RETHINKING
THE BOUNDARIES

DUKE
THE FUQUA SCHOOL OF BUSINESS

The Duke MBA Consulting Club Casebook 2017-2018

DMCC 2017-2018 Sponsors

DUKE FUQUA SCHOOL OF BUSINESS

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

Editor's Note

DUKE FUQUA SCHOOL OF BUSINESS

Welcome students:

The Duke MBA Consulting Club (DMCC) is proud to present the 2017-2018 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!

Bryan Dellorusso, Jake Porter and Nick Parry

The DMCC 2017 Casebook Team

Acknowledgements

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

Anurag Singh, Bryan Ashley, Bryan DelloRusso, Chris D'Angelo, Chuck Wood, Dan Franck, Dominic Bentzel, Jake Porter, Jason Wachs, Kat McNeil, Kevin Geck, Kevin Kray, Kyle Harkin, Luke Brennan, Luke Fangman, Mamta Elias, Marc Castillo Toledo, Matt Linsenberg, Min Ji, Pat Morrissey, Patrick McDonagh, Rishabh Khicha, Ruchi Agarwal, Sarang Palsule, Spencer Stevenson, Zack Smith, & Zach Gorstein.

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, Casper
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/digital is critical to fight product commoditization; direct-to-consumer movement

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 few 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”), TRUMP & reshoring

Financial Services

Products/services	Deposit-based services, credit cards, consumer loans (personal and business), payments, insurance, mortgages, 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)

Healthcare (Provider)

Products/services	Care provided to patients in doctor's offices/clinics, urgent cares, emergency departments, acute care facilities, etc. Patients typically are billed for the facility fees (ex. Hospital beds, medication, etc.) as well as for physician services received
Revenue	Net Patient Service Revenue: revenue for care provided minus bad debt expense Academic institutions and other health systems often receive philanthropy
Costs	Corporate shared services (Admin, IT, Finance, Legal, etc.), salaries (physician groups often contracted), pharmaceuticals, capital expenditures for large facilities, equipment, etc.
Competitive landscape (competitors, substitutes, new entrants)	Consolidation among smaller regional health systems or by acquisition of larger health systems Increased emergence of Urgent Care facilities (ex. CVS Minute Clinic) Decreased power from smaller organizations to negotiate favorable rates with payers
Customers	Any one in need of health care services – high costs as baby boomers continue to age Specialized pediatric facilities, rehabilitation facilities, hospice care, etc.
Distribution channel(s)	Hospitals (acute care), clinics, doctor's offices, emergency departments, urgent care, telemedicine Large health systems, IDNS (Investor owned), regional health systems, academic institutions urgent care facilities
Suppliers	Suppliers to healthcare providers: pharmaceutical companies, technology providers (ex. radiology equipment, healthcare IT)
Key trends	Pay for performance Potential changes to reimbursement should changes be made to the to the Affordable Care Act Increase in technology (telemedicine, electronic medical records, etc.)

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

DUKE FUQUA SCHOOL OF BUSINESS

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, new classes (Economy Plus as well as Economy “Basic”)
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, INSURANCE.
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 / airport leasing agreements and extremely high startup costs.
Customers	Individual passengers, corporate travelers, travel agents/websites, freight/cargo shipping companies.
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.), increasing number of tickets sold through trip aggregators (Kayak, Priceline, etc)
Suppliers/ supply chain	Aircraft manufacturer, avionics manufacturer, aircraft leasing companies, fuel providers, airport operators, flight training providers, catering providers, aircraft maintenance providers
Key concepts	Metrics: **Available Seat Miles** (Total # seats available for transporting) * (# miles flown in a period), **Revenue Passenger Mile (RPM)** = (#Revenue-paying passengers)*(#miles flown in a period)**, Revenue per Available Seat Mile** = (Revenue) / (# seats available), **Load Factor** -- % of available seating capacity which is actually filled with passengers

Media

DUKE FUQUA SCHOOL OF BUSINESS

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. For online portals (NetFlix, Hulu, etc.) the key value driver is **content**.
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. Fight over content exclusivity is a big issue among legacy players (Netflix, Hulu) and content providers (Disney etc.). Traditional cable companies getting hurt by these web-based solutions.
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/807678

- 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/u5OfT3jlnGCQCpOk2

Case List

DUKE FUQUA SCHOOL OF BUSINESS

Case #	Name	Industry	Qual	Quant	Page
1	Retail Riddle	Retail	Medium	Easy	21
2	Denim Decisions	Retail/apparel	Easy	Medium	30
3	Salt of the Earth	Mining & Metals	Medium	Easy	41
4	HB - Crisco Merger	Technology (Tech Case)	Medium	N/A	54
5	TTP Specialty	Insurance	Medium	Medium	61
6	GridMask Faces its Future	Tech	Medium	Medium	73
7	Email? Email!	Retail/IT	Medium	Medium	80
8	Driving Me Crazy	Auto	Medium	Medium	92
9	Embattled Biopharma	Biopharma	Medium	Medium	101
10	Lactose King	Food service	Medium	Medium	112
11	Royal Health System	Healthcare	Medium	Medium	123
12	Nat's Nuts	CPG	Medium	Medium	134
13	Akron Tires	Auto	Easy	Medium/ Difficult	144
14	Howliday Inn	Market Sizing	Easy	Difficult	155

Case List

Case #	Name	Industry	Qual	Quant	Page
15	Retire on the House	Financial Services	Difficult	Easy	164
16	Fringe Science	Healthcare	Difficult	Medium	174
17	Skier? I Hardly Know Her!	Hospitality	Difficult	Medium	187
18	Covfefe Coffee	Manufacturing	Medium	Difficult	202
19	Congo's Drumming	E-Commerce Operations	Difficult	Medium	211
20	MBAitis	Pharma	Difficult	Medium	227
21	MedTrans	Medical Transportation	Difficult	Medium	237
22	Ocean Co.	Technology	Difficult	Medium	246
23	Took a Pill From Ibiza	HealthCare	Medium	Difficult	256
24	AlphaKeni	Technology	Difficult	Medium	267
25	LM Pharma	Pharma	Medium	Difficult	278
26	Pur and Kleen Water Company	Mining	Difficult	Difficult	288

“Greatest Hits” Case List

DUKE FUQUA SCHOOL OF BUSINESS

Case #	Name	Industry	Qual	Quant	Page
27	Activist Action (‘15-16)	Consumer Products	Difficult	Difficult	302
28	Duck Island Beer Company (‘16-17)	Consumer Products	Medium	Medium	314
29	Going Green (’14-15)	Market Entry	Medium	Medium	328
30	Goodbye Horses (‘16-17)	Healthcare	Difficult	Medium	339
31	Sardine Airlines (‘16-17)	Transportation	Medium	Medium	348

Retail Riddle

Industry: Retail

Quantitative Level: Easy

Qualitative Level: Medium

Retail Riddle

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a situation in which you had to assert yourself.

Question 2:

- Looking back, tell me about a time you reacted poorly to a situation. What was the situation, how did you react, how do you wish you had reacted and why?

Retail Riddle

Prompt #1:

- Your client, Croquet, is a domestic clothing brand that sells exclusively in its stores across the continental United States. Croquet is a premium brand with a high focus on customer service in its stores. It has recently experienced a downturn in sales, even though its collections have received positive press and are on trend. You have been brought on to help reverse the downward slide.

Interviewer Guidance:

- Croquet operates 120 stores and the downturn has been experienced across all markets
- No new competitors have entered the market that are taking significant share
- Croquet owns its own manufacturing facilities in Asia and has had no issues with quality or deliveries
- Croquet has not significantly changed its inventory strategy (i.e. its price point, target demographic, and inventory mix have stayed the same)
- Stores are staffed by management (salaried) and hourly staff. Croquet pays a competitive hourly wage but no commission

Exhibit #1

FY16 vs. FY17 Retail Metrics

	Traffic	Conversion	Annual Sales	DPLH
FY16	1,100	50%	$120M	$17.35
FY17	1,200	45%	$104M	$17.39

Average Sales by Day FY16 and FY17 Plan vs. Actual

	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
FY16 Actual	$24M	$7.5M	$7.5M	$7.5M	$7.5M	$12M	$54M
FY17 Plan*	$25M	$9M	$9M	$9M	$9M	$13M	$56M
FY17 Actual	$26M	$9.5M	$9.5M	$9.5M	$9.5M	$11M	$29M

*Plan is set by corporate at the beginning of the year as part of the budget
DPLH: Sales Dollars Per Labor Hour is calculated as sales dollars/number of hours worked by non-management (hourly) staff

Interviewer guidance on Exhibits

Exhibit #1 Guidance:

Definitions:

- Traffic describes the number of people, i.e. potential transactions, that enter the store per day on average
- Conversion is the percentage of those people that make a purchase
  - Traffic times conversion equals the number of transactions
- DPLH stands for Dollars Per Labor Hour which Croquet calculates as dollar sales per hour of non-management (hourly) store labor

Analysis:

- The candidate should calculate the number of transactions for FY16 and FY17 by multiplying traffic*conversion rate
- What is the percentage difference in transactions between FY16 and FY17?
  - FY16: 550 transactions, FY17 540 Transactions difference is ~2%
- How does this compare to the difference of sales?
  - Difference is sales is 13% (104-120)/120
- How does this compare to the difference in DPLH?
  - DPLH is up slightly. Given that sales are down and DPLH is up labor hours must be down
- How are Croquet's sales compared to FY16? Compared to FY17 Plan?
  - Sales are down to Last Year and to FY17 plan. Mostly driven by a sales miss on Saturdays

Exhibit #2

FY16 Average Labor Hours per Day and
FY17 Average Labor Hours per Day Plan vs. Actual

	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
FY16 Actual	25	12	13	13	15	17	38
FY17 Plan*	23	11	11	11	12	14	33
FY17 Actual	26	13	12.5	12	12	12.5	27

*Plan is set by Corporate at the beginning of the year as part of the budget

Interviewer guidance on Exhibits

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #2 Guidance:

- Show Exhibit 2 together with Exhibit 1
- Exhibit 1 shows that even though sales are down DPLH is up. What is driving this?
- Looking at Exhibit 2 you see that planned labor hours are down to FY16 and that store are meeting their plans. What may be driving this?
- After brainstorming tell the candidate that in an effort to save on labor corporate incorporated weekly labor plans into managers' incentive bonus. How may this affect the scheduling?
- Once the candidate has calculated the hours tell them that Managers set schedules and can cut hours to achieve their labor plan every week
  - Lower conversion
  - Fewer add-on sales
  - Worse customer service

Analysis:

- The candidate should calculate the number of hours per week for FY16, FY17 plan and FY17 actual
- Candidates may recognize immediately that managers are frontloading hours to Sunday/Monday/Tuesday/Wednesday and shorting hours on Friday/Saturday. **Brainstorm** what may be driving this behavior:
  - Unavailable workforce
  - Employees calling in sick
  - Incentives for management to cut labor on Saturdays in order to make weekly plan
- Once the candidate has calculated the hours tell them that Managers set schedules and can cut hours to achieve their labor plan every week

Retail Riddle

Recommendation

- Given the data, what is your recommendation?

Interviewer Guidance:

- Recommendation may include:
  - Removing labor hours from management incentive
  - Incentivizing sales through commissions for hourly associates
  - Sales to help move through potential excess inventory
  - Training program to deliver better customer service
  - Cutting early week (Mon-Thurs) hours and adding to the weekend

Evaluation Criteria

DUKE FUQUA SCHOOL OF BUSINESS

Candidate Level	Assessment
Average Candidate	Framework may have some mention of cost. Candidate recognizes in exhibit 1 that sales miss is being driven mostly by Saturdays. Small math errors
Good Candidate	Framework focuses on sales and revenue rather than cost. Candidate recognizes in exhibit 1 that traffic is up, transactions are down slightly and sales are down even more while DPLH is roughly flat. Recognizes that sales miss is being driven mostly by Saturdays. Gets math right
Excellent Candidate	Framework focuses on sales and revenue rather than cost. Candidate sees based on exhibit 1 that sales are being affected by labor given that DPLH is up while sales are down. Candidate suggests that is must have to do with decrease in labor hours. Recognizes that miss is being driven mostly by Saturday. Candidate recognizes that something must be influencing management’s behavior. Gets math right.

Denim Decisions

Industry: Apparel/Retail

Quantitative Level: Medium

Qualitative Level: Easy

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Why would someone say they did not like working with you?

Question 2:

- Tell me about a time where you had to motivate a team during challenging circumstances

Denim Decisions

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #1:

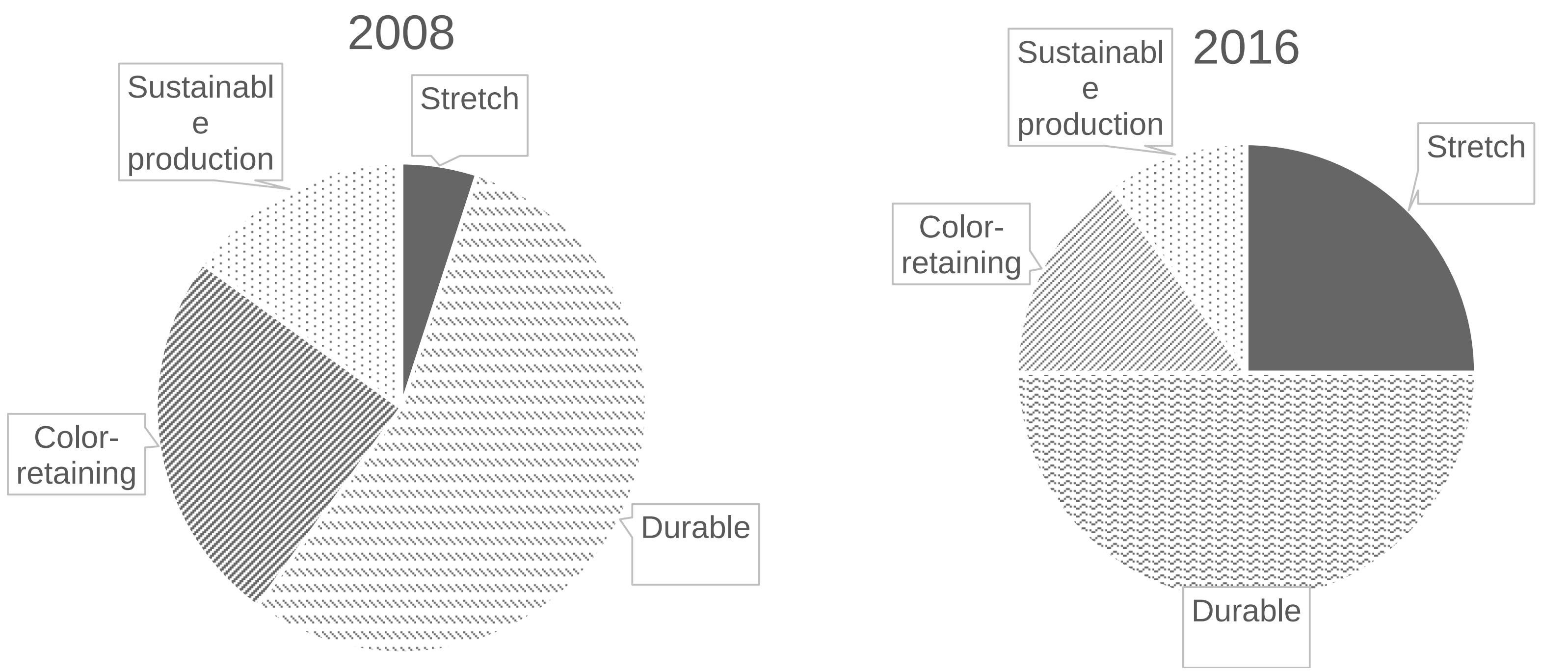
- Your client is Parliament Denim, an iconic American jeans company. Over its 70 year history, Parliament has maintained steady financial success and has earned a reputation for reliable jeanswear. One reason for its success is its internal production capabilities, a rarity in the denim industry. However, over the past 15 years, Parliament has experienced issues in operating its plant at capacity, as its Merchants and Designers have increasingly been going to externally sourced vendors for production. Parliament needs your help in reversing this trend to both avoid the excessive costs of plant down-time and to reclaim the competitive advantage that the internal production offers..

