- Yes, Amusement Worldwide should accept the offer to buy Thrill Park for $1.1B, as the Thrill Park would be worth up to $1.2B ($960M + $240M) for Amusement Worldwide. In other words, the $140M premium paid is less than the $240M in expected increased profits because of the sale.

Thrill Park

Prompt #7 (Very optional):

- What are some additional ways that Thrill Park could potentially become more profitable?

Interviewer Guidance:

- Additional brainstorm, if needed. Answers might include:
- Current Operations
  - Get local/national sponsorships and suppliers
  - Charge for parking
  - Open for more days
  - More marketing
- New Operations
  - Change business model – open hotel/resort
  - Offer season tickets, bundling, dynamic pricing
  - New rides/attractions to boost attendance
  - Charge people for the ability to skip lines

Thrill Park

Prompt #7 (Super optional extra math problem):

- Worried that Thrill Park might not continue to bring in enough guests to remain profitable, Amusement Worldwide wants us to check
- Given the ticket price, operating costs, and expected food and merchandise contributions, how many guests a year does Thrill Park need to attract to be profitable?

Interviewer Guidance:

- Operating costs = $60M
- Profit per guest = Ticket sale + food contribution + expected merchandise contribution
- Profit per guest = $50 + $10 + $12 = $72
- Breakeven: Operating costs = Profit per guest x minimum guests
- Minimum guests = $60M/$72 = $5M/6 = **833k guests/yr**

Thrill Park

DUKE THE FUQUA SCHOOL OF BUSINESS

Recommendation

- The director of the engagement just joined us. What is our opinion of this acquisition for Amusement World?

Interviewer Guidance:

- Look for bottom line-up front recommendation (i.e., Acquire Thrill Park which is valued at $1B), briefly support that with walkthrough of case (i.e., based on $48M profit…), list risks, and next steps.

- Slightly different answer if going through synergies / premium part of the case, but same general structure/answer.

Specialty Steel

Industry: Industrial Goods
Quantitative Level: Medium
Qualitative Level: Difficult

Behavioral Questions

Question 1:
• What are you most proud of outside of your professional pursuits?

Question 2:
• Tell me about a time you used quantitative analysis to change someone's mind?

Specialty Steel

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #1:

Your client is a mid-sized specialty steel manufacturer with a portfolio of alloys that span across multiple industries. The majority of sales are in the aerospace market to one jet engine original equipment manufacturer (OEM). Your client's contract with this OEM is set to expire next week, and the OEM will be opening bidding to the public. The OEM has traditionally demanded a total of 180,000 tons/year from the whole market, but analysts expect this number to sharply rise. Our client has identified this as a must-win scenario and wants to know if it should change its price.

Interviewer Guidance:

The candidate should come up with a framework that covers the product and the pricing strategy (differentiation, top-down vs. bottom-up, comparison w. competitors)

Additional information (to be provided if asked):

- Client's primary goal is to win the contract, secondary goal is to maximize revenue
- Gross profit margin is over 90%
- The OEM buys "718", a high-nickel, temperature-resistant alloy that is made in an expensive Vacuum Induction Melting (VIM) furnace
  - 718 is "specked in", meaning the product cannot be changed without a costly process to recertify the jet engine
  - There are two other suppliers of 718. We don't know what they will bid.
- We charge $7/ton of “718” (1 ton = 2,000 lbs)

Interviewer guidance on Exhibits

Exhibit #1 Guidance:

Prompt the candidate to evaluate market competitiveness by calculating total **Aerospace** capacity

Analysis

- **Key Insights:**
  - The market already doesn't meet demand. When demand increases, nobody will be able to accommodate.
  - We can increase capacity
  - We can increase price since demand is higher than capacity

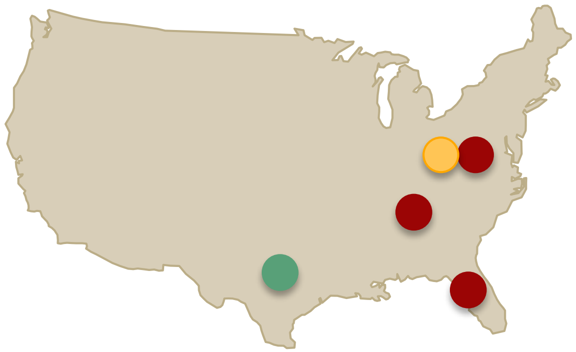
- **Math:**
  - (# of Aero VIMs) * (tons/batch) * (batches/hr) * (hr/week) * (week/year) = annual capacity
  - Client:
    - (3) * (25) * (1/5) * (100) * (50) = **75,000**
  - Steel Co:
    - (1) * (35) * (1/5) * (150) * (50) = **52,500**
  - Metals R Us:
    - (4) * (12.5) * (1/5) * (100) * (50) = **50,000**

Total Aero Capacity: 177,500 tons/year

Exhibit #1: Competitive Production

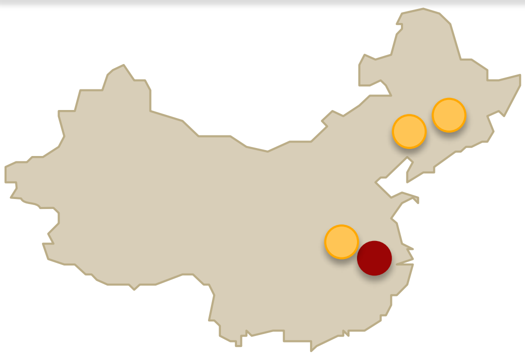
DUKE THE FUQUA SCHOOL OF BUSINESS

Client



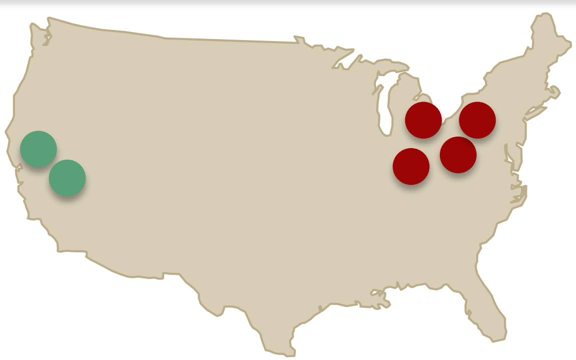
Total Number of VIMs	VIM Batch Size	Average Temperature	Planned Overhaul (not available)	Weekly Operational Hours
5	25 tons/VIM	2500º F	2 weeks/yr	100 hrs/week

Steel Co



Total Number of VIMs	VIM Batch Size	Average Temperature	Planned Overhaul (not available)	Weekly Operational Hours
4	35 tons/VIM	2500º F	2 weeks/yr	150 hrs/week

Metals R Us



Total Number of VIMs	VIM Batch Size	Average Temperature	Planned Overhaul (not available)	Weekly Operational Hours
6	12.5 tons/VIM	3000º F	2 weeks/yr	100 hrs/week

Note: Each circle = 1 VIM

Aerospace VIM = 5 hours/batch Automotive VIM = 8 hours/batch Consumer VIM = 4 hours/batch

Interviewer guidance on Exhibits

Exhibit #2 Guidance:

Present the exhibit to the candidate. Explain that it is an analysis our team previously ran to assess capacity and demand.

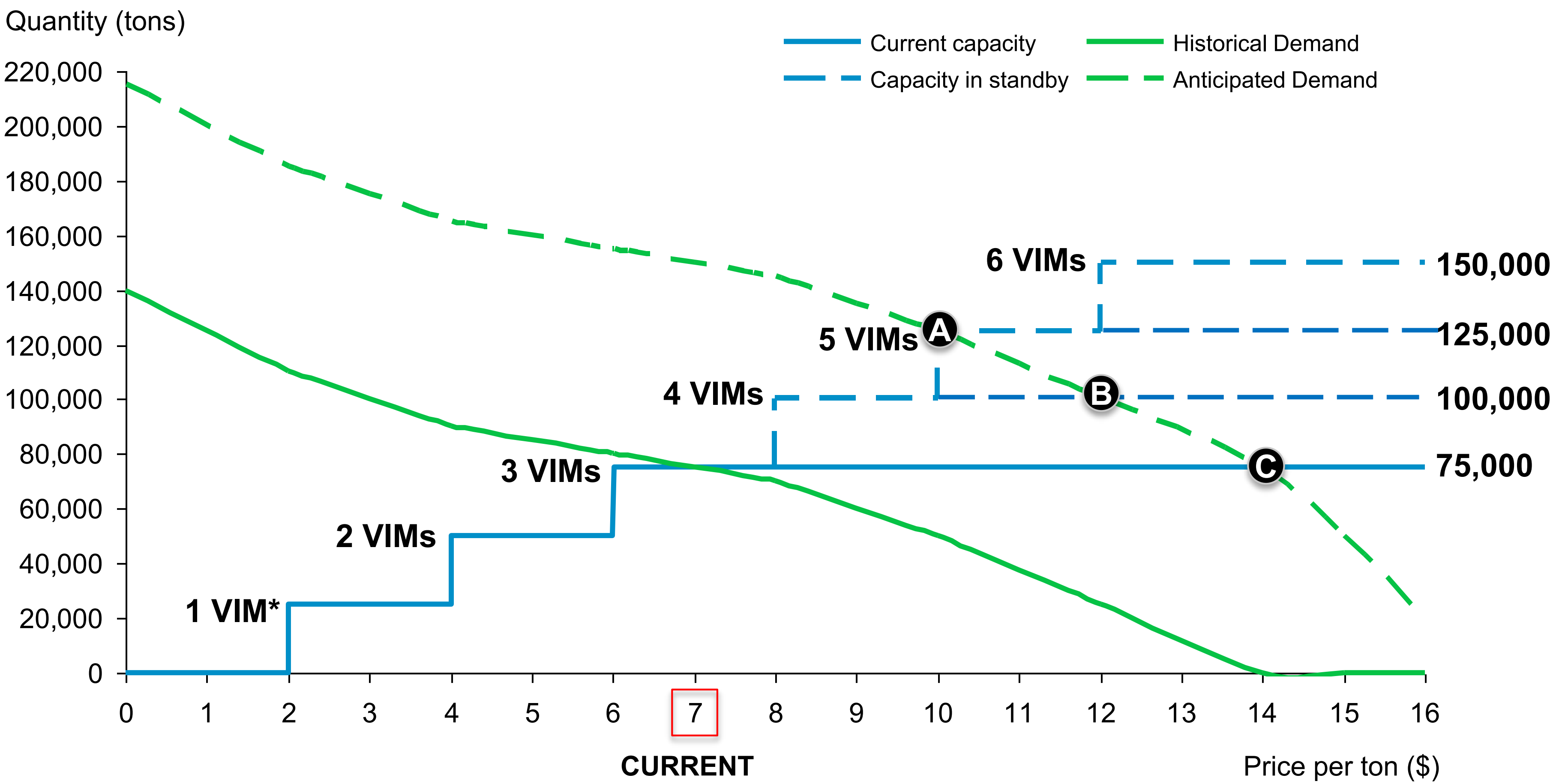
Questions:

1. What is our client's current revenue?
2. Why does the supply curve look like this?
3. Our client is considering three pricing options (see below). Prompt the candidate to determine the best option to bid for the contract.
   A. Price at $14/lb
   B. Price at $12/lb
   C. Price at $10/lb
4. What effect will this have on revenue?
5. (brainstorm) If we go with option C, hence raising the price on a critical customer, what services or offerings could our client consider to help smooth the relationship with the OEM over the price increase?

Analysis:

- **Math:**
  - Current Revenue = 75,000 * $7/lb = **$525k**
  - Revenue = New Quantity * New Price
    - Option 1: 75,000 * $14/lb = $1.05M
    - Option 2: 100,000 * $12/lb = $1.20M
    - **Option 3: 125,000 * $10/lb = $1.25M**
  - Revenue Increase:
    - $1.25M - $525k = **+$725k**
    - $725k / $525k = **+138%**

Exhibit #2: Client's Capacity and Demand



* Each step is 1 VIM

Note: Our client owns additional furnaces that are not in use

Recommendation

Recommendation

Our client has pushed up our follow-up to tomorrow morning. What would you recommend?

- **Would recommend not letting the candidate take a break and answer on the spot to practice responding under pressure.**
- Increase price to $10/pound
- Make sure to touch on risk of upsetting a key customer over a price increase and implementation next steps.

Goodbye Horses

Industry: Healthcare
Quantitative Level: Medium
Qualitative Level: Difficult

DMCC Case-writing Competition Winner 3rd Prize

Behavioral Questions

DUKE
THE FUQUA SCHOOL OF BUSINESS

Question 1:

- When working on a team where you are not the leader, what is the typical role you take?

Question 2:

- What is your least favorite aspect of Fuqua?

Goodbye Horses

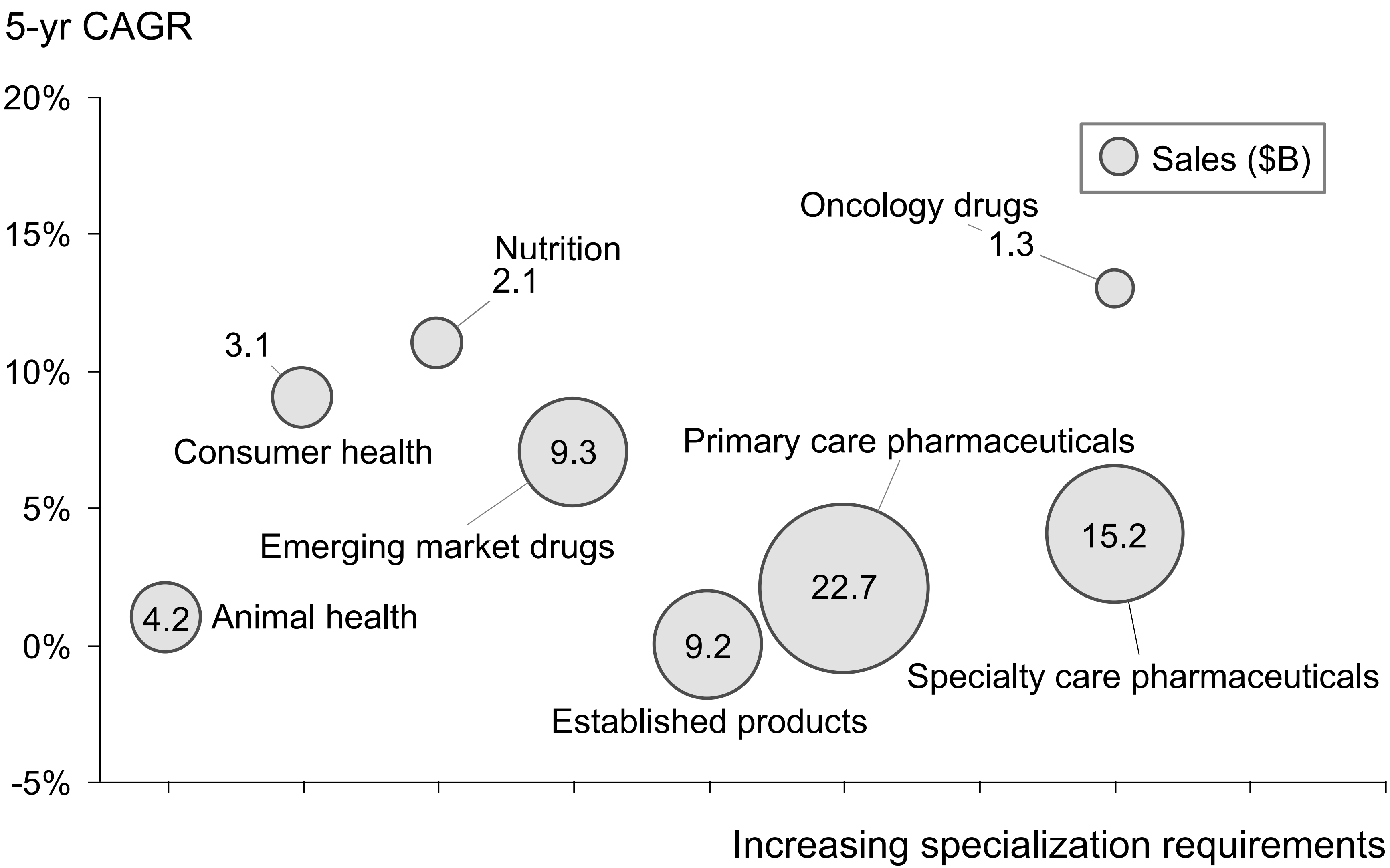
Prompt #1:

- Your client is the CFO of Aperture Laboratories, a leading US biopharmaceutical company with a market cap >$150B. Aperture develops and manufactures a diversified range of products and in particular prides itself on saving millions of human lives every year.
- The company is under investor pressure because of its slow firm value growth over the next 10 years. Investors are very anxious to see significant changes announced at the firm in the next quarter. The CFO has already identified and evaluated a number of high-growth, promising, but capital-intensive projects, and she does not have enough cash to invest in any of the opportunities—what dose she need to do next?

Interviewer Guidance:

- The prompt can be ambiguous, and many interviewees may drive the case towards evaluating the projects or building a profit tree of the existing business to identify any issues. Neither of these approaches directly answers the prompt, but probe them to realize the goal is to raise capital in order to fund these projects.
  - Optional: this case can be a good opportunity for the interviewee to experience a free-flowing, conversational "partner-style" case. Consider telling the interviewee to not write anything down for the framework.
- Let the student build a framework, which should be focused on ways to raise capital, but could also include other next steps such as gaining management buy-in to invest in these high growth opportunities
  - Ideal framework will include ways to raise capital (issuing equity, raising debt, divesting a portion of business, canceling existing projects to free up budget) and also touch on where to deploy the capital (i.e., into the projects)
  - Students may discuss P&L levers in their framework, which is OK, but check to see if they realize any cost-cutting or revenue-boosting measures will not raise capital quickly and do not satisfy investor requirements for significant changes
  - Ideal candidate will discuss pros/cons of each way to raise capital
- Guide them towards thinking about divestiture, then provide them with the first exhibit

Exhibit #1: Aperture business segments



Interviewer guidance on Exhibit #1

Exhibit #1 Guidance:

- Provide the exhibit and let the interviewee walk through it verbally
- The interviewee should drive the discussion and determine that animal health is the best option to divest, providing sufficient rationale
- If the interviewee does not choose animal health, discuss with them their rationale and steer them towards choosing animal health
  - The interviewee should take the hint and switch towards animal health
- Do not prompt the interview towards next steps; make sure they drive conversation towards how much capital they can raise and if they can find buyers for the business unit

Analysis:

- Chart takeaways (not all necessary to discuss)
  - Animal health is one of the lowest growth business units
  - Animal health is the most different business unit and outside of what Aperture prides itself in (saving human lives)
  - Its low degree of specialization will allow a larger pool of potential buyers (i.e., easier for another company to operate)

Goodbye Horses

Prompt #2:

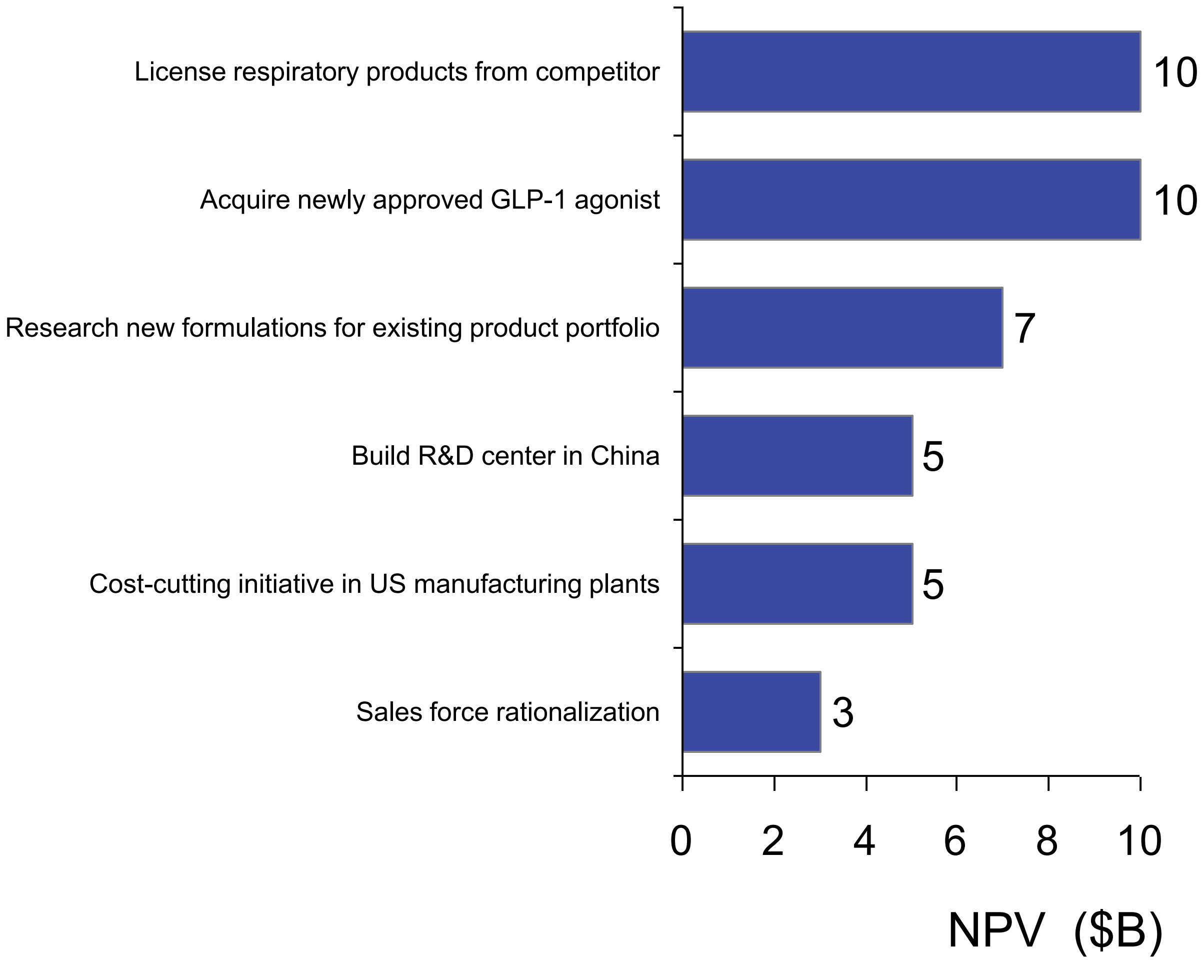
- Unknown to the CFO until now, the business development team has retained JP Morgan to assess the sale-ability of the Animal Health business. They have identified that Aperture will likely receive a 3.5x enterprise value to sales multiple for the animal health business.

Interviewer Guidance:

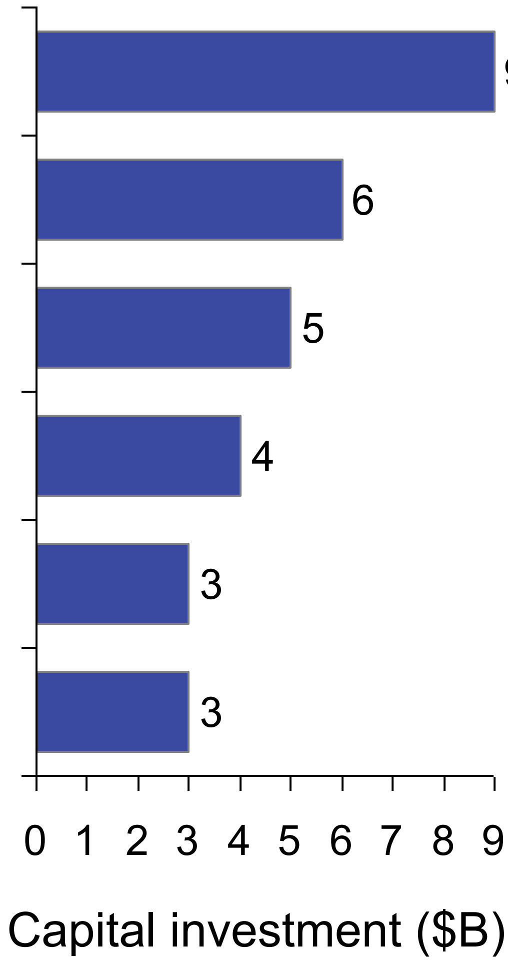
- Do not prompt further; let the interviewee work through the next steps
- The interviewee should drive towards understanding how much capital they will receive from the sale (($4.2B x 3.5 = $14.7B)
  - If asked about taxes, tell the interviewee the deal has been structured by JP Morgan to be tax-free
- The interviewee should then begin discussing which projects to invest the capital in. Once they've begun thinking about this, provide the next exhibit

Exhibit #2: Investment opportunities

Project NPV



Capital Investment Required



Interviewer guidance on Exhibit #2

DUKE THE FUQUA SCHOOL OF BUSINESS

Exhibit #2 Guidance:

- Provide the exhibit and let the interviewee walk through it verbally
- If asked, tell the interviewee that the NPV <u>includes</u> the capital investment
- The interviewee should drive the discussion and determine which projects to invest in; an excellent candidate will also look to discuss qualitative aspects of each projects (e.g., how long each project will likely take)
- Given our capital constraint of $14.7B, the interviewee should attempt to maximize NPV. Thus, the most effective use of capital is to invest in:
  - Acquire newly approved GLP-1 agonist
  - Research new formulations for existing product portfolio
  - Cost-cutting initiative in US manufacturing plants
- At this point, tell the interviewee to summarize their recommendation
  - Recap we want to sell animal health to raise capital and invest in 3 projects listed above
  - Risks: ability to sell animal health (i.e., finding a buyer), timing of deal completion, etc.

Analysis:

- The easiest way to identify which projects to prioritize is to calculate a profitability index (e.g., NPV divided by capital investment)
- The interviewee can then rank projects by profitability index and see how many can be completed given our constraint of $14.7B
- Calculations
  1. $10 / $9 = 1.11
  2. **$10 / $6 = 1.67**
  3. **$7 / $5 = 1.40**
  4. $5 / $4 = 1.25
  5. **$5 / $3 = 1.67**
  6. $3 / $3 = 1.00
- Adding up projects 2, 3, and 5 gives us the highest NPV ($22B) given our capital constraint of $14.7B from the sale. It only requires $14B to accomplish.
- A very good candidate will also have a recommendation for the remaining $700M, i.e. share buy back, dividend payment, etc.

Goodbye Horses

Recommendation

- The CFO is out at lunch and the CEO of Aperture walks into your conference room, wondering what you've been working on.

Interviewer Guidance:

- An ideal candidate will walk through the divestiture and what to do with the influx in capital.
- Risks
  - Ability to sell the Animal Health Division
  - Timing of the deal completion
  - Timeline for new capital projects
  - Potential for new capital projects to fail
- The ideal candidate will also have a mitigation strategy for each of these risks

Game of Ligers

Industry: Media & Entertainment
Quantitative Level: Difficult
Qualitative Level: Medium

Behavioral Questions

Question 1:

- What type of activities have you engaged in so far and what type of impact have you had?

Question 2:

- Describe a time when you had to undertake a project you were less than enthusiastic about? How did you handle it?

Game of Ligers

Prompt #1:

- Your client, Daenerys Targaryen, is the owner of a zoo. Daenerys has always been interested in exotic animals and is interested in buying a Liger to showcase at her zoo and has hired you to help her determine what to do.

Interviewer Guidance:

Given the prompt, the candidate should structure this as an investments question. The candidate should develop a framework that addresses whether the investment in a Liger is advisable (NPV Positive). In other words, what will adding a Liger do to ticket sales, merchandise sales, and show sales and do these outweigh the costs? To solve this case, the NPV of the incremental profit needs to be solved for.

Sample Framework

- Internal
  - Incremental rev from Liger
    - Increased tickets?
    - Increased merchandise?
    - Increased shows?
  - Costs from buying Liger
    - Purchase price
    - Enclosure
    - Food
    - Trainers
    - Insurance
- External
  - Competition
    - What are other Zoos doing?
    - Do they have Ligers?
  - Financing
    - Can I afford this?
    - Will I need financing?
  - Strategy
    - Why a Liger?
    - Why not another animal?
    - If not a Liger, how else can I achieve the objective?
  - Risks
    - Safety risks?
    - How long does it live?
    - Backlash against genetically crossed animal?

<u>NPV Analysis on this</u>

Game of Ligers

Interviewer Guidance (continued) :

The following information can be provided only if requested.

Objectives/Targets:

- *Return on Investment of >14%. ROI Can be defined here as NPV of total Profit / NPV of Total Investment*

Zoo Specifics:

- Location – New York City
- Products & Services – Ticket sales, merchandise sales, shows. Most animals that you see at a zoo are already present
- Competition – No other zoos in the immediate area
- What is a Liger – a cross between a lion and a tiger (this is a real animal)

Zoo Profit Metrics

- Visitors per year – 600,000 (50% Adults, 50% children)
- Ticket Prices – Adult: $17, Children: $11
  - Ticket Revenue = $8.4M
- Merchandise Sales – 10% of total ticket revenue ($840k)
- Shows Sales – 5% of total ticket revenue ($420k)
- **Total Revenue: $9.66M**
- **Current Costs: ~$8.7M**
- **Current Profit Margin: 10%**

Interviewer guidance on Exhibits

Exhibit #1 Guidance:

1. ***Before handing the candidate Exhibit 1, have him/her brainstorm and list out how having a Liger would impact total revenue and potential costs associated with the purchase and upkeep of a Liger.***
2. ***Present Exhibit 1. The Candidate should be performing an NPV analysis.***

<u>DO NOT LET THE CANDIDATE ROUND NUMBERS FOR THIS EXERCISE</u>

The following information can be provided only if requested.

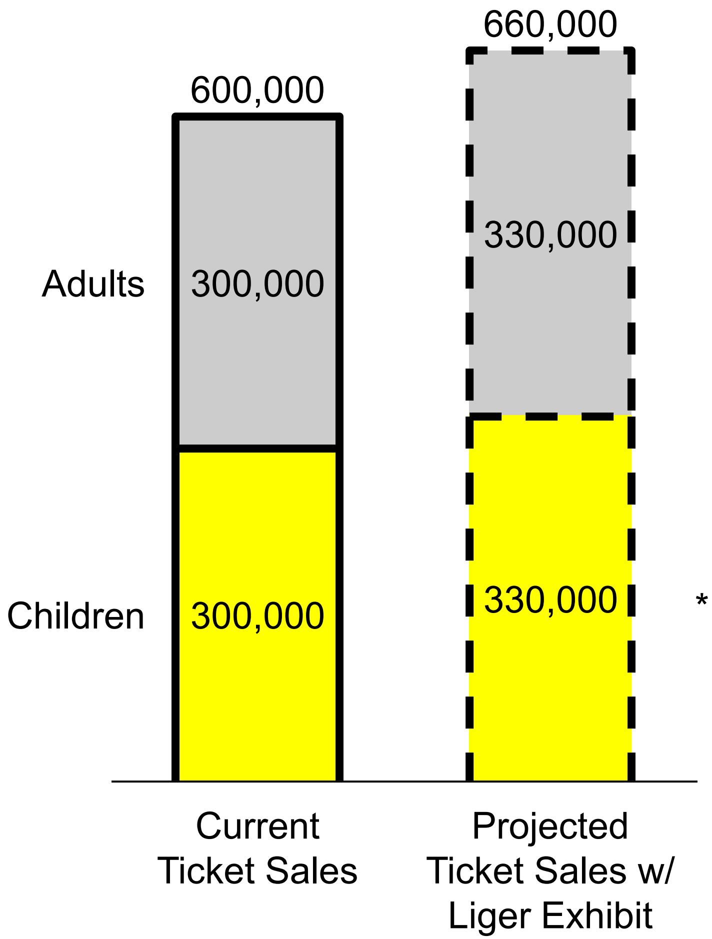
- Ticket prices will remain the same (Adults $17, Children $11)
- Merchandise and shows revenue will still be 10% and 5% of total ticket revenue, respectively
- Other upkeep costs consists of items such as food, medical, etc. Assume the Liger lives 100 years, therefore we can use a perpetuity
- Liger purchase price, transportation cost, and enclosure construction are one-time costs (total = $4M)
- Discount rate of 10%
- Assume it takes one year to build the enclosure (t=0), revenue begins after 1 year (t=1). Perpetuity formula (CF/Disc Rate) is PV of cash flows in one years time.
- Objective Target ROI of 14%

Analysis:

- Of the total costs, purchase, transportation, and enclosure are **one-time** costs (**Investment costs**)
  - Total one-time costs = 1,350k + 675k, + 1,975k = **$4M**
- After buying a Liger, the zoo increases visitors by 10% (and maintains this number indefinitely)
- Therefore, incremental increased revenue is as follows:
  - 30,000 Adult tickets @17 = $510k
  - 30,000 Adult tickets @11 = $330k
  - Total Incremental ticket revenue = $840k
  - Incremental Merch. revenue = $840k *10% = $84k
  - Incremental Show revenue = $840k * 5% = $42k
  - Total Incremental Revenue = **$966k**
- **Recurring Annual Costs**: Maintenance, Salaries, Other
  - $110.10k + $235.15K + $170.75k = **$516k**
- **Annual Profit** = Incremental Rev – Annual Cost:
  - $966k - $516k = **$450k**
- **PV of Annual Profit** = perpetuity = CF/Discount rate
  - $450k / 10% = **$4.5M**
- **NPV Positive?** = Perp. of CF – Investment Costs:
  - $4.5M - $4M = **$500k**
- **Return on Investment**: NPV / Investment cost
  - $500k / $4M = **12.5%**

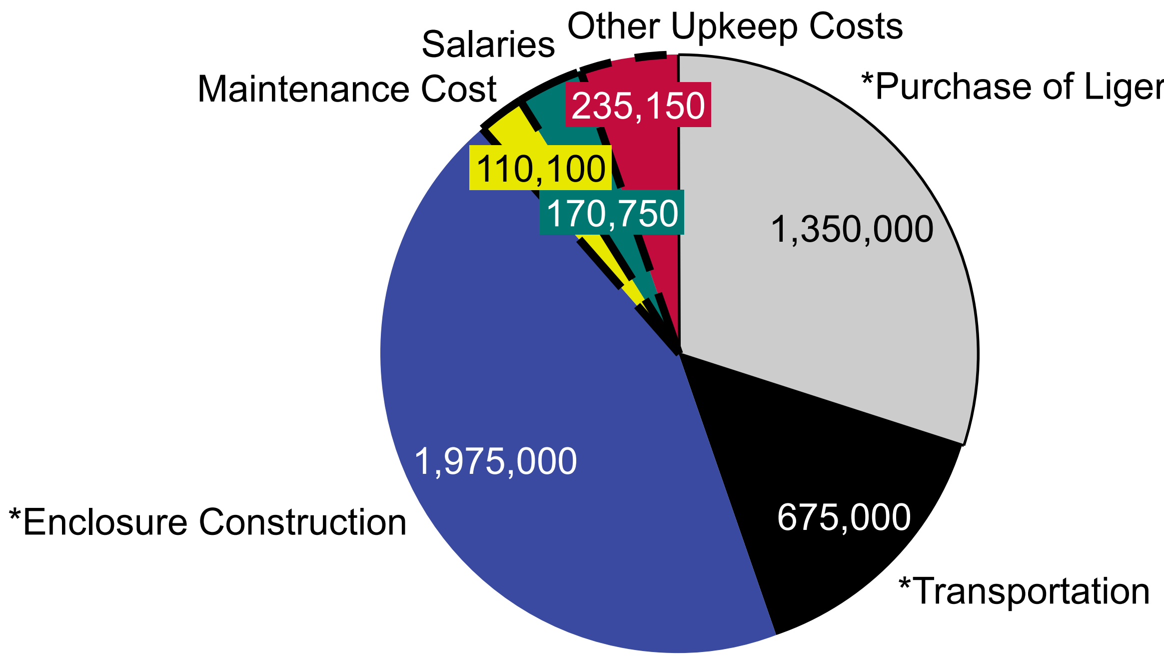
Exhibit #1

Projected Increase in Ticket Sales



*** Figures are annual**

Costs if Liger is purchased



***One-time costs**
Recurring costs are annualized.

Game of Ligers

Prompt #2:

- What if the zoo decides to buy two Ligers, a male and a female? Would this be a good idea?

Interviewer Guidance:

Given the prompt, the candidate should begin to ask about procreation, increased ticket sales, etc. Guide the candidate until he/she asks about procreation and incremental revenue, then provide the following information.

The following information can be provided if requested.

- *If the Ligers reproduce, the baby cubs can be sold*
- *90% chance the Ligers will reproduce immediately (once purchased at t=0), assume gestation period is 1 year.*
  - *This cub could be sold immediately (at T=1) for $1M.*

See following page for further guidance & numbers.

Game of Ligers

Interviewer Guidance (continued) :

Additional Costs

- Purchase of additional Liger: $1.35M
- Transportation of additional Liger: $675k
- **Total cost of additional Liger: $2.025M**
- **Total cost of two Ligers:** $4M + $2.025M = **$6.025M**

Additional Revenue

- Expected value of baby Liger = [(prob. of baby) * (revenue from sale)] / Discount Factor
  - 90% * $1M = $900k (This is the value in T = 1)
  - $900k discounted by 10% = $900k / (1+0.1) = $818.1k **(Guide them with the formula, once they have written out the formula, provide the number, this number can be rounded)**
- Total Profit = NPV Profit of a Liger + NPV Expected Value of baby Liger
  - NPV Profit of a Liger is on page 5
  - $500k + $818.1k = ~**$1.32M**

Return on Investment

- Total Profit / Total Cost = $1.32M / $6.03M = ~21.88% **(Ok to round these numbers to 1.2 and 6.0 for 20%)**

Game of Ligers

Recommendation

- Daenerys Targaryen, the owner, is walking into the room in a few minutes. Please wrap up your thoughts and provide a recommendation.

Interviewer Guidance:

- The candidate should provide a conclusion that clearly identifies the recommendation, the rationale behind the recommendation, and the risks associated with the strategy. An excellent candidate will identify that although the purchase of one Liger will result in a ROI that is below the target, the ROI is still greater than the current profit margins of the zoo overall.
- Risks:
  - Not procreating
  - Life expectancy: biggest risk, significant value of the PV is driven by the assumption of perpetuity
  - Concurrency (other zoos' actions)
  - Not reaching target of incremental revenues (amount of tickets)
- Next Steps: the zoo should also explore other revenue sources to the acquisition of the Liger to mitigate the risk.
  - Increase the price of tickets (price sensitivity analysis)
  - 2-part tariff (to see the Ligers)
  - Memberships
  - Rent the Ligers
  - Why a Liger?

From Breakdowns to Make-ups

Industry: Industrial Goods
Quantitative Level: Difficult
Qualitative Level: Difficult

Behavioral Questions

DUKE THE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time when you had to convince a skeptical boss or supervisor that your approach was better than the status quo?

Question 2:

- Tell me about a time when you displayed entrepreneurial spirit?

From Breakdown to Make-ups

Prompt #1:

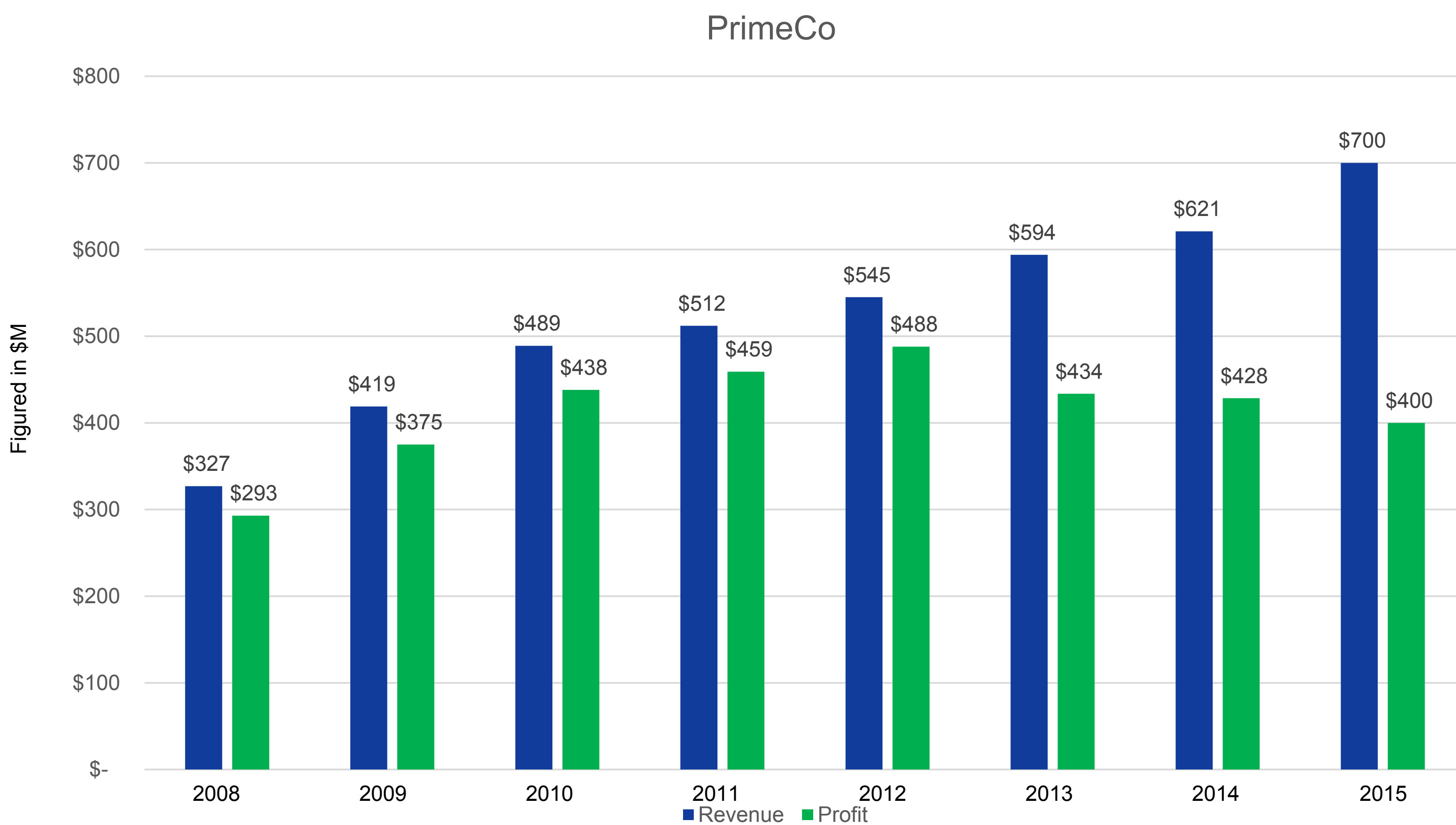
- Your client is PrimeCo, a major producer and distributor of advanced industrial products. For this purpose, “advanced industrials” refers to products that have technically complex design and manufacturing processes, and typically includes industries like advanced electronics, aerospace and defense, and automotive assembly. Your client is one of the largest aerospace and defense prime contractors (a prime contractor is the firm that is hired to complete the final product and fulfill the order contract). The CEO of PrimeCo has hired your firm to investigate why PrimeCo’s profits have been declining, and to recommend solutions to improve their situation.

Interviewer Guidance:

- This case begins as a straight-forward profitability case.
- Tangential information (such as the definitions of “advanced industrials” and “prime contractors”) is inserted to force the candidate to filter out the unnecessary noise.
- As an aerospace and defense prime contractor, PrimeCo sells finished products to both the U.S. government and to private sector clients.
- PrimeCo has both its headquarters and all of its manufacturing operations in the U.S.

Exhibit #1

PrimeCo Historical Financials



Interviewer guidance on Exhibit #1

Exhibit #1 Guidance:

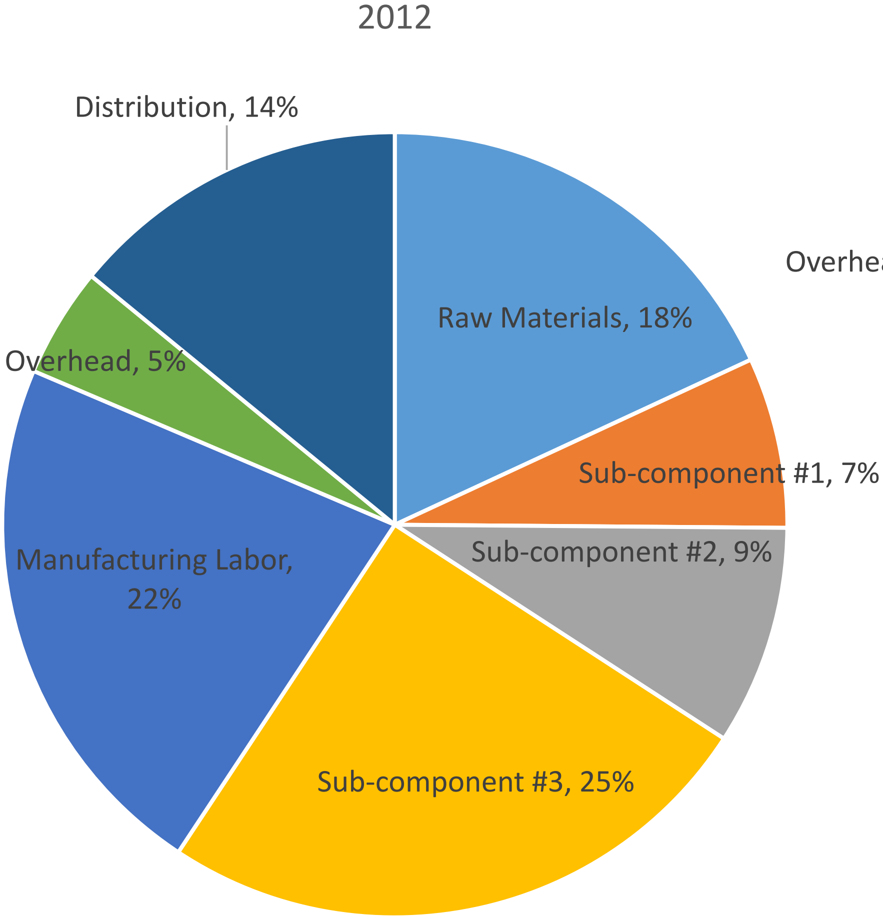
- Exhibit represents PrimeCo's revenue and profits (in $ million) over the past 8 years.
- Interviewee should recognize that PrimeCo's profits have been declining for the past 3 years, even as revenue has continued to rise.

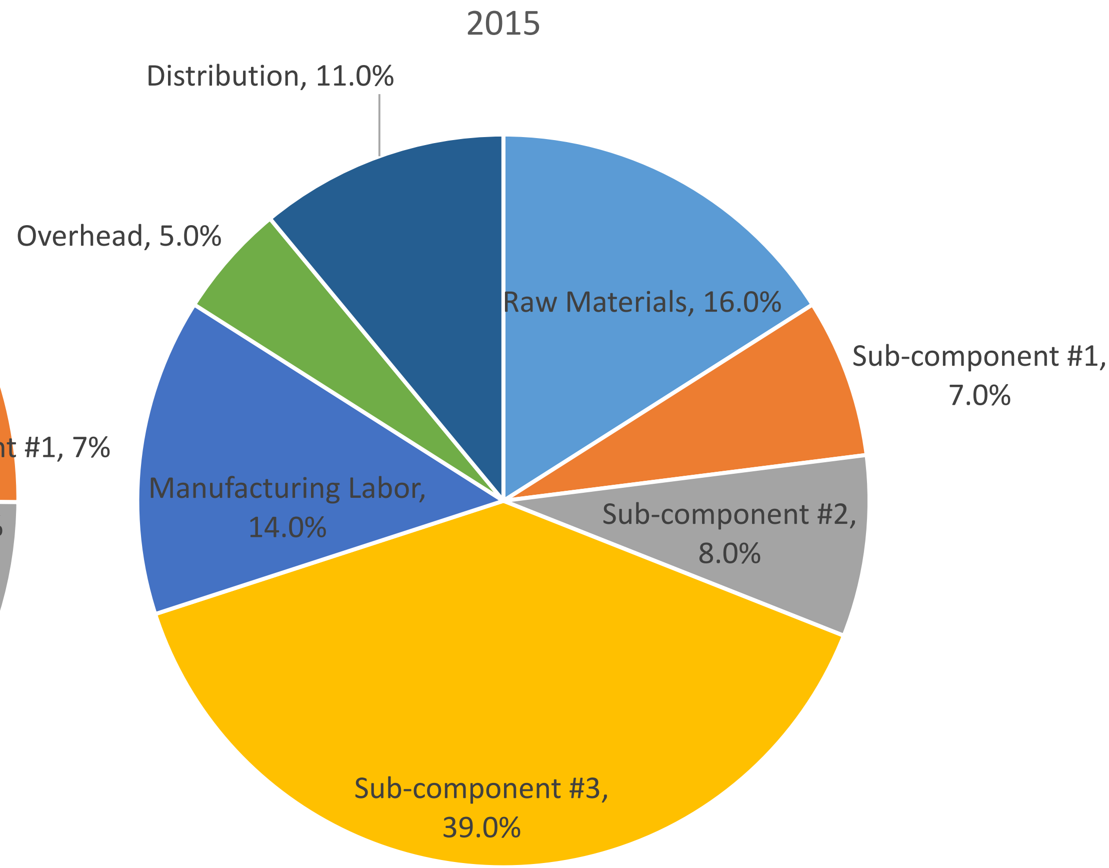
Analysis:

- Interviewee should draw the following insights:
  - Revenue is rising steadily
  - Profit grew with revenue for the first 5 years, but has been declining for the past 3.
  - Profit margin has dropped significantly from nearly 90% in 2008 to 66% in year 2015 (not important that the interviewee actually do the calculations, simply that they recognize the severity of the decline).
- Interviewee should want to dig deeper into PrimeCo's cost structure.

Exhibit #2

PrimeCo Cost Structure





Interviewer guidance on Exhibit #2

Exhibit #2 Guidance:

- Exhibit represents PrimeCo's cost structure in 2012 (the last year before profits began declining) and 2015.
- Interviewee should recognize that sub-component #3 has increased dramatically as a proportion of PrimeCo's costs, while labor and distribution costs have shrunk.
- If asked, interviewer can explain that a sub-component is an item that is assembled by a subcontractor (supplier) and sold to PrimeCo, who then uses the sub-component as one part of the final product. For example, GM, an automotive manufacturer may purchase already assembled brake pads from Callahan Automotive.

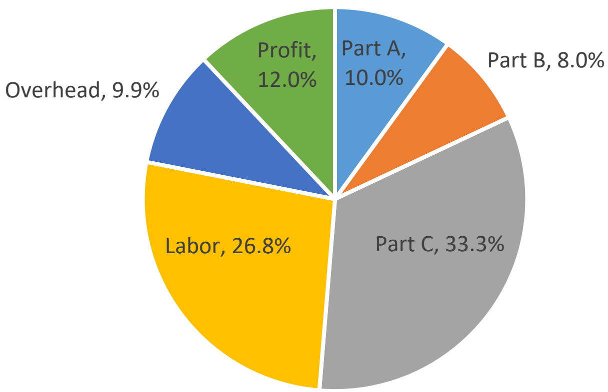
Analysis:

- Interviewee should draw the following insights:
  - Sub-component #3 has increased dramatically as a proportion of PrimeCo's total costs (25% to 39%).
  - Manufacturing labor and distribution has both shrunk as a proportion of PrimeCo's costs (22% to 14% and 14% to 11%, respectively), possibly as a result of increased efficiency through technology improvements and automation.
- Interviewee should want to dig deeper into the costs of sub-component #3.

Exhibit #3

SubPrime Co Product Breakdown and Market Analysis

Sub-Component #3 Cost Teardown ($10.00/unit)



Component	Worldwide Market Price
Part A	$ 0.83
Part B	$ 0.85
Part C	$ 3.12

Company	Profit Margin	Overhead Rate
Competitor A	15.0%	2.8%
Competitor B	14.5%	3.2%
Competitor C	15.5%	3.0%

Interviewer guidance on Exhibit #3

Exhibit #3 Guidance:

- Exhibit contains a lot of information, and interviewee should carefully walk-through the data to fully understand it.
- Interviewee should recognize that with the given price of $10.00 unit and the breakdown of that prime, the interviewee can derive the dollar amount of each component. These dollar amounts can then be compared to the worldwide market price for selected parts.
  - Part A $1.00
  - Part B $0.80
  - Part C: $3.33
  - Labor $2.68
  - Overhead $0.99
  - Profit $1.20
- The interviewee should also recognize that SubPrime Co. has significantly higher overhead rates than competitors, which may be contributing to their lower-than-industry average profit margin.
- If interviewee suggests that PrimeCo. change suppliers to one of the competitiors, interviewer should note that SubPrime Co. is located in the same city as PrimeCo.'s headquarters, and thus PrimeCo wants to make every effort to keep SubPrime Co. in business.

Analysis:

- Interviewee should draw the following insights:
  - Dollar amounts for each component in the teardown.
  - SubPrime Co. is significantly marking up both Parts A and C in their pricing of Sub-component #3, while giving PrimeCo. a deal on Part B.
  - SubPrime Co. has a significantly higher overhead rate than competitors, which may be contributing to compressed profit margins.

From Breakdowns to Make-ups

Prompt #2

- Because of the close relationship between the two companies, PrimeCo wants to offer SubPrime Co a deal:
  - If SubPrime Co. can lower the unit price to $9.00/unit, PrimeCo will help SubPrime Co acquire Parts A, B, and C at worldwide market prices, and will share best-practices in manufacturing efficiency.
- The new unit price of $9.00/unit will include Parts A, B, and C at market prices, will drop SubPrime Co's overhead to industry average, and will raise SubPrime Co's profit margin to industry average.
- Question 1: By how much (in dollars) will SubPrime Co have to reduce labor costs per unit to achieve a $9.00/unit price?
- **Give the candidate a chance to work through the first problem and then give the second question**
- Question 2: If this decrease in price returned PrimeCo's spend on Sub-component #3 to 2012 levels, how would this impact PrimeCo's profits? Assume no changes to revenue or other costs.

From Breakdowns to Make-ups

Interviewer Answer – Question 1

- 1) By how much (in dollars) will SubPrime Co have to reduce labor costs per unit to achieve a $9.00/unit price?

	Old Cost Structure		New Cost Structure	
Component	**$ Amount**	**%**	**$ Amount**	**%**
Part A	$ 1.00	10.0%	$ 0.83	9.2%
Part B	$ 0.80	8.0%	$ 0.85	9.4%
Part C	$ 3.33	33.3%	$ 3.12	34.7%
Labor	$ 2.68	26.8%	**$ 2.58**	28.7%
Overhead	$ 0.99	9.9%	$ 0.27	3.0%
Profit	$ 1.20	12.0%	$ 1.35	15.0%
Total	$ 10.00	100%	$ 9.00	100.0%

From Breakdowns to Make-ups

Interviewer Answer – Question 2

- 2) If this decrease in price returned PrimeCo's spend on Sub-component #3 to 2012 levels, how would this impact PrimeCo's profits? Assume no changes to revenue or other costs.

	2012 Cost Structure		Original 2015 Cost Structure	
Component	**% of 2012 Costs**	**$ Amt in 2012**	**% of 2015 Costs**	**$ Amt in 2015**
Raw Materials	18%	$ 10.26	16%	$ 48.00
Sub-component #1	7%	$ 3.99	7%	$ 21.00
Sub-component #2	9%	$ 5.13	8%	$ 24.00
Sub-component #3	25%	$ 14.25	39%	$ 117.00
Manufacturing Labor	22%	$ 12.54	14%	$ 42.00
Overhead	5%	$ 2.57	5%	$ 15.00
Distribution	14%	$ 7.98	11%	$ 33.00
Total	100%	$ 57.00	100%	$ 300.00

From Exhibit #1, we can find that PrimeCo's 2012 total costs were $57M. Because we also know that 25% of the total 2012 costs were on Sub-component #3, we can find that PrimeCo spent $14.25M on Sub-component #3 in 2012. If PrimeCo reduced their spending on Sub-component #3 from $117M to $14.25M, they would reduce costs, and thus increase profit, by $102.75M.