Interviewer Guidance:

- Parliament has operations globally, but we will just focus on the NA supply chain
- The plant is in Mexico, and products are sold primarily in the US
- Parliament operates in three channels: Western (meant for cowboys/farmers/rodeo), Mass (basic jeans – think what you find at Walmart or Target) and Modern (trendy)
- New equipment has been sparingly invested in over the past 10 years
- Downtime costs $500k/plant/day
- Things to look for in framework: Facilities, internal capabilities, consumer, market forces
- Guide candidate towards production capabilities and/or changing consumer preferences as the issue
  - Give Exhibit 1

Exhibit #1

Consumer Poll: What Characteristics Do You Look For in Jeans?



Interviewer guidance on Exhibits

Exhibit #1 Guidance:

- Candidate should realize consumer preferences are shifting to more fashionable products (i.e. stretch).
- A good candidate will note that the long-tenured supply chain may not have adapted to the new capabilities required for such production (such as the ability to cut/sew new fabrics)
- Guide candidate towards brainstorm of why it might be easier to go to outsourcing for more fashionable production
  - Answers may include: service model of working with an external vendor, more accessible fabrics, newer production technology, faster turnaround, higher quality

Analysis:

Denim Decisions

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #2:

- Parliament has decided to look at the ability of its production model to meet consumer demands. To produce fashionable jeans, it takes 2 hours of setup time before production can run on each machine. Then, it takes 60 seconds to produce one unit of product. The plant has 50 machines, split between fashionable and basic production 15/35
- Once candidate is given this information, provide Exhibit 2, where candidate should calculate production capabilities and identify areas of over/under capacity

Interviewer Guidance:

- Machines can only be used for their assigned type of production
- Basic jeans take 30 seconds to produce
- The plant operates 18 hours/day, 5 days a week
- If jeans are outsourced, orders will be delivered on time at a $1.50 premium to cost of internal production

Exhibit #2

Channel	Fashionable Jeans Demanded	Basic Jeans Demanded
Western	15,000	150,000
Mass	65,000	100,000
Modern	80,000	40,000

**Figures are per week*

Interviewer guidance on Exhibits

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

- Candidate should recognize that there is excess capacity in the production of basic jeans, and lack of capacity to produce fashionable jeans
  - This is why the plant is underutilized and more products are being outsourced
- Candidate should calculate excess/lack of capacity in the plant for fashionable/basic products
- Candidate should brainstorm ways to address this issue misalignment of capabilities vs. demand. May include: additional technological investments, convert basic machines into fashionable ones, sell fashionable machines and commit to completely outsourcing product, invest in human capital initiatives to boost productivity (incentive plans, additional trainings)
  - Focus in on technological investments and move to next prompt

Analysis:

- Capacity for basic jeans:
  - 16 hours/day x 5 days/week x 2 units/hour x 60 mins/hour x 35 machines = 336,000
    - Total demanded/week = 290,000
- Capacity for fashionable jeans:
  - 16 hours/day x 5 days/week x 1 unit/hour x 60 mins/hour x 15 machines = 72,000
    - Total demanded/week = 160,000

Denim Decisions

Prompt #3:

- Parliament is considering investing in new technology and converting some of the basic production machines to fashionable ones. This investment will allow Parliament to meet 95% of its basic jean demand and 85% of its fashionable jean demand. The project will cost $10M and implementation will require 3 days of downtime.

Interviewer Guidance:

- Candidate should calculate savings on outsourcing that come with renovated facility
- Reminder for interviewer: $1.50 premium paid per garment on outsourced products, downtime costs $500k/day for the plant
- 5% unmet demand for basic of 290k (14.5k) per week x 50 weeks/year x $1.5 premium/garment = $1,087,500
- 15% unmet demand for fashionable of 160k (24k) per week x 50 weeks/year x $1.5 premium/garment = $1.8M
- Currently outsourcing 88k garments per week (excess fashionable demand) for total outsourcing costs of (88k x 50 weeks/year x $1.5 premium) $6.6M
  - Net savings per year on outsourcing is ~$3.7M/year with additional cost of $1.5M downtime in year 1
  - Savings are $3.7M/year, with a 12% discount rate and 2% growth rate
- Candidate should calculate NPV: (FCF/r-g) – Initial investment
  - ($3.7M/.1) - $10M - $1.5M = $25.5M
- Candidate should note that this solves the underutilization issue, too

Denim Decisions

Recommendation

- The CEO of Parliament pops into the room to check in on your project. What is your recommendation?

Interviewer Guidance:

- The candidate should note that investing in renovating the plant would have a positive NPV and thus should be pursued. The project will break even between years 3-4.
- However, a good candidate will note the risks that come with the project, including: changing consumer trends, implementation taking longer than planned, a downturn in the denim industry, decreasing costs of outsourcing, potential issues with the labor force during implementations, project is profitable when perpetuity is assumed – Parliament will likely have to upgrade equipment again in the future
- Next steps could be: liaise with labor leaders on how to handle transition, identify right types of machinery to invest in, appropriately plan for inventory lag that will come with the 3 days of downtime, work with forecasting team to understand how consumer demands may continue to shift
- Candidate can also note the options of selling off fashionable production and focusing internal capabilities solely on basic jeans, selling off internal production capabilities entirely, or keeping the status quo and investing funds elsewhere (i.e. acquire one of the outsourcing operations that currently have the capability to cut more fashionable jeans)

Evaluation Criteria

DUKE FUQUA SCHOOL OF BUSINESS

Candidate Level	Assessment
Average Candidate	Mostly handles the quantitative calculations, with some mistakes. Follows the path towards investing in new production capabilities as the answer. Moderate brainstorming.
Good Candidate	Few quantitative mistakes. Follows the path towards investing in new production capabilities, but also addresses other options and is cognizant of potential risks. Strong brainstorming.
Excellent Candidate	No quantitative mistakes. Drives case towards investing in production capabilities, but acknowledges that there could be other options. Awareness of risks and thoughtful in ways to mitigate them. Strong, creative brainstorming

DUKE FUQUA SCHOOL OF BUSINESS

Salt of the Earth

Industry: Mining & Metals

Quantitative Level: Easy

Qualitative Level: Medium

Behavioral Questions

DUKE FUQUA
SCHOOL OF BUSINESS

Question 1:

- Tell me about a time you had to convince someone, either in your organization or a client.

Question 2:

- Tell me about a time an idea of yours was rejected.

Salt of the Earth

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #1:

- Your client is Salt of the Earth Group, an Australian mining company with $40B in revenue. Salt of the Earth prides itself on mining and producing materials essential to drive economic progress and operates across 5 decentralized Product Groups: Iron Ore, Copper, Aluminum, Petroleum, and Coal. The company operates globally using a combination of wholly owned assets and Joint Ventures.
- Recently, commodities have experienced macro pressures: prices have fallen as global GDP underperforms, global demand for metals is plateauing as developing economies mature, and resources companies are having trouble attracting and retaining young talent. Despite this difficult environment, your client is a global leader and is committed to sustaining its competitive advantage. In its most recent earnings report, it promised shareholders an incremental $5B in cumulative net income over 5 years through a series of initiatives designed to unlock "whole of system" value.
- Your team has been brought in to perform an analysis for the client's Executive Committee to identify whether $5B is even possible, and what will drive value.

Salt of the Earth

Interviewer Guidance:

- If asked, our client's goal is $5B in cumulative net benefit over a 5 year horizon, measured in USD. Additionally, we are focused on the whole company, not a specific product group.
- Define whole of system if asked: *Delivering value across the value chain. Currently in mining, there is a focus on maximizing value for given nodes within the value chain (e.g. the mine itself, as part of processing, etc.) There isn't really a view that connects what's happening in the mine to how and when the product is being sold, etc-this project seeks to make these connections to deliver value across the system.*
- If asked more about the "initiatives," explain that the primary initiatives are investments in a "way of working" (e.g. items like integrated org/process design) and an investment in cutting edge IT.
- The interviewee should recognize that at its core, this is profitability: the project will deliver value by increasing revenue and decreasing costs, but will come at a price (the investment). However, this case is designed to push profitability beyond Revenue-Costs and the interviewer should tease out how a profitability framework manifests itself in mining specifically. Additionally, the candidate should recognize that there are non-financial reasons (this will be addressed in brainstorming).
- In our case, we will focus on: physical product, opex, and capex. Candidates should identify at least a couple of these specifics, noting that mining companies sell physical products, and are capital intensive. For this case, we will assume that price cannot be impacted as it is dictated by the market.
- Excellent candidates will also recognize that delivering value will require investment and will include investment/capabilities in their framework.
- Once a mining-specific framework has been started, guide the interviewee to ask for information about the incremental benefit/value that can be delivered and provide Exhibit 1a/1b. Push the candidate to identify how they would obtain the information before providing (answer: a combination of external benchmarking and reviewing production plans with product groups).

Exhibit #1a: Salt of the Earth Value Tree

DUKE FUQUA SCHOOL OF BUSINESS

Salt of the Earth Value

Value Lever	**_Full Potential Annual Value_**	**_How_**
Physical Product	+2.5% Product	Enhanced Planning Improved Ore Recovery
Opex	-4% Opex	Improved Throughput Labor Efficiency
Capex	-10% Capex	Increased equipment life Decreased Total Cost of Ownership

Exhibit #1b: Group Financial Statement

	2018 (Current)
Physical Product	8,000,000 tons
Market Price*	$5,000/ton
Sales Revenue	$40B
Opex	$25B
Capex	$5B
Earnings Before Taxes	$10B
Taxes (@40%)	$4B
Underlying Earnings**	$6B

*Price is dictated by the market and remains constant

**Note that underlying earnings is used as a measure of performance and differs from traditional GAAP/IFRS treatment of net income. We will use it as our performance metric.

Interviewer guidance on Exhibits 1a/b

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

- Candidate should make the connection between the value tree in 1a and the financial statement in 1b to identify the impact on earnings (see Exhibit 1a/b solution).
- After identifying impact on earnings, candidate should recognize that investment is required to realize benefits and drive towards net benefit. Many candidates will have investment in their framework; however, if candidate struggles to identify the need for investment, discuss whether it is realistic for the company to achieve this value without investing in capabilities.
- Candidates should also recognize that Exhibit 1 benefits are “full potential annual value” and question whether benefits can all be delivered in year 1, and how long it will take to realize value. If candidate fails to identify the need for ramp-up, ask whether it is realistic for these benefits to be achieved immediately.
- Once candidate identifies both of these, provide Exhibit 2a/b.

Analysis:

- See “Exhibit 1a/b solution” for recommended exhibit analysis.

Interviewer guidance on Exhibits 1a/b

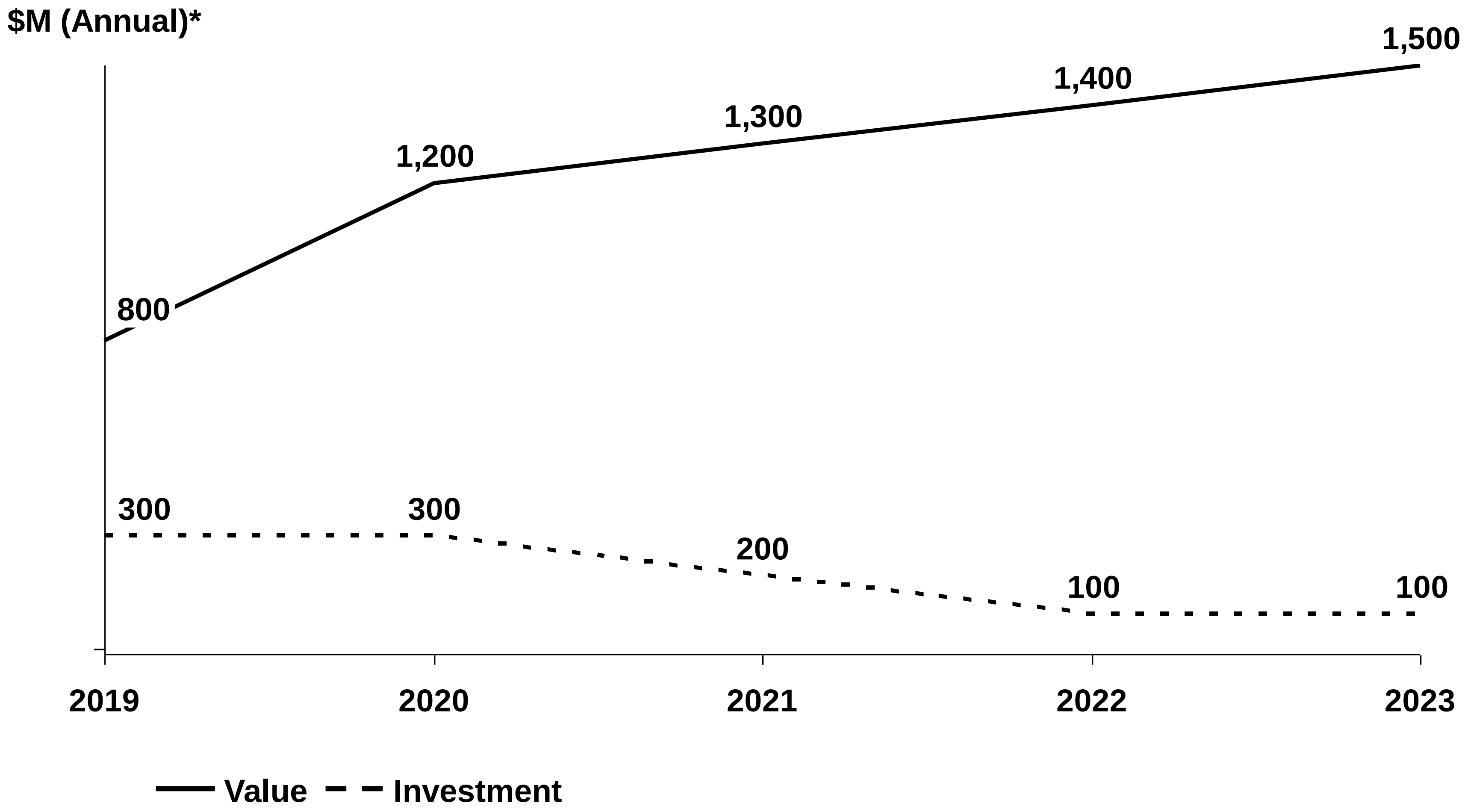
	2018 (Current)	Increment	Benefits	Full Potential
Physical Product	8,000,000 tons	+2.5%	+200,000 tons	8,200,000 tons
Market Price	$5,000/ton			$5,000/ton
Sales Revenue	$40B			$41B
Opex	$25B	-4%	-$1B	$24B
Capex	$5B	-10%	-$500M	$4.5B
Earnings Before Taxes	$10B			$12.5B
Taxes (@40%)	$4B			$5B
Underlying Earnings	$6B			$7.5B

Annual Full Potential Incremental Benefit	*$1.5B*

Exhibit #2a: Program Investment Profile

(Investment in $M)	2019	2020	2021	2022	2023
Total IT Investment	**$250**	**$250**	**$170**	**$85**	**$85**
Project 1: Cloud Analytics	*$100*	*$50*	*$20*	*$10*	*$10*
Project 2: Autonomous Vehicles	*$75*	*$100*	*$20*	*$10*	*$10*
Project 3: Safety Geofencing	*$75*	*$25*	*$10*	*$10*	*$10*
Project 4: Machine Learning	*$-*	*$75*	*$120*	*$55*	*$55*
Transparent Op Model, Org and Process Design	**$30**	**$30**	**$10**	**$5**	**$5**
Change Strategy and Implementation	**$20**	**$20**	**$20**	**$10**	**$10**
Total, Annual	***$300***	***$300***	***$200***	***$100***	***$100***

Exhibit #2b: Value/Investment Ramp-Up



*Figures represent value/investment delivered in year indicated and are not cumulative

Interviewer guidance on Exhibit 2

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

- There isn’t any work to be done on 2a: simply recognize that investment in cutting-edge IT will drive the bulk of the cost. The project examples will be useful during the brainstorming exercise.
- On exhibit 2b, it is important to recognize that these figures are provided annually, whereas the prompt asks for a 5 year cumulative figure. The candidate should calculate a cumulative figure and conclude that the initiative will meet the client’s goal of $5B net value in 5 years.
- Candidates should drive towards an ROI, NPV, or IRR calculation to demonstrate awareness for how a high-level client will think. If candidate identifies the need for any of these, let them know that client prefers ROI.
- Once financials have been cleared, progress to prompt 2.
- If the candidate asks, tell them that for this exercise, we can ignore the time value of money

Analysis:

- Candidate should develop a table which identifies the following (YoY is not required, but is a clear/helpful view for the table):
  - Total 5 Year Value: $6.2B
  - Total 5 Year Cost: $1B
  - Total 5 Year Net Benefit: $5.2B
  - *Yes, the initiative will meet the client’s goal of $5B in 5 years.*
- 5 Year ROI:
  - (Benefit-Cost)/Cost
  - ($6.2B-$1B)/$1B = $5.2B/$1B = 520%

Salt of the Earth

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #2:

- In the past week, the discussion has gone beyond financials and the client has been focused on narrative. Specifically, the client wants the Executive Committee to be aware of the non-financial benefits that might be realized. What non-financial benefits do you want to highlight for the Executive Committee?

Interviewer Guidance:

- The purpose of including the investment profile in exhibit 2a is to highlight some of the non-financial benefits. Potential benefits include, but are not limited to:
  - Employee Engagement: The prompt mentions that mining companies are having difficulty attracting and retaining young talent. By investing in cutting-edge IT, the client is creating a digital workforce and may be able to attract and retain new employees.
  - Safety: Mining is inherently dangerous. By investing in the safety initiatives described in exhibit 2a, the client will be able to create a safer work environment.
  - Environmental: The transformation may reduce the client’s operational footprint, or improve the client’s ability to reclaim land that has been mined.

Salt of the Earth

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation:

- You have just been flown to Australia to prepare and support the global head of the project for his presentation to the Executive Committee. What do you tell him?

Interviewer Guidance:

- Recommendation should answer the prompt, highlight risks/mitigation, and describe next steps.
- Recommendation should include: The transformation will deliver $5.2B in net value over a 5 year horizon, meeting the promise made to shareholders. Value will be delivered through increased product/reduced costs, and support by a large investment in IT.
- Potential risks include: Sensitivity of value to market prices, sufficient demand for increased product, capabilities and culture necessary to deliver such a large-scale IT investment, labor union resistance. Good candidates should have a mitigation strategy for each.
- Potential next steps include: Align investment with value and prioritize investment, align internal capabilities into a program team, secure external support.

HB – Crisco Merger (Tech Consulting)

Industry: Technology

Quantitative Level: n/a

Qualitative Level: Medium

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time where you had to lead from a non-leading role. How did you approach the situation and drive success?
  - Candidate should:
  - Describe an appropriate situation in which he or she was not the leader of the team
  - Discuss how he or she supported the team and its leader without the official title of ‘leader’
  - Discuss the results of the team’s efforts and what he or she learned from the situation

Question 2:

- What are three tech trends that you are following?
  - Candidate should:
  - Identify 3 relevant technology trends
  - Describe why these trends are important
  - Be able to discuss their impact on current industries, where applicable

HB – Crisco Merger

DUKE FUQUA SCHOOL OF BUSINESS

Prompt:

- Howell Blanchard is a multinational enterprise IT company with $40 billion in annual revenue. Founded in 1941, HB is a Silicon Valley cornerstone that focuses on enterprise hardware solutions, such as servers, networking, and storage. As part of the firm's operating model, annual IT operational expenditure (opex) is budgeted for 1.5% of revenue. Currently, the company is hitting that target with an annual IT run rate of $600 million.
- Recently, HB announced that it would be merging with rival hardware maker Crisco in a mega-deal to create one of the largest public companies in the U.S. Crisco's annual revenue is $50 billion, but it has a larger IT spend, at $1 billion, or 2% of revenue. The CEO of HB, who will lead the combined entity, has internal estimates of $95 billion in revenue for the combined entity in its first fiscal year and has set the first year IT budget at $1.425 billion. Given this target, the combined entity needs to reduce costs by $175 million through the integration process.
- Your firm is the lead integration partner for HB, and HB's CIO has asked the firm Technology M&A partner on the project to develop a strategic plan for HB on consolidation, cost reduction, and integration planning so it can achieve its budget target. As a consultant on the project, you are responsible for putting the initial deck together for review with the partner.

HB – Crisco Merger

Question #1:

- How would you approach consolidating and rationalizing HB's and Crisco's software applications and creating synergistic business processes during integration?

Interviewer Guidance:

- The interviewee should ask for a minute to create a framework for analysis. Grant the interviewee up to 2 minutes to do so.
- After 2 minutes, ask the interviewee to walk through his or her framework. A sufficient answer would provide a framework such as People / Process / Technology and discuss issues within each area, including the following:
  - People: Discuss the potential business impact of combining systems/removing systems/ramping up employees onto new systems as part of the integration.
  - Process: Discuss how shared business processes (such as finance, operations, sales and marketing) must be evaluated and leveraged during the integration to realize synergies; discuss how the integration provides an opportunity to streamline existing processes and realize benefits.
  - Technology: Describe how applications, labor, and infrastructure would be catalogued, rationalized, and consolidated depending on alignment with HBC's business goals.
- Guidance to the interviewee might include prompting on potential impacts of a merger in one of the P/P/T areas.

HB – Crisco Merger

Question #2:

- What would be some key components to IT cost reduction efforts in order to help HB-Crisco reduce its IT spend and meet its target?

Interviewer Guidance:

- If the interviewee asks for a brief time to compose his or her answer, that is acceptable. The interviewee also may begin immediately discussing cost-reduction alternatives.
- Sufficient answers will include some of the following IT cost reduction strategies:
  - Application rationalization
  - Data center / server / storage / networking consolidation
  - Data center / server / storage / networking optimization
    - Cloud strategies (e.g. IaaS via AWS or SaaS via switching to Salesforce) applicable here as well
  - End-user device rationalization (PCs/telephony/mobile)
  - Outsourcing: application maintenance, help desk, development support
  - Vendor contract renegotiation
- Guidance to the interviewee might include prompting on components of an IT cost structure (e.g. applications, labor, infrastructure).

HB – Crisco Merger

Question #3:

- Additional information: the HB CEO has given a date 10 months out by which the two companies will officially begin operations as ‘HBC’ and be traded on Wall Street as such. Her and the CIO have agreed that all HB systems should be migrated onto Crisco’s systems and that all business activities for the combined entity should originate from Crisco’s systems on Day 1 of the new entity. Currently, both HB and Crisco are running older versions of SAP’s ERP system but would like to upgrade to the new SAP S4/HANA system as part of this integration effort.

- Given the Day 1 requirements of merger, how would you approach the project efforts to merge and upgrade the two companies’ ERP systems?

Interviewer Guidance:

- The interviewee may take a minute to create a new framework for answering this question.
- A sufficient answer will include the phases of the SDLC (identification, planning, analysis, design, implementation, maintenance) for planning this project and will note that a ‘big bang’ implementation methodology is required to meet the Day 1 requirements.
- Guidance to the interviewee might include prompting on software development methodologies (SDLC vs. Agile) and potential implementation approaches (big bang vs. phased vs. pilot).

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	The candidate fails to use a framework in question 1 and requires prompting to deliver cost reduction ideas in question 2 and implementation methodologies in question 3.
Good Candidate	The candidate utilizes a framework like P/P/T in question 1, identifies a few cost reduction efforts in question 2, and outlines the SDLC in question 3.
Excellent Candidate	The candidate identifies multiple opportunities within the P/P/T framework in question 1, identifies several cost reduction efforts in question 2 and their potential impact, and can discuss the merits of the big bang approach along with describing the SDLC in question 3.

TTP Specialty

Industry: Insurance

Quantitative Level: Medium

Qualitative Level: Difficult

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time you had to overcome an obstacle.

Question 2:

- What's one thing that makes you stand out from the rest of the candidates?

TTP Specialty

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #1:

TTP Specialty is a specialty insurance carrier. They provide niche insurance coverage for non-traditional risks such as damage to oil tankers, pollution, medical malpractice, and injuries to professional athletes. Over the past 3 years, they have set and met aggressive growth targets by doubling their premium written annually. However, they have also seen their profits decline by 50% to $10 million in spite of this growth. They've hired us to diagnose their profitability problem.

Interviewer Guidance:

- Case type: profitability
- Framework should reflect standard profitability breakdown (revenue, cost, external considerations)
- Interviewee should be able to drive towards cost as the main problem (they've met aggressive revenue growth targets). Once they do, provide Exhibit 1.
- **If asked:** insurance companies make money in two ways: (1) collecting more money in premium than they pay in claims and (2) earning interest on their assets held.
- In 2016 TTP collected $1B in premiums and made a profit of $10 million.
- TTP is only in the US. Headquartered in Philadelphia, PA with underwriters spread across the US.
- TTP's customers, like its products, are wide-ranging: city/state governments, federal agencies, hospitals, professional sports organizations, and oil drillers are some of their biggest clients.
- Competition: There are 5 major specialty players in the US. They have not experienced the same profitability decline.
- Goal: Increase profits to $40 million annually within next two years.

TTP Specialty

Interviewer guidance (cont'd):

A sample framework could look like this:

-Revenue

-Pricing – Lowered prices leading to smaller margin?

-Volume – Candidates could list a few considerations here such as types of products, customer segments, etc., but they should not spent much time here since it's clear volume is not the problem.

-Cost

-Claims (variable) – Is TTP paying out more in claims than usual?

-SG&A (fixed)

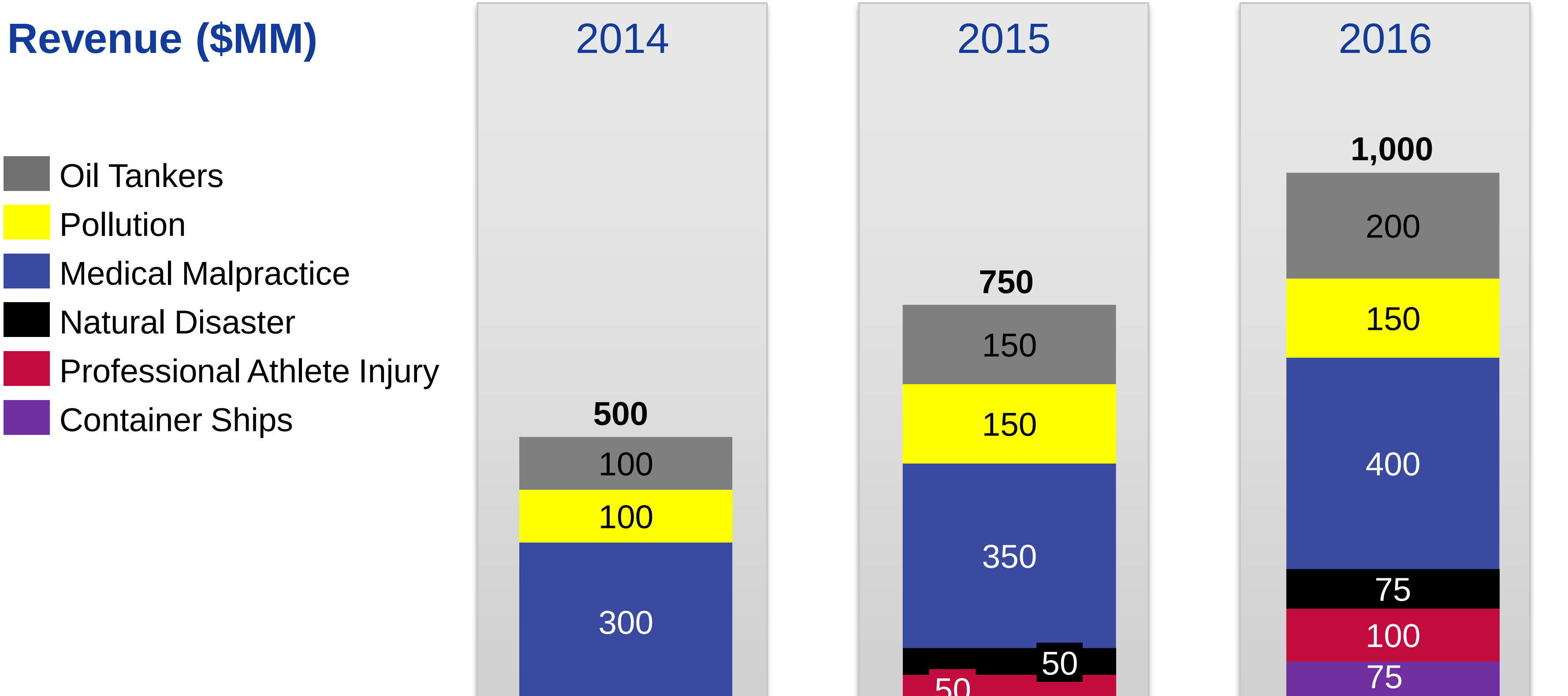
Note: Candidates may break cost down by variable and fixed costs. This is fine, as long as they identify claims as an important variable cost. **Before giving Exhibit 1, make sure a candidate at least identifies rising costs as the area they'd like to explore.**

-External

-Competition – Has the market become more competitive, driving margins down? Are competitors experiencing the same margin issues?(This isn't the case, but it's a fair consideration)

Exhibit 1

Revenue ($MM)



Costs ($MM)

	2014	2015	2016
SG&A	125	150	190
Claims and adjustments	355	585	800

Interviewer guidance on Exhibit 1

Exhibit #1 Guidance:

- This exhibit shows TTP's revenues and costs over the last 3 years – but the interviewee should focus on the costs.
- Costs are broken down into two high-level buckets: SG&A and claims.
- "Claims and adjustments" refers to payments to insureds for their covered losses and associated loss adjustment fees.

- Once the interviewee identifies claims as the root cause – ask them to brainstorm a couple reasons these costs could be up. Once they've named 3, move on to Exhibit 2.

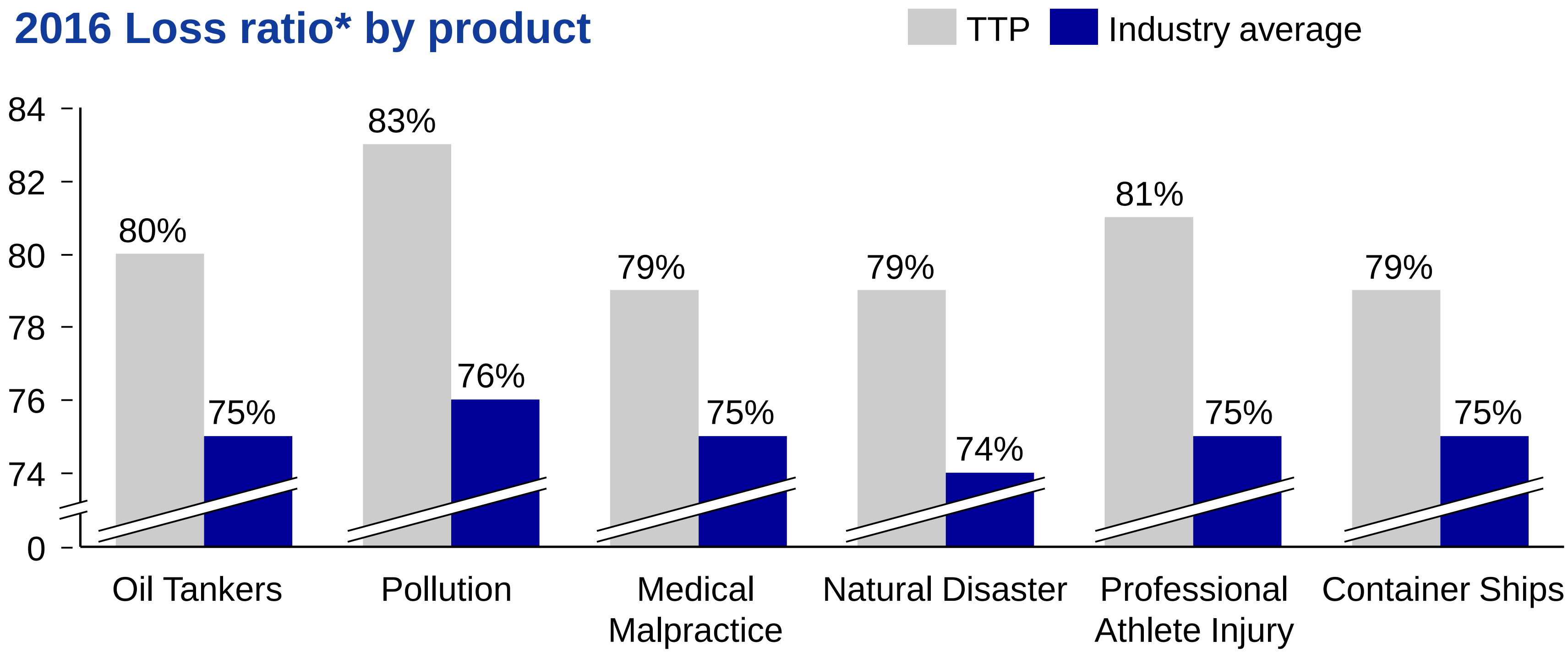
Analysis:

- As we discussed in the framework, the interviewee should realize the problem isn't the revenue, it's costs.
- The key observation that the interviewee should make is that the % of revenue spent on claims (also known as loss ratio) has increased from 71% to 80% and is driving down profitability.