PrimeCo's new 2015 total cost would be $197.25M, and 2015 profit would be $502.75M.

From Breakdowns to Make-ups

Recommendation

- The CEO of PrimeCo has hired your firm to investigate why PrimeCo's profits have been declining, and to recommend solutions to improve their situation.

Interviewer Guidance:

- The final recommendation should assess the impact that the work with SubPrime Co will have on PrimeCo's profits, and should also note what other factors PrimeCo will have to take into account.
- Strategic implications:
  - Once PrimeCo commits to improving a supplier's operations, how will this impact relations with the producers of Sub-components #1 and #2?
- Financial implications:
  - What will PrimeCo have to invest in order to help SubPrime Co achieve the reduced overhead and labor costs?
  - What will SubPrime Co have to invest in order to achieve the reduced costs?

Peaceful Energy

Industry: Energy
Quantitative Level: Difficult
Qualitative Level: Difficult

Behavioral Questions

DUKE THE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time you were thrown into an unfamiliar situation and had to learn quickly.

Question 2:

- Tell me about a time you burned a bridge

Peaceful Energy

Prompt #1:

- *In July,2011, the German government vowed to shut down all its nuclear capacity within 10 years. Besides that, the government's goal is to replace it with renewable energy, cut greenhouse-gas (GHG) emissions by 40% by 2020 and 80% by 2050, ensure renewables contribute 80% of Germany's energy by 2050, and ensure energy consumption drops by 20% by 2020 and by 50% by 2050 (statistics from The Guardian). Bremen is a city in northwestern Germany. Its population as of 2016 is 640,000 people. Bremen is a major cultural and economic hub in the northern region of Germany. As a result, the city is home to a large number of multinational companies and manufacturing centers.* Bremen was included in the federal anti-nuclear program. The mayor of Bremen needs a new energy strategy. You are hired to help him.

Interviewer Guidance:

- The first question comes out from the story on the previous slide. Candidate should build a basic framework around key areas of Bremen energy policy. Don't go too deep into details because **next two questions** will cover energy deficit and plant replacement. A sample framework is on the next page.

Interviewer guidance on Framework (optional)

Demand

- What is daily/ annual energy consumption?
- What is the structure of energy consumption (main energy consumers by sector)?
- Are there any changes forecasted in energy consumption?
- Who are the most crucial consumers? (hospitals and etc.)

Supply

- How big is nuclear energy supply?
- Are there any other energy facilities in the region?
- Is there any opportunity to boost current energy production (other sources)?
- Can we borrow energy from other regions?
- What renewables we can use?

Old nuclear plant

- What are we going to do with nuclear wastes?
- How much does the shutdown cost?
- How can we use power plant's facilities after shutdown?
- What should we do with former plant employees ?

Financing

- Who will finance plant shutdown and energy restructuring?
- Should we attract private investors?
- Can we rely on international development or federal funds?
- Are there any tax credits for renewable energy production?
- Should we expect positive NPV?

Legal/other issues

- Who will deal with nuclear power plant owners?
- Can we help them find new investment opportunities in the region or provide necessary compensation?
- Should we provide additional subsidies for new energy projects in the region?

Peaceful Energy

Prompt #2:

Mayor wants you to define potential shortage in energy supply after nuclear power plant shutdown.

Interviewer Guidance:

- Hand over Exhibit 1

Exhibit #1

Solar farm (existing facility)

Total production per year: 300,000 MWh
Location: 20 miles NW

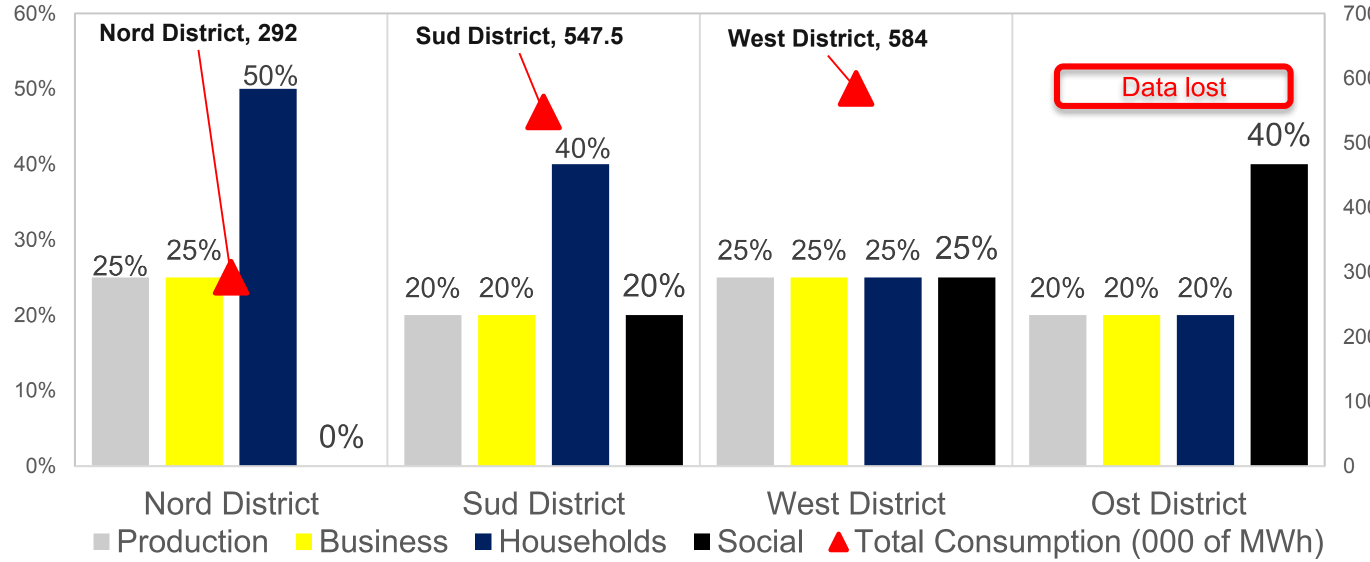
Natural gas power plant (existing facility)

Total production per year: 800,000 MWh
Location: 20 miles SE

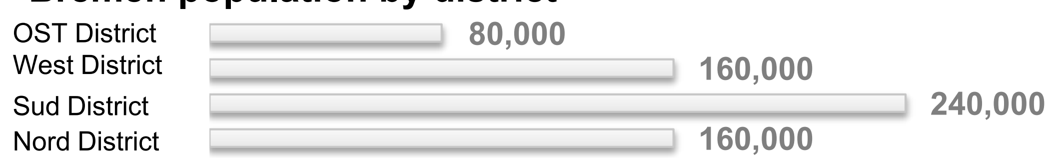
Nuclear power plant (existing facility)

Total production per year: 900,000 MWh
Location: 80 miles N

Annual Bremen energy consumption by district



Bremen population by district



Average household consumption in Germany 9.95 kWh per day
1 MWh = 1,000 kWh
Energy losses for every 1 mile of the transmission: 0.05%

Interviewer guidance on Exhibit 1(1 of 2)

Energy Supply
First, the interviewee should realize that this question is about matching demand and supply in Bremen. Without a nuclear power plant, Bremen will not be able to sustain its current consumption. Supply can be estimated in MWh (per 1 year):
* *Assumption for the average energy losses per 1 mile of transmission: 0.05%.*

1.Solar farms:
Energy losses*: 0.05%/mile * 20 miles = 1.00%
Energy delivered: 300,000 MWh * (100% - 1%) = 297,000 MWh

2. Natural gas power plant:
Energy losses: 0.05%/mile * 20 miles = 1.00%
Energy delivered: 800,000 MWh * (100% - 1.00%) = 792,000 MWh

3. Nuclear power plant:
Energy losses: 0.05%/mile * 80 miles = 4.00%
Energy delivered: 900,000 MWh * (100% - 4.00 %) = 864,000 MWh

Total supply: 1,953,000 MWh

Energy Demand
Second, candidate should calculate demand using households' consumption. The assumption for the average size of household**: 4 people per household**. To ease the calculations interviewee is allowed to round household consumption to 10 kWh
Help candidate to come up with the idea that energy use is calculated annually, and he/she needs to multiply this number by 365 days.
Total household consumption = N of households * 10 kWh * 365 days

Dictrict	Population	N of households	Total household consumption (kWh)
Ost	80,000	20,000	73,000,000
West	160,000	40,000	146,000,000
Sud	240,000	60,000	219,000,000
Nord	160,000	40,000	146,000,000

Interviewer guidance on Exhibit 1(2 of 2)

Defining consumption of other consumers in Ost District:
Households consumption: 73,000MWh -> 20% of Total
Business (20%): 73,000MWh / 20% * 20% = 73,000MWh
Production (20%): 73,000MWh / 20% * 20% = 73,000MWh
Social (40%): 73,000MWh / 20% * 40% = 146,000 MWh
Total for Ost District: 73,000MWh + 73,000MWh + 73,000MWh + 146,000 MWh = 365,000 MWh

Dictrict	Production	Business	Households	Social	Total
Ost	73,000.00	73,000.00	73,000.00	146,000.00	365,000.00
West	146,000.00	146,000.00	146,000.00	146,000.00	584,000.00
Sud	109,500.00	109,500.00	219,000.00	109,500.00	547,500.00
Nord	73,000.00	73,000.00	146,000.00	-	292,000.00
		Total for the city			1,788,500.00

Third, *projected energy undersupply equals: 1,953,000 MWh – 864,000,000 MWh - 1,788,500 MWh = - 699,500 MWh ~ -* ***700,000 MWh***

Peaceful Energy

Prompt #3:

To secure 700,000 mWh* energy supply per year for Bremen, the local project team has identified several options. Mayor asked you to review them, define total energy units needed (for each source of energy), and recommend the most viable project. All facilities will be operated free of charge by Federal Energy Agency. The local budget will pay only initial investments. Energy transmission losses can be neglected.

Interviewer Guidance:

- Hand over Exhibit 2

Exhibit #2

Project	Solar plant	Wind farm offshore	Wind farm onshore	Gas power plant
Number of units	?	?	?	1
Capacity per unit**,mW	0.4	8	8	200
Capacity factor	25%	50%	25%	50%
CAPEX per unit, $M	0.5	20	8	320
Useful service, years	15	15	15	15

***Number of hours per year = 8760**
**** Nameplate capacity (potential)**

The capacity factor of a power plant is the ratio of its actual output over a period of time, to its potential output if it were possible for it to operate at full nameplate capacity continuously over the same period of time [Wikipedia]

Interviewer guidance on Exhibit 2

The solution of this part relies mainly on CAPEX calculation for each of the projects. Projects timeline and revenues will be the same for all types of energy facilities. Federal Energy Agency will take care of operational expenses and maintenance, so there is no need for complete NPV calculation

First, interviewee needs to define net capacity that can provide 700,000 mWh per year to Bremen: 700,000/8,760 ~ 80 mWh (actual output)

Second, interviewee should estimate number of energy generation units for each of the projects:

Solar farm

Actual output of one PV solar panel equals: 0.4*25%=0.1mW

One panel produces 0.1*8,760 =876 mWh per year

You need 700,000/876=800 panels to reach the target

CAPEX=800*0.5=$400 M

Wind farm offshore

Actual output of one offshore turbine equals: 8*50%=4 mW

One turbine produces 4*8,760= 35,040 mWh per year

You need 700,000/35,040~20 turbines to reach the target

CAPEX=20*20=$400M

Wind farm onshore

Actual output of one onshore turbine equals: 8*25%=2 mW

One turbine produces 2*8,760= 17,520 mWh per year

You need 700,000/17,520~40 turbine to reach the target

CAPEX=8*40=$320M

Best option

Gas power plant

Actual output of plant equals: 200*50%=100 mW

Plant produces 100*8,760= 876,000 mWh per year

CAPEX=1*320=$320M

However, candidate should remember that gas plant emits CO2 (see slide 1)

Peaceful Energy

Recommendation

- The Mayor wants to have a quick meeting with you to determine the way forward. What is your story for the presentation going to be?

Interviewer Guidance:

- Onshore windfarm is the best option considering lower CAPEX of 320 M and its ability to meet the dual objective of meeting closing the gap between demand and supply while eliminating CO_2 emissions.
- Interviewee should be able to quantify the findings from the previous prompts, while also enumerating risks with onshore wind-farming and the opportunity cost of forgoing the other sources of energy.
- Interviewee should be able to lay out a very high level implementation plan

Make Airlines Great Again

Industry: Transportation/Leisure
Quantitative Level: Difficult
Qualitative Level: Difficult

DMCC Case-writing Competition Winner 2nd Prize

Behavioral Questions

DUKE THE FUQUA SCHOOL OF BUSINESS

Question 1:

- What is your philosophy on leadership?

Question 2:

- Why should we hire you, and not the candidate before you?

Make Airlines Great Again

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #1:

Your client, Donald Drumpf is a 70 year old bougie real estate mogul who inherited his entire wealth from his late father. Drumpf Enterprises, his Company, primarily operates within the real estate/hospitality industry with numerous high-end Drumpf hotels (50% of overall top line revenue) and golf courses located worldwide. Lately, Drumpf has seen shrinking per room profit margins for his hotel business. As the debatably successful businessman that he is, Donald Drumpf believes that the shrinking margins are due to increased competition from the recent emergence of AirBnB and other similar businesses. In order to diversify his overall portfolio of "successful" investments, he intends to enter into what he calls the bedrock of the American economy, the airline industry, and "Make Airlines Great Again" by leveraging his success in the hospitality industry to create an airline that offers first in class comforts. Donald Drumpf wants to enter this industry quickly and has identified 2 airlines to look at. He believes that either of these airlines would help increase the overall profit margin of his business. Donald Drumpf has hired you to help with this matter. Despite Drumpf being convinced about airlines, the partner at your firm leading this engagement thinks the team needs to look at the hotel business' profitability as well.

Interviewer Guidance:

The candidate should realize that he/she should begin by looking at the decline in profitability in the current business rather than beginning with the airline business. The candidate should develop a profitability framework that addresses the current business revenues/costs and a new airline business.

Sample Framework

- Drumpf Economics
  - Revenue Stream
    - Current
      - Hotel revenue (rooms, restaurant, etc.)
      - Golf course revenue (rental, tee time)
    - New
      - Airline Revenue? (Tickets, fees, baggage?
  - Expenses
    - Hotel Salaries
    - Upkeep/Renovation
    - Fixed Asset purchase

    Potential Costs (savings)
    - Purchase price of Airline?
    - Synergies between airline and hospitality?
- Strategic Considerations
  - Competition
    - What are other hotels doing?
    - Are they experiencing declining profits as well?
  - Financing
    - Can we finance an acquisition
  - Economy
    - What does the overall economic environment look like?
    - Could this be due to slowdown in economy?
  - Strategy
    - Why Airlines?
    - What else can we do?
  - Risks
    - Core competency is not in airlines
    - Huge financial exposure?

- **<u>First and foremost, why is the profitability of our current business declining?</u>**
- **<u>Should we even purchase an airline?</u>**

Make Airlines Great Again

Interviewer Guidance (continued) :

The prompt is worded specifically to mislead the candidate and simulate a client who doesn't fully understand his own business and has sought other options. A consultant should look holistically and if he/she doesn't, he/she will listen to the client and go directly to looking at the Airline I/S exhibit and perform a DCF analysis to value the airline which is the wrong approach. However, if the candidate decides to drive the case down this pathway (airlines), let the client go ahead before eventually asking the candidate what he/she thinks about the decrease in overall profitability of the core hotel business.

Target: No specified target, however, current hotel business profit margin is 14%.

Objective: Increase profitability for Drumpf

Exhibit #1: Hotel room Revenue/Cost Metrics & competitive pricing information

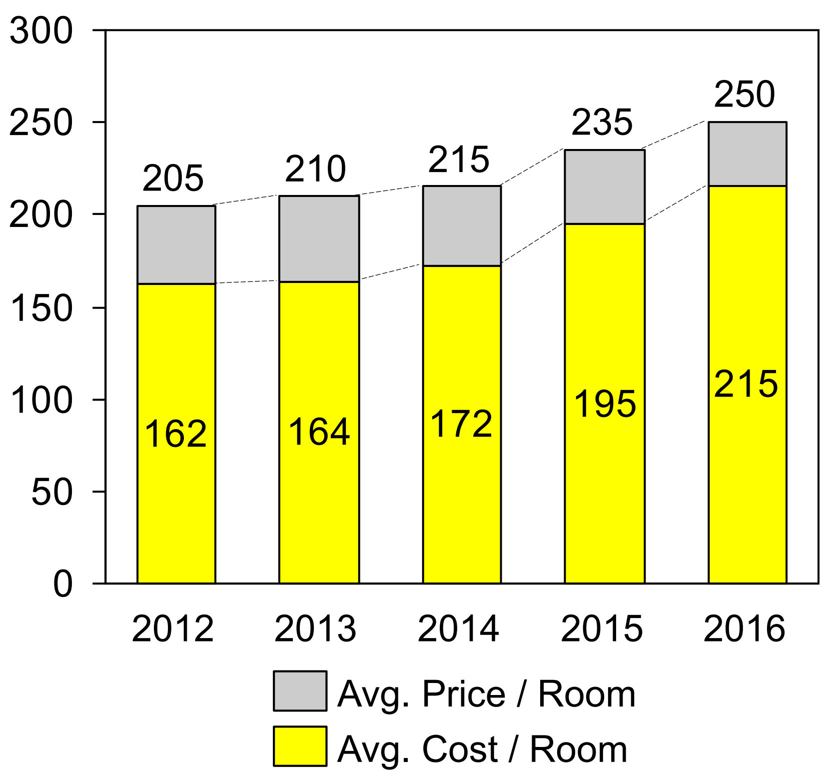
Exhibit #2: Drumpf hotel room trended costs and competitive cost benchmark information

Exhibit #3: Hotel specific metrics

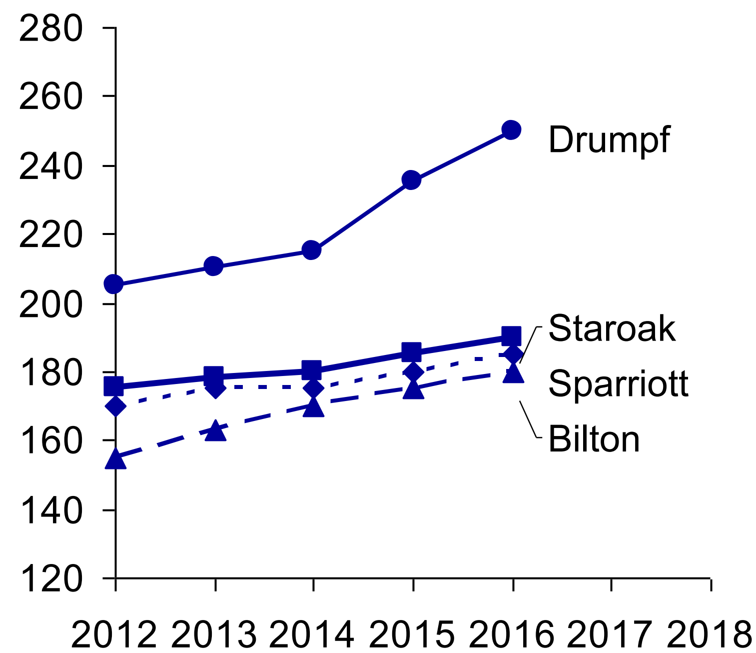
Exhibit #4: Airline I/S figures (used for DCF)

Exhibit #1

Drumpf profit per room (2012 – 2016)



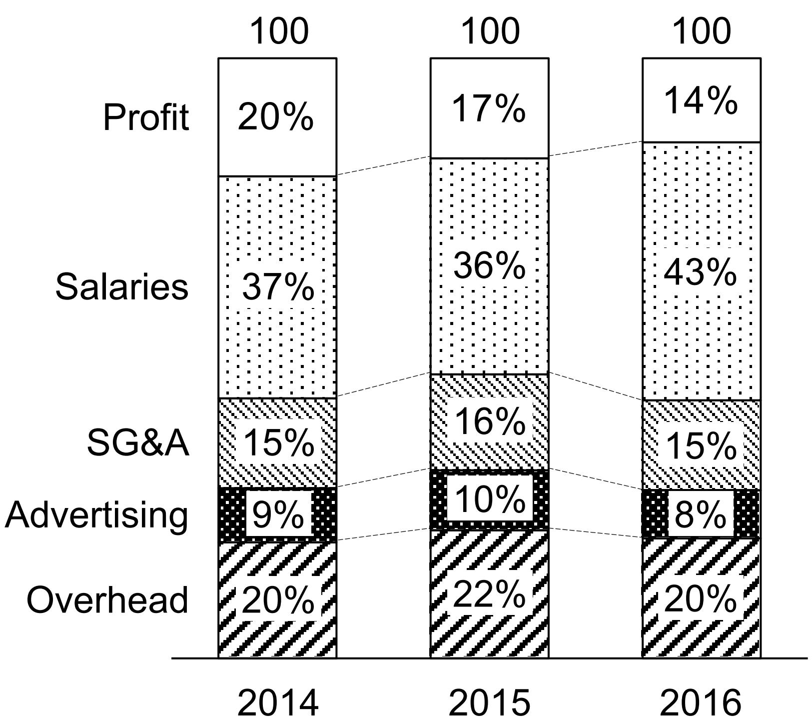
Average price per room per night



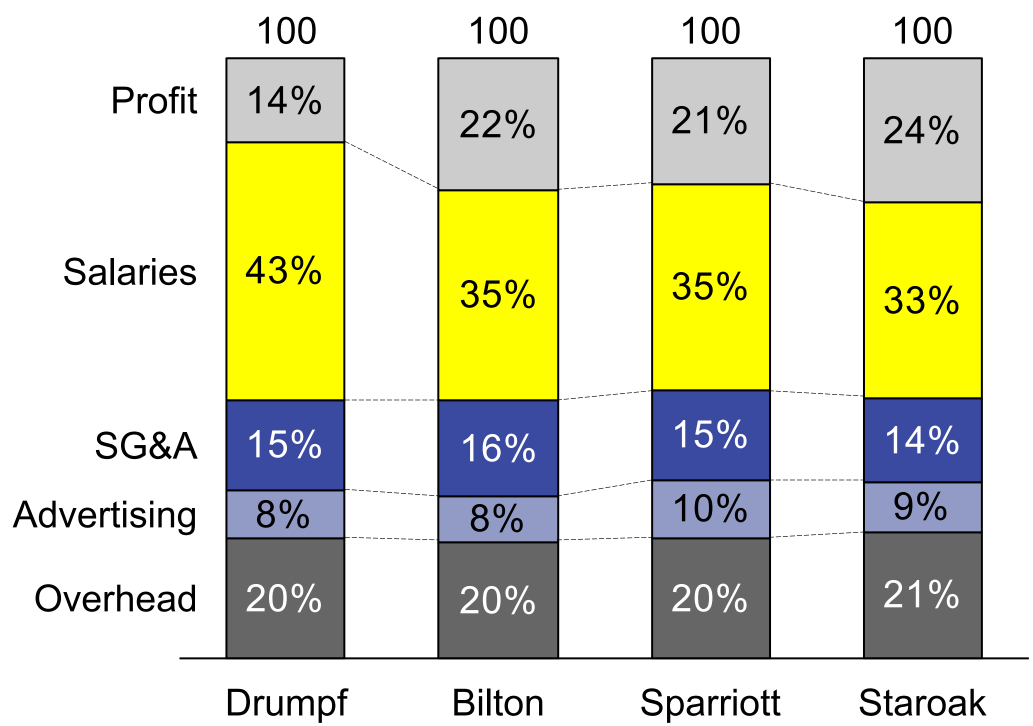
Note: Price elasticity of Demand is -2.0

Exhibit #2

Drumpf cost breakdown trend per $100 in room revenue



Competitor 2016 cost breakdown per $100 in room revenue



Note: Figures exclude costs for purchasing and developing new hotels

Make Airlines Great Again

DUKE THE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

If the candidate asks for revenue and cost breakout, mention that we do not have an overall breakout for the entire business, rather we have metrics per room. Hand the candidate exhibit #1. The candidate should come to two conclusions based off of this exhibit:

- *Decreasing profit margins are due to rising costs as costs are increasing faster than prices*
- *Drumpf hotels are priced far higher than its competitors (~26% higher)*

Exhibit #1 Analysis:

Profit growth CAGR 2012-2016:

- *(35-43)^.25-1= -5%*

Do not make the candidate do the math for the CAGR analysis, but ask If they know the formula and then provide the CAGR number

Costs are growing faster than revenue

If the candidate asks about elasticity, he/she will realize that he/she needs to know what the demand is (i.e. # of occupied rooms / total rooms available). Mention that it will be provided subsequently (exhibit 3).The calculation for it is explained in the exhibit #3 analysis.

Exhibit #2 Guidance:

Based on Exhibit #1, the candidate should ask for a breakdown of costs; if not, guide them towards the breakdown and then provide Exhibit #2. The candidate should come to two conclusions based off of this exhibit:

- *Decreasing profit margins are due to a rise in salaries and expenses*
- *Drumpf hotels has a much higher salaries expense as compared to its competitors*

The candidate should ask about why salaries may have increased or for a breakdown of salaries expense from 2014-2016. Have him/her brainstorm some ideas and then tell them we don't have a breakout, however we've gathered some metrics on Drumpf and its competitors and hand them Exhibit #3.

Exhibit #2 Analysis:

Salaries expense has risen by 6% points per 100$ of room revenue, which is a 16.2% increase from 2014.

*Salaries expense in 2014 was ~$80, ($215 * 0.37)*

*Salaries expense in 2016 was ~108, ($250 * 0.43)*

Salaries expense from Drumpf is ~8% higher per $100 of room revenue than its competitors.