- Potential causes for increased claims $:
  - Bad underwriting
  - A couple unusual catastrophic losses
  - New products are riskier
  - Increased number of claims
  - Increased severity of claims

Exhibit 2

2016 Loss ratio* by product



2016 Underwriter information

	Headcount	Years of experience	% new hires
TTP	125	3.4 years	43%
Industry average	122	6.9 years	20%

***An insurer's loss ratio is the cost of claims divided by the written premium**

Interviewer guidance on Exhibit 2

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #2 Guidance:

- This exhibit provides the interviewee with more information about the causes of the high loss ratios
- The first graph is self-explanatory – loss ratios by product for TTP and the industry. (Loss ratio is defined at the bottom to help the interviewee).
- The second chart provides the interviewee with information about the makeup of the Underwriting team.
- **More background info, if needed:** an underwriters' role is to assess risk and provide quotes to potential insureds. In specialty insurance, their expertise is critically important because the risks are much more obscure but larger in value than a typical home or auto policy.

Analysis:

- The interviewee should identify that there is not one specific product that is experiencing high losses – it is happening across the board.
- The candidate should ultimately identify that TTP's high percentage of newly-hired underwriters is likely leading to poorly-underwritten policies, causing TTP's loss ratio to increase.
- A lack of industry understanding may make it difficult for some candidates to identify this underlying cause, so try to nudge them in this direction if they are struggling.

TTP Specialty

Prompt #2:

The CEO of TTP agrees that their underwriting has gotten sloppy as they've expanded the past few years. He has agreed to hire SpecialtyTrain, a specialty insurance training company, to provide supplemental training to the existing underwriting teams. SpecialtyTrain has guaranteed that this training will decrease TTP's loss ratios to the industry average. Due to time constraints, TTP can only choose 3 of the 6 product underwriting teams to undergo the training. Which of the teams should they choose? Will this get them to their two-year profitability goal (Assume no growth in written premium)?

Interviewer Guidance:

- If confused about the "3 out of 6" options, remind the candidate of the 6 products listed in exhibits 1 and 2: Oil tankers, Pollution, Medical Malpractice, Natural Disaster, Professional Athlete Injury, and Container Ships. They must choose three of these underwriting teams to go through the training.
- All of the remaining needed information has been given to them in exhibits 1 and 2.
- The two-year profitability goal is $40 million
- A good candidate will walk you through their calculation process before running the numbers. There are a few ways to do this, but this is the simplest:
  1. For each product, subtract the industry average loss ratio from TTP's loss ratio (these numbers are on exhibit 2) to calculate the potential improvement percentage.
  2. Multiply that number by the corresponding 2016 written premium in exhibit 1 to determine the potential savings
  3. Repeat for each product, determine which 3 offer the best opportunity for savings

(Math on next page)

TTP Specialty

Prompt #2 Interviewer Guidance continued:

	Oil Tankers	Pollution	Medical Malpractice	Natural Disasters	Professional Athlete Injury	Container Ships
TTP loss ratio	80%	83%	79%	79%	81%	79%
Industry average	75%	76%	75%	74%	75%	75%
Improvement opportunity	5%	7%	4%	5%	6%	4%
2016 written premium ($M)	200	150	400	75	100	75
Potential savings ($M)	10	10.5	16	3.75	6	3

As you can see from the math above, the greatest opportunity for savings comes from providing the training to the underwriting teams focused on Oil Tankers, Pollution, and Medical Malpractice.

Additionally, this should bring TTP to its profit goal ($40M profit). The training will result in $36.5M in savings in addition to the existing profit of $10M, so $46.5M total.

Case Title

Recommendation

- TTP's CEO is about to walk in – please prepare a recommendation for him.

Interviewer Guidance:

- Interviewee should identify bad underwriting as the problem and recommend TTP train the Oil Tanker, Pollution, and Medical Malpractice groups. This will result in savings of $36.5M and get us to the $40M profit target.
- Interviewee should also identify risks – here are a few possibilities:
  - Training won't be as effective as promised
  - Other causes to increased loss ratio
  - Training may cost a lot – not mentioned in case
- Interviewee should end with potential next steps. Best answers will connect back to the risks previously mentioned. Some examples:
  - Ask for a trial run from SpecialtyTrain to see if the training is as effective as they say
  - Work with actuaries to ensure proper underwriting guidelines in place
  - Evaluate cost impact of adding training

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	An average candidate will successfully get through the case but will need a few nudges along the way. An average candidate should be able to build a standard profitability framework to start the case. An average candidate should complete most, if not all, of the public math fairly easily.
Good Candidate	A good candidate will get through the case with minimal assistance. Public math will be spelled out clearly and calculations will be done correctly. A good candidate should be able to identify that claims costs, driven by bad underwriting, were causing the decrease in profitability.
Excellent Candidate	An excellent candidate will build a strong framework, move through the case efficiently, and easily identify the root causes of the decreased profitability. An excellent candidate should have provided a number of creative options during the brainstorm. Lastly, an excellent candidate should also be able to clearly explain their public math and correctly calculate the answers.

GridMask faces its future

Industry: Tech

Quantitative Level: Medium

Qualitative Level: Medium

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time where you worked on a project with a team that faced a particular challenge. What role did you play in the process?

Question 2:

- Could you talk about a project that didn't go as you planned, and what you learned from the experience?

GridMask faces its future

Prompt #1:

- Our client, GridMask, is a software company that for the last two years has focused on developing face-detecting systems. The technology is ready to be deployed in 2017 and the company is looking at ways to sell it. For instance, to provide payment authorization, access facilities, or assist the authorities in tracking down criminals.
- The client has hired us to (1) identify the best revenue streams to focus on, and (2) strengthen venture capitalists' perception of market feasibility for potential new rounds of financing.

Interviewer Guidance:

- The interviewee should ask about the current financial situation of the company. How did they finance their project for the two last years? Did they have any revenue during that time? Why are they in need of new financing rounds and what are they looking to achieve with the additional funds? Are there competitors?
- Information to be given if asked:
  - GridMask covered all its expenses with venture funds and can fully operate until the end of 2016 without needing additional money.
  - They only had negligible revenue streams in the past years from small consulting projects.
  - They have identified that they can start generating revenue to sustain their operations a year from now (2018 - just before depleting their current budget)
  - There is one more company already offering a similar but very inferior finished alternative.

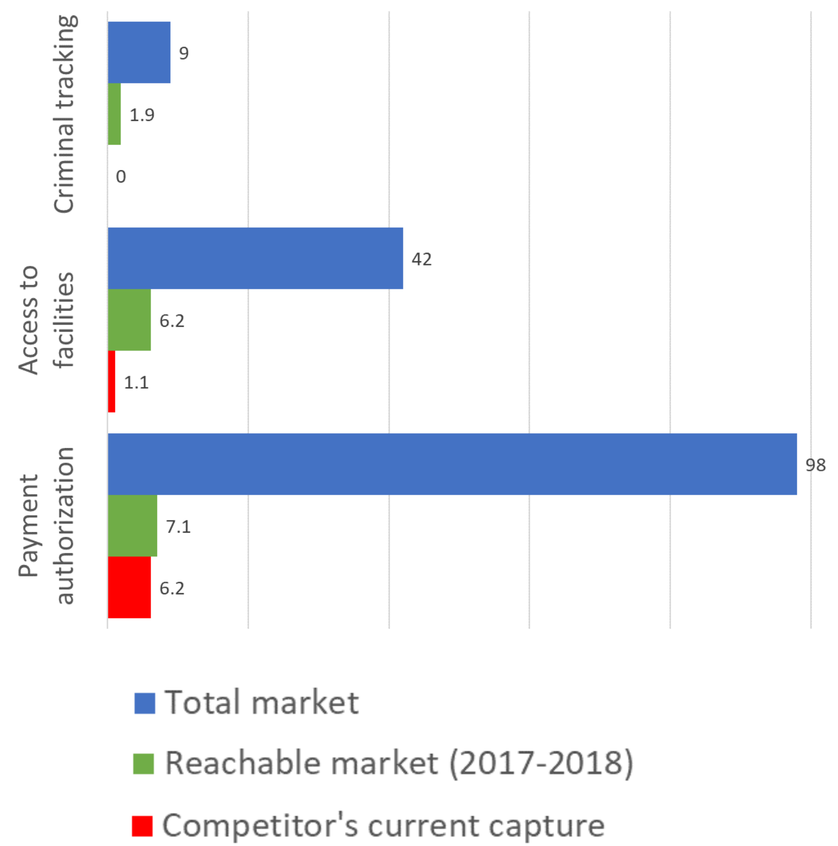
Exhibit #1: Income & Revenue Streams

- Selected income statements for GridMask (in millions of USD)

	2016	2017 *(expected)* *	2018 *(expected)* *
Revenue	1.2	1.9	15.2
COGS	0.3	0.4	2.1
Gross Profit	0.9	1.5	13.1
Operating Expenses	4.2	5.3	6
Operating Profit	-3.3	-3.8	7.1

* Expected statements from distributing selling efforts across all identified markets *with the same level of marketing efforts*

- Identified opportunities for all potential clients



Interviewer guidance on Exhibits

Exhibit #1 Guidance:

- The left exhibit shows the company's current income statement and two "expected" statements for the following years. The interviewee should note that the comment at the bottom creates a dependency between acting "equally" across all the industries they could possible cater to, and that this is not set in stone.
- The right exhibit shows different options of risk and reward across clients.

Analysis:

- The left exhibit shows serious concerns about the current financial situation of the company, but it seems that the 2018 revenue will switch things. If they could establish solid revenue streams after they get their first clients as they project, the positive ROI is almost immediate after that.
- Looking at the right exhibit, the untapped potential for "Payment Authorizations" is huge, but GridMask's competitor is already a solid actor in that space (87%). If GridMask's product is really good, they could displace the competition, but the distance might be too grate already.
- On the right side again, "Access to Facilities" offers the better balance between a big market and a smaller share of the competition (18%)

GridMask faces its future

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation

- Dorian Black, GridMask's CEO, needs to set up the narrative of his presentation for a group of venture capitalists that will meet with him next week. How would you summarize your findings?

Interviewer Guidance:

- A good interviewee should identify that capitalists will like the positive operating profit for 2018 but that the numbers for 2017 need heavy funding. It is paramount to ensure the sustainability of the company from 2018 onwards.
- While GridMask's product seems better than the only competitor in place, they have a hold in part of the market and we might not be able to capture enough share. Dorian Gray should not see all potential revenue streams equally, and focus instead in the ones that could offer more capacity.
- "Access to facilities" is the most untapped market, and "Payment Authorization" is the biggest one. Both offer a good opportunity to grow, and it is up to GridMask to identify if they could displace the competitor in both spaces.
- "Criminal Tracking" is a limited sector, but it could lead to stable contract with governments and a solid stream of revenue. It could have negative synergies if our product is associated with invasion of privacy, leaving competitors to dominate the market even with an inferior product.
- We do not know how our expected price point compares to the competition or the market's demand. Just adjusting that value might improve our revenue streams.

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	• Will answer with a recommendation for GridMask's CEO that clarifies the company plan for 2017 and 2018. • Will recognize that focusing on different revenue streams offer different leverages and risks.
Good Candidate	• Will use the second exhibit to determine which revenue streams are bigger or more reliable than others. • Will mention most of the criteria mention on the recommendation slide
Excellent Candidate	• Will identify the ROI opportunity that represents the project • Will link its recommendations to the potential retaliations or reactions of the competition • Will assess how GridMask's markups can affect the income statements and market capture • Will explore more aggressive or conservative strategies for both good and bad rounds of funding

E-mail? E-mail!

Industry: Retail / IT

Quantitative Level: Medium

Qualitative Level: Medium

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- How are leadership and management different to you?

Question 2:

- Tell me about your own personal leadership style.

E-Mail? E-Mail!

Prompt #1:

- Our client is the Chief Technology Officer (CTO) at a Fortune 100 retailer (Store A Co.) located in the United States. Store A Co. has made an offer to acquire it's largest competitor (Store B Inc.) and FTC approval for the merger is expected in approximately 3 months.
- Our team is helping with synergy estimation and integration planning for the IT division. Store A Co. currently uses X-Mail as their vendor for corporate email and productivity software while Store B Inc. uses Y-Mail.
- The CTO has asked us to help her select the go forward vendor for email/productivity software for the combined company and provide her with the information she needs to justify the selection to the CEO and to the Board.

Interviewer Guidance:

- **Begin by reading the prompt; if the candidate has questions provide any of the following as clarifications, but do not share any additional data until they have brainstormed a framework for solving the problem**
- Productivity software includes word processing, spreadsheet, and slide making applications
- Both companies use a "cloud" based solution → analogous to Gmail and Google Docs or Microsoft's Office 365 tools
- If the candidate asks, the company could theoretically pick a solution from an unnamed third vendor if their was a compelling case to do so
  - The candidate should recognize the additional RISK in converting to a third solution
- Ultimately, the candidate should recognize that the case will involve assessing qualitative and quantitative aspects of the solutions and then pick one to recommend

How would you approach our client's problem?

- **After giving the candidate time to brainstorm a framework, ask: "how would you approach our client's problem?"**
- Answers will vary, but the candidate should at a minimum recognize the need to evaluate the software solutions both qualitatively (features) and quantitatively (costs; synergy implications)
- Potential frameworks could include the following buckets (not exhaustive):

Costs / synergy potential

- How much does each solution cost? (per user?)
- How many users will be using the solution?
- Are there any one-time costs? (e.g. breaking contract, training, or implementation costs)

Qualitative assessment

- What features does the company need?
- What features does each solution have?
- Which is preferred by employees?

Risks / implementation

- How many users would have to switch what they were using?
- How long will implementation take?

- **If the candidate does not include the above three items in some fashion in their framework, suggest that it may also be helpful for the client to consider what they left out…**
  - **Cost of solution and synergy implications**
  - **Features of solution and whether it meets business requirements**
  - **Risks of choosing a solution and implementation plan**

Where would you like to start and why?

- **After the candidate has presented their framework, ask “where would you like to start and why?”**
- There are three exhibits and the candidate will need all three to solve the case; the order that they get the exhibits does not matter, but make sure the candidate figures out what information they need and provide the corresponding exhibit when they ask.