Exhibit #3

Hotel Specifics	Drumpf	Bilton	Sparriott	Staroak
Number of Hotels Worldwide	50	4,600	4,000	1,300
Number of new hotels in the past 2 years	10	5	4	3
Location of new hotels	United States (5) England (2) Switzerland (2) France (1)	India (2) Russia (1) Peru (1) Belarus (1)	India (1) Colombia (1) Argentina (1) Madagascar (1)	United States (1) Thailand (1) Mexico (1)
Avg Rooms per Hotel – 2014	540	240	180	148
Avg Employees per Hotel – 2014	90	41	32	21
Avg Rooms per hotel – 2016	600	240	180	150
Avg Employees per hotel – 2016	150	40	30	23
Amenities	24 hour Dining 24 hour Check-in Oversized Desk Luxury Linen Refrigerator Swimming Pool Spa Heated floor Marble Bathroom Laundry	24 hour Dining 24 hour Check-in Regular Desk Luxury Linen Refrigerator Granite Bathroom Swimming Pool Laundry	24 hour Dining 24 hour Check-in Regular Desk Luxury Linen Marble Bathroom In-Room Safe Swimming Pool Laundry	24 hour Dining 24 hour Check-in Regular Desk Luxury Linen Rosewood Bathroom In-Room Safe Swimming Pool Laundry
Maid Service per day	2x	2x	2x	2x
Avg time to service a room	40 minutes	30 minutes	29 minutes	27 minutes
Avg Occupancy Rate	70%	72%	71%	73%
Types of Bed	California King, King, Queen, Full	King, Queen, Full, Twin	King, Queen, Full, Twin	King, Queen, Full
Avg. Salary per Employee	$40k	$41k	$39k	$41k

Interviewer guidance on Exhibit 3

DUKE THE FUQUA SCHOOL OF BUSINESS

Exhibit #3 Guidance:	Analysis:
As mentioned previously, the candidate should be asking about the breakdown of salaries costs or information about the # of rooms/occupancy rate (to understand demand for elasticity). There is no data for the former, however hand the candidate Exhibit #3 and mention that our consultants have gathered some data regarding hotel metrics. ***There is A LOT of data here, the candidate should be looking for comparable data related to salaries expense and demand. This exhibit is designed to overwhelm the candidate with data so he/she can focus on the right pieces of data. Allow the candidate some time to process.***	• Hotels opened in the past 2 years: Drumpf hotels has opened 10 (25% of total hotels as of 2 years ago) new hotels in the past 2 years which is much higher than any other chain (1%<). This could lead to the need for increased staff as not all staff are efficient yet (2nd level insight). • Location of new hotels: Drumpf hotels are all located in high cost countries, while other locations with the exception of one Staroak hotel are located in lower cost labor locations (2nd level insight). • ***Avg employees per hotel – This is what the candidate should key in on. We can see that Drumpf hotels has more employees per room than any of the other hotels. This can primarily be attributed to the maid service taking a lot longer than the other hotels (45 minutes as compared to 30). The cost saving solution should center around better training for housekeeping services to bring avg. service time down to 30 minutes and the laying off of excess employees (assume 0 severance).*** – ***Drumpf Hotel: 2012 (1 employee for every 6 rooms), 2015 (1 employee for every 4 rooms) Bilton: 1 employee for every 6 rooms (2012 & 2015)*** – ***Sparriott: 1 employee for every 6 rooms (2012 & 2015)*** – ***Staroak: ~1 employee for 7 to 6 rooms (2012 & 2015)*** • Avg time to service rooms – 40 minutes in Drumpf as opposed to ~30 for other chains. Ask candidate to discuss why this may be the case. If he/she is able to, he/she can mention that the opening of 10 new hotels in the past 2 years is probably why there is an increased service time due to the lack of training/familiarity per employee (2nd level insight) which leads to higher avg service time (40 min). • ***Avg occupancy rate – This can be used in conjunction with the total number of hotels, average number of hotel rooms, and the price elasticity of demand (if asked about from Exhibit 2) to determine a potential increase in revenue from decreasing price per room. Price elasticity of demand of -2.0: if prices drop by $25 (10%), then demand will increase by 20% (and vice versa). At the moment, rooms occupied is 70% or 21,000 rooms in total. Increasing this by 20% brings us to 25,200 rooms @ $225 ($5.67M) vs 21,000 @ $25 ($5.25M). Multiply the difference ($420k) by 360 days will give us $151.2M in increased revenue just from lowering the price.*** • ***Avg Salary per Employee – Can be used to calculate potential total savings. If Drumpf is able to decrease employees to one every 6 rooms, this will be an average of 50 employees saved per hotel. 50 employees * 50 hotels = 2,500 employees. 2,500 employees * Avg salary of $40k = $100M in wages saved.***

Exhibit #4

DUKE THE FUQUA SCHOOL OF BUSINESS

I/S for Tarheel Airways

Tarheel Airway Income Statement For the year ended December 31, 2015		
	(Figures are in millions)	
Revenue		25,000.0
Costs		
Fuel	(4,500.0)	
Salaries & Wages	(2,500.0)	
Depreciation	(2,250.0)	
Airport Fees	(4,000.0)	
Lease Expense	(2,150.0)	
Other Operat. Expenses	(6,000.0)	
Total Expenses		(21,400.00)
Total Operating Income		3,600.00
Interest Income/(Expense)		650.00
Other Income/(Expense)		950.00
Gain on sale of assets		(200.00)
Total Other Income/(Loss)		1,400.00
Net Income		5,000.0

Note: There have been no capital expenditures and no changes in NWC during the fiscal year

I/S for GTHC Airlines

GTHC Airlines Income Statement For the year ended December 31, 2015		
	(Figures are in millions)	
Revenue		34,000.0
Costs		
Fuel	(6,500.0)	
Salaries & Wages	(4,200.0)	
Depreciation	(3,500.0)	
Airport Fees	(5,000.0)	
Lease Expense	(4,000.0)	
Other Operat. Expenses	(8,000.0)	
Total Expenses		(31,200.00)
Total Operating Income		2,800.00
Interest Income/(Expense)		250.00
Other Income/(Expense)		(350.00)
Gain on sale of assets		6,300.00
Total Other Income/(Loss)		6,200.00
Net Income		9,000.0

Note: There has been $100M in capital expenditures, but no changes in NWC during the fiscal year.

Interviewer guidance on Exhibit 4

Exhibit #4 Prompt:

Tarheel Airway: This airline is similar to Southwest Airlines, competing on price yet providing stellar service. However, as they currently only fly one type of airplane, costs to make this airline great again are estimated to be $5B due to the need to lease new airplanes

GTHC Airline: This airline is similar to Virgin America with stellar service and great amenities already. As a result, renovation costs to make this airline great again are only estimated to be $1.5B

We have been provided with the income statement for the last fiscal year for each of these airlines.

Exhibit #4 Guidance:

If the candidate decides to begin by examining the two different airlines, let them go down this path. The information provided will help the candidate perform a discounted cash flow valuation. If the candidate addresses the internal business first and doesn't address the airlines, challenge them as to why and ensure they rationalize why.

To perform a DCF valuation, the candidate must first calculate Free Cash Flow which is defined as EBIT(1-Tax rate) + Depreciation – Change in net working capital – capital expenditures.

<u>Provide the following information only if asked:</u>

Tax Rate: 30%

Discount rate: 12%

Growth rate: 2%

Analysis:

- ***Free Cash Flow for Tarheel:***
  - ***EBIT = 3600***
  - ***Tax = 1080***
  - ***EBIT – Tax = 2520***
  - ***Divide FCF by (discount rate – growth rate) = 2520/0.1 = 25,200***
  - ***Valuation of this Company is $25,200M, or $25.2B***
- ***Free Cash Flow for GTHC:***
  - ***EBIT = 2800***
  - ***Tax = 840***
  - ***EBIT – Tax = 1560***
  - ***EBIT – Tax – Capital expenditures = 1560 – 100 = 1460***
  - ***Divide FCF by (discount rate – growth rate) = 1460/0.1 = 14,600***
  - ***Valuation of this Company is $14,600M, or $14.6B***
- ***Metrics***
  - ***Tarheel Operating Margin = 14%, Net Income Margin = 20%***
  - ***GTHC Operating Margin = 8%, Net Income Margin = 26%***

There is no correct answer for which Company to purchase as buying a Company is not the right option. For whichever Company the candidate decides to purchase, ensure that they rationalize it and challenge them on it (see below for example of questions). Once you do, if they haven't addressed the declining profit margins from the core hotel business, ask them what they think about that and direct the case that way.

(e.g. Can the Company afford this? This isn't even their core competency. GTHC may have a higher Net Income Margin, however this is primarily due to the Gain on sale of assets, their operating margin is small. Tarheel may have higher margins, but $25.2B is a lot of money. Tarheel requires an additional $5B in costs, GTHC only requires $1.5B)

Make Airlines Great Again

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #2:

- By how much can Drumpf increase his profits for his hotel business? Assume that hotel room revenue is the only revenue for his hotel business.

Interviewer Guidance:

Given the prompt, the candidate should begin to calculate increase in profit by decreasing the labor force and decreasing the avg price per hotel room.

Increase in profit by decreasing labor costs*: # of employees * # of hotels * Avg annual salary*

- *50 employees per (see Exhibit #3 for calculation) * 50 hotels * $40k = $100M*

Increase in profit by decreasing price: *New $ * new demand * 360 days – Old total revenue*

- *($225 * 25,200 rooms/day (see exhibit #3 for calculations)* 360) - $1.89B = $2.0412B - $1.89B = $151.2M*

*Total Hotel Revenue: Average $/room * Avg # Rooms * Occupancy rate * # of hotels * 360 days*

- *$250 * 600 rooms * 70% occupancy * 50 hotels * 360 days = $1.89B*

Total potential increase in profit = $151.2M + $100M = $251.2M

No need to ask the candidate for profit margin, but if he/she wants to calculate it, it is below.

Increase in profit margins: *previously, salaries was 43% of every $100 in room revenue (or 0.43 cents per dollar). We will have decreased labor costs by 33% (150 employees to 100), therefore salaries will decrease by 0.143 cents per dollar, a direct increase to profitability. Without decreasing prices, profitability will be 28.3% (14% + 14.3%). Therefore, @ a price of $250, profit will be ~$70 ($250 *28.3%) which means costs are $180. If we decrease prices (say 10%) in order to increase top line revenue, profit will be $45 ($225-180), or 20%, still an increase from the 14%.*

Make Airlines Great Again

Recommendation

- Donald Drumpf has just finished with his hair appointment at the salon and is swinging by in a few minutes. Please wrap up your thoughts and provide a recommendation.

Interviewer Guidance:

- The candidate should provide a conclusion that clearly identifies the recommendation, the rationale behind the recommendation, and the risks associated with the strategy. An excellent candidate will identify that although the idea to "Make Airlines Great Again" could increase profit margins, decreasing profit margins can be addressed through other means (training labor to be more efficient and decreasing price of hotels) that are far less expensive and that would increase top line revenue. Furthermore, for a Company that has top line revenue of ~$3.8B per year, purchasing an airline for ~$15B-$30B is unrealistic.

- Risks:
  - Internal backlash from laying off 50 employees per hotel
  - Decrease in customer service if employees are laid off.
  - By decreasing prices, competitors may respond and this could lead to a potential price war
  - Reputation of Drumpf hotels if prices are lowered
  - If airline is acquired: Financing, synergies, cultures, etc.

- Next Steps:
  - Begin to identify hotels where average service time is high and understand how to make the process more efficient
  - Conduct a competitive analysis in order to understand what their response would be to a 10% decrease in your hotel prices

Deloitte.

Mock Case:

DevCo

Deloitte Consulting LLP

Redefining Medical Device Global Marketing Strategy

DUKE THE FUQUA SCHOOL OF BUSINESS

Business Situation

DevCo is a global medical device manufacturer headquartered in the US with operations in more than 60 countries. The Company produces a range of medical devices and data management tools. They have always been a market leader and commanded premium pricing; however, intensified competitive pressure from lower-cost manufacturers and increased customer price sensitivity have negatively impacted margins and market share.

In response to these dynamics, Aaron Rike, the Chief Marketing Officer of DevCo, repositioned a portion of the high-end product line to address the preferences of more cost conscious customers. He also led DevCo's efforts to acquire and develop a lower cost product line to expand its product range. Aaron quickly realized that while the expanded portfolio was robust, the product lines lacked differentiation which created customer confusion and impacted financial performance. Further, he faced organizational challenges since product development, marketing, and sales were managed at the product level.

Concerned that product overlap would further erode market share and profitability, Aaron called Sally Jones, a Principal In Deloitte's Strategy practice and long-time advisor to him and the DevCo, to discuss his challenges. He engaged Deloitte to develop a new portfolio strategy and redefine the accompanying go-to-market strategy in order to position DevCo for continued market leadership and growth.

Problem Statement (For interviewer reference only; Provide one question at a time)

Imagine you are a Senior Consultant on Sally's team as you help DevCo understand the following….

1. What factors should DevCo consider when evaluating its product portfolio and go-to-market strategy?
2. Deloitte analysis indicates that DevCo should rationalize its portfolio in order to reduce overlap. There are three primary product lines (A, B, and C). Which product line is most attractive for DevCo? **(Note: Share data sheet with candidate at this point)**
3. How many units of NewPro does DevCo need to sell to be profitable? Based on this analysis and the considerations from the prior question, would you launch NewPro? **(Note: Interviewer must provide price and cost data)**
4. What should DevCo consider when deciding to launch NewPro for Product Line B? If you were the CEO, (head of all three product lines), would you launch NewPro?

Redefining Medical Device Global Marketing Strategy

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt Questions and Responses (For interviewer reference ONLY)

1. What factors should DevCo consider when evaluating its product portfolio and go to market strategy?

A **good answer** will explore the impact of external environment and company capabilities on the product portfolio and go-to-market strategy. Below is a list of areas that may be addressed:

- **Customer Mix:** What types of customers use DevCo products? What must the company provide in order to meet these different customer preferences (e.g., product attributes, engagement approach)?
- **Competition:** What differentiates DevCo's products from the competition? How can this be leveraged to protect / gain market share?
- **Brand:** How should DevCo position products in the market (i.e., features, price, channel) to promote the DevCo brand?
- **Channel:** Which distribution channels should DevCo utilize? What regulatory perspectives should be taken into account?
- **Product:** What is a customer's willingness to pay for certain product features / functionality? What products offer "good enough" features to address customer preferences?
- **Financial Impact:** How much revenue does each product line drive? Which lines are most profitable?

A **great answer** looks beyond external factors and company capabilities to explore the impact of the portfolio structure and go-to-market strategy on DevCo's strategy and operations both today and in the future. Below is a list of areas that may be addressed:

- **Strategic Priorities:** How can product positioning and customer engagement be used to support DevCo's strategic priorities (e.g., continued market leadership, broad portfolio)?
- **Organization Structure:** Can the current organization and structure support the future portfolio strategy?
- **Global Footprint:** How will country-specific needs and regulations impact product requirements and go-to-market strategy?
- **Evolving Environment:** What market trends (e.g., Health Care Reform, growth of emerging markets) are impacting customer preferences and how should DevCo respond?

Redefining Medical Device Global Marketing Strategy

Prompt Questions and Responses (For interviewer reference ONLY) Note: Please provide data sheet (next slide) to candidate at this time

2. Deloitte analysis indicates that DevCo should rationalize its portfolio in order to reduce overlap. There are three primary product lines (A, B, and C). Which product line is most attractive for DevCo?

A **good answer** will provide accurate financial information to support the argument (see below).

- The interviewee will create income statements for each product line for the most recent fiscal year (2012). Cost of capital should not be used in any way (extraneous information)
- The interviewee will calculate operating income and operating margin %.
- If the candidate focuses on largest operating income then product line B is the correct answer; however, if candidate focuses on operating margin % then Product Line C is correct
- Below is the math for each product line:

	Product Line A 2012	Product Line B 2012	Product Line C 2012
Revenue (1)	$1,000	$2,250	$600
COGS (2)	$600	$1,700	$250
SG&A (3)	$150	$225	$120
Operating Income (4)=(1)-(2)-(3)	**$250**	**$325**	**$230**
Operating Margin % (5) = (4) / (1)	**25%**	**14%**	**38%**

DUKE THE FUQUA SCHOOL OF BUSINESS

DevCo: Data Sheet

Financial Information Breakdown*

All numbers in millions of dollars (USD)

	Revenue		COGS		SG&A		Cost of Capital		2013 Growth *(Estimated)*
	2011	2012	2011	2012	2011	2012	2011	2012	
Product Line A	$800	$1,000	$400	$600	$120	$150	17%	15%	*20%*
Product Line B	$2,200	$2,250	$1,600	$1,700	$220	$225	7%	10%	*5%*
Product Line C	$300	$600	$100	$250	$60	$120	19%	20%	*50%*

Product Line Information

Product Line	Features / Functionality	Product Support Description	Product Life	Sales Channel	Price Point
A	Leading edge and mid-range	• Always on call • High touch approach	10-15 Years	Sales Force	High
B	Mid-range and entry level	• Readily available support • Limited on-site availability	10-15 Years	Distributor	Medium
C	Mid-range and entry level	• Always on call • Limited on-site availability	8-10 Years	Distributor	Low

* When using this information, assume all costs are variable

Redefining Medical Device Global Marketing Strategy

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt Questions and Responses (For interviewer reference ONLY)

2. Deloitte analysis indicates that DevCo should rationalize its portfolio in order to reduce overlap. There are three primary product lines (A, B, and C). Which product line is most attractive for DevCo?

ANSWER CONTINUED

A **great answer** will calculate the income statement for three years using historic and forecast data to identify trends in operating income and operating margin % (operating income for 2013 can be calculated without constructing the full statement – since all the costs are variable, operating income grows at the same rate as revenue):

- Product line C has enjoyed the fastest top-line growth, although it remains the smallest of the three, while product line B, the largest one, has had the slowest growth
- All product lines have seen operating margin declines since 2011, and stable margins in 2012-2013, with product line C having the highest margin.
- As a result, **Product Line C is most attractive** both from the total operating income perspective and from the operating margin % perspective (different than the "good answer" due to forecasting with growth)

The candidate can also use the qualitative information to develop further inferences from the data. As long as they can strongly articulate the basis for the argument, this is valid. Examples include:

- **Support model:** The candidate references the service models as being a key driver of profitability for the products
- **Durability:** Product Line B has a product life that matches product line A, but at a lower price point. This could be a key driver in why gross margin is lower in product line B

	Product Line A			Product Line B			Product Line C		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
Revenue (1)	800	1,000	1,200	2,200	2,250	2,363	300	600	900
COGS (2)	400	600	720	1,600	1,700	1,785	100	250	375
SG&A (3)	120	150	180	220	225	236	60	120	180
Operating Income (4)=(1)-(2)-(3)	**280**	**250**	**300**	**380**	**325**	**341**	**140**	**230**	**345**
Operating Margin % (5) = (4) / (1)	**35%**	**25%**	**25%**	**17%**	**14%**	**14%**	**47%**	**38%**	**38%**

Redefining Medical Device Global Marketing Strategy

Prompt Questions and Responses (For interviewer reference ONLY)

3. **Product Line B is considering launching a new product, NewPro, to expand its footprint within the DevCo portfolio. NewPro will have a suggested price of $200 with a rebate offered to all purchasers of $15 per product. The manufacturing cost will be $115 per unit and per product marketing costs are expected to be $20 per unit. The fixed costs to launch the product will be $20,000,000. Product Line leadership only wants to launch NewPro if it is profitable by the end of year 1.**

   How many units does DevCo need to sell to be profitable?

This answer is a straightforward calculation. The candidate needs to be able to properly build a breakeven analysis. There is only one correct answer to this question though a fair answer could still be obtained if the candidate sets the analysis up properly (i.e., shows the understanding) but makes a simple mental math error. See the math below:

Price	$	200
Rebate	$	(15)
Net Price	**$**	**185**
Manufacturing costs	$	115
Marketing	$	20
Variable Costs	**$**	**135**
Margin	$	50
Fixed Costs	$	20,000,000
Break even units		**400,000**

Redefining Medical Device Global Marketing Strategy

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt Questions and Responses (For interviewer reference ONLY)

3. Product Line B is considering launching a new product, NewPro, to expand its footprint within the DevCo portfolio. NewPro will have a suggested price of $200 with a rebate offered to all purchasers of $15 per product. The manufacturing cost will be $115 per unit and per product marketing costs are expected to be $20 per unit. The fixed costs to launch the product will be $20,000,000. Product Line leadership only wants to launch NewPro if it is profitable by the end of year 1.

***FOLLOW UP*: Based on this analysis and the considerations from the prior question, would you launch NewPro?**

A **good answer** will consider the viability of selling 400,000 units in year one, in addition to the brand, selling model, and risk considerations discussed in the prior questions. One way to justify the viability of the volume required to breakeven is for the candidate to calculate the projected revenue from NewPro at break-even and to compare it with the total Product Line B revenue in 2012. Revenues from NewPro represent only around 3% of product line revenues, suggesting that achieving break-even in the first year is viable.

Break-even NewPro volume	Net price per unit, USD	Net NewPro break-even revenue, USD MM	Product Line B revenue, 2012, USD MM	NewPro break-even revenue as % of Product Line B
(1)	(2)	(3)=(1)x(2)	(4)	(5)=(3)/(4)
400,000	185	74 MM	2,250 MM	3.3%

A **great answer** will not only consider the viability of selling 400,000 units in year one, but also consider the potential impact to the broader business (e.g., capacity, resourcing) and some qualitative considerations which should be explored (i.e., branding, product overlap, sales model). This brings in information from the answer provided in question 1.

The candidate can also mention that 100% rebate execution is a conservative assumption, and that, if execution percentage is lower, the contribution margin will be higher and less units will be required to break even.

Finally, the candidate can discuss the positive margin implications for Product Line B, as the margin on NewPro is significantly higher than the average product line margin (25% from gross and 27% from net price vs. 14% average).

Redefining Medical Device Global Marketing Strategy

Prompt Questions and Responses (For interviewer reference ONLY)

4. **NewPro will be positioned as "leading edge" with a high touch support model. The product will be sold through the third-party distributors that Product Line B utilizes.**

   What should DevCo consider when deciding to launch this product? If you were the CEO (head of all three product lines), would you launch NewPro ?

A **good answer** will use information from previous answers to raise several considerations in addition to the output of the breakeven analysis – most information suggest that **NewPro should not be launched** with the current plan:

- **Investment priorities:** Given relatively slow growth and low margins, Product Line B may not be the best place to spend limited investment dollars. Product Line C is most attractive (highest margin %) for DevCo, so investment should focus there.
- **Product Overlap:** Product overlap has been identified as one of the key issues to be resolved, and NewPro introduction arguably exacerbates this problem. Being a "leading edge" product, NewPro may not align with the brand, price point, and feature set of other products from Product Line B. NewPro is more similar to Product Line A, which could further cannibalize revenues and create customer confusion.
- **Support Model**: Product Line B is sold through distributors with limited on site support. A higher touch support model, for NewPro would require additional investment from DevCo.

A **great answer** will examine mitigation strategies that would allow DevCo to realize financial and strategic opportunities from NewPro while addressing associated risks, and highlight additional considerations, for instance:

- **NewPro launch as part of Product Line A** – the candidate should explain the fit with Product Line A and understand that we may need some additional info, i.e. whether the product line already has similar products. Also, we have to determine whether direct sales force selling Product Line A is an appropriate channel for NewPro.
- **Identified need for the product** – if current customers of Product Line B are demanding this particular product, then investment can be a necessity to prevent customers from switching to competitors.

Wrap up

Wrap Up

As part of this engagement, the Deloitte team:

- Developed a go-to-market strategy to create differentiation within the client's portfolio and tailored the marketing strategy by customer segment. The strategy included branding, messaging, engagement model, development approach, and organization enablers
- Analyzed the product portfolio and recommended a portfolio prioritization strategy based on customer preferences that reduced product overlap
- Aligned key business leaders around a common view of the customer – one achieved by looking through the customer's eyes
- Recommended internal processes and structural changes that would allow for improved communication to focus on the customer

DUKE THE FUQUA SCHOOL OF BUSINESS

PHARMACEUTICAL RARE DISEASE BUSINESS GROWTH

(PROVIDED BY BCG)

BCG THE BOSTON CONSULTING GROUP

Pharmaceutical Rare Disease Business Growth

Prompt

Our client is a large pharmaceutical company with a strong business in "Rare Disease" (rare diseases are conditions that affect fewer than 200,000 people in the US).

Historically, pharmaceutical companies have not invested significantly in Rare Disease because it has not been cost effective to conduct research for such small populations. Due to the fall off in the number of pharmaceutical blockbusters and improved regulation to make R&D cheaper for Rare Disease, pharmaceutical companies have begun to invest more in Rare Disease R&D over the last few years.

Our client has hired BCG because it would like to grow its Rare Disease business.

Interviewer Guidance

Case question to solve

1) How can the client double its Rare Disease business in 5 years?

Pharmaceutical Rare Disease Business Growth

Interviewer Guidance

Ask the candidate the following questions

1) How would you approach our client's question on growing its Rare Disease business?
2) Where would you like to start?

When the candidate asks about the existing business, **share Exhibit 1.** Based on the data, how large will the client's rare disease business be in 2016? [If necessary,] what is the shortfall to its goal of doubling its business?

What does the client need to do to double the Rare Disease revenues by 2016? [If candidates discusses acquisitions] ask who should the client acquire and how many assets will client need to buy?

Let's say the CEO walks in, could you summarize for me?

Interviewer Guidance (Provide only if requested)

Our client is an industry leader with a track record of success. Its existing business is $2.5B, expected to grow at 5% per year

Rare disease market is $30B and is as profitable as "Big Pharma“
• While research is relatively expensive, the government provides tax credits for drugs designated to treat rare diseases
• Additionally, prices tend to be higher to make up for the upfront research investment. It's also growing faster than Big Pharma.

There are many small bio-techs that are attractive targets and there are also other big pharmaceutical companies that have rare disease divisions / assets

Pharmaceutical Rare Disease Business Growth

Recommendation

Internal growth will not be sufficient to achieve your goal of doubling your business. You will need to acquire ~3 "peak revenue" assets to close the gap between your goal of $2.5B and the $1.1B your portfolio will generate organically.

Pharmaceutical Rare Disease Business Growth

Quantitative Analysis and Solutions

Growth from existing assets

- Current baseline is $2.5B, growing at 5% for 5 years
- $2.5B * 5% * 5 = **$625M** (assumes linear growth – would not ask to calculate compounding growth)

Growth from pipeline

- Research assets need 6 years to reach the market = $0M
- Phase I = 5 assets * 20% attrition * $500M peak rev * 20% rev in 1st year = $100M
- Phase II = 3 assets * 40% attrition * $500M peak rev * 40% rev in 2nd year = $240M
- Phase III = 1 asset * 60% attrition * $500M peak rev * 60% rev in 3rd year = $180M
- **Total = $520M**

Shortfall

- Target is to double the business = $2.5B
- Internal growth is $625M + $520M = $1.145M, **need ~$1.4B more**
- If each asset is $500M, then need to buy 3 peak revenue assets, or more if they are in R&D

2016 Portfolio

- $5B portfolio with: $3.1B (60%) from current baseline, $520M (10%) from pipeline, $1.4B from acquisitions (30%)

Pharmaceutical Rare Disease Business Growth

Exhibit 1

Assets in research and development

Phase	# Assets	Time to market (years)	Attrition (% expected to be approved to reach the market)	Peak revenue ($M)
Research	20	6	10%	500
Phase I	5	4	20%	500
Phase II	3	3	40%	500
Phase III	1	2	60%	500

Revenue by years on market

Year on the market	Revenue (% of peak revenue)
1st	20%
2nd	40%
3rd	60%
4th	80%
5th	100%

DUKE THE FUQUA SCHOOL OF BUSINESS

CONSUMER PRODUCTS STRATEGY

(PROVIDED BY BCG)

BCG

THE BOSTON CONSULTING GROUP

Consumer Products Strategy

Prompt

Our client is a large, multinational consumer products company with business in over 200 countries. Today, we are going to focus on its US business.

Our client has been following US demographic trends and has found that low income households have been growing two times as quickly as other consumer segments Low income is defined as families with income at the poverty level or below.

Our client has always had a premium product strategy. It sells its products in grocery stores, convenience stores, mass retailers, etc. but its products are always priced at the high-end of their respective categories It has never targeted the low income segment before and doesn't have a low income strategy, but given the growth of this segment, our client is considering entering the low
income segment.

Our client has 3 questions for BCG.
1) Should it have a low income strategy?
2) If it should have a low income strategy, what are some tactics it should deploy?
3) What are some of the risks the client may face?

Interviewer Guidance

Ask the candidate the following question

1) What would you like to know to help the client answer its questions?

When the candidate asks about products, **share Exhibit 1**. The client has shared some data for its key products. What do you make of this information?

Consumer Products Strategy

Interviewer Guidance Continued

Ask the interviewee the second question

2) What else would you like know about diapers and cold medicine to assess the opportunity?

Ok. The client is not interested in cold medicine, but it has done customer research that suggests low income consumers are interested in buying diapers. **Share Exhibit 2**

What do you see that could help us figure out why low income consumers aren't buying our client's diapers?

What else should our client think about as it develops a low income strategy? What are the risks?

Interviewer Guidance (Provide only upon request)

- Low income consumers purchase largely in smaller, local shops
- Low income consumers can't afford salons, but will indulge on shampoos
- Low income consumers are willing to spend more on baby food to protect their children
- There are valid generics that compete with our client's cold medicine

Consumer Products Strategy

Recommendation

The client should pursue a low income strategy, focusing on diapers, which could generate an additional $25M in revenue.

To pursue low income consumers, our client should reduce its package size. Today, our client's package size is significantly larger than its competitors. Our client could keep the price /diaper the same, but if it dropped the package size from 40 diapers to 20 diapers, it would cut the absolute price of the box to $10, even lower than its competitors.

There will be some risks involved with adopting a low income strategy including cannibalizing business from existing products and brand risk.

Consumer Products Strategy

Exhibit 1

Product/ category	Total category sales (US$M)	Client category sales (US$M)	Total LI consumer spend on category (US$M)	LI consumer spend on client (US$M)
Shampoo	400	100	90	30
Cold Medicine	250	50	75	7.5
Diapers	300	150	100	25
Baby food	300	100	100	30

LI: Low Income

Consumer Products Strategy

Exhibit 2

Product/ category	Client package size	Average package size of competitors	Client price	Average price of top 5 competitors
Shampoo	10 oz bottle	12 oz bottle	$4	$3
Cold Medicine	6 oz bottle	6.5 oz bottle	$6	$3
Diapers	40-pack	32 pack	$20	$16
Baby food	6 oz jar	6 oz jar	$2	$1.50

Consumer Products Strategy

DUKE THE FUQUA SCHOOL OF BUSINESS

Quantitative analysis and solutions

1 Calculate overall share and share of low income consumers by product/category

Product/category	Client Overall Market Share	Client Share of Low Income Consumers	Overall share vs Low Income Share
Shampoo	100/400= 25%	30/90 = 33%	Overall < LI
Cold Medicine	50/250 = 20%	7.5/75 = 10%	Overall > LI
Diapers	150/300 = 50%	25/100 = 25%	Overall > LI
Baby food	100/300 = 33%	30/100 = 30%	Overall = LI

2 Calculate incremental revenue for cold medicine and diapers

- Cold medicine = (20%-10%) * $75M = $7.5M
- Diapers = (50%- 25%) * $100M = $25M

Total incremental revenue = $7.5M + $25M = $32.5M

Surfboard Wax
(provided by Accenture)

Accenture: Surfboard Wax

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #1:

Your client, Big Island surfboards is a surfboard manufacturer based in Hawaii. The CEO wants to expand the company's product line and revenues and is thinking of entering the market for surfboard wax. It hired you to calculate the market size for wax, and your firm determined that the market size for surfboard wax is about $6m a year with about 3 million bars sold annually. Your firm also found that the market was fairly competitive with three large global players all based outside of Hawaii controlling about 70% of the market smaller niche companies including a few based in Hawaii accounting for the remaining 30%.

The client was impressed with our work and believes that its unique brand and connection to Hawaii will it enable it to succeed in capturing a piece of the pie. It wants to move forward with entering the market and has now asked us to determine how they should enter the market for surfboard wax. How would you think about this problem?

Interviewer Guidance:

The candidate should recognize that this is a market entry case and confirm this with the interviewer. If the candidate asks what surfboard wax is, you can tell them that the wax comes in a bar form (similar to soap) and is used to coat the top of the surfboard in order to provide surfers with a surface that their feet can grip.

The Framework:

A strong candidate's framework should list several options for entering the market: 1) building the capability to manufacture the wax by itself,
2) acquiring another company that manufacturers wax, 3) partnering with another company in a joint venture, 4) contracting out production and then reselling or 5) licensing its brand to another company. The candidate will then link these options to a profitability tree to estimate whether the company can earn a return on its investment.

The candidate's profitability tree should have:

1)Price: Candidate should show that the average price obtained by calculating $6 million/3 million bars sold = $2; or some number around this that is justified. The candidate can also make the case that by leveraging our client's name in surfboards, we can command a higher price ($3 because it is brand name and can command a premium, etc.)

Accenture: Surfboard Wax

Interviewer Guidance:

2)Quantity: A savvy candidate will recognize that quantity will hinge upon the strategy pursued. If the candidate discusses organic growth within the framework, the candidate should recognize that this is likely a competitive market and estimate a reasonable market share that company can obtain. Reasonable estimates range from 5%-15% which translates into 150,000 to 450,000 bars sold. (Note: calculations do not need to be in the framework; this is guidance to measure how a candidate might think about this.)

3)Variable costs: Candidate should list out some of the components of variable cost such as materials (wax, scent, etc.) (Note: Candidate is not expected to know materials in wax but a strong candidate will list a few to demonstrate that he/she is thinking about how to calculate costs), packaging and shipping costs. In the case of a contract arrangement, it is assumed that variable costs are absorbed by the contractor who will then charge the company a price per unit.

4)Fixed costs: Candidate should some costs such as rent, labor, SG&A, and marketing costs in order to generate sales. (Note: the candidate should not list "costs" related to any of the options such as acquiring PPE or another company as these are fixed assets rather than fixed costs.)

After the candidate has reviewed their framework with you, ask them to discuss qualitatively the potential up and downside of each of the options. If the candidate is missing more than two of these options, push the candidate to think about additional market entry strategies before you begin this discussion. It is critical that they identify at the very least, acquiring another company and contracting out production. If they are unable to come up with both of these scenarios, you can offer it to them as a suggestion.

A strong candidate will be able to succinctly articulate the costs and potential rewards associated with each option and drive the client towards exploring an option with a hypothesis lead approach. An example might look something like: "Option 1 would involve significant investment in R&D and manufacturing capabilities but could earn the company the greatest return, Option 2 would be costly and logistically complicated but gives the company access to an established product line and distribution channels, Option 3 would spread cost and risk to two companies but would tie the company up with a partner in a potentially costly and complicated venture, Option 4 would enable quick production but would open up the company to risk should its contractor be unable or unwilling to meet demand in the future and Option 5 would provide the company with a steady revenue stream but place control of its brand into another company's hands. Based upon my reading of the data, I recommend that we start with Option 5 as it seems to be the lowest risk

After the candidate has discussed the pros and cons of each option, go to the next prompt.

Accenture: Surfboard Wax

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #2:

Upon reviewing the options, the client decides that organic growth and a joint venture is too complicated and doesn't feel comfortable taking the risk associated with building such capabilities. Additionally, the client doesn't't' feel comfortable licensing out its brand name because it wants control over how the product is marketed and sold. The CEO is interested in either acquiring a company or contracting out production. It has identified a candidate for each of these and wants us to perform some due diligence on whether it can earn a return on its investment within 5 years. The candidate doesn't need to worry about discounting.

Acquisition:

Information to be shared with the candidate: The company it wants to acquire, Aloha Surf Wax sells its bars for $2.50 a piece to retailers who then retail it for $3. Its cost of goods sold is $.50 and annual fixed costs for things like marketing, sales, SG&A is $300,000 a year. The company's product is popular and it has 10% of the total market in Hawaii. The owner wants to sell the company and has set a firm price of $1 million.

Interviewer Guidance:

The candidate should calculate:

Annual revenue: $750k (10% x 3m x $2.50)

COGS: $150k (10% x 3m x$.50) SG&A: $300k

Total Annual Profit: $300k

After 5 years, the company would earn $300k x 5 = $1.5 m - $1m price = $500k

Accenture: Surfboard Wax

Prompt #3:

Contracting Out Production:

The client has identified another wax manufacturer, Maui Surf Wax, that has agreed to use its excess capacity to produce 300k bars a year. Maui wax will charge our client, $1.50 a bar. Our client projects that it can then sell to its retailers for $3.00 a bar and sell out of its entire inventory. Maui wax will also charge our client a one time fee of $100k to reconfigure its equipment to produce our clients packaging and reformulate its wax to our clients specifications. Additionally, annual fixed costs for things like marketing, sales, SG&A is $300,000 a year.

Interviewer Guidance:

The candidate should calculate:

Revenue: 300k x $3.00
= $900k COGS: 300k x
$1.50 = $450k SG&A:
$300k
Total Annual Profit: $150k

After 5 years, the company would earn $150k x 5
-$100k = $650k

Accenture: Surfboard Wax

Recommendation

After the candidate has finished his/her calculations, prompt them to provide a recommendation to the CEO.

Interviewer Guidance:

A strong candidate will start with the recommendation, support with analysis and end with next steps.
An example of this might look something like:

I recommend that Big Island Surfboards enter the market for surfboards by contracting production of wax out to Maui Surf Wax and reselling the product under Big Island Surfboards' brand. By doing so, Big Island Surfboards would earn a $650k return on its initial investment of $100k after 5 years. This would enable Big Island Surfboards to quickly enter the market and ramp up production. Some risks of this approach include Maui Surf wax reducing excess capacity devoted to production of Big Island Surfboard wax in the future or having quality control issues with production.

As the next step, I would recommend that we conduct due diligence on other potential targets to see if we can get an even better deal or explore some of the other options that the CEO had initially ruled out.

Mobilizing Your World (provided by Accenture)

Accenture: Mobilizing Your World

Prompt #1:

Your client, Phone Com is a telecommunications company. The company has high brand recognition only in the United States and has grown primarily through a series of acquisitions over the last thirty years. Less than a month ago, the CEO announced another acquisition of a large satellite television company. The target company, Sat-Light Inc., is stable but slow growing . In order to make this merger valuable, the CEO has asked your team to identify 1) synergies from the merger, 2) ideas for differentiated product offerings and 3) opportunities for new growth.

Interviewer Guidance:

The candidate should ask immediately what products are currently offered by both companies. Note: Prior to the Sat-Light offers television and broadband through a third party. Phone Com offers mobility, broadband and television.

A strong candidate may also ask if we are just focused on the US. You should answer that we are focused on North and South America and Phone Com. has limited distribution in South America and Sat-Light has new distribution in South America.

The Framework:

The first level of framework is simple. It should be separated into the three different areas outlined in the prompt. A good candidate's framework will not include anything about profitability. The framework should indicate a strong understanding of the industry through answers given.

For synergies acceptable answers are as follows (note I have highlighted if they are easy, medium or hard conclusions after each item in parentheses); personnel (easy), content (hard), supply chain (medium), ad sales (hard), IT systems (easy), bundling (easy) & collections (hard). A strong candidate will have highlighted that synergies are both cost reduction and revenue building and provide some examples for each item listed.

Accenture: Mobilizing Your World

Interviewer Guidance:

For differentiated product, this is an opportunity for candidates to demonstrate their brainstorming under pressure. A strong candidate will offer at least three ideas but he/she is unable to, you can guide them by suggesting a few ideas such as a television everywhere enhancement or an app the that streams DVR'd content to your phone. Note: there is no wrong answer for this section.

For growth strategy a good candidate should include some initial suggestions:

1) South America distribution
2) Bundling
3) Channel optimization (new distribution within US)
4) Other commercial opportunities

Prompt #2:

Based upon your initial brainstorm, the CEO wants to focus on television and what the opportunity for expansion is. That is, he wants to know of any households not currently being served by Phone Com, Sat-Light, or its competitors. His office has provided you with the following data: Sat-Light serves 30 million US households and Phone Com serves 10 million US households. Sat-Light has a national footprint while Phone Com is only available in certain area due to infrastructure restrictions. The industry has two other big competitors and one smaller competitor. The first competitor serves15 million US households, the second competitor serves 32 million US households and the third competitor serves 7 million US households. All of the customers are unique and do not overlap among the companies.

Interviewer Guidance:

A strong candidate should be able to do a fairly quick market sizing:

~320 individuals in the US
~3 individuals per household
=~107 households. 107 – (10+30+15+32+7) = 13 million households.

The candidate should realize the US industry is extremely saturated. The additional number of households may be cord cutters, unable to access TV for a number of technology reasons or also unable to afford TV. Therefore, opportunity for growth is extremely limited.

Accenture: Mobilizing Your World

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #3:

After presenting the findings of your analysis and that opportunity for expansion of television is limited in the U.S., the CEO wants to know of other growth opportunities. The CEO wants to review your initial suggestions in your framework for growth strategy and wants you to discuss opportunities and risks to associated with each of those growth opportunities.

Interviewer Guidance:

Few examples include:

1)South America Expansion – It is a completely segmented market with a lot of opportunity. Risks/Things to Think About: corrupt government, each country operates differently, technology capabilities are far behind the US and limited current infrastructure (aka a lot of investment).

2)Bundles – With a new reduced pricing structure and one combined bill, customers will be interested in a bundle. Risks/Things to Think About: Differentiate the bundle from competitors, IT upgrades to develop combined bill, installation infrastructure (are the same techs able to install two different products).

3)Commercial – It is important for a candidate to realize the households are only a portion of the market. There is an opportunity to sell to businesses. Risks/Things to Think About: Sales Strategy, Resources Needed, Differentiated Product for Commercial, Differentiated Pricing Package for Commercial

Accenture: Mobilizing Your World

Recommendation

After discussing growth strategy, the CEO wants you to provide an overall summary and recommendation.

Interviewer Guidance:

A strong candidate will start with the recommendation, support with analysis and end with next steps. An example of this might look something like:

"At the CEO's request, we've identified the potential synergies, a new differentiated product and opportunities for growth. The strongest potential cost optimization synergies are personnel reductions, supply chain, IT systems and content contracts, however, it is important to note there are revenue generating synergies as well such as advertising sales. The differentiated product we recommend is XXXX as it optimizes the combination between mobility and televisions. We also realized after reviewing the case in more detail that there is limited growth opportunity to expand in the US, however, we recommend the new company look into opportunities in South America and commercial sales. Before moving forward, we recommend 1) a deeper understanding of current technology related to mobility and television in South America & 2) more information on market share in the commercial segment.

RETHINKING
THE BOUNDARIES

DUKE
THE FUQUA SCHOOL OF BUSINESS

The Duke MBA Consulting Club Casebook "Greatest Hits"

Mission Eternity

Mission Eternity

Prompt #1:

- Your client, NASA, has recently learned of a giant asteroid heading towards the Earth. Scientists at NASA have determined that there is a 10 percent probability that this asteroid makes landfall. If it hits, the asteroid will create a large dust storm blocking out sunlight and preventing photosynthesis in plants. This will ultimately destroy the rest of the earth's ecosystem for the next 100 years. NASA needs help determining whether they should launch the Eternity Mission, a space exploration mission to find a suitable planet for the human population to live on in the event of the catastrophic asteroid impact.

Interviewer Guidance:

Additional information to be provided to the candidate if requested:

- NASA's goal is to safely evacuate at least 20% of the world's population in the event of impact.
- The Asteroid would hit earth in 25 years. NASA estimates it will require 15 years to build enough space vehicles and safely evacuate 20% of the world's population. Therefore, Mission Eternity needs to be completed within 10 years.

Mission Eternity

Interviewer Guidance:

(*continued*)

- Assume NASA has had major breakthroughs in space travel and spacecraft can now travel at the speed of light.
- Other international space agencies are looking to NASA to make a decision. Their budgets are unavailable to aid this mission.
- NASA has already weighed other options to salvage the earth's population, such as hitting the asteroid to break it into smaller pieces, and determined that is not possible. Additionally, other efforts to live underground are being researched separately.
- Cost of the Eternity Mission will vary by planet(s) selected for exploration, we do not have specific figures.
- Assume NASA has figured out a way to use therapeutic hypothermia hibernation to enable humans to travel very long distance in space.

Mission Eternity

DUKE THE FUQUA SCHOOL OF BUSINESS

Interviewer Guidance: Potential Framework

- Budget Issues
  - Cost of spacecraft
  - Cost of fuel – renewable technology, fuel
  - Astronauts – salary, life insurance, family support, training
  - Staff on ground
  - Upkeep of tracking devices
  - Cost of test runs
  - Outside fundraising possible: Business, nonprofit, donation support
- Timing Issues
  - Distance to potential planet
  - Duration of the project affects cost
  - Timing of receiving planet data to make plans prior to asteroid impact
- Public Relations Issues/Liability
  - Public response to expense
  - Public reaction to disaster if an accident with the mission occurs
  - Loss of credibility for future missions and existing projects if there is a failure
- Available Planet Data
  - Accuracy of currently available data regarding potential planets
  - Determining which metrics to prioritize

Mission Eternity

Prompt #2:

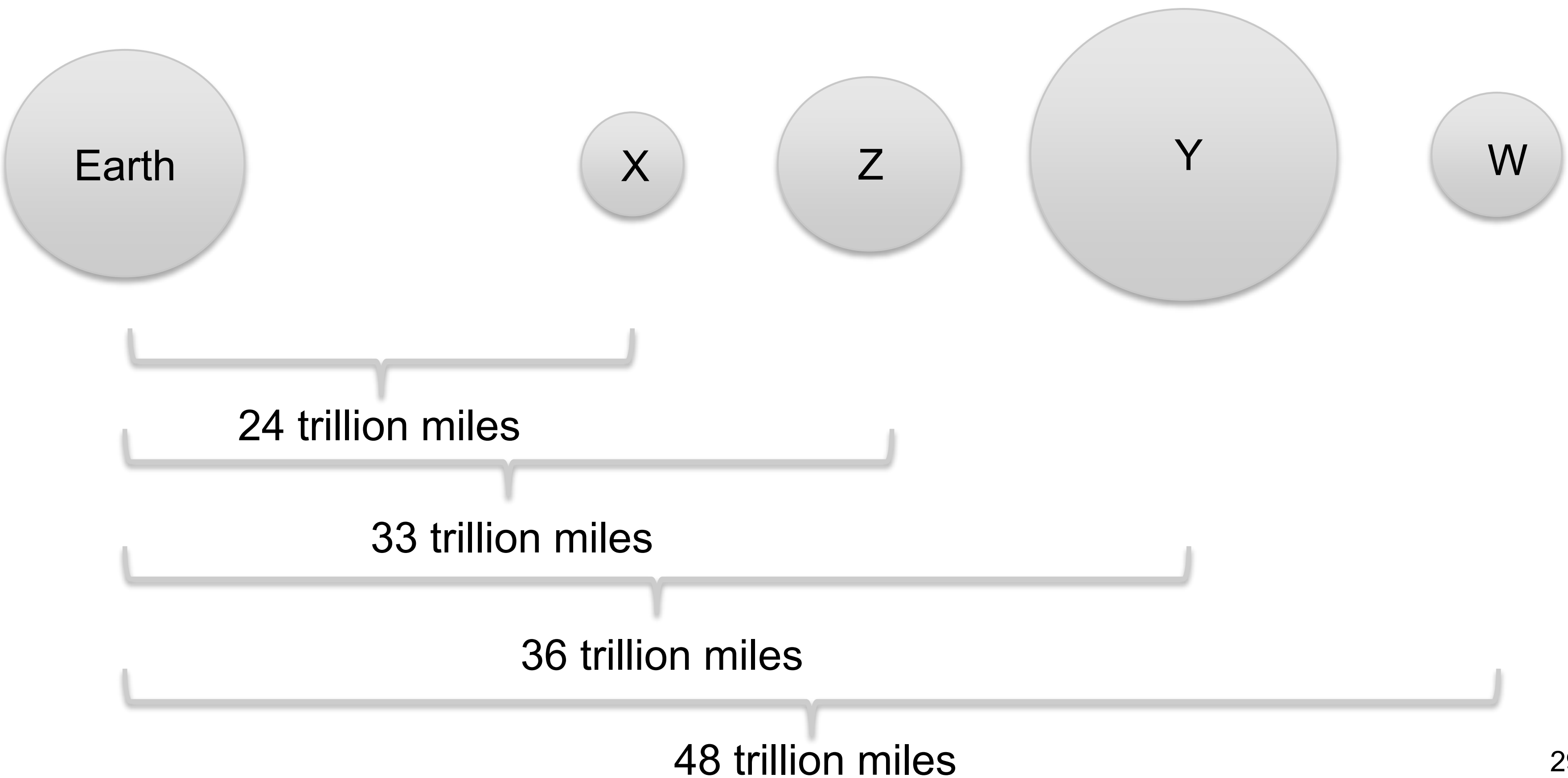
If not already provided to the candidate, inform them that the asteroid is set to hit earth in 25 years. At least 15 years is needed to build enough space vehicles and to safely evacuate 20% of the world's population. Therefore, Mission Eternity can only take 10 years from start to finish.

Additionally, NASA's Eternity spacecraft can travel at the speed of light.

The closest four potentially habitable planets are Planet W, Planet X, Planet Y, and Planet Z. Once the Eternity spacecraft arrives to a planet, it will take on average 18 earth months to collect data sufficient to determine if the planet can support human life. NASA has also discovered a way to send signals carrying the data back to earth faster than the speed of light. It will take three months per light year in distance for signals to reach earth. [Assume one month is 30 days.]

Exhibit #1

Note: A light-year is how astronomers measure distance in space. It is defined by how far a beam of light travels in one earth year – a distance of six trillion miles.



Interviewer Guidance on Exhibit #1

DUKE THE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance/Prompt #1 Analysis

- The candidate should realize that distance is related to timing and will impact the decision to explore certain planets within the allotted 10 year timeframe. The candidate should convert distances in Exhibit 1 into light years and add the additional time for data collection and receipt of the data signal to determine the total time it will take to make a decision about whether a planet is suitable for human life.

Planet	Distance from Earth (trillion miles)	Distance from Earth (Light Years)	Data Collection (Years)	Data Signal (Light Years)	Total Time (Light Years)
W	48	8	1.5	2	11.5
X	24	4	1.5	1	6.5
Y	36	6	1.5	1.5	9
Z	33	5.5	1.5	1.375	8.375

- Candidate should determine that Planet W will not return information in time for NASA to build evacuation spacecraft, and therefore should be eliminated from consideration.
- Candidate should drive the case and ask for additional metrics regarding water, atmospheric conditions, etc. to determine which planet would be most suitable to sustain life.

Mission Eternity

Prompt #2:

- Brainstorm: How should NASA determine which planet to explore first? What metrics would you want to look at when comparing Planets X, Y and Z?

Interviewer Guidance:

Qualities/metrics of a suitable planet:

- Distance from earth:
  - Feasibility of transferring population with less risk
  - Space travel timing issues
- Food/Water:
  - Farming capabilities
  - Water purity and quantity
  - Ability to raise livestock, sources of protein
- Atmospheric Conditions
  - Air Quality - Breathable? Does it require a head mask?
  - Presence of harmful gases
- Natural resources
  - Energy resources – light, fuel sources, etc.
  - Geography - Buildable terrain, Safety of terrain
  - Gravitational pull
- Climate
  - Temperature
  - Natural weather forces
  - Length of days/nights

Interviewer Guidance on Exhibit #2

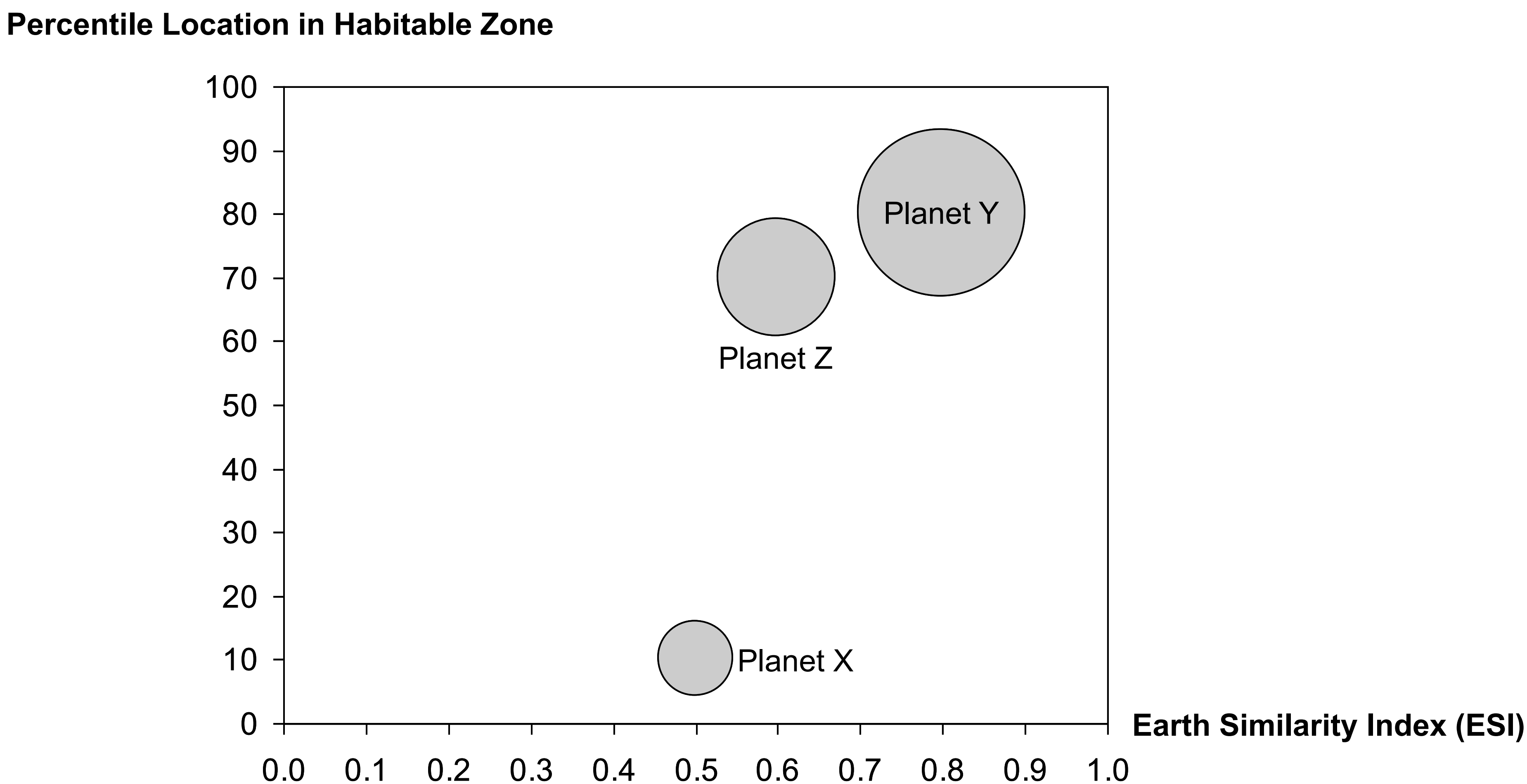
Prompt #3:

- *Candidate should drive case and focus on prioritizing one or two key metrics and ask for available data, then provide Exhibit 2.*
- NASA only has the manpower and financial resources to visit one planet. Prior robot missions returned the following results.
- In astronomy, the ***habitable zone*** is the region around a star within which planetary-mass objects with sufficient atmospheric pressure can support liquid water at their surfaces. In other words, this indicates the likelihood of water.
- ***Earth Similarity Index***, ESI, is a measure of how physically similar a planetary-mass object is to Earth. It is a scale from zero to one, with Earth having a value of one.

Guidance for Exhibit #2:

- The candidate should determine that Planet Y has the best indicators for supporting human life.
- Additionally, NASA's goal is to safely evacuate at least 20% of the world's population in the event of impact. Planet Y provides the best option for safely sustaining life.

Exhibit #2



Percentile Location in Habitable Zone
100
90
80
70
60
50
40
30
20
10
0
Planet Y
Planet Z
Planet X
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Earth Similarity Index (ESI)

Mission Eternity

Recommendation

Example of a good recommendation:

- NASA should launch the Eternity Mission to Planet Y because it will return data before the 10 year deadline and has the highest indicators to sustain human life – with an ESI of 0.8 and a location in the 80^{th} percentile of a habitable zone.
- Risks: Planet Y is the furthest away from earth, making the trip and hibernation riskier. It is also more costly, and a higher proportion of NASA's annual budget.
- Next steps: Prepare the mission to Planet Y, and (depending on costs) consider launching another mission to Planet Z since it would still return data in enough time.

Refinery in the Country of Georgia

Refinery in the Country of Georgia

Prompt #1:

- It is 2012 and your client is one of the largest retailer of oil products in the country of Georgia (Eastern Europe). Company is exploring the idea to build crude oil refinery in Georgia and has hired you to evaluate the idea.
- The goal of the company is to understand what the capacity of refinery should be and wants to make go/no go decision.

Interviewer Guidance:

Here is some background information that interviewee might ask about:

- Company controls roughly 25% of all oil product sales in Georgia.
- Currently there are no crude refineries in Georgia. All of the refined oil products are imported from other countries.
- For the simplicity, consider three major oil products for this case: Gasoline, Diesel and Other Oil Products.
- Georgia produces 100 000 tons of crude oil annually and this number is projected to stay stable. All this crude is exported to foreign countries.
- The possibility of importing crude oil from neighboring countries is limited. Importing from countries further is associated with high transportation costs.
- Oil refinery is the plant where input is crude oil and output is the final products ready for retail consumption like gasoline, diesel and etc.

Refinery in the Country of Georgia

DUKE THE FUQUA SCHOOL OF BUSINESS

Interviewer Guidance on Framework:

Good framework should identify it as a investment case and would cover both Quantitative and Qualitative aspects of it:

Quantitative: Candidate should identify key variables needed for evaluating the projects: Revenue and Fixed and Variable costs.

Qualitative: Candidate should mention that there are multiple factors to be taken into consideration: availability of raw materials, demand on market, price fluctuations and other risks.

Refinery in the Country of Georgia

Prompt #2:

As a first step, your client wants to identify what should refinery's capacity be. Traditionally, oil refineries have very high capacities but recent technological advances allow to build small size refineries with the same efficiency at the same cost levels.