If the candidate asks for:	Provide the following exhibit:
Information about the merger plans, number of employees using solution, number of employees that would have to switch solutions, etc.	**Exhibit 1**: Preliminary consolidation plan
Data related to costs including user costs and implementation costs	**Exhibit 2**: Monthly costs per users
Qualitative information about features	**Exhibit 3**: Key metrics and features

Exhibit 1: Preliminary consolidation plan

Current Company Structure

Store A Co.:
- 2000 employees at corporate HQ
- 1000 stores w/ avg. of 150 employees per store; 3 managers per store

Store B Inc.:
- 1900 employees at corporate HQ
- 1200 stores w/ avg. of 200 employees per store; 3 managers per store

Proposed Future Structure

Combined Store Co.:
- 3000 employees at corporate HQ
  - 1900 legacy Store A Co
  - 1100 legacy Store B Co
- 2000 stores w/ avg. of 150 employees per store; 3 managers per store
  - 950 legacy Store A Co
  - 1050 legacy Store B Co

Interviewer guidance on Exhibit 1

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

- There are two primary things to solve for:
  - How many users will need the new solution? (Combine this info w/ Exhibit 2 to determine cost of each solution)
  - How many users would undergo a change in picking either of the new solutions?
- The candidate should ask if every employee needs email / productivity access; answer is NO
  - All corporate employees require access
  - At the store level only managers require access
  - **ASK the candidate if they think all retail employees need email access if they haven't brought this up**
- [ADVANCED] Top candidates should recall the need to provide a synergy target to the CTO
  - Many candidates will stop once they have found the cost of each future solution
  - Ideally, they should also find the combined cost of the two legacy companies using their legacy solutions and provide the total "synergy" or "savings" amount that the company can expect
  - If the interview has taken along time this isn't necessary, but for strong candidates that have moved quickly but neglected to calculate give them a gentle reminder that the synergy value would be a useful number for the CTO

Analysis:

- How many people will need the new solution?
  - 3000 Corporate employees + 6000 store level employees (3 managers per store; 2000 stores) = **9000 users**
- How many people would undergo a change?
  - If **X-Mail** is chosen anybody that previously worked for Store B would change (since they were on Y-Mail):
  - 1100 Store B corporate employee + 3 managers for each of 1050 stores = **4250 undergo a change**
  - If **Y-Mail** is chosen anybody that previously worked for Store A would change (since they were on X-Mail):
  - 1900 Store A corporate employee + 3 managers for each of 950 stores = **4750 undergo a change**
  - OK to make assumption that store level managers stay at their same store
- [Advanced] baseline costs for synergy analysis
  - Requires Exhibit 2 for calculations
  - Store A had 5000 users (2000 corporate + 3 x 1000 at store level) using X-Mail at $6/month x 12 months = $360,000
  - Store B had 5500 users (1900 corporate + 3 x 1000 at store level) using Y-Mail at $5/month x 12 months = $330,000
  - Total baseline cost before was $690,000
  - Baseline vs. X-Mail future is $150K; vs. Y-Mail is $258K

When using Exhibit 1, if the candidate requests cost information, please hand them Exhibit 2

Exhibit 2: Monthly costs per user

# of Users	X-Mail	Y-Mail	Z-Mail
< 1,000	$10.00	$7.00	$2.00
1,001 – 2,500	$8.00	$6.00	$2.00
2,501 – 6,000	$6.00	$5.00	$2.00
6,001 – 15,000	$5.00	$4.00	$2.00
> 15,000	$4.00	$3.00	$2.00

Interviewer guidance on Exhibit 2

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #2 Guidance:

- Costs are charged per user per month
  - Please tell the candidate that the CTO will want to think about things in terms of the "annual cost" or "annual synergy value" of each solution

- Candidate should ask whether there are any other costs to consider → e.g. implementation costs, training costs, etc.
  - Please tell the candidate that the migration & training cost will $100 per person migrated regardless of solution

Analysis:

- **The candidate will need to calculate the annual cost**
- Using calculations from Exhibit 1 and the table from Exhibit 2, they can see:
  - the annual cost of X-Mail would be 9000 users x $5 / month x 12 = $540,000
  - the annual cost of Y-Mail would be 9000 users x $4 / month x 12 = $432,000
  - the annual cost of Z-Mail would be $216,000

- **Calculating migration costs**
- Using this and $100 per person migration & training fee provided by the interviewer, the candidate can see:
  - Migration cost to X-Mail would be 4,250 x $100 = $425,000
  - Migration cost to Y-Mail would be 4,750 x $100 = $475,000
  - Migration cost to Z-Mail would be 9,000 x $100 = $900,000

- **Calculating synergy baseline**
- Using calculations from Exhibit 1 and the table from Exhibit 2, they can see:
  - Store A was spending
  - Store B was spending
  - The total combined cost before the merger was

When using Exhibit 1, if the candidate requests user information, please hand them Exhibit 1

Exhibit 3: Key metrics and features

DUKE FUQUA SCHOOL OF BUSINESS

Feature	X-Mail	Y-Mail	Z-Mail
Storage Capacity (per user)	10GB	50GB	1GB
Offline Access	●	◑	○
Productivity Suite	●	●	◑
Calendar Functionality	●	◑	◑
Directory	●	●	◑
Security	●	●	●

● Full ◑ Limited ○ None

Interviewer guidance on Exhibit 3

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #3 Guidance:

- Ask: What do you takeaway from this data?
- For context, you can share that this is from an assessment that an independent IT expert did of the key features of each solution
- **If asked, the client has indicated that users today need 3GB of storage; anything less would be very difficult to operate with**
- **If asked for Y-Mail:**
  - Limited "Offline Access" means a user can only see their last 100 emails on their computer if they don't have an internet connection
  - Limited "Calendar Functionality" means a user can see their calendar on their phone, but needs to use the computer to add events to it
- **The candidate can make their own conclusions about whether these features are important or not**

Analysis:

- The candidate should quickly realize that Z-Mail does not have enough storage capacity and can be ignored
- **The candidate can make their own conclusions about whether or not Y-Mail has enough features → it should not be explicitly excluded without the candidate justifying why the "limited" aspect of the two features would be unacceptable**
- **The candidate should realize that they need to think about these features in the context of the cost difference and make a conclusion**

Recommendation & Conclusion

Prompt #2:

- We're expecting the CTO to stop by any minute for an update. Can you summarize the recommendations we should make to the client?

Interviewer Guidance:

- Once the candidate has assessed the costs and features of the solutions they should be asked the above question
- Do not give the candidate too much time to draw conclusions; they should have the various pieces of their analysis well organized and be ready to make a recommendation immediately
- The candidate **MUST** recommend either X-Mail or Y-Mail and should include the following:
  - Annual cost of the solution (see Exhibit 2 notes); one-time cost of picking a solution (see Exhibit 2 notes)
  - [ADVANCED] Value of synergies vs. the baseline value (see bottom of Exhibit 1 notes)
  - Commentary on qualitative features: X has all features or justify why limited on some Y is OK
  - THE CANDIDATE SHOULD ALSO TALK ABOUT RISKS; more risk with move to Y-Mail since more users undergo a change and since more corporate employees undergo a change and they probably use it more
  - Candidate may also realize that for a Fortune 100 retailer these costs and synergies are relatively small and ultimately either solution is probably OK
- **SAMPLE RESPONSE: "I recommend the combined company select X-Mail because it is a feature rich solution that minimizes transition & training risk. Although the run-rate cost ($540K) is more expensive than alternate options, the company will still have $150K in synergies from combining their email solutions. Additionally, it requires training 500 fewer employees and has less risk since fewer employees need to transition.**

Driving Me Crazy

Industry: Automobile

Quantitative Level: Medium

Qualitative Level: Medium

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me something about yourself that I don't already know (i.e. something not on your resume or application)

Question 2:

- Why should we not hire you?

Driving Me Crazy

Prompt #1:

- A leading automobile manufacturer has had a sharp decline in retail sales in the first quarter of 2017. They have approached you to identify the root causes of the problem and to fix them.

Interviewer Guidance:

Provide when asked.

- Scope of the problem is limited to sales in the US
- Manufacturer’s sale (or primary sale) is defined as, “Sale to the dealership”
- Final sale (or retail) is, “Sale to end customer by the dealership”

Exhibit #1

Sales Figures 2016 - US (All models - # of cars)

	Q1			Q2			Q3			Q4		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Primary Sale	10,495	8,617	12,509	13,578	13,024	14,620	16,412	12,736	10,846	13,906	13,277	15,933
Retail	10,201	9,013	12,456	13,213	13,211	14,589	16,324	12,687	11,003	12,047	11,696	14,434

Interviewer guidance on Exhibits

Exhibit #1 Guidance:

- Sales figures for 2016
- Interviewee should be able to ballpark and see that primary sales have outpaced retail sales in last quarter of 2016
  - If they begin calculating the whole year, drive them to focus on Q4
  - Ignore any stock build up that may result from previous quarters
  - Drive to a number to answer the question - “What percent of the primary sale is now excess inventory in Q4” (Ans: ~13%)
- This has lead to inventory build up at dealers
- Brainstorm for
  - Possible reasons for this build up
  - Implications
  - Solutions
- Give exhibit 2 when discussion comes to reasons for this build up

Analysis:

	Oct	Nov	Dec	Q4
Stock Build up	1,859	1,581	1,499	4,939
As a % of Primary sale	15%	14%	10%	13%

- Interviewee should be able to analyze the numbers and arrive at the conclusion that in the last quarter alone the excess stock has built up to 6% of primary sale.
- Guide the interviewee to this number. Math should be done.

Exhibit #2

US Sales Analysis report-2016

	Enquiries	Test Drives	Bookings	Retail Sales
Jan	476,905	47,691	10,969	10,201
Feb	431,244	43,124	9,487	9,013
Mar	526,458	52,646	13,688	12,456
Q1	**1,434,607**	**143,461**	**34,144**	**31,670**
Apr	699,101	69,910	14,681	13,213
May	690,230	69,023	15,185	13,211
Jun	637,631	63,763	16,578	14,589
Q2	**2,026,962**	**202,696**	**46,445**	**41,013**
Jul	747,436	74,744	17,938	16,324
Aug	494,620	49,462	13,355	12,687
Sep	503,800	50,380	12,091	11,003
Q3	**1,745,856**	**174,586**	**43,384**	**40,014**
Oct	760,543	76,054	13,690	12,047
Nov	876,105	87,610	13,142	11,696
Dec	911,237	91,124	16,402	14,434
Q4	**2,547,885**	**254,789**	**43,234**	**38,177**

Interviewer guidance on Exhibits

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #2 Guidance:

- US Sales Analysis report
- If the interviewee asks about the column titles, tell them that they represent different steps in the sales process
- Drive interviewee to calculating conversion ratios
- Q4 Test Drives (TD) to bookings is lowest. This is a possible cause for a drop of sales in Q4
- Once the candidate as identified that the TD to Bookings numbers are off in Q4, ask them to brainstorm what is causing this (e.g. specific region underperforming, unexpected Q4 turnover, etc.) how they could solve the problem (e.g. altered incentives for employees, discounts on overstocked models, etc.)
- Feel free to push back on the brainstorming ideas to help lead the candidate to the best choice of the alternatives they brainstorm

Analysis:

	Q1	Q2	Q3	Q4
Enquiries to TD	10%	10%	10%	10%
TD to bookings	24%	23%	25%	17%
Bookings to Retail	93%	88%	92%	88%

- TD to bookings calculation to be done but not to arrive at exact number. Only as a comparison.

Driving Me Crazy

Recommendation

- We are meeting the Sales director in an hour. What should we tell him?

Interviewer Guidance:

- Build of inventory took place in Q4 2016 so primary sale in Q1 2017 affected
- Understand why Test Drive to booking conversion was low and see if this still exists
- Interviewee should ask for data that he/she would like to analyze in next steps

Evaluation Criteria

DUKE FUQUA SCHOOL OF BUSINESS

Candidate Level	Assessment
Average Candidate	
Good Candidate	
Excellent Candidate	

Embattled Biopharma

Industry: Biopharma

Quantitative Level: Medium

Qualitative Level: Medium

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- What is something that you would change about the last company that you worked for?

Question 2:

- What is your favorite leadership role that you have taken on and why?

Embattled Biopharma

DUKE FUQUA SCHOOL OF BUSINESS

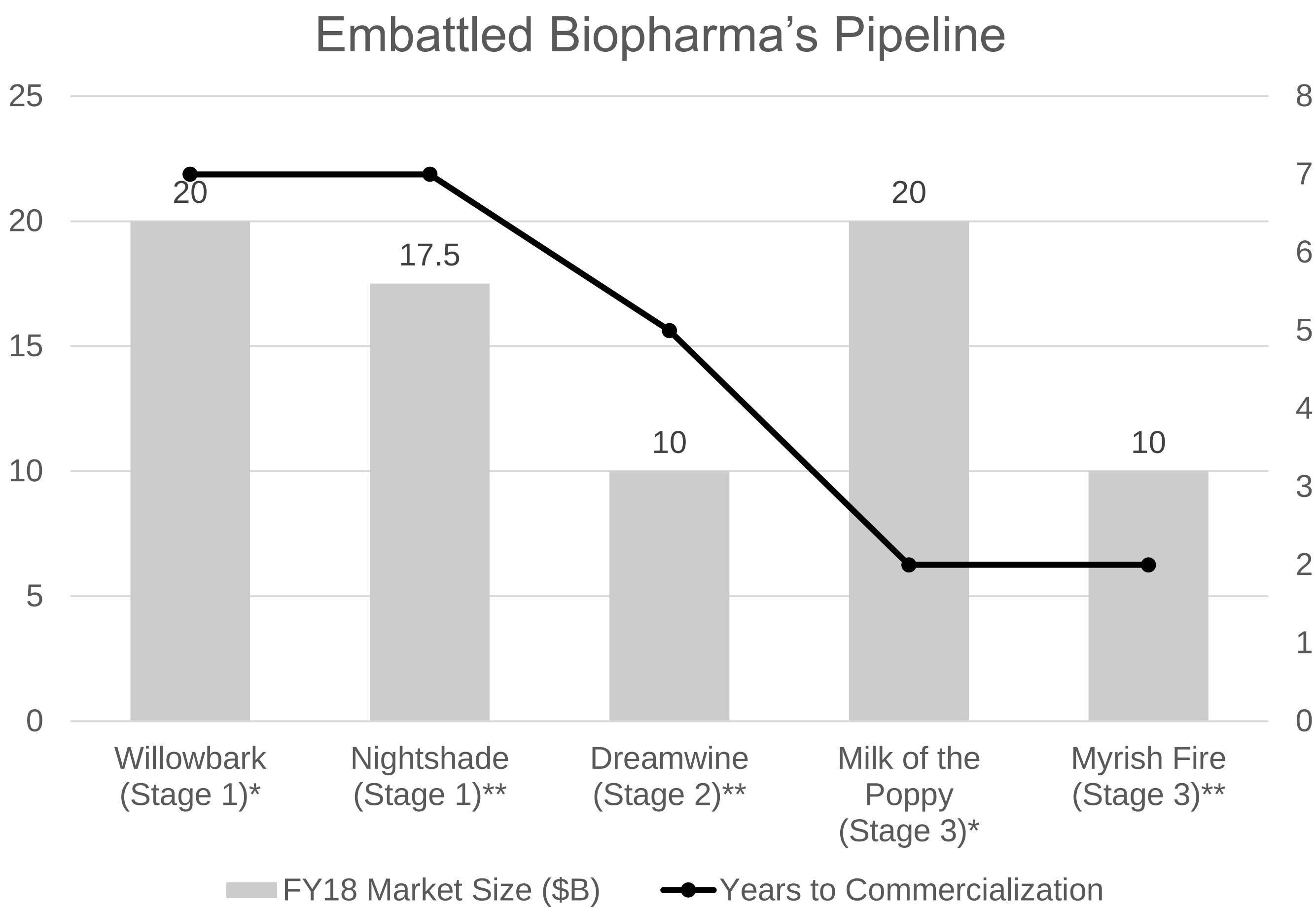
Prompt #1:

- Your client is the CEO of Embattled Biopharma, a leading biopharmaceutical company based in the US whose recent strategic priorities include focusing on oncology and expanding their presence in emerging markets.
- The CEO is under pressure from her board to turn around the recent trend in decreasing revenues. She has hired you to ensure that she can deliver on the promise she made to her board of increasing annual revenues by 50% by 2020.

Interviewer Guidance:

- The candidate should pull out the following additional information
  - FY17 Revenue: \$23B – from this they should identify the target FY20 revenue as \$34.5B
  - They make a wide-range of products spanning multiple therapeutic areas including, oncology, respiratory, and cardiovascular.
  - The majority of their sales are in the US and Europe, but they do have a small presence in Africa and Asia.
- The candidate's framework could be structured a few different ways, but given the short timeline, and the long time to market for biopharma products, they ideally set it up as organic and inorganic growth opportunities.
  - Optional: This could be a good opportunity to experience a free-flowing, conversational "partner level" framework where nothing is written down
  - Note: The info on strategies is for later in the case. If the candidate starts probing, simply tell them it's good that they noted the strategy, let's come back to it.
- Guide them towards analyzing what is currently in the pipeline to determine if they can meet the goal through organic growth. Give them Exhibit 1.