Note: Hand exhibit 1 to interviewee.

Interviewer Guidance:

- From the exhibit interviewee should be able to identify that there is no opportunity to import additional raw material and the capacity should be around 100 000 tons.
- Candidate should notice that 100 000 tons is roughly 10% of current consumption and due to high transportation prices there would be enough demand on local production.
- If needed give hints to push candidate towards this answer.
- If needed push the candidate towards next step – financial projections.

Exhibit #1

Oil Products Consumption in Georgia		
Year	**Product**	**Tonns**
2012	Diesel	380,000.00
	Gasoline	470,000.00
	Other Products	40,000.00
2013	Diesel	400,000.00
	Gasoline	500,000.00
	Other Products	40,000.00

Crude Oil Production in Georgia	
Year	**Tonns**
2010	93,000.00
2011	108,000.00
2012	102,000.00
2013*	105,000.00
2014*	105,000.00

* projected amounts

Industry Facts:

- All crude oil produced in Georgia is exported. Oil producers are forced to sell their product at low prices due to small amounts and associated transportation costs.
- The possibility of importing crude oil from neighboring countries is limited. Importing from countries further is associated with high transportation costs.
- All oil products are imported in Georgia. Due to high transportation costs, local retail prices are extremely high.

Refinery in the Country of Georgia

Prompt #3:

Client wants to use discounted cash flow model to get NPV. For simplicity assume year 1 projections will remain same in perpetuity with no growth.

Discount rate: 10%

Tax rate: 20%

Depreciation: Ignore depreciation for this case.

Interviewer Guidance:

- Let interviewee choose where to start from: cost projections or revenue projections.
- Provide information according to candidate’s choice.
- See exhibit 3 for NPV calculation and additional guidance. <u>Note: don’t give it to interviewee.</u>

Refinery in the Country of Georgia

Interviewer Guidance on Costs

Let the candidate brainstorm what the cost items are. Candidate should be able to break costs into fixed and variable parts.

Capex: Construction costs are estimated to be $500 000 per 1000 tons of refining capacity. The company owns a piece of land, so it can be ignored .

Fixed Costs: Labor: Assume 1 employee will be needed per 1000 tons of refining capacity. Average annual salary $20 000 per employee. Other costs: assume all the overheads will be 10% of total revenue.

Variable Costs: Crude Oil: Use market price of oil - $600 per ton.

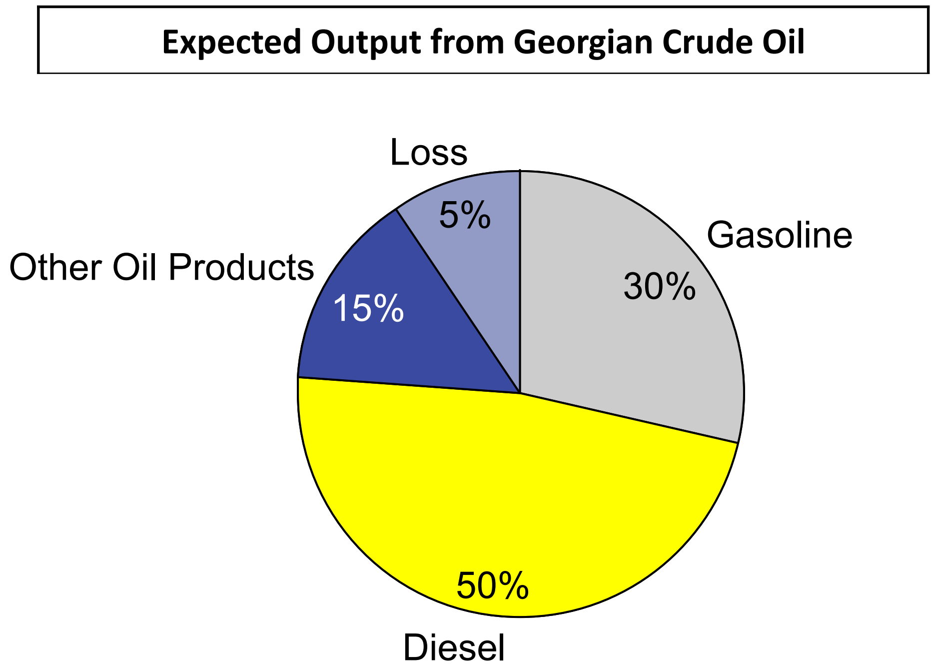
Labor Cost calculation	
Employees needed	100
Salary per employee	$ 20000.00
Total salaries	$ 2,000,000.00

Capex calculation	
Refining capacity (tons)	100,000.00
Cost per 1000 tons	$ 500,000.00
Total construction costs	$ 50,000,000.00

Refinery in the Country of Georgia

Interviewer Guidance on Revenues
Let the candidate brainstorm how to calculate revenues. Candidate should identify that there will be two main variables to project the revenue: 1. output amounts of final products and 2. price of output products. Note: Hand exhibit 2 to interviewee <u>only after candidate finishes brainstorming</u>.

Exhibit 2



Wholesale Prices of Oil Products in Georgia	
Gasoline ($ per tonn)	$ 1,000.00
Diesel ($ per tonn)	$ 900.00
Other Oil Products ($ per tonn)	$ 700.00

Interviewer guidance on Exhibit 2

Exhibit #2 Guidance:

Using the exhibit interviewee should be able to calculate revenue per product and total revenue.

Product	Output amount (tons)	Price Per Ton	Revenue
Gasoline	30,000.00	$ 1,000.00	$ 30,000,000.00
Diesel	50,000.00	$ 900.00	$ 45,000,000.00
Other Oil Products	15,000.00	$ 700.00	$ 10,500,000.00
Total Revenue			**$ 85,500,000.00**

Exhibit 3 – DO NOT HAND TO INTERVIEWEE!

DUKE THE FUQUA SCHOOL OF BUSINESS

	Year 0	Year 1
Cost of construction	$ 50,000,000.00	
Revenue		
Sale of Gasoline		$ 30,000,000.00
Sale of Diesel		$ 45,000,000.00
Sale of other oil products		$ 10,500,000.00
Total Revenue		$ 85,500,000.00
Costs		
COGS - Crude oil costs		$ 60,000,000.00
Labor costs		$ 2,000,000.00
Other Costs		$ 8,550,000.00
Total Costs		$ 70,550,000.00
EBIT		$ 14,950,000.00
Tax		$ 2,990,000.00
EBIT (1-t)		**$ 11,960,000.00**
NPV	**$ 69,600,000.00**	

Exhibit #3 Guidance:

- This calculation uses simple approach. NPV = EBIT(1-t)/10% - initial investment
- Ideally candidate can use General free cash flow formula: FCF = EBIT(1-t) + Depreciation + Non-cash items – CapEx – Change in NWC.
- This can complicate calculation too much, so guide candidate to take simpler approach.

Refinery in the Country of Georgia

Interviewer Guidance – wrapping up the case

- After NPV calculation interviewee should understand that it seems very attractive project.
- Let candidate brainstorm on qualitative stuff – what are risks, weaknesses in assumption, etc.
- After that ask candidate for final recommendation

Walter Black Industries

Behavioral Questions

Question 1:

- Describe a time when you disagreed with your team or supervisor.
  - Was the disagreement resolved and if so, how?
  - What did you learn from that experience and what would you have done differently?

Question 2:

- What is the hardest piece of feedback that you ever received in a professional setting?
  - What did you do upon receiving that feedback?
  - Have you had the opportunity to follow up with the person you received feedback from and if so, what was the result of the follow up?

Walter Black Industries

Prompt #1:

- Your client is Walter Black Industries, a privately owned chemical manufacturing company based in Albuquerque, New Mexico that specializes in producing car wash chemicals. The client has two major products, Car Wash A and Truck Wash A. After a series of aggressive acquisitions 5 years ago, the client has become a market leader, but revenue growth has become stagnant in the last 2 years. The client would like us to identify opportunities to increase revenue by 30% without reducing profit margins.

Interviewer Guidance:

Given the prompt, the candidate should focus on revenue first and cost only if it lowers profit margins. The candidate should develop a MECE framework that considers the different drivers of revenue and brainstorm case specific ideas in growing revenue.

The following information can be provided only if requested.

- The client made $1B (60% from Car Wash A. 40% from Truck Wash A) in revenue last year with a profit margin of 40%. The client would like to keep overall profit margins across all products at or above 40%
- The client only sells chemicals. The customer pays for all distribution and packaging costs

Additional client information is available on the following page.

Walter Black Industries

Interviewer Guidance Continued:

Provide the additional information only if requested:

Industry

- The car and truck wash chemicals industry has been growing by 2% on average over the last 10 years. It is difficult for both the customer and end customer of the product to differentiate between product quality.

Client

- The client currently has no new products in the pipeline. Formulations for new products take 5 years to develop and have a high chance to failure (85%).
- The client only sells to chemical wholesale distributors. The client sells to the top 5 wholesale distributors who control 95% of the global market share.

Competitive Dynamics

- Capital costs are high and there are no concerns over new market entrants.
- There are three main competitors for the client. Along with the client, these four companies control 90% of the entire market.
- No potential acquisition targets are available.

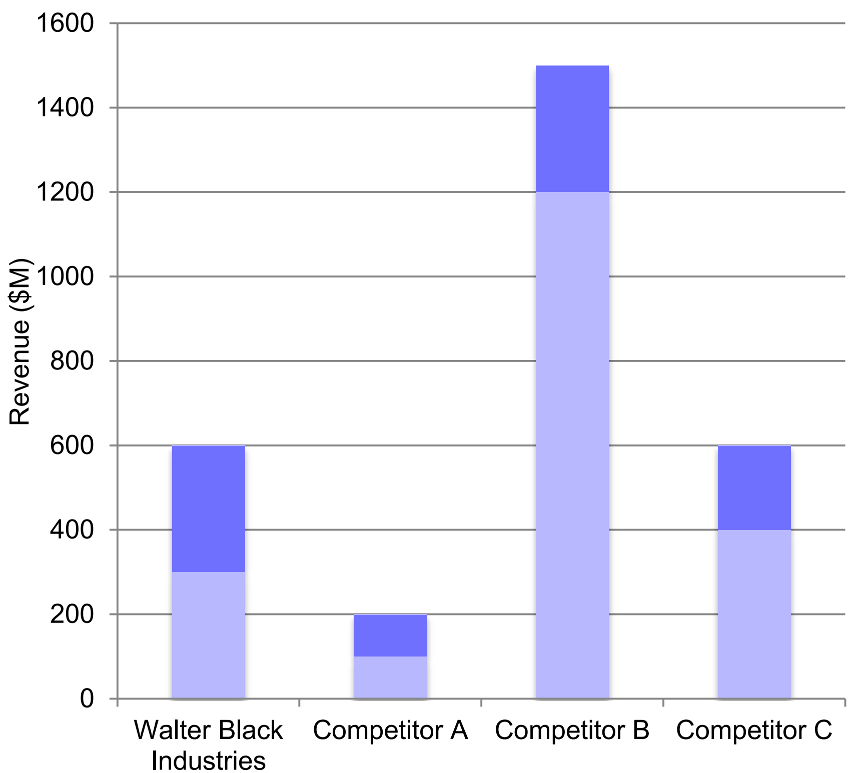
Once the candidate begins asking questions regarding market share and/or competitors, provide Exhibit 1 and go to Prompt #2.

Exhibit #1

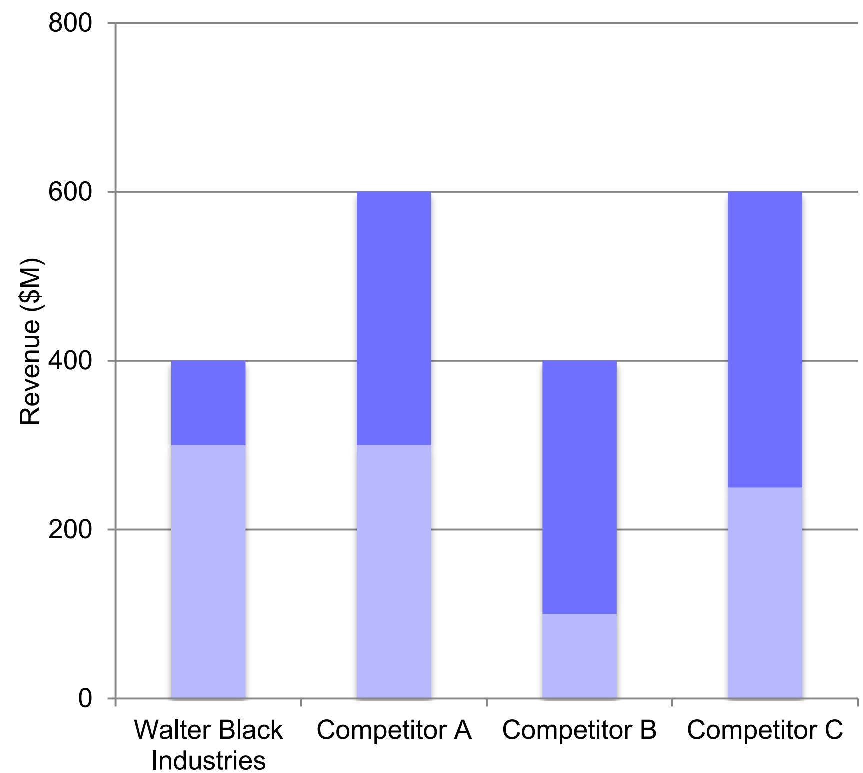
Competitive Benchmarking

Profit   Cost

Car Wash Chemicals



Truck Wash Chemicals



Interviewer guidance on Exhibits

Prompt #2:

The team has performed a competitive analysis for the client's products and reviewed the company's financial performance against its top three competitors. What are some insights you can derive from this data?

- The cost component of the exhibit is meant to distract the candidate to think about cost reduction instead of revenue growth. If the candidate goes off track, tell them that costs are similar among competitors and guide the candidate into thinking about other aspects that impact profit margin beyond the product cost
- Because the graphs reflects revenue, only the dollar market share can be derived from the charts, not unit market share

Exhibit #1 Guidance:

Potential Insights:

- The client has a 20% market share in the car wash category and has significantly higher margins than its competitors. The competitor with the highest total revenue also has the lowest margins
- The client has a 20% market share of the truck wash category has significantly lower margins than its competitors.
- The revenue potential in the car wash industry is roughly 50% larger the size of the truck wash industry

Once the candidate identifies that pricing is a potential mechanism to increase revenue, provide Exhibit #2 and go to Prompt #3.

Exhibit #2

Pricing Analysis

Product	$/Gal	Cost per Tote	Average Annual # of Totes Sold	Average Annual Revenue ($M)
Car Wash A	$10	$1000	300,000	$600
Truck Wash A	$2	$300	1,000,000	$400

Walter Black Industries

Prompt #3:

The client agrees that they need to re-examine their pricing strategy and provided us with the following information:

Provide the following information to the candidate

- The client only sells chemicals on a $/gal basis. The customer provides 200 gallon totes for the client to fill with the product and pays for all distribution/packaging costs
- The client's customers prefer simplicity, and the client can only change $/gal prices in $1 increments
- Market analysis has been performed regarding the elasticity of demand from customers (The candidate can assume a linear correlation)
  - Car Wash A: $1 change in price per gallon changes demand by 50,000 totes
  - Truck Wash A: $1 change in price per gallon changes demand by 100,000 totes

Based on this information, the client would like you to make a recommendation on an optimal pricing strategy.

Walter Black Industries

Exhibit #2 Guidance:

There are multiple ways to approach calculating the optimal price. The candidate will need to do the following in order to identify the optimal pricing strategy:

1. Identify the optimal pricing strategy given the information provided
2. Determine if the strategy meets the conditions of increasing revenues by 30% without reducing profit margins below 40%.

Identifying the optimal pricing strategy: The candidate can approach this in many ways. Below are two approaches to calculating the best values

Table Approach

The candidate creates a table with price and quantity to calculate the revenue opportunities for each combination. Since demand has a linear relationship with supply, the candidate should stop moving "up" or "down" the table as soon as they hit a revenue amount that is lower than the original value or the value calculated before it.

The following page shows some potential tables the candidate may build to perform this calculation. The candidate will also need to remember to multiple the price by 200 since the quantity is in 200 gallon totes.

Walter Black Industries

DUKE THE FUQUA SCHOOL OF BUSINESS

Exhibit #2 Guidance Continued

Car Wash A		
$/Gal	Tote Quantity (K)	Revenue ($M)
$7	450	630
$8	400	640
$9	350	630
$10	300	600
$11	250	550

Truck Wash A		
$/Gal	Tote Quantity (K)	Revenue ($M)
$1	1100	220
$2	1000	400
$3	900	540
$4	800	640
$5	700	700
$6	600	720
$7	500	700

*Note that a simply changing the price of Truck Wash A to $5, $6 or $7 will achieve both revenue and profitability goals.

Walter Black Industries

Exhibit #2 Guidance Continued

Formula Approach

The candidate can also use a formula and derivatives to determine to optimal price for each product. First, the candidate must identify the relationship between the price and quantity of each product. Then, the candidate can substitute the quantity variable with price in the revenue equation (revenue = price x quantity) and find the derivative of that function to determine the optimal price.

P = Price   Q = Quantity   R = Revenue

Product	Price/Quantity Formula	Revenue Formula	Derivative Formula	Optimal Price	Quantity from Optimal Price	Revenue ($M)
Car Wash A	Q = 800 - 50P	R = 800P - 50P^2	R' = 800 - 100P	800/100 = 8	Q = 800 – 50*8 = 400	8*200*400K = 640
Truck Wash A	Q = 1200 - 100P	R = 1200P - 100P^2	R' = 1200 - 200P	1200/200 = 6	Q = 1200 – 100*6 = 600	6*200*600K = 720

The appropriate conclusion is for the candidate to identify that the optimal pricing strategy would be to decrease Car Wash A's price to $8, and increase Truck Wash A's price to $6. This will yield a revenue **increase** of $360M.

Walter Black Industries

Exhibit #2 Guidance Continued

Determine of the strategy meets the conditions: The candidate must now identify whether or not the conditions of 20% revenue growth and stable profit margins are met.

New Revenue / Old Revenue = $1,360(M) / $1,000(M) = 136% > 130%.

The candidate will then need to calculate the profit under the new pricing model.

Product	Revenue per Tote	Cost per Tote	Profit per Tote	Totes Sold (K)	Profit ($M)
Car Wash A	$1600	$1000	$600	400	$240
Truck Wash A	$1200	$300	$900	600	$540

Total: $780M Profit / Revenue = $780(M) / $1,360(M) = ~57%

Once the candidate identifies that the goals are met through this pricing strategy, go to the recommendation prompt.

Note that there are multiple solutions to this problem as long as the candidate identifies one that increases revenue by at least $300M and maintains 40% profitability. <u>The simplest answer, which is still a viable answer, is to increase the price of Truck Wash A to $5, $6, or $7.</u>

Walter Black Industries

Recommendation

The CEO of Walter Black Industries is walking in the door and is interested in your findings.

Interviewer Guidance:

The candidate should provide a conclusion that clearly identifies the recommendation, along with the risks associated with the strategy. An excellent candidate will not summarize the process in which the conclusion was reached, but rather focus on the impact and next steps of the recommended pricing strategy.

Potential Risks

- How competitors will react (price war)
- How lowering the price of the car wash will affect brand perception

Potential Next Steps

- Coordinate with sales team to implement new pricing with customers
- Perform additional analysis on customers to see if segmenting pricing for different customers can improve revenues even more

Activist Action

Activist Action

Initial Prompt

Your client is a large CPG company with multiple business units including snacks, beauty, and home (cleaning) products. Your client is under pressure from a high-profile activist investor that has built a 7% stake in the company. The client has asked you to help predict the new investors likely demands that could increase stock price or company performance. What are your ideas to deliver short-term and long-term value back to the shareholder?

Activist Investor background: An individual or group that purchases large amounts of a public company's shares and/or tries to obtain seats on the company's board with the goal of effecting a major change in the company. The investor benefits when equity prices rise significantly or dividends are paid.

Case Guidance

This case challenges the candidate to think from an investor and company perspective, then balance the short-term and long-term objectives. Success requires the candidate to correctly evaluate the financial options and give a recommendation that is operationally realistic.

Interviewer Guidance – Initial Prompt Q&A

Guide the candidate through the case. Provide the additional information if requested:

- Large business in North America. The client operates in ~70 countries.
- Revenue: Snacks $19B, Beauty $31B, Home $29B; EBITDA: $24B - **Target Savings: $10B**
- This investor likely has influence on the board and cannot be ignored.

Activist Action

Interviewer Guidance: Framework

This case is meant to have interviewer guidance. Provide little guidance for advanced candidates.

An activist investor is looking for an increase in stock price, and the client is looking for this plus long-term success. Frameworks should incorporate some of the following:

Short-term Value

- Sell a business unit (split off a whole business, brand, or geography)
- Cost save (delayer company, shut-down plants)

Long-term Value

- Restructure product supply, move to low-cost countries

Allow the candidate to drive the case and explore. Award bonus points for strong options that may create shareholder value. Make sure the candidate understands what an activist investor is targeting and the likely time horizon (1-2 years).

It is important to acknowledge that the activist may want short-term actions that the company would disagree with due to long-term repercussions.

Activist Action

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #1 – Supply Chain Restructuring

The partner on this case talked to the product supply (manufacturing) contact at the client who provided a supply chain restructuring opportunity. Do you think this is a viable option to satisfy the activist investor and the client? (provide Exhibit #1)

Interviewer Guidance – Prompt #1 and Exhibit #1

The candidate should realize that a NPV calculation is necessary but should approximate using the graph. NPV calculation is below as a reference.

Supply Chain Restructuring		2016	2017	2018	2019	2020	2021
		0	1	2	3	4	5
Cost Schedule	$	500	2,000	2,500	700	200	0
Savings Schedule	$	-	0	1,000	1,500	7,500	15,000
FCF	$	(500)	-2,000	-1,500	800	7,300	15,000
Discounted FCF	$	(500)	-1,818	-1,240	601	4,986	9,314
Assume Discount Rate		10%	NPV		$ 11,343		

A strong candidate will realize the savings are too far out for an activist investor. Regardless of the NPV, this project should be secondary to a short-term strategy.

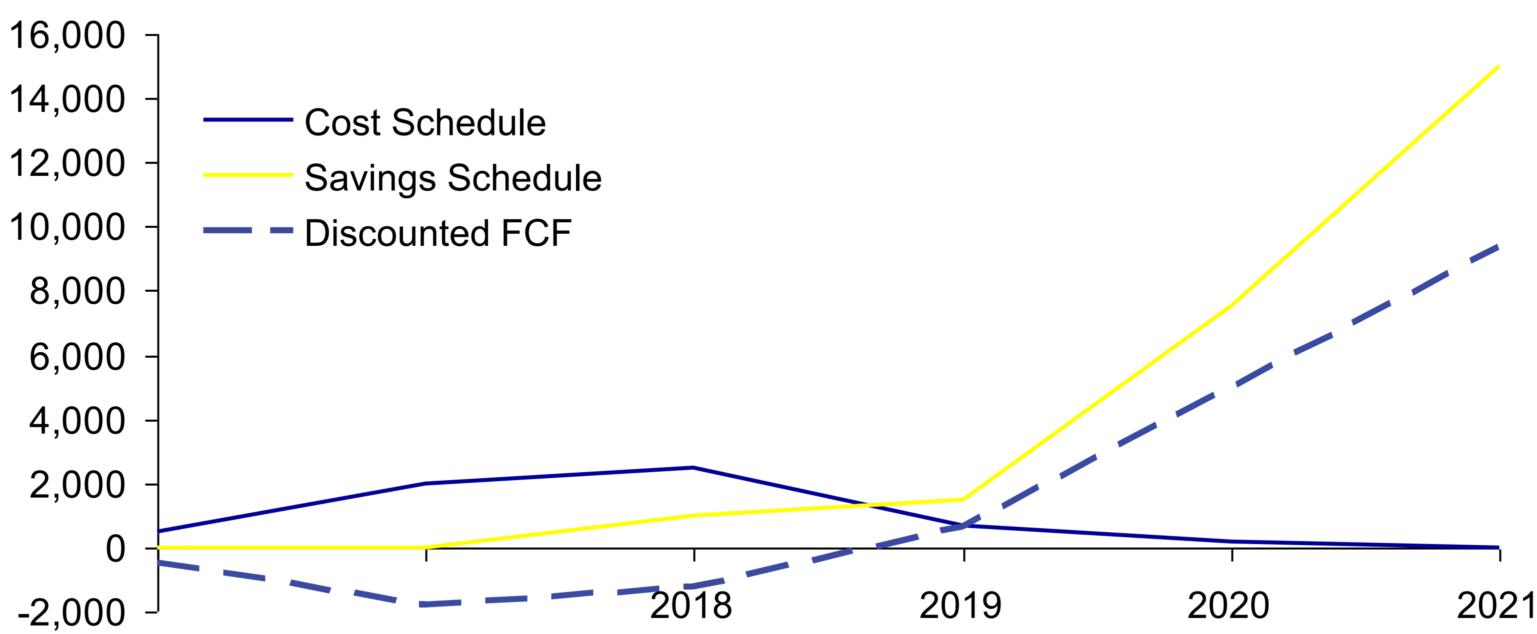
Once this option is deemed insufficient read Prompt 2.

Exhibit #1

Supply Chain Restructuring

($M)	2016	2017	2018	2019	2020	2021
Cost Schedule	$500	2,000	2,500	700	200	0
Savings Schedule	$0	0	1,000	1,500	7,500	15,000

Note: All affects of depreciation and change in net working capital are included in the costs and savings schedule.



Activist Action

Prompt #2 – Low Cost Countries

The client mentioned that other companies have successfully used low cost sourcing. The example companies effectively moved or rehired functions from developed regions to countries like India, China, or Brazil. Do you think the options in Exhibit 2 can meet the client's needs for the snacks business?

Interviewer Guidance – Prompt #2 and Exhibit #2

The low cost options are unlikely to meet the client needs because it threatens long-term operation. This prompt is meant to test the candidates ability to structure open-ended questions (a common part of final round interviews with partners).

Area	($B)	Suggested Solution
Marketing	8.2	**Unlikely**: Marketing and R&D are necessary for innovation. It is difficult to find top talent in developing countries. Also, the client has a large North America based business.
R&D	12.3	
Manufacturing	21.7	**Not Feasible**: CPG snack products are inefficient to ship long distances usually. Outsourcing could hurt trust in brand. Additionally, we just saw a major manufacturing project would take too long.
Sales	3.6	**Not Feasible**: Low savings and managers must meet key customers in developed countries (Walmart, Target, Kroger, etc.)

Strong candidates should realize these are poor solutions. Guide the candidate as necessary and move to prompt #3 when candidate realizes other savings are needed.

Exhibit #2

Projected savings (NPV) for various outsourcing options

Area	**($B)**
Marketing	8.2
R&D	12.3
Manufacturing	21.7
Sales	3.6

Activist Action

Prompt #3 – Sell Businesses

Other companies have seen significant cash and stock price increases when splitting off non-core businesses. The client would like you to value these brands/businesses and consider divesting them. Is there any additional information needed to estimate the market value?

Interviewer Guidance – Prompt #2 and Exhibit #1

When asked provide: Benchmarking comparable firms gives FV/EBITDA = 3.5

A strong candidate will realize that a multiple is needed to find a sale price for each brand or region. If the candidate proposes using C/(r-g), give them the multiple to use instead.

(Rev $B)	NA	LA	Asia	Europe	Sum	5 year CAGR	EBITDA %	EBITDA	Sale (EBITDA Multiple)
Beauty by Gina	8	5	1	3	17.0	-1%	35%	6.0	20.8
Jose's Chips	2	3	0	1	6.0	12%	23%	1.4	4.8
Tina's Hair Brand	1	3	2	3	9.0	10%	25%	2.3	7.9
Silky Sweets	5	1	3	3	12.0	2%	25%	3.0	10.5
Clearly Clean	7	1	2	1	11.0	5%	36%	4.0	13.9
Sum	23	13	8	10	54				
5 year CAGR	2%	4%	11%	1%		3.6%			

Silky Sweets is the best choice since it meets the target cash value to return to shareholders and has low growth over the past 5 years.