Exhibit #1



Likeliness of Commercial Success	
Stage 1	10%
Stage 2	25%
Stage 3	80%

*Expected YoY Market Growth: 10%
**Expected YoY Market Growth: 20%

Interviewer guidance on Exhibits

Exhibit #1 Guidance:

- Years until commercialization means the number of years before the firm can expect to begin generating revenue.
  - Note: It is currently FY17, meaning a drug with two years until commercialization would hit the market in FY19. Make sure this is clear before the candidate starts doing math.
- If the candidate misses applying any of the factors that will affect their FY20 revenue calculation, the interviewer can either probe them before they start doing math or after, but should make sure all of the below are included:
  1. Market Growth - Given
  2. Likelihood of commercial success - Given
  3. Expected market capture: Tell the candidate that in the first year of commercialization (FY19) the firm can expect to gain a 10% market share, and in the second year of commercialization (FY20), they can expect to gain 25% market share. The candidate should pick up that he or she only needs the number for FY20.
- If the candidate asks, tell them to use FY17 revenue ($23B) as a basis for revenue in future years and add their pipeline calculations

Analysis:

- The candidate must recognize that only the two Stage 3 pharmaceuticals will help them reach their goal of increasing revenue by FY20.
- Therefore, only Milk of the Poppy and Myrish Fire will be ready in time to help meet the CEO's stated goal of increasing revenues by 50% by FY20.
- Once the candidate ID's the two drugs that will help the frim reach their revenue goal, they need to perform the following calculations:
  - The candidate needs to grow the market size from the given FY18 numbers by the percentages in the footer to get to FY20 expected market size
  - Then they need to factor in the 80% chance of commercial success from Stage 3.
  - The candidate also needs to identify the expected penetration rate (not given), by pulling it out of the interviewer
  - Note: Given that these are all multiplication calculations, it doesn't matter what order they want to do them in.
- They will be $3.78B short of their goal.

Interviewer guidance on Exhibit 1

	FY18 Market Size	FY19 Market Size	FY20 Market Size	Likeliness of Commercial Success (80%)	FY20 Market Share (25%)
Milk of the Poppy (YoY Growth = 10%)	$20B	=20*1.1 =**22**	=22*1.1 =**24.2**	=24.2*.8 =**19.36**	=21.78*.25 **=4.84**
Myrish Fire (YoY Growth = 20%)	$10B	=10*1.2 **=12**	=12*1.2 **=14.4**	=14.4*.8 **=11.52**	=11.52*.25 =**2.88**
Total FY20 Revenue Generated by the Pipeline					=4.84+2.88 =**7.72B**
Baseline FY17 Revenue					**$23B**
Total FY20 Organic Revenue					=23+7.72 **$30.72B**
Gap to Target FY20 Revenue					=34.5-30.72 **=$3.78B**

Case Title

Prompt #2:

- Given that they are still \$3.78B short of their revenue target for FY20, what else can the firm do to ensure that they reach their goal?

Interviewer Guidance:

- This doesn't need to be read as an official prompt. Hopefully the candidate realizes that they need to consider another option and they can earn points by pushing the conversation forward towards other growth strategies.
- This would be a great time for the candidate to reference their framework, where they hopefully had a potential acquisition listed.
- If they want to brainstorm orally, or in an organized manner on paper, both are fine.
- Ideally they will request to take a look at some information on potential targets. If so give them Exhibit 2. If not, guide them towards considering an acquisition and give them Exhibit 2.

Exhibit #2

Target	Therapeutic Focus	Geographic Focus	# of Drugs in Stage 3	Employees	Projected FY20 Revenue*
Essosi Elixirs	Respiratory & Oncology	US & China	4	750	$3.8B
Highgarden's Hope	Respiratory & Oncology	US	5	600	$2.4B
Oldtown Oncology	Oncology & Cardiovascular	Europe & India	3	1,250	$5.5B
Bravossi Biopharma	Respiratory & Cardiovascular	Europe	1	1,500	$6.5B

*Assume that likeliness of commercialization is already factored in

Interviewer guidance on Exhibits

Exhibit #2 Guidance:

- This is meant to be a relatively quick exercise with no calculations
- The candidate should use the remaining targeted revenue and think back to the prompt and use all of the information throughout the case to execute a process of elimination
- The best choice is Oldtown Oncology
- If they aren't arriving there ask some probing questions utilizing the analysis information
- Note: The employees column means nothing. Steer them away from using it in their analysis.

Analysis:

- The first consideration is the targeted additional revenue of $3.78B – this eliminates Highgarden's Hope as an option
- The candidate should think back to the initial prompt and remember that the firm's strategy revolves around Oncology and entering emerging markets.
- While Bravossi Biopharma has the highest projected revenue, it does not meet either strategic goal of the firm and should be eliminated. Bonus points if the candidate mentions that they only have one Stage 3 drug in the pipeline, and are therefore subject to higher risk of failure due to a lack of diversification.
- While both Essosi Elixirs and Oldtown Oncology meet all of the necessary criteria, the additional breathing room above the revenue target that Oldtown accounts for make it the best choice.

Case Title

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation

- The CEO is walking in the room and wants to know where we stand. What is the plan?

Interviewer Guidance:

- A great answer will quickly get to the point that we should look to acquire Oldtown Oncology because our pipeline will leave us short of our revenue target of $34.5B in FY20. The firm will ensure we hit our target while advancing strategic objectives of focusing on oncology and emerging markets.
- Risks: Current and / or acquired pipeline drugs fail to reach commercialization, market growth and penetration rates are overestimated, acquisition risks (failure to close a deal, failure to integrate – cultures, convoluted supply chain increasing costs, etc.)
- Next Steps: Engage Oldtown Oncology in deal negotiations and begin due diligence, investigate the balance sheet to determine if we need to raise capital for the acquisition, devote more resources to the Milk of the Poppy and Myrish Fire launch teams to ensure a successful FY19 launch

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	• Doesn't identify the revenue target as the key • Incorrect or slow calculations – failure to recognize all necessary calculations • Doesn't pull information forward to drive the case • Needs to be steered towards the correct target
Good Candidate	• Framework covers all growth strategies • Identifies Milk of the Poppy & Myrish Fire as contributors to revenue growth by FY20 • Needs some prompting to include all calculations • Identifies the necessity of an acquisition • Choses Oldtown Oncology with little prompting
Excellent Candidate	• Immediately identifies revenue target of $34.5B • Organizes framework in a sensible, MECE way • Identifies Milk of the Poppy & Myrish Fire as contributors to revenue growth by FY20 • Identifies all necessary calculations (market growth, likelihood of commercialization, and market penetration) with no prompting • Pulls forward information about the firm's strategy and identifies Oldtown Oncology as the best target

Lactose King

Industry: Food Service

Quantitative Level: Medium

Qualitative Level: Medium

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time when you took a risk? What made you make that decision and what did you do to mitigate the risk?

Question 2:

- Tell me about a time when you had to change someone's mind

Lactose King

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #1:

- Our client is Lactose King, a premium ice cream restaurant chain with approximately 3,000 locations throughout the United States. While they've enjoyed consistent profitability and are an industry leader in direct-to-consumer ice cream sales, their revenue has been stagnant over the past few years. What can they do to improve their gross revenue?

Interviewer Guidance:

- Lactose King operates under a simple business model of owning and operating all of their own stores, procuring ingredients from various suppliers throughout the country, and processing/serving the ice cream at individual locations.
- They serve only soft-serve ice cream and related products (milkshakes, ice cream sandwiches, etc.)
- Revenue last year was at $250K/store [$750M], and they would like to improve gross revenue by 33% in 1 year [$1B target].
- The candidate's framework should consider: improving ice cream sales (marketing campaign, expanding outside of the United States), offering a new product (desert or non-desert), utilizing a new sales channel (selling to grocery stores), consumer preferences, etc.

Interviewer guidance on Exhibit 1

Exhibit #1 Guidance:

- Guide the interviewee to examine the overall ice cream sales market or customer breakdown and show them exhibit 1
- This is an analysis our firm did on the latest data for direct-to-consumer ice cream sales over the past year in the United States. The competitors listed are the next 3 biggest players in the US market.

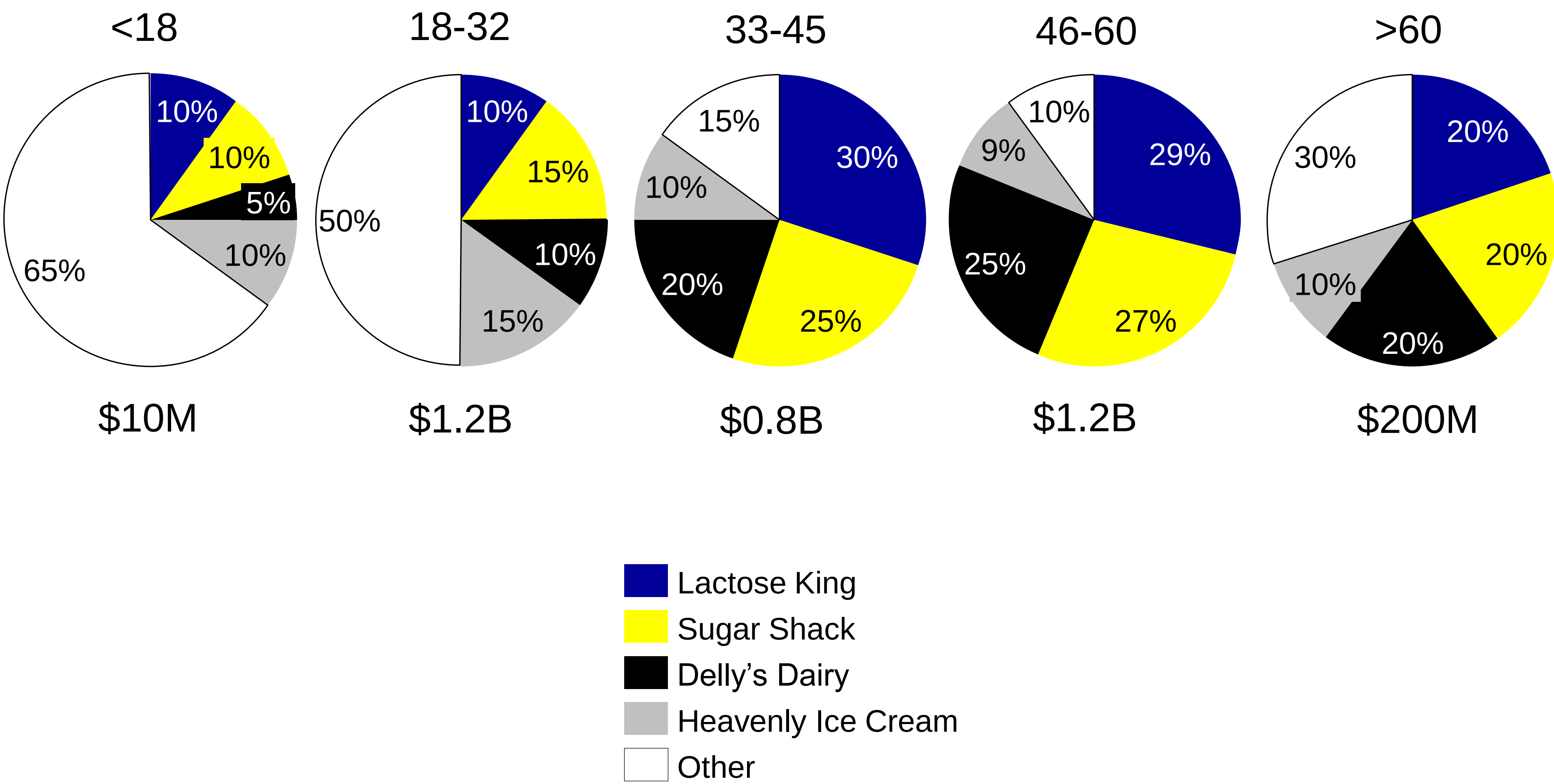
Analysis:

- The candidate should start looking for an optimal customer age group to target for future growth.
- 3 things make up an ideal market for LK to target: market size, % not already held by LK (potential for improvement), and % held by “other” (market fragmentation)
- Note that the market size numbers use different units
- The 18-32 year old market should be the clear pick among these demographics. Once the candidate comes to this conclusion, ask them to brainstorm what might be important to consider when targeting a new demographic for ice cream sales.
- Once the candidate identifies the 18-32 market as a good target (and ideally suggests studying more about that market), hand them exhibit 2

Exhibit #1: Customer Breakdown

DUKE FUQUA SCHOOL OF BUSINESS

2016 US Direct-to-Consumer Ice Cream Buyers by Age



Interviewer guidance on Exhibit 2

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #2 Guidance:

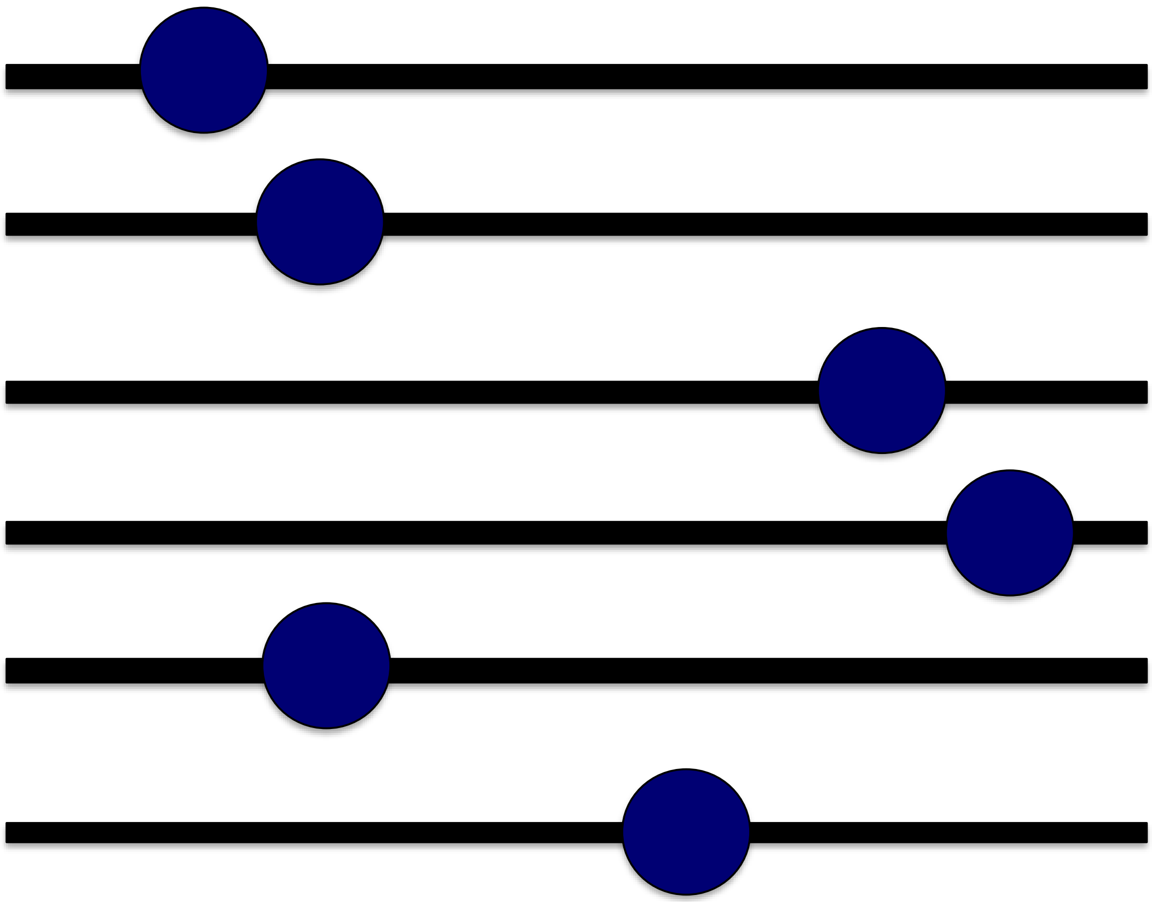
- We conducted a survey for 18-32 year old American ice cream buyers asking them both the importance of several criteria for ice cream stores, as well as how well Lactose King performs within each criteria as compared to other ice cream stores. How might this information help us improve our standing within that market?
- [If the candidate struggles to come up with a recommendation, ask which demographic might have the most potential for Lactose King]

Analysis:

- The candidate should identify the criteria that has the most impact potential for Lactose King. This means finding an area that has high customer performance where LK is lagging.
- While LK performs very poorly with respect to price (not surprising given that they are a premium store), price is only somewhat important to 18-32 customers. Instead, the candidate should notice that low-calorie is a very important category in which LK underperforms
- Once the candidate identifies low-calorie as the best addressable criteria, as them how they would go about addressing this. A good brainstorm should include offering low-calories products, as well as modifying the current recipe for their ice cream

Exhibit #2 Ice Cream Store Criteria

Criteria	LK Performance Compared to Competition (Worst to Best)	Importance for 18-32 Ice Cream Buyers
Price		*Somewhat*
Low Calorie		*Very*
Store Appearance		*Very*
Taste		*Low*
Product Variety		*Somewhat*
Customer Service		*Low*



= *Lactose King's Performance*

Interviewer guidance on Exhibit 3

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #3 Guidance:

- Sugar-free ice cream would be a great way to provide a lower calorie option and there is a small company going out of business that will license us the right to make/sell it for next to nothing. GK has kept the original recipe for their ice cream for generations and do not want to get rid of the old version, so this would be in addition to their original product.
- We conducted a market survey for all ice cream buyers on how they would respond to sugar-free ice cream, and we believe we can obtain the following results for next year.
- **Provided only if candidate asks:**
  - no anticipated market growth in any demographic next year.
  - 1/3 of existing sales are likely to be cannibalized through the introduction of this ice cream.