Exhibit #3

Potential brands (businesses) that could be divested

(Rev $B)	NA	LA	Asia	Europe		5 year CAGR	EBITDA %
Beauty by Gina	8	5	1	3		-1%	35%
Jose's Chips	2	3	0	1		12%	23%
Tina's Hair Brand	1	3	2	3		10%	25%
Silky Sweets	5	1	3	3		2%	25%
Clearly Clean	7	1	2	1		5%	36%
5 year CAGR	2%	4%	11%	1%		3.6%	

Activist Action

DUKE THE FUQUA SCHOOL OF BUSINESS

Recommendation – Solution

Strong recommendations include the following items or similar reasoning:

The client should prepare to divest the "Silky Sweets" brand

- The $10.8B savings will meet the activist goals
- This strategy does not compromise long-term operations of other brands
- The client should court the activist investor and attempt to align long-term goals

Additional recommendations and risks

- Long-term product supply restructuring could benefit the client
- Delayering (layoffs) could be appropriate in some parts of the company but would need evaluation
- Risk: Actual sale price and stock performance could vary based on the market

BUY LOW, SELL HIGH

Buy Low, Sell High

Prompt

Your client is a rich financier who has decided recently to the capital markets as a market maker. Market makers make % commissions off of transactions in capital markets, and are necessary to provide liquidity and orderly market action. The year is 2014 and he believes that we have recovered long enough from the financial collapse to warrant an investment in this sector. There are multiple opportunities in the financial market and you have been hired to advise him on how and where to invest his money. He is considering entry into one of four markets: Commodities, Options, Equities, and Fixed Income.

Behavioral Questions

- What is one situation you have been in where you had to lead upwards (be a leader when you didn't have the authority)?
- How would you deal with a team environment where you did not feel welcome?

Interviewer Guidance

This case is designed to see if a candidate can perform an analysis of market segments and determine a profitable entry point into an established market. This is a two-part analysis.

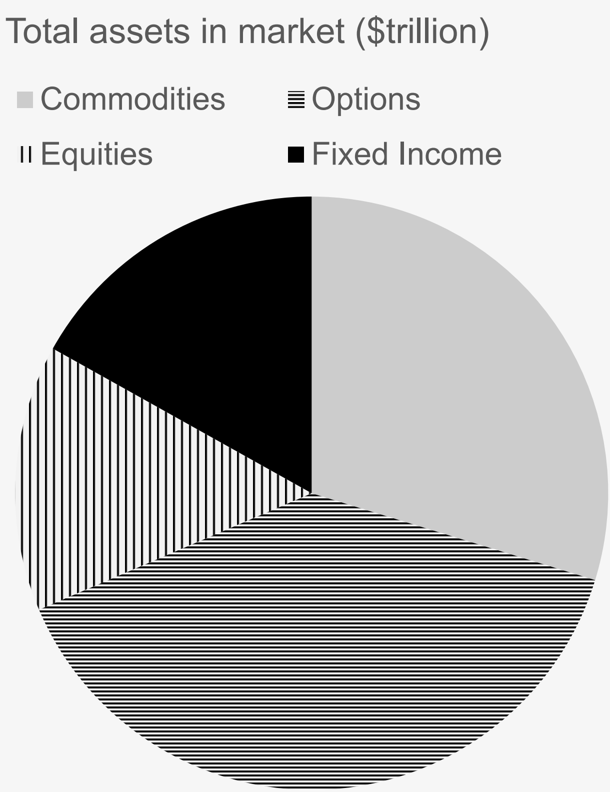
Facts (to be provided if asked)-

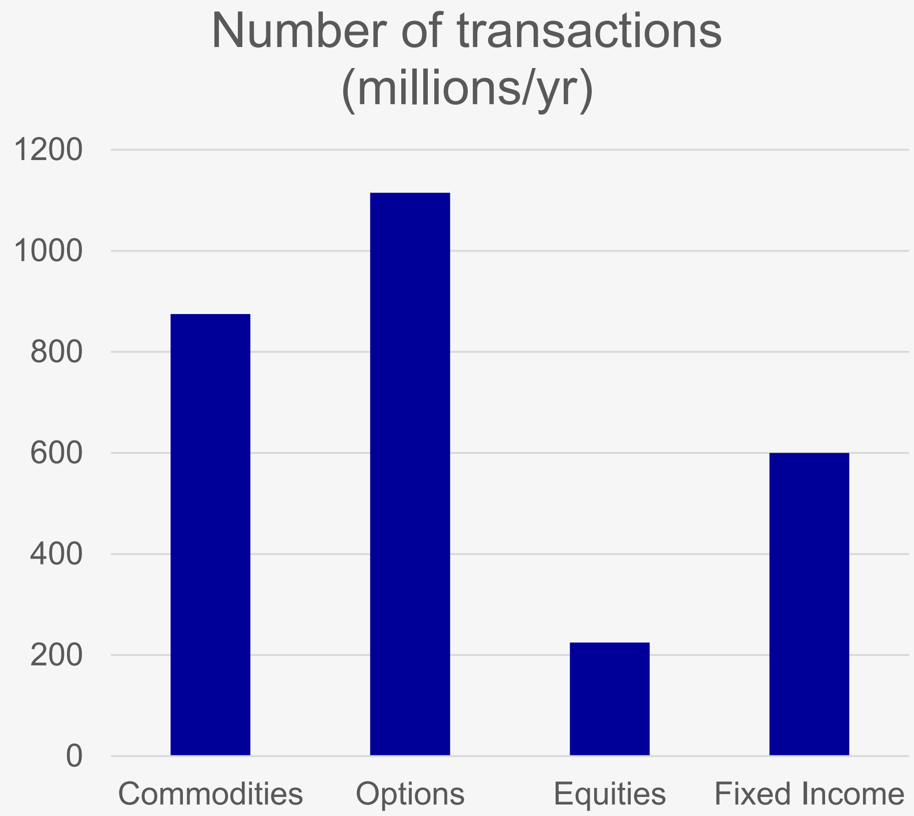
- Amount to be invested: up to $2.5 billion.
- Client has experience in finance, but not in trading
- Investment to be focused inside of United States
- Goal is to have a positive NPV investment. Limited to only one investment (he feels his attention can only be focused on one opportunity at a time)
- Size and market shares of four markets to be provided upon asking
- Market makers make a fixed % commission on each transaction, so more volume and bigger $ value of transactions is usually better. These markets each intrinsically have different commission rates (which we don't have).

Candidate should be handed Exhibit 1 and Exhibit 2 after he has walked through the structure of the problem and finished asking questions. He should perform an analysis of market attractiveness with this data.

Buy Low, Sell High

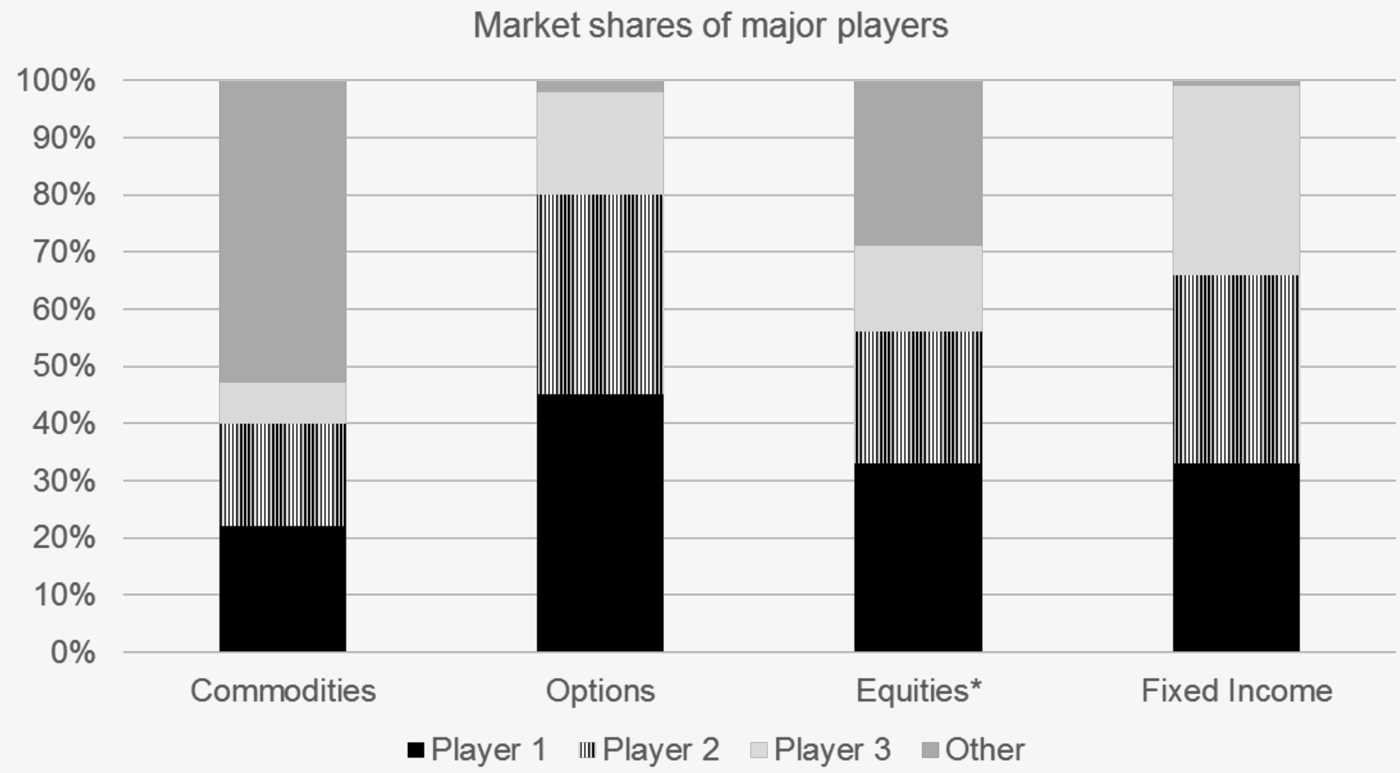
Exhibit 1





Buy Low, Sell High

Exhibit 2



*Note: Player 2 in the Equities market recently had a rogue trader incident and is looking to exit through asset liquidation

Buy Low, Sell High

Interviewer Guidance

Exhibit 1: Candidate should be able to conclude from the two charts that total asset value and number of transactions suggest options and commodities are the most attractive markets to enter. However, none of these charts show actual profit earned in the four markets, so more information is necessary (what are the levels of commissions?).

Exhibit 2: From this exhibit, commodities and equities seem the most attractive for an entrant, since there are fewer major players in commodities and there is a major player exit in equities. Again, actual profit from entry is not apparent.

Prompt

Our analysts have done some research on the costs of entry and expected profits from entering these markets. Please look at their analysis in Exhibit 3 and tell me what you can extract from these findings.

Guidance

Candidate should perform an NPV analysis based on the data provided.

Buy Low, Sell High

Exhibit 3

$MM	Commodities	Options	Equities	Fixed Income
Expected Revenue	200	??	150	160
Salaries	50	40	20	30
Rent & Utilities	50	40	40	30
Depreciation	??	30	25	50
Operating Profit	60	70	65	??
Interest expense	30	20	20	40
Earnings before tax	30	50	45	10
Taxes	10	10	??	2
Net Income	20	40	30	8
Expected Investment	2,000	2,500	1,500	2,100

*Cost of capital = 5%, all income assumed to last forever and begin in year 1, depreciation constant YoY

Buy Low, Sell High

Exhibit 3 Guidance for Interviewer

$MM	**Commodities**	**Options**	**Equities**	**Fixed Income**
Expected Revenue	200	180	150	160
Salaries	50	40	20	30
Rent & Utilities	50	40	40	30
Depreciation	40	30	25	50
Operating Profit	60	70	65	50
Interest expense	30	20	20	40
Earnings before tax	30	50	45	10
Taxes	10	10	15	2
Net Income	20	40	30	8
Expected Investment	2,000	2,500	1,500	2,100
EBITDA	**100**	**100**	**90**	**100**
Investment return	**2,000**	**2,000**	**1,800**	**2,000**
NPV	**-**	**(500.00)**	**300.00**	**(100.00)**

*Cost of capital = 5%, all income assumed to last forever and begin in year 1, depreciation constant YoY

Buy Low, Sell High

Analysis

Market attractiveness:
Initial analysis should show commodities and options to be most attractive in terms of market size, with commodities as the most attractive due to the lack of major players to inhibit entry. Both Options and Fixed Income seem to be markets where a few players dominate, making potential entry very difficult. Equities is interesting because of potential for cheap entry due to the liquidation of a major player's assets, so further analysis is necessary

Valuation:
Based on NPV analysis, equities are the investment to make due to the cheap entry cost. This carries an added benefit of leaving $1 billion free for other uses. Candidate can include this excess sum in calculation, but that isn't necessary.

Recommendation

Recommendation should be to invest in equities. Ask candidate to give a recommendation to a the actual investor ("he is about to come into the room," etc…)

Next steps may include: ascertain process for buying liquidated assets, determine if there are other buyers, look at other passive investments for excess funds.

Potential risks: regulatory delays, volume of equities market is low, market at all time highs and crash could mean future profit projections are off

Next steps and risks are open ended and don't have to be these suggested options. Make sure candidate has thought out logical points and can explain his reasoning.

Buy Low, Sell High

Performance Evaluation

- **Initial problem solving:**

  Distinctive - Well-structured problem solving that is MECE and covers major factors to be considered. This is very open-ended so there are no "musts", but candidate should quickly realize this is an investment/market entry problem and approach it as such.
  Very strong - Structured analysis that covers many aspects, but may not be fully MECE. Candidate might need some guidance to ask for right information.
  Strong - Analysis covers many factors and is thoughtful. Needs some guidance to direct candidate towards data and crux of problem.
  Needs improvement - Analysis is fragmented. Candidate unable to structure problem and needs a lot of guidance to proceed.

- **Exhibit 1&2 - market analysis:**

  Distinctive - Candidate quickly grasps what the three charts are trying to say and comes to conclusions quickly. Realizes that there is some possibly conflicting information and asks for data (potentially asks to do NPV).
  Very strong - Candidate comes to solid conclusions from the charts and is ready to proceed. May need prompting before next step.
  Strong - Candidate can handle multiple tables but may struggle to fully realize the conflicts embedded in the data. Might try to end case here. Needs some prompting to proceed.
  Needs improvement - Analysis is fragmented. Candidate cannot handle the multiple charts and needs a lot of guidance to proceed.

Buy Low, Sell High

Performance Evaluation Continued

- **Exhibit 3- valuation:**

  Distinctive - Candidate understands how to do an NPV and performs calculations quickly and accurately. Exceptional if candidate understands most of data is superfluous and calculates from Operating Profit and Depreciation numbers only.
  Very strong - Candidate performs calculations in a timely manner. May make some mistakes.
  Strong - Candidate takes a bit of time to perform calculations. May need some guidance on where to start.
  Needs improvement - Candidate does not understand what an NPV is. May try a breakeven analysis or other kind of calculation. Interviewer needs to cut calculations short to get to recommendation.

- **Recommendation:**

  Distinctive - Candidate concisely gives accurate recommendation and covers logical next steps and reasonable risks.
  Very strong - Candidate gives accurate recommendation with some next steps and risks. May be a little long-winded.
  Strong - Candidate gives a recommendation but may forget next steps and risks. May need some guidance on where to start.
  Needs improvement - Candidate isn’t structured and struggles to give a recommendation.

ORANGE YOGA STUDIO

Orange Yoga Studio

Prompt

Your client is Yoga Jones, the owner of Orange Yoga Studio. Orange Yoga is a very popular, up-scale yoga studio in New York City known for high quality instruction and a relaxed vibe. Yoga Jones has owned and operated Orange Yoga for the past 5 years. For its first four years, Orange Yoga was very financially successful; however in the past year, Yoga Jones noticed that her profits seem to be declining. She doesn't keep very good financial records and has made a few big investments lately, so is having a hard time figuring out a) whether she is actually losing profit and b) how to fix her financial woes.

How do you help Yoga Jones?

Interviewer Guidance

Note: This case requires extensive guidance by the interviewer. Make sure to review carefully before giving.

Provide the following background information upon request, or to help provide clarity after the initial framework

- Orange Yoga offers 5 classes daily on weekdays. On weekends, they offer 4 classes. All of of their classes are "Vinyasa Flow" style
- Orange Yoga clients pay on a per-class basis. There are currently no "package" deals or membership rates.
- The competitive landscape for yoga studios in NYC has remained unchanged over the past three years.
- Yoga Jones' recent investments were major maintenance upgrades for her studio (installing hardwood floors, fresh paint, and new shower facilities). These investments were financed primarily through loans.

Orange Yoga Studio

Analysis

The candidate should quickly get to a **π = Revenue-Cost framework.** Framework considerations may include:

- **Revenue:** Price per class, number of clients per class, potential other sources of revenue (i.e. yoga mats, water bottles, etc.)
- **Cost**: Rent, insurance, instructors, utilities, loan payments
- **Other Considerations (a strong candidate will think of these):** potential decline in popularity of yoga, marketing promotions, etc.

Information on Cost (provide when asked)

- No variable costs on a per-customer basis - all costs are fixed.
- **5 main fixed costs:** Rent/utilities building = $3500 a month; Liability Insurance = $1800 a year; administration costs (including owner salary, supplies, computer system, marketing supplies) = $800 a week; Yoga instructor salaries: $50 a class; Loan Payments (to pay off major paint/floor/plumbing renovations) = $500 a month

Information on Revenue (provide when asked)

- Class fees are Orange Yoga's only source of revenue
- All classes cost $12 and there are average of 8 students per class on weekdays and 6 students per class on weekends
- Assume every month has 22 weekdays and 8 weekend days

Orange Yoga Studio

Analysis Continued

Answers:

Revenue: ($12 per class * 5 classes per day *8 students per class * 22 weekdays in a month) = $10,560 a month on weekdays
($12 per class*4 classes per day*6 students per class * 8 weekend days in a month) = $2304 a month on weekends
Total Revenue per month = $12,864 (can be rounded to $12.8K)

Costs: Monthly costs = $3500 in rent per month+150 in insurance per month ($1800/12) + $3200 in admin costs per month ($1000*4) + $5500 in yoga teacher salaries on weekdays ($50 a class * 5 classes a day *22 weekdays a month) + $1600 in yoga teacher salaries on weekends ($50 a class*4 classes a day*8 weekend days a month) + $500 a month in loan payments.
Total Costs per month = $14,450 (can be rounded to $14.5K)

After being provided information on cost and revenue, the candidate should realize that Yoga Jones currently is losing approximately $1.7K ($1650) a month in profit.

Orange Yoga Studio

Prompt #2: Brainstorm

(Note: A strong candidate will naturally begin to go into the "So What" after analyzing the profit scenario, and begin to hypothesize on the potential ways to improve revenue or lower costs. Steer the conversation by using the following prompt)

Prompt: "After analyzing her books, Yoga Jones realizes that her decline in profit began after a $2000 per month rent increase last year and a decision to raise all teacher salaries by $10 per class. She does not want to move and believes strongly in paying her teachers a high wage for their work.

What else can she do?"

Analysis

Potential solutions

Revenue:

- Charge more for classes
- Variable pricing: charge more for certain clients or for certain classes
- Diversify products: Offer higher-priced classes, like pilates; start offering private classes or teacher-training classes; or start selling related products, like yoga mats or water bottles
- Offer more classes
- Get more clients

Cost:

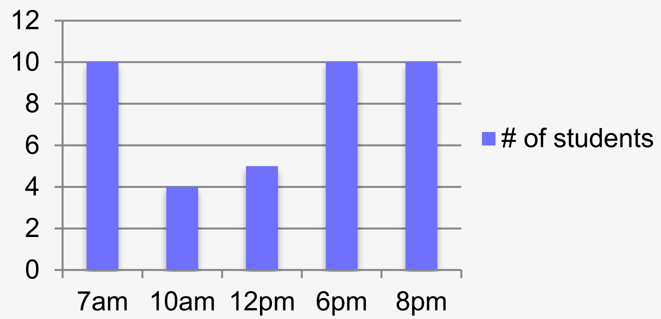
- Eliminate unprofitable classes, cut down on her own salary, etc..
- (Not a great idea: refinancing loans—her loan payments are relatively small)

After the candidate has run out of ideas, show them Exhibit #1 and ask: "Yoga Jones feels that she may not be meeting her students demands with class times and this could be creating problems. Here is some information that may help."

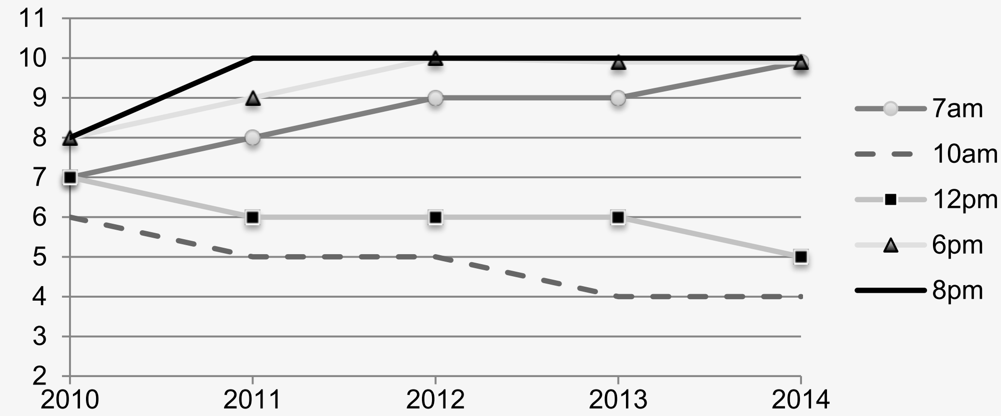
Orange Yoga Studio

Exhibit 1 A

Average number of weekday students in Orange Yoga classes (2014)



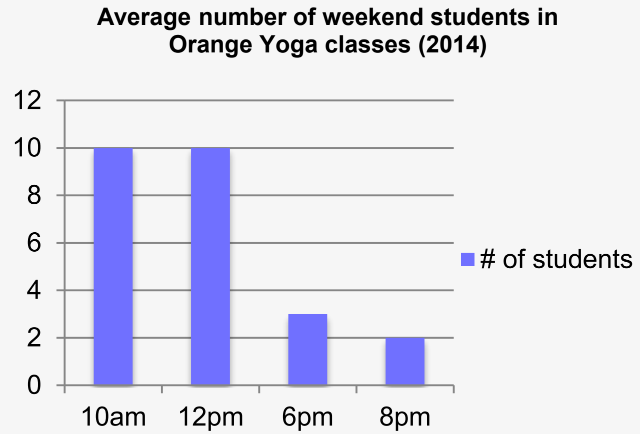
Average number of weekday students in Orange Yoga classes, 2010-2014

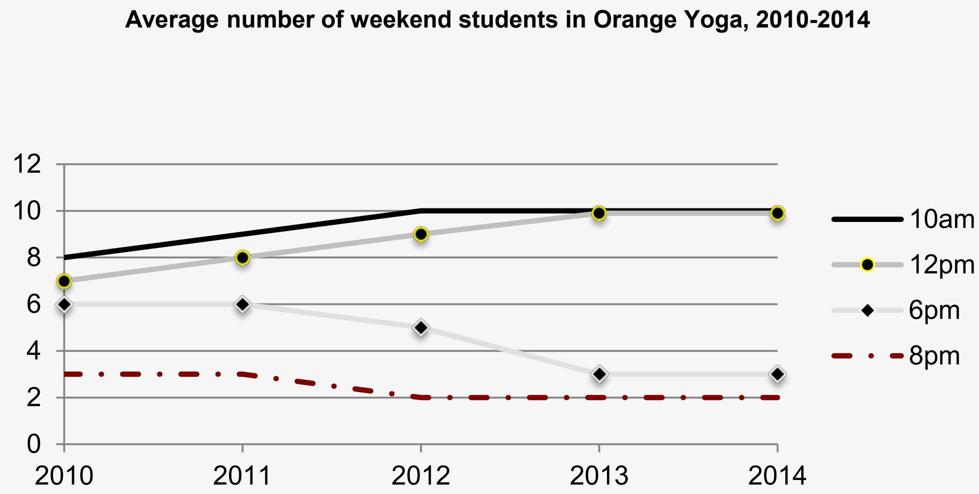


Orange Yoga Studio

DUKE THE FUQUA SCHOOL OF BUSINESS

Exhibit 1 B





Orange Yoga Studio

Analysis

Chart insights: The presentation of information on the four graphs is deliberately overwhelming. All candidates should realize that the top two graphs both pertain to weekday trends and the bottom two graphs pertain to weekend trends; strong candidates will structure their analysis separately for weekends and weekdays. No detailed calculations are necessary for this graph - just insights

Key Weekday Insights:

- Midday classes have a lower number of students than morning and evening classes
- This trend has become more pronounced over last 5 years
- Strong candidates will note that the 10am classes are not generating enough revenue to even cover teacher salary

Key Weekend Insights

- Has opposite profile of weekday classes: midday classes are much more popular than evening classes
- This trend has remained somewhat steady over past 5 years, though has become slightly more pronounced
- Strong candidates will note that evening classes are not generating enough revenue to even cover teacher salary

A strong candidate will also notice that the max number of average participants peaks at 10 for both weekday and weekend classes

Strong candidates will also begin to hypothesize potential solutions, including restructuring class times to better meet the needs of clients, eliminating unprofitable classes, and perhaps adding additional classes/instructors in the evening

Orange Yoga Studio

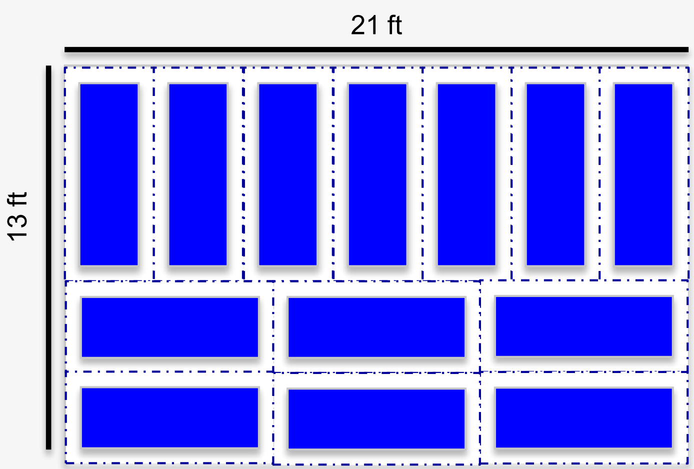
Prompt #3: Increase Class Size

(Note: A strong candidate will notice that the max number of average participants peaks at 10 for both weekday and weekend classes. If they do not realize this, steer them towards this realization).

Prompt: “Good point. Yoga Jones currently allows a max of 10 students per class in order to keep the classes small. However, upon looking at her registration records, it appears that she is almost always turning away students for her weekday evening classes and weekend morning classes.

She would like to see if she can fit more students in her studio. Her studio is 13ft long and 21 ft wide. The average yoga mat is 6 ft long and 2 ft wide. Yoga Jones feels that the minimum distance between 2 mats should be one foot, and the minimum distance between a mat and a wall should be 6 inches. How many mats can she fit in her studio?”

Analysis



Potential solution: *See chart at left. She can fit up to 13 mats in her studio. Candidates can solve this either drawing it out (at left) or realizing that each mat will need a total of 21 square feet (6 inches on each side) and the studio is 273 square feet. 273/21=13*

(The instructor does not need a mat)

Orange Yoga Studio

Prompt #4: Implementation

Prompt: If Yoga Jones eliminates all of her classes that currently do not cover teacher salary and begins allowing 13 students into each class, will this be enough to save her studio?