Analysis:

- The full answers are on the next interviewer guidance slide, but the candidate should realize quickly that he/she should estimate how much additional revenue this would mean for GK based on the percentages provided and the market size from exhibit 1.
- The candidate should conclude that the additional $400K in net revenue satisfies the 33% goal

Interviewer guidance on Exhibit 3 cont.

Age Demographic	Market Size ($B)		%	Market Captured ($B)	
<18	$	0.01	0%	$	-
18-32	$	1.20	25%	$	0.30
33-45	$	0.80	20%	$	0.16
45-60	$	1.20	15%	$	0.18
>60	$	0.20	5%	$	0.01
				$	**0.65**
Cannibalization Loss (33% of $750M)				$	(0.25)
Net Sales Impact				**$**	**0.40**

Exhibit #3 Anticipated Market Share for Sugar-Free Ice Cream

Age Demographic	***Anticipated US Market Share Captured***
<18	*0%*
18-32	*25%*
33-45	*20%*
46-60	*15%*
>60	*5%*

Conclusion

Recommendation

- The CEO of Lactose King is asking for an update on your findings, please make your recommendation

Interviewer Guidance:

- Introducing a sugar-free ice cream will increase revenue by $400K ($1.15B total)
  - This addresses the caloric concerns for the original recipe and we should see particular improvement in the 18-32 year old market
  - Sales to the original recipe ice cream will suffer by 33%, but the sugar-free ice cream sales will more than make up for this
- Outstanding candidates will think of creative ways to market sugar-free ice cream, as well as consider operational issues that may occur with bringing a new product into the stores

Royal Health Services

Industry: Healthcare

Quantitative Level: Medium

Qualitative Level: Medium

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about at time you disagreed with your manager. What did you do?

Question 2:

- How will you apply the business skills you have learned in your previous career, and in business school, to a staff that is unwilling to change?

Royal Health Services

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #1:

- Royal Health Services is a regional healthcare system operating several hospitals and clinics in the Midwest. Due to market fragmentation, and increased costs of providing care, their profit margin has continued to decrease. The board of directors has asked you to develop a strategy to increase profitability over the next two years.

Interviewer Guidance:

- Additional Information to give the candidate if asked:
  - Royal Health operates 7 hospitals and 40+ clinics in Missouri, Kansas, & Nebraska (clinics are less of a focus of this case)
  - Royal Health provides all levels of care to all ages
  - Royal Health is not nationally known for the care provided and is therefore unlikely to attract patients from outside the region
  - Healthcare industry has had considerable consolidation in recent years
  - Regulatory changes and pressure from payers have made in increasingly difficult individual hospitals and smaller health systems to maintain profitability
- **After the candidate presents their framework, ask where they would like to start and why. (Additional guidance on the next page)**

Prompt #1 Guidance

*Areas below are not all inclusive. Highlight potential areas the candidate would like to focus and guidance based on their response

Increase Price

Should the candidate want to discuss increasing margins internally:

- Pricing is highly regulated and subject to bargaining power of health system with payers (i.e. very little that can be done at the health system level)
- Royal Health also unlikely to attract additional patients from surrounding areas or outside region to increase volume (also this is a profitability case, not an emphasis on revenue)

Explore Cost Reduction

Should the candidate want to discuss cost reduction:

- **Ask candidate:** Why they want to look at internal costs and what they should be looking at (brainstorm)
  - Reduction in labor expense, SG&A, IT, etc.
  - Contracts with medical suppliers
  - Contracts with physician groups
  - Overall costs of providing patient care
  - Facilities cost reduction
- **Next step:** After the candidate has brainstormed ideas, inform them that while these may be good ideas, they are not areas that will drive significant impact at this time. Help drive candidate towards competition and/or M&A

Competition/ M&A

Should the Candidate want to discuss competition:

- Provide exhibit #1 and ask for their initial thoughts

Should the Candidate want to discuss M&A:

- Provide exhibit #1 and present the information as potential targets/opportunities

Exhibit #1

Organization	2016 Revenue	2016 Operating Income	# of Hospitals	States of Operation	# of Employees
Health System #1	$800M	$40M	2	KS, MO	~4,000
Health System #2	$7.2B	$576M	34	CO, KS, IL, IN, KY, OH, PA, TX, WA	~55,000
Health System #3	$1.8B	$90M	6	IL, MO, OK	~22,000
Royal Health Services	$2.4B	$72M	7	KS, MO, NE	~27,000

Exhibit #1 – Interviewer Guidance

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance

Provide the candidate exhibit #1 and ask for their initial thoughts

- Hospitals are not necessarily competitors but are targets for M&A (let the candidate determine this)
- Health System 2 is provided to show the benefit of scale; greater margins ideally driving the candidate to consider M&A if that was not already their focus in the initial framework
- The number of employees is unnecessary information as the size of each hospital within the system varies

Organization	2016 Revenue	2016 Operating Income	*Operating Margin
Health System #1	$800M	$40M	40/800 = **5%**
Health System #2	$7.2B	$576M	576/7200 = **8%**
Health System #3	$1.8B	$90M	90/1800 = **5%**
Royal Health Services	$2.4B	$72M	72/2400 = **3%**

Analysis

- Candidate should accurately calculate operating margins (provided above) and note that Royal Health services is currently the worst performer (3%) and that the scale of health system 2 is likely helping drive a higher margin
- Candidate should note that health system #1 overlaps states of operation, while health system #2 has no overlap and health system #3 only shares MO
- After determining that these health systems are not all competitors, the candidate should consider this information has been given to consider targets for acquisition or partnership to increase scale and efficiencies:
  - **If the candidate suggests an attempt to be bought out by health system #2:** after hearing their reasoning, mention the board holds several founding members that are proud of the organization and that they do not want to be sold
  - **If the candidate suggests acquiring health system #1:** after hearing their reasoning and potentially probing for these responses, highlight that there is a great deal of overlap in the regions in which Royal Health and Health System #1 operate. Also highlight that at this time Royal does not have the ability to raise the required capital for a full on acquisition and that the size of health system #1 will not provide the scale they are seeking
  - **If the candidate suggests health system #3:** Their reasoning should include a potential merger to increase scale, ability to expand into new regions, some overlap to take advantage of in the MO market, and value provided to both health systems given the current climate

Royal Health Services

Prompt #2:

- After reviewing your initial analysis, your client has agreed that a potential merger with Health System #3 is their best option to take advantage of scale and to improve their profitability. Health System #3 has expressed interest in this proposal, but would like additional support to help determine if this is worth pursuing.
- What are some of the ways to create value through a merger?

Interviewer Guidance:

- Candidate should brainstorm several categories and present ways to create value in each category. Examples are listed below
- Synergies
  - Reduction of corporate shared service costs (e.g. admin, finance, legal, IT, revenue cycle, etc.) through centralization, potentially headcount reduction, etc.
  - Reduce level of initial and future investments needed
  - Centralize medical services in regions that overlap (improve patient experience, reduce cost, etc.)
- Scale
  - Opportunity to grow and diversify business and access new markets
  - Greater market share; increased bargaining power from suppliers, health plans, etc.
- Growth opportunities by providing a better patient experience and by having a better reputation in the industry
  - Integrated care across the organizations
  - Standardize clinical processes
- **Next Step: Once the candidate has brainstormed several ideas, and has discussed synergies through shared services (e.g. legal, IT, etc.) present exhibit #2**

Exhibit #2

DUKE FUQUA SCHOOL OF BUSINESS

2016 Operating Expense (In Millions)

Organization	Total Op. Expense
Combined Total of Royal & Health System #3	$4,038

2016 Corporate Shared Services – % of Total Op. Expense

Service	Health System #3	Royal Health Services
Finance	6%	3%
Human Resources	4%	7%
IT	8%	11%
Legal	4%	5%
Revenue Cycle	13%	9%

Exhibit #2 - Interviewer Guidance

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

- The first table presents total 2016 Operating expenses for a combined organization of Health System #3 and Royal Health System in Millions
- The second table presents several corporate shared services (Finance, HR, IT, Legal & Revenue Cycle) that combined make up 35% of the total operating expenses for each organization
  - NOTE: Revenue Cycle is a common healthcare function that handles registration, billing, insurance payments, and a large number of other back office functions
- NOTE: the candidate may consider that additional savings could come from scale, or to be conservative to take a mid-point rather than the lowest of each category. For this analysis have them use just the lowest
- The candidate can round to an approximate ~4,000 in total operating expense

Analysis:

- Candidate should determine that by merging, the combined health system should be able to lower shared services costs closer to the most efficient organization
  - For this analysis the candidate should take the lowest percentage from each category, moving from 35% to 28% of the original $4B. At 35% this was for 1.4B in costs, at 28% costs are reduced to 1.12B
  - This analysis should lead to savings of 280 million making total Operating Expenses ~$3,720 rather than ~$4,000
- An excellent candidate will include information from exhibit #1 to find the following:
  - Combined revenue 4.2B (margin with no savings: 4.76%)
  - Combined op income $442M with savings and a total operating expense of $3,720 (combined margin 12.9%)
  - NOTE: this is not necessary for this case and only added value

Royal Health Services

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation

- The Board of Directors for Royal Health Services is about to meet to determine whether there is a strong enough opportunity to further explore this merger. How do you recommend that they proceed?

Interviewer Guidance:

- Recommendation
  - Candidate should recommend moving forward
  - Candidate should include some figures from exhibit #2 as well as other potential value creation opportunities that were brainstormed in prompt #2
- Risks
  - Anti-trust and regulatory issues
  - Synergies not being realized
  - Current regulatory climate (i.e. potential changes to reimbursement should there be changes to the ACA)
- Next Steps
  - Announce that agreement is being pursued; sign definitive agreement to seek regulatory approval
  - Complete due diligence
  - Consider any necessary rebranding

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	• Takes a deep dive into pricing and is not quickly receptive to the regulatory environment • Incorrect or slow calculations – failure to recognize all necessary calculations • Doesn’t pull information forward to drive the case • Needs to be steered in the right direction multiple times
Good Candidate	• Framework covers deep dive cost analysis as well as competitive landscape and/or M&A • Identifies need to calculate margins • Realizes the importance of scale and quickly determines this is a M&A case
Excellent Candidate	• Realizes a fragmented market is a strong signal that M&A should be considered • Quickly calculates margins and determines that scale is important • Selects Health System 3 due to the larger increase in scale over Health System 1 and the ability to expand into new markets • Pulls information from both exhibits to calculate a new margin of a combined entity

Nat’s Nuts

Industry: CPG

Quantitative Level: Medium

Qualitative Level: Medium

Behavioral Questions

Question 1:

- Have you had any mentors? What have they taught you?

Question 2:

- Tell me two things you liked and disliked about your last job before business school.

Nat's Nuts

Prompt #1:

- Nat's Nuts is a private company based in Wichita, Kansas. The company has been family-owned for 3 generations and got its start when Old Nat Nicholson sold his signature salty nuts outside Wichita Wingnuts baseball games.
- Over the past decade, Nat's Nuts has experienced tremendous growth after introducing high quality trail mix products. Taking advantage of consumers' movement towards healthy snacking, Nat's has managed to capture the top market share in the U.S. trail mix category, surpassing even the largest conglomerate-owned brands.
- Despite its recent exponential growth, Nat's still has a small-company mentality and has not taken steps to become more efficient.
- Nat's has come to you for help in improving its bottom line.

Interviewer Guidance:

Additional information to provide if asked:

- Nat's Nuts has two brands of trail mixes: Value and premium. The value line is larger, but premium line is growing faster.
- Nat's sales team has a great track record, with strong sales growth each year. The Director of Sales strongly believes that they should not change product prices, nor should they play with their marketing plans, which continue to be very successful. (i.e. the candidate should focus on costs). This info can be stated after the framework, too.
- Nat's Nuts relies on a handful of incumbent suppliers for its ingredients, packaging, and freight needs. Nat's roasts most of the nuts at its Wichita factory, and combines ingredients into trail mix products.
- ~90% of Nat's costs are on ingredients, like peanuts, raisins, almonds, chocolate candies, and sunflower seeds.

Framework:

- A good framework could include 1) supplier relationships (i.e. sourcing ingredients, packaging material, freight, etc, through a competitive bidding process; futures; long-term contracts), and 2) opportunities to change to lower-cost ingredient specs.
- If framework focuses on revenues, interviewer should steer the candidate towards costs.

Nat’s Nuts

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #2:

- Nat’s Nuts has decided to initially focus on optimizing ingredient specifications (specs), and product composition.
- What are some ways that Nat’s Nuts can reduce its spending on ingredient specs and composition?
- OPTIONAL: If the candidate’s initial framework left costs very broad, interviewer could instead ask: “Nat’s Nuts has decided to initially focus on cost efficiencies. What are some ways Nat’s nuts can reduce its costs?”

Interviewer Guidance:

Possible Answers:

- Size
- Grade
- Number of scratches / split pieces
- Variety / Type
- Roasted vs. raw
- Wholesale replacement of one ingredient for another similar ingredient (a good candidate will note risk of doing this)
- Ratios (i.e. increase proportion of cheap ingredients in a product, decrease proportion of expensive ingredients)

After this brainstorm, a good candidate will drive the case by recommending next steps. Interviewer can also ask for next steps. Next steps could include:

- Analyze competitor trail mix products to see if lower-cost specs are prevalent
- Research costs for alternative ingredient specs (potentially by outreaching to existing suppliers), to ascertain a cost delta
- Assess volumes of top ingredients used by client (when combined with cost delta, this will indicate total savings)

Provide Exhibit 1. If candidate suggests ratio changes in the brainstorm, also provide Exhibit 2.

Exhibit #1

Top spec change ideas generated after analysis of competitor products:

Ingredient	Spec Change Idea	Ingredient Volume (Million Lbs / Yr)	Current Spec Cost ($ / lb)	Alternative Spec Cost ($ / lb)
Almond	Switch to smaller size	2.5	2.61	2.56
Peanuts	Include 50% wholes and 50% splits	12.3	0.70	0.63
Raisin	Switch to cheaper variety	8.1	1.23	1.10
Sunflower seeds	Switch to smaller size	6.0	0.82	0.73
Peanuts	Switch to smaller size	12.3	0.70	0.68
Pecans	Replace pecans with walnuts	0.3	6.20	5.92
Almond	Switch to cheaper variety	2.5	2.61	2.55

Nat's Nuts

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

- Explain to candidate: "After analyzing competitor products' ingredients, we have come up with the following opportunities for optimizing specs."
- If Candidate asks: Only one peanut idea can be applied (either the 50% splits idea, or the smaller size idea).
- If Candidate asks: The two almond ideas are additive. The two cost deltas can each be multiplied by the 2.5 MM lbs volume, and then added together.

Exhibit #1 Analysis:

- Candidate should deduce that he/she needs to find the delta in cost per lb, then multiply by ingredient volume.
- A good candidate will realize that only 50% of the peanut volume for the split peanuts idea can be applied.
- A good candidate will ask if the duplicate ideas (peanut and almond) are additive or mutually exclusive.
- A great candidate will realize that the total savings for switching from pecan to walnut is less than $100K (the smallest $ amount), and a wholesale ingredient change has the highest risk to consumer perception and biggest logistical burden (labeling on package, SKU registration, etc.), so the candidate may suggest eliminating this idea.

After completion of Exhibit 1 analysis, provide Exhibit 2.

Nat's Nuts

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

Ingredient	Spec Idea	Volume (MM Lbs/Yr)	Current Cost $ / lb	Alternative Cost $ / lb	Cost Delta	Total Savings ($MM)
Almonds	Switch to smaller size	2.5	2.61	2.56	**0.05**	**2.5 x 0.05 = 0.13**
Peanuts	Include 50% wholes and 50% splits	12.3	0.70	0.63	**0.07**	**12.3 x 0.07 = 0.43**
Raisins	Switch to cheaper variety	8.1	1.23	1.10	**0.13**	**8.1 x 0.13 = 1.05**
Sunflower seeds	Switch to smaller size	6.0	0.82	0.73	**0.09**	**6.0 x 0.09 = 0.54**
Peanuts	Switch to smaller size	12.3	0.70	0.68	**0.02**	**~~0.246~~**
Pecans	Replace pecans with walnuts	.3	6.20	5.92	**0.28**	**~~0.084~~**
Almonds	Switch to cheaper variety	2.5	2.61	2.55	**0.06**	**2.5 x 0.06 = 0.15**

- **Total, assuming exclusion of duplicate peanut size idea: $2.4 MM**
- **Total, assuming exclusion of duplicate peanut size idea and pecan idea: $2.3 MM**

Exhibit #2

Top-Selling Trail Mix Product in Premium Line
Total Sales Volume, 2016: 8 Million lbs

Ingredient	Cost, $ / lb	Ingredient Ratio
Dark Chocolate Espresso Chips	1.60	33%
Cashews	5.72	24%
Dried Cherries	4.35	29%
Pistachios	7.54	14%

Nat’s Nuts

Exhibit #2 Guidance:

- Explain to candidate: “Now that we’ve looked at spec changes, we also want to look at composition changes.”
- If candidate asks: For ratios, the client does not want to consider changing out one ingredient for another.
- It is not important that the candidate arrives at a specific savings number here; it is more important that the candidate uses a reasonable constraint for the ratio adjustment. For example: max 3% total change (i.e. from 20% to 23%); or max 20% variation from original percentage (i.e. from 10% to 12%). A great candidate could note that both constraints together would be ideal to produce reasonable ratio changes (but this is not required).
- A good candidate could caution against decreasing both cashews and pistachios, since that could reduce the overall “nutty” flavor.
- The example below uses a max 1% total change constraint for each ingredient.
- A great candidate will note this is just one product’s ratio changes; further savings can be found in Nat’s other products, especially since the value line is larger than the premium line

Ratios: Top-Selling Product in Premium Line (Total Sales Volume: 8 Million lbs)

Ingredient	Cost / lb	Current Ratio	New Ratio	Savings / Delta
Dark Chocolate Espresso Chips	$1.60	33%	**34%**	**+1% x 1.60 = 0.02**
Cashews	$5.72	24%	**23%**	**-1% x 5.72 = -0.06**
Dried Cherries	$4.35	29%	**30%**	**+1% x 4.35 = 0.04**
Pistachios	$7.54	14%	**13%**	**-1% x 7.54 = -0.08**
Total cost / lb		**$4.22**	**$4.14**	**-$0.08**

Total $ Savings: $0.08 x 8 MM lbs = $0.64 MM

Nat's Nuts

Recommendation

Recommendation could include the following points:

- Spec changes result in ~2.3MM in savings; ratio changes result in further savings of (based on candidate's calculations)
- Client should further validate these ideas through consumer testing
- Ratio adjustments can be applied to other products for additional savings
- A great recommendation could also provide thoughts on implementation (regional rollout, national rollout, further market pilot testing, etc)

Interviewer Guidance:

- Candidate should note the risks of spec / ratio changes regarding consumer perception and potential fall in sales. Consumer testing can mitigate, but not completely remove, this risk.
- Candidate could also discuss potential resistance from the client. If Nat's Nuts has grown by providing products with high quality ingredients, the client may balk at reducing quality level.

Akron Tires

Industry: Industrials/Automotive

Quantitative Level: Medium/Difficult

Qualitative Level: Easy

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Can you please tell me about a time where you had to creatively solve a complex problem?

Question 2:

- In consulting you'll always be working in different teams. Please tell me about a time you overcame a challenge while leading a team.

Akron Tires

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #1:

- Our client is Akron Tires, an international tire manufacturer. Despite being a large player in the competitive tire industry, Akron Tires' performance has declined the last three years and they have hired us to reverse this trend.

Interviewer Guidance:

- Provide the following guidance when prompted by the interviewer:
  - **Objective:** Akron Tires specifically wants to increase its margins of its *North American* business segment within the next three years
  - **Business Model:** Akron Tires sells tires to OEMs such as Ford and GM, as well as to large retailers such as Sears and Walmart.
  - **Competitors:** Akron Tires is the 2nd largest tire producer in the industry with 23% of the market. The 1st and 3rd largest players have market shares of 28% and 19% respectively
- The interviewee should recognize that this is a profitability prompt and create a framework that could include the following:
  - Existing/new customers or distribution channels, product mix and new products, pricing/elasticity, promotional strategy, JV/M&A opportunities, corporate overhead and direct/indirect plant costs
  - Changes in customer preferences in the auto industry, autonomous vehicles potentially disrupting the auto industry, low gas prices causing greater miles driven
- If the interviewer does not mention evaluating Akron Tires' existing product line, encourage them to continue brainstorming and guide them in this direction

Exhibit #1a

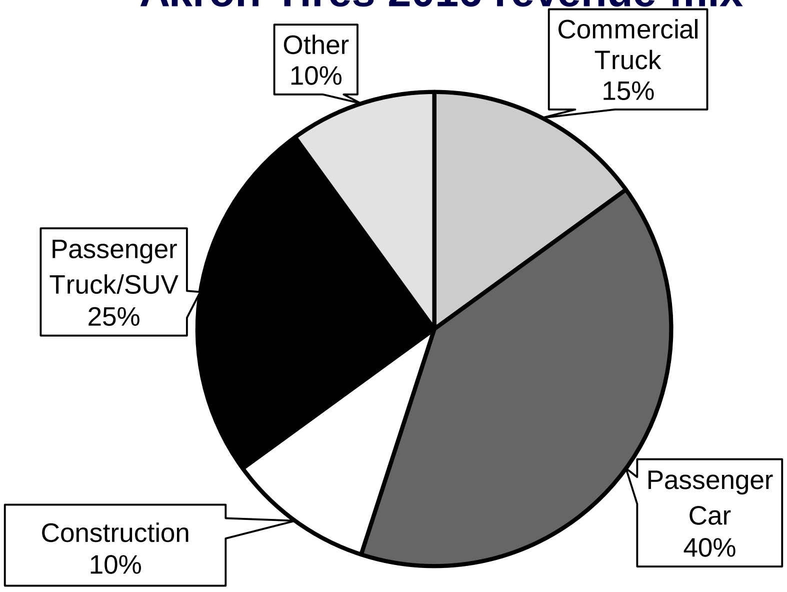
DUKE FUQUA SCHOOL OF BUSINESS

Akron Tires tire sales and costs by segment

	2016	2015
Commercial Truck Tires		
Units sold	2,700,000	2,650,000
Costs(a)	$ 519,750	$ 496,875
Passenger Car Tires		
Units sold	22,500,000	22,700,000
Costs(a)	$1,530,000	$1,525,540
Passenger Truck/SUV Tires		
Units sold	6,250,000	6,150,000
Costs(a)	$ 900,000	$ 830,250
Construction Truck Tires		
Units sold	500,000	498,000
Costs(a)	$ 337,500	$ 327,186

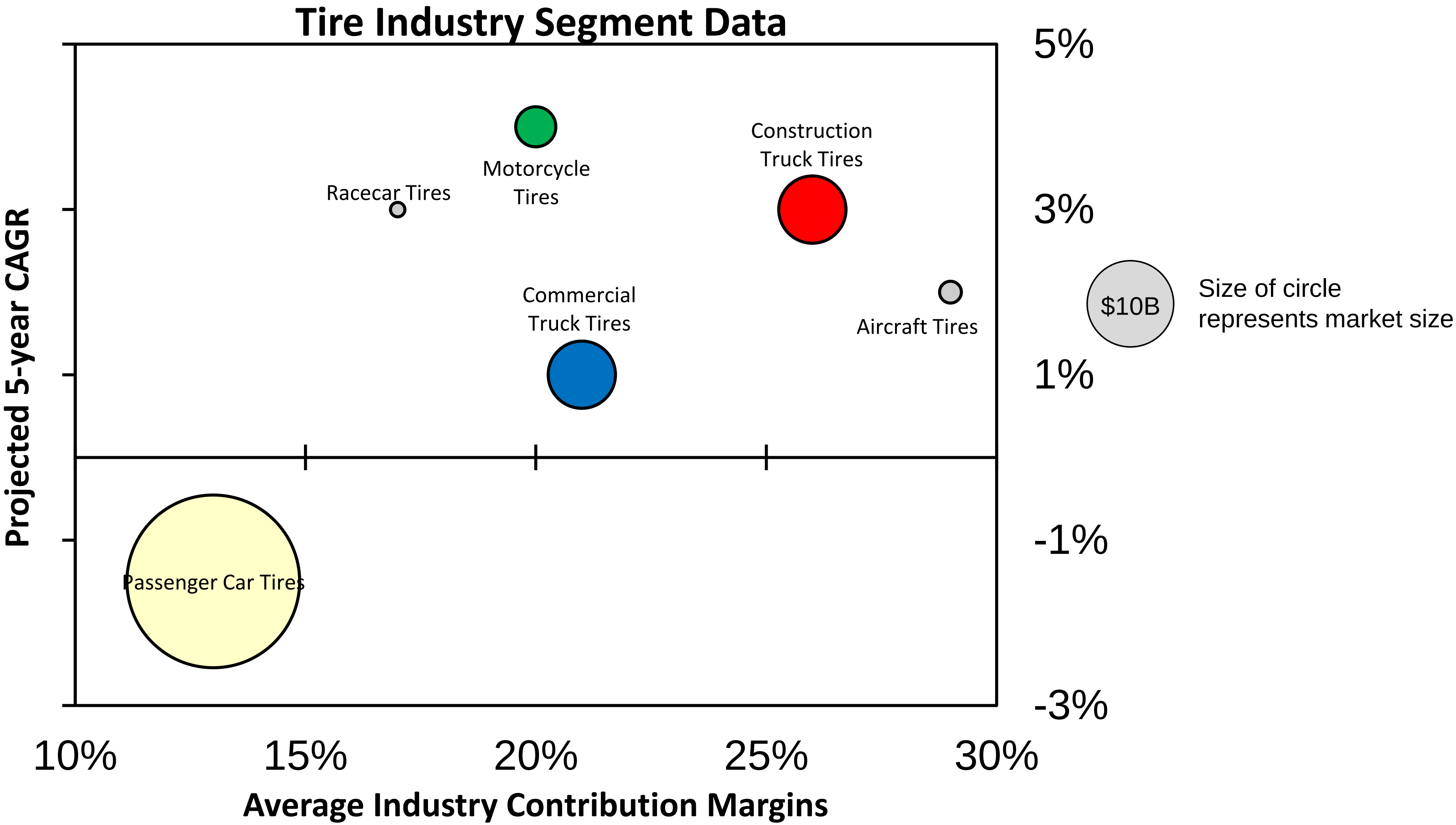
(a) represents variable costs in '000s

Akron Tires 2016 revenue mix



Total 2016 Akron Tires North America tire revenue was $4.50B

Exhibit #1b



Not shown – Passenger Truck/SUV tire segment with 9% projected CAGR, $18B market size, and 23% industry contribution margin

Interviewer guidance on Exhibits

Exhibit #1 Guidance:

- Give the interviewee both Exhibit 1a and 1b.
- The interviewee may want to jump into calculations when looking at Exhibit 1a. If so, guide them away by asking what they see from viewing the two exhibits. The interviewee should form a hypothesis before making any calculations

Analysis:

- Exhibit 1a shows that passenger car tires account for 35% of the company’s revenue, yet over half of their unit sales. Thus, these tires must sell for less than the other tires.
- Exhibit 1b shows that passenger car tire sales have the smallest margins and are projected to decline. Additionally, passenger truck/SUV tires have high margins and highest growth expectations
- The interviewee should synthesize the 2 pages by concluding that the client’s largest revenue segment, passenger car tires, is projected to decline and they should look into producing more passenger truck/SUV tires. However, they don’t know how the client’s margins compare to industry averages

Akron Tires

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #2:

- Before making any recommendations to the client, your team wants to know what Akron Tires' margins are for each of its main segments. Calculate Akron Tires' 2016 contribution margins.

Interviewer Guidance:

- The interviewee will use Exhibit 1a to make these calculations. See calculations below.

	% of Revenue (per Exhibit 1a)	Calculated Segment Revenue	Segment Variable Costs (per Exhibit 1a)	Calculated Contribution Margin
Commercial Truck Tires	15%	$ 675,000,000 ($4.5B*15%)	$ 519,750,000	23.0% ($675M - $519.75M) / $675M
Passenger Car Tires	40%	$ 1,800,000,000 ($4.5B*40%)	$ 1,530,000,000	15.0% ($1.8B - $1.53B) / $1.8B
Passenger Truck/SUV Tires	25%	$ 1,125,000,000 ($4.5B*25%)	$ 900,000,000	20.0% ($1.125B - $900M)/$1.125B
Construction Truck Tires	10%	$ 450,000,000 ($4.5B*10%)	$ 337,500,000	25.0% ($450M - $337.5M) / $450M

- A good interviewee will compare the calculated margins to industry averages in Exhibit 1b. They will note that Passenger Truck/SUV and Construction Truck tires are below industry averages
- If the interviewee doesn't compare to the averages, pause and then ask them what they think their numbers mean

Akron Tires

Prompt #3:

- After further investigation, the client only has one manufacturing plant in North America that produces truck tires. This plant is running at capacity, and all additional truck tires sold in North America are shipped from the client's European plants, which have lower margins. Thus, the client is considering building a new plant in Mexico to increase margins and meet the growing demand for truck tires in North America. What should the client consider when making this decision?

Interviewer Guidance:

- The interviewee should clearly structure their brainstorming into different categories. See below for an example of how they may structure it:
  - *Financial Considerations – Revenue* – how many additional tires do they expect to sell? Would they maintain prices despite having lower costs? What's expectation of growth rate beyond 5 years? How soon can they build plant and start recognizing revenue? How do they expect to be able to capture additional market share?
  - *Financial Considerations – Costs* – how much will it cost to build the plant? How much will it cost to run the plant - labor, utilities? How will they receive raw materials and what's the tariff on importing natural rubber? Do they have the working capital – what's the opportunity cost?
  - *Qualitative Considerations* – backlash from US union factory employees, FX currency risk, recent NAFTA uncertainty, Mexico's business laws/regulations, are there other options besides building – leasing, joint venture?
- Push the interviewee once or twice to come up with additional considerations

Akron Tires

Prompt #4:

- Suppose the client expects to accelerate the plant construction to be finished in 1 year. This will cost the client $400M at the end of year 1. Once the plant is running, they expect the plant to generate $400M in revenue the 2nd year, with costs of producing the tires of $300M. The client optimistically believes that the cash flow from this plant will grow 5% each year after. What is the net present value of building the plant based on the client's projections?

Interviewer Guidance:

- When asked, tell the interviewee that the client's weighted average cost of capital is 25%. See the forecast and calculation below:

	Year 0	Year 1	Year 2	Year n
Construction Costs	$ -	$ 400	$ -	$ -
Cash Flow	$ -	$ -	$ 100	$100 * 1.05^n

- NPV of Construction Costs: ($400M) / 1.25 = ($320M)
- NPV of Cash Flow:
  - Value of perpetuity at Year 1: $100M / (.25 - .05) = $500M
  - Value of perpetuity at Year 0: $500M / 1.25 = $400M
- **Total NPV: ($320M) + $400M = $80M**

Akron Tires

Recommendation

- The CEO and CFO are about to walk in the room and ask for an update. What do you want to tell them?

Interviewer Guidance:

- The interviewee should synthesize the prompts, recommending that the company grow their passenger truck/SUV tire product line and that building a plant in Mexico is a viable opportunity to do so. They will return to their brainstorming to highlight the potential risks of building the plant and to recommend next steps.

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	Profit analysis framework, completes math slowly with few mistakes, brainstorming may not contain structure or may not provide many additional ideas when pressed, may need reminded of growing perpetuity formula
Good Candidate	Provides complete MECE