Assume all current classes that currently have 10 students always have a waiting list of at least 3 students

Analysis

Cost

- **Yoga Jones will eliminate 1 weekday class (10 am) and 2 weekend classes (6pm and 8pm). Instructor salaries will change, all other costs will remain the same:**
- Rent/utilities building = $3500 a month; Liability Insurance = $1800 a year; administration costs (including owner salary, supplies, computer system, marketing supplies) = $800 a week; Yoga instructor salaries: $50 a class; Loan Payments (to pay off major paint/floor/plumbing renovations) = $500 a month
- **Monthly Total** = 3500 (rent) + 150 (insurance) + 3200 (admin) + $500 (loans) + $800 (weekend teacher salary) + $4400 (weekday teacher salary = $12,500

Revenue

- New weekday schedule: 3 classes with 13 students each; 1 class with 5 students = 44 students per day *$12*22= $11,616
- New weekend schedule: 2 classes with 13 students each= 26 students per day *$12*8 = $2,496

Profit: $1612 (ok to round to $1.6k)

Strong candidate may also want to try to explore adding additional evening classes to increase revenue.

Orange Yoga Studio

Recommendation

What are your final recommendations to Yoga Jones?

Analysis

All candidates should summarize their analysis and recommend increasing the max class size to 13 and eliminating classes.

Strong candidates will briefly summarize their analysis and results, but focus primarily on risks and next steps (emphasizing growth).

Risks include: losing long-term clients who valued flexible class times, upsetting clients who enjoyed small class sizes, and upsetting valued teachers whose classes were eliminated.

Next step include: Mitigating against risks mentioned above - but more importantly, exploring some of the other options that were outside of the scope of this case, including raising prices, diversifying products, etc…

COYOTES

Coyotes

Prompt #1

Your client is the American Southwest Preservation Trust (ASPT). The trust is a non-profit organization tasked with promoting conservation & eco-tourism in the American Southwest. One of the biggest tourist draws is local fauna, particularly coyotes. The coyote population has declined significantly from historical levels. The Trust requests your help to figure out why & what it should do.

Case Guidance

This case is geared towards challenging brainstorming and frameworking skills, while at the same time honing public math and analytical skills. It simulates cases which have uncommon or unanticipated structural elements, and may be especially appropriate for individuals who need practice building creative frameworks.

Interviewer Guidance – Prompt Q&A

Provide the additional information if requested:

- Coyotes are medium size canine carnivores (between a fox and a wolf) native to the American Southwest.
- Coyote populations were historically stable until recently. Only 10,000 coyotes exist today down from 25,000.
- Geographically, only consider the area administered by the trust.
- No other fauna or flora have been impacted as much.

Coyotes

Interviewer Guidance: Framework

Species loss is a not a common framework, and so be prepared to iterate by asking “what else.” Quality frameworks should include at least the following “buckets” or “nodes” (for those who use trees):

- Environmental factors (pollution, climate change, species migration)
- Dietary factors (number of predators, number of prey, availability of water)
- Human-generated factors (hunting, poaching, habitat loss)
- Disease and Genetics

Award brownie points for additional creative ideas.

Steer the candidate gradually towards human-generated factors (habitat loss and hunting). Have the candidate brainstorm for a few minutes how habitat loss would impact the species, especially given that other factors haven’t changed significantly with time (prey availability, water, hunting, etc).

A strong candidate may immediately guess changing birth rates, fertility, and the availability of finding partners. Regardless of whether the candidate gets to this or not, steer the candidate by issuing the next prompt (below).

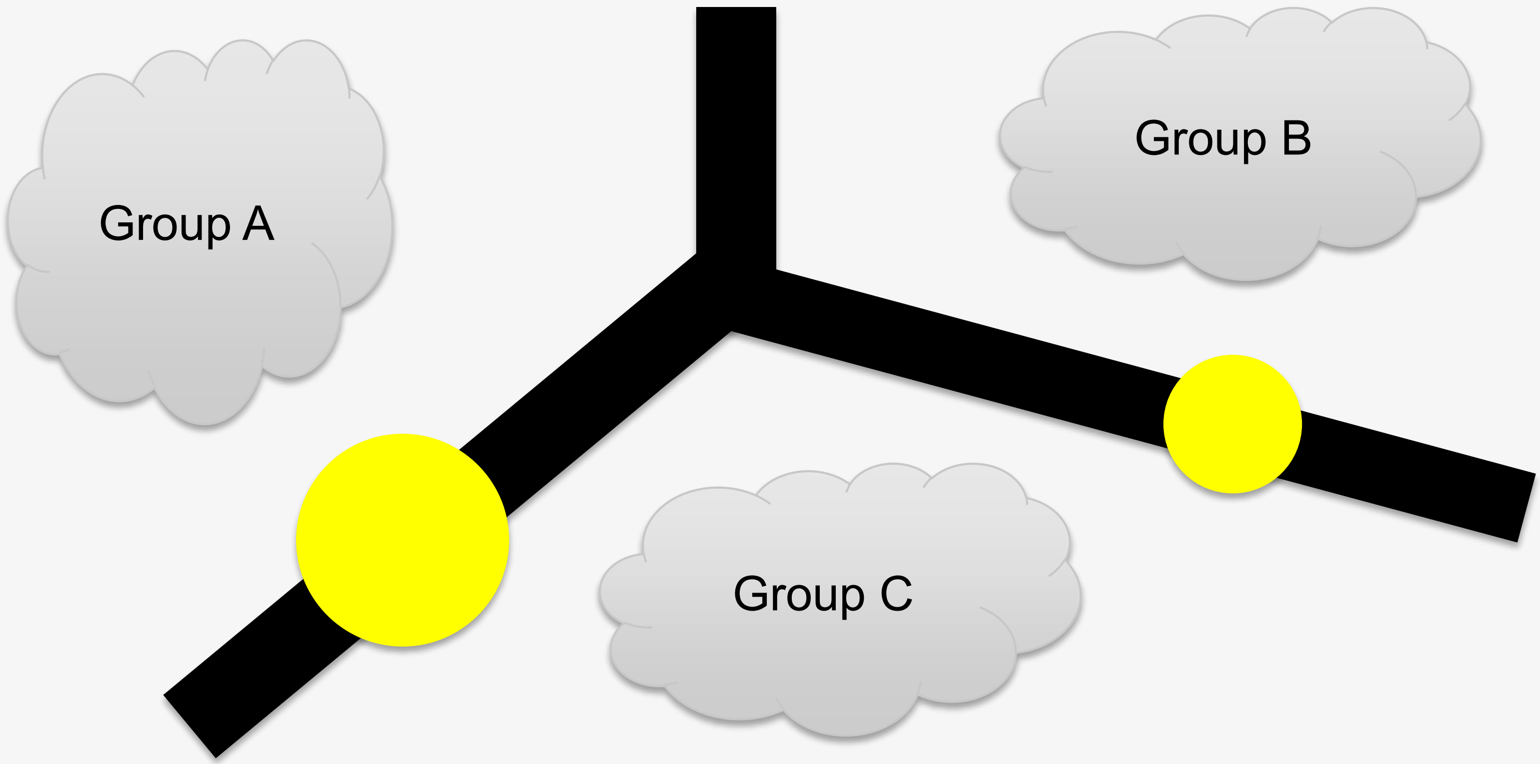
Prompt #2 – For Analysis

The client is likewise concerned by the impact of development and interactions with man on the coyote population, and wants to understand the expected impact on the population this year. ASPT has provided a few demographic details they have on the coyote population in the area (Exhibits A and B).

Coyotes

Exhibit A: Habitat Loss

The coyote population is currently split into three groups (shown by silver clouds) following the construction of highways (black lines) and cities (yellow dots).



Coyotes

Exhibit B: Group Statistics

The following table shows estimated demographics by group

Group	Percent of Total Pop	Percent Male	Percent Female	Hunting Licenses
A	40	60	40	800
B	20	35	65	200
C	40	90	10	400

Coyotes

DUKE THE FUQUA SCHOOL OF BUSINESS

Interviewer Guidance: Exhibits and Analysis Part 1

From the exhibits, the candidates should point out links between groups, unequal gender sizes, and different numbers of hunting licenses for similarly sized territories.

The candidate should grasp that the overall goal of the analysis is to find out how populations are changing. The first step is finding out the current number of coyotes in each group by gender.

The total population should have been asked for during the Q&A portion. If the candidate did not get to it then, provide the number now (10,000).

The first step is to break out the 10k by each group by gender. If the candidate doesn't think of this, steer them towards it. Some candidates may try to jump towards calculating births and deaths, in which case they guessed the missing steps (see next section), but have them work out the calculations by gender and group first.

Analysis Part 1 – Solution

The candidate should arrive at the following numbers (series of multiplications) needed for the second part.

Group	Percent of Total Pop	Number of Coyotes	Number of Male	Number of Female
A	40	4000	2400	1,600
B	20	2000	700	1,300
C	40	4000	3600	400

Coyotes

Interviewer Guidance: Analysis Part 2

Let the candidate drive the continuation of the analysis. If the candidate is lost, ask them how they would calculate the change in coyotes every year. The general equation they should arrive at:

Change in coyotes for this year = Number Born in this year – Number Died in this year. Focus them on calculating the change for this year!

Several pieces of information have been deliberately withheld from the candidate. A perceptive candidate will ask for them:

- Litter size: This is the number of coyotes born to each pregnant female. Assume 2 pups/litter.
- Gestation period: Assume coyotes breed once per year.
- Partner fidelity: Assume that coyotes are monogamous (meaning that once a male coyote has impregnated one female coyote, he will not impregnate another female coyote).
- Availability or % Mate: Not all coyotes will breed each year. Assume that only 40% of potential pairs birth a litter each year.
- The candidate should notice that hunting isn't the only cause of death. Assume that all other deaths are natural and the death rate is 10% (applies to adults only – use beginning population and don't include pups).
- Assume that hunting deaths happen at the end of the year, and hence so is cumulative with the natural deaths.

Other questions that the candidate could ask:

- What are the frequency of hunting licenses? Answer: annual
- How many coyotes does a license permit to be killed? Answer: one
- Can both males and females be hunted? Answer: yes
- Do all hunting licenses get used? Answer: assume yes

Lastly, because of the monogamous nature of coyotes, the candidate should pick up on the fact that the lesser occurring gender in each territory is the limiting factor on births.

Coyotes

Analysis Part 2 – Solution

The candidate should arrive at the following numbers.

The equations for getting them are:

# of Births: # of Pairs * % Mate * Birth Rate
# of Deaths: (Beginning Population – Hunting Deaths) * Natural Death Rate

Note that calculating Deaths as "*(Beginning Population * Natural Death Rate) + Hunting Deaths*" wrongfully assumes that none of the hunted coyotes would have died naturally if they had not been hunted

Group	Limiting Gender	# of Pairs	% Mate	Birth Rate	# of Births
A	Female	1600	40%	2	1,280
B	Male	700	40%	2	560
C	Female	400	40%	2	320

Group	Beg. Population	Hunting Deaths	Natural Deaths	# of Deaths
A	4,000	800	320	1,120
B	2,000	200	180	380
C	4,000	400	360	760

Coyotes

Group	Total Births	Total Deaths	Total Change
A	1,280	1,120	160
B	560	380	180
C	320	760	-440
Total	2,160	2,260	-100

Advanced Conclusions from Analysis

A very perceptive candidate should notice:

- The decline is gradual (only 100 coyotes per year). Hence the historical number of 25k must either imply a long time ago or a large drop due to other circumstances.
- The C population group will be gone in approximately 10 years, or even sooner if females are hunted or die disproportionately.
- The other groups should grow if hunting and natural deaths affect both genders equally and at present rates.
- Overall, coyotes are likely to remain in the Southwest.

Coyotes

DUKE THE FUQUA SCHOOL OF BUSINESS

Prompt #3 (if time)

ASPT is considering lobbying for a reduction in hunting licenses. How would you design a proposed reduction, and what information would you use to support it?

Interviewer Guidance:

The candidate should hopefully mention some of the bullet points under the advanced analysis section if they have gotten to this point. If not, spend some time with the analysis results and ask the candidate what they imply.

Afterwards, redirect the candidate towards the topic of hunting licenses. Ask if hunting licenses are really the issue. If after the candidate struggles for a few minutes, they are still lost, point out that more hunting licenses were issued for Group A rather than C, even though the groups were the same size.

This should mean that Group A should not be sustainable, while Group C should be growing. However, the reality is exactly the opposite. Ask the candidate why?

The candidate should quickly zero in on two potential culprits:

- The gender ratio in Group A v. Group C
- The percentage that mate

Since the percentage that mate (and other factors) are constant, the gender ratio must be the key. Once the candidate realizes this, proceed to the recommendation portion of the case.

Coyotes

Recommendation

Recommendations should include:

- Overall, the population of coyotes is not at risk.
  - One group of coyotes (Group C) will die out within 10 years, if no interventions are attempted.
- ASPT can help rescue or foster coyote population growth by:
  - Evening out the gender ratio between populations by building wildlife bridges, transplanting coyotes, etc.
  - Helping coyotes locate each other and increasing the mating pair percentage.
  - Increasing fertility levels (# of pups/pair) using medical techniques.
- (For those who made it to Prompt #3) The ASPT should not invest significant resources in a legislative battle against hunting licenses if licenses are maintained at the current levels.
  - That said, a temporary hunting ban in Group C would likely help as an effort is made to stabilize the female population

THE EVERYTHING RETAILER

The Everything Retailer

Prompt

A mass retailer Everything Retailer is seeing stagnating growth in its year-over-year sales. You were brought in to identify the issue and propose ways to boost sales growth.

Interviewer Guidance

This starts as a broad case on strategy – there are many different ways the interviewee may want to proceed. Quantitative analysis begins when the interviewee identifies the need for a new store format. Bonus points if, at the end, the interviewee mentions other risks and ways to mitigate them.

Additional information:

- Large US retailer (think Walmart) with an extensive network of big-box discount stores across the US.
- Sales growth slowed to 1-2%, while industry is growing at 3%. Client's target: double-digit "comp sales" growth.
- If asked about any increases in costs, say no. This is irrelevant.

The Everything Retailer

Analysis

1) Ask the interviewee to identify the source of Everything Retailer's problem by presenting data on sales from Everything Retailer

- Show Exhibit 1

Recommendation

Some potential sources of flat growth that the interviewee may mention are:

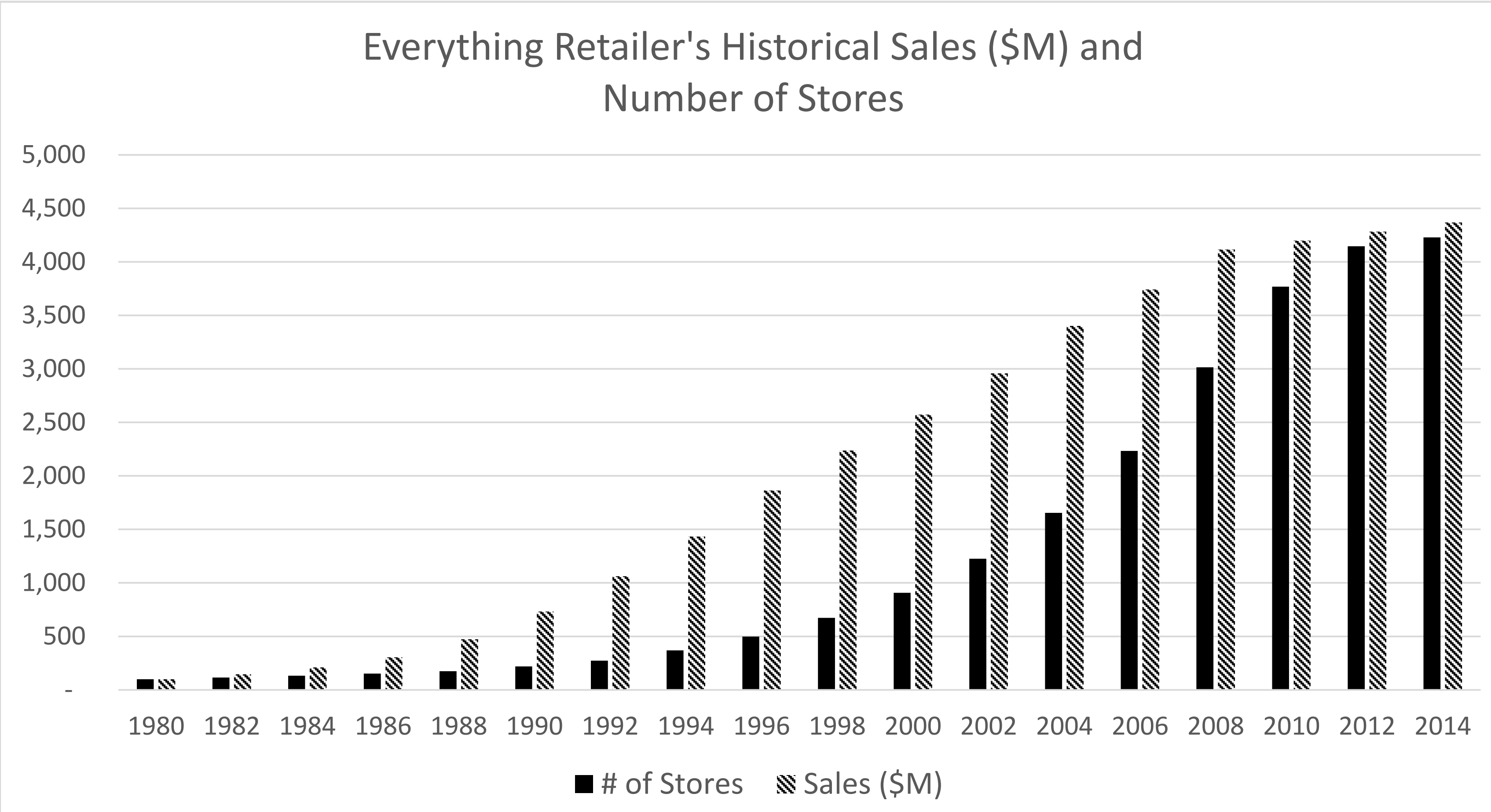
- New competitors, especially e-commerce as consumers shift away from big-box stores to shopping online – tell him/her that this is an interesting additional consideration, but steer him/her away from delving into this.
- Big-box stores' product assortment – no longer as relevant to the customers shopping in those stores.
- Macroeconomic factors – recession and decrease in consumers' disposable income.

Exhibit 1 shows that stores are now opening faster than the sales are increasing. Thus, the current store format has reached its maximum penetration, and sales are flat.

- Need to tap into a new customer segment.

The Everything Retailer

Exhibit 1



The Everything Retailer

DUKE THE FUQUA SCHOOL OF BUSINESS

Analysis

2) In proposing ways to grow sales, interviewee may have (MECE):

- **International – expand overseas (build stores or M&A or Joint Venture) – steer interviewee away.**
- **Domestic**
  - Grow current big-box store sales – steer interviewee away – current stores have the optimal product mix and locations for big-box retailer.
  - Reach new customer:
    - Product – go up-market or down-market to target more affluent or less affluent shoppers. Good point, but steer interviewee away.
    - Format – say that the client has piloted 3 formats and show Exhibit 2

Recommendation

Entering the grocery market with "Local Market" stores represent the biggest revenue opportunity.
Ask the interviewee what analysis he/she would need to do next. How to gauge whether Everything Retailer should go ahead with opening Local Markets?

The Everything Retailer

Exhibit 2

Format	Description	Competitors	Market (FY2015)	Expected market share
Local Market	Grocery store + pharmacy	Kroger, Safeway, regional grocers	$620B	30%
MiniBox	Same product assortment as big-box stores, but much smaller size	Dollar stores, convenience stores	$106B	60%
Campus Companion	Big-box stores on college campuses, with some assortment tailored to students' shopping habits	Depends on location (urban vs. college town)	N/A	N/A

The Everything Retailer

Analysis

3) Use a simple NPV analysis to determine whether Everything Retailer should go ahead with opening Local Markets.
Show Exhibit 3 and ask to calculate NPV. Give formula, if needed: NPV = ∑ (FCFt)/(1+WACC)^t

Assume market growth rate of 0% annually

Exhibit 3 Guidance

	Year 0	Year 1	Year 2	Year 3
Market share		10%	20%	30%
Revenue		$62,000,000,000	$124,000,000,000	$186,000,000,000
Costs	$6.25M *1,000 stores = $6.25B	$1,000,000,000	$4,000,000,000	$8,000,000,000
Discount rate (WACC)		10%	10%	10%
FCF	($6,250,000,000)	$61,000,000,000	$120,000,000,000	$178,000,000,000
$FCF_t/(1+WACC)^t$	($6,250,000,000)	$55,454,545,455	$99,173,553,719	$133,734,034,560
NPV	$282,112,133,734			

* Acceptable for Interviewee to round numbers

Recommendation

Ask the interviewee whether the client should undertake this venture. The answer should be "Yes" since it is NPV-positive.

The Everything Retailer

DUKE THE FUQUA SCHOOL OF BUSINESS

Exhibit 3

NPV of building 1,000 Local Market stores

	Year 0	Year 1	Year 2	Year 3
Market share		10%	20%	30%
Revenue		?	?	?
Costs	$6.25M per store to build	$1M per store to maintain	$4M per store to maintain	$8M per store to maintain
Discount rate (WACC)		10%	10%	10%
$(1+WACC)^t$		1.10	1.21	1.33
FCF	?	?	?	?
$FCF_t/(1+WACC)^t$	?	?	?	?
NPV	?			

PURPLE PILL COMPANY

Purple Pill Company

Prompt

Your client is a multinational pharmaceutical and biologics company. The client has a portfolio of drugs for major disease areas, including cancer, cardiovascular, and gastrointestinal diseases, to name a few. The client has experienced a decline in revenue over the last 18 months, and is fearful of further declines, especially given that its most commercially successful drug, which treats acid reflux disease, will be going off of patent in May of next year. What are the areas they should look into to change the course of this trend?

Interviewer Guidance

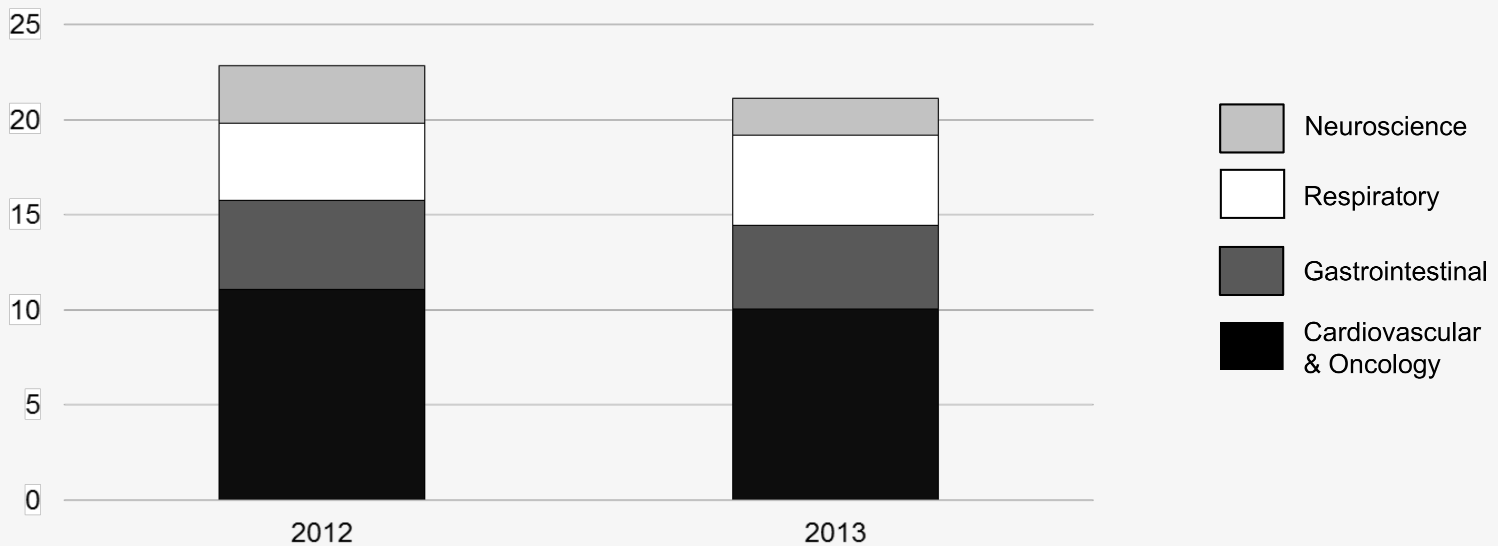
The candidate should come up with a MECE framework that covers the following areas: product mix, industry trends, competitors

- The candidate should identify that this is a revenue problem, given the prompt.
- A good candidate will identify the patent expiration impact on revenues quickly.
- A good candidate may also discuss sales by region (since it is a global company) in addition to product mix.
- Additional information should be provided upon request:
    - Exhibit 1 Revenues by disease area (Product Mix)

Purple Pill Company

Exhibit 1

Company Revenues by Disease Area (in $B)



Drug	Category	% 2013 Revenues	% Chg Revenues	Market Share
Red Pill	Cardiovascular	22%	-8%	Steady
Purple Pill	Gastrointestinal	15%	-2%	↓
Blue Pill	Respiratory	14%	+10%	↑
Green Pill	Neuroscience	7%	-40%	↓

Purple Pill Company

Analysis

What are the largest drivers of revenue decline over the last year? (Provide Exhibit 1 if not already provided)

Guidance:

- Give the candidate 20-30 seconds to review the chart. Then, prompt them to start sharing insights.
  - E.g. - Overall business is declining ~10%, driven by neuroscience, and cardiovascular & oncology
  - E.g. - Respiratory is driving growth, driven by the blue pill; has also gained market share
- **Ask:** Which drug is largest source of dollar declines from 2013 to 2012? How much is the loss?
- Math:
  - Red Pill: 22% x $21B = $4.6B / .92 = $5B → 4.6B – 5.0B = $0.4B, or $400M loss
  - Purple Pill: 15% x $21B = $3.15B / .98 = $3.21B → 3.21-3.15= $0.06B, or $60M loss
  - Green Pill: 7% x $21B = $1.5B/ .6 = $2.5B → 2.5B – 1.5B =**$1B loss**

Recommendation

- **Brainstorming – Ask candidate:** What are some issues that could have caused this decline?
  - Acceptable answers: lower price, lower tablet sales volume, generics coming on market, regulatory restrictions, out of stocks, currency and geographic trends
  - Good candidates will connect generics coming on market to reduced market share in Exhibit 1.

- Additional information to be provided as confirmation:
- In addition to other issues, the decline is attributed to the introduction of generics in the US and other established markets. It's fair to attribute 50% of the decline to generics. The additional declines were related to Medicaid liability and other inventory related issues.

Purple Pill Company

Analysis

Given these issues with the Green Pill, the client would like your help in determining specifically how to maintain as much revenue as possible from the Purple Pill when it goes off patent next year. It has several options that it would like for you to evaluate.

Options:

1. Do nothing
2. License the brand to an over the counter (OTC) manufacturer for $250M one-time revenue
3. Direct-to-patient campaign online and pay 3rd party for delivery

Additional facts and assumptions:

- With no action, Green Pill lost 20% of annual volume in the past (use this assumption)
- Current revenue per pill is $1 at an 80% margin – (remember, total revenue $3.2B)
- 10% of current Purple Pill volume will transfer to OTC brand – we get only one time revenue
- Direct to patient will retain 25% that would've been lost to generic but the margin would be reduced to 50%
- Over 2/3 of the Purple Pill's revenue comes from the US.

Recommendation

Ask: What would you do and why? What are your assumptions on incremental or retained volume in each scenario? Why?

The head of Purple Pill brand needs to make a decision would like for us to share our recommendation today. Please share your analysis and recommendation.

Purple Pill Company

Analysis

Decision

Math:

- Do nothing: \$3.2B x .80 retained (20% lost) = \$2.5B revenue x 80% margin = \$2B gross profit
- License for \$250M = \$2B + \$250M = \$2.25B – (**10%** x \$3.2B x 80%) = \$2.25B - \$0.256B = -\$60K
- Direct to patient program - Do nothing = \$2B + (20% lost x 25% of this retained x \$3.2B x 50% margin) = \$2B + \$.08B = \$2.08B

Guidance:
The math is important here, but more important is that the candidate can think through short-term and long term scenarios. For example, licensing may look like breakeven in year one and retain the brand, but it is a long-term loss as there is no additional revenue (the \$250B) in year 2. You would want there to be little to no cannibalization.

Also, if the direct to patient program cannibalizes more of your existing 80% margin business, you will lose money if you don't increase the price.

This case gauges the candidates comfort with making assumptions and making strategic decisions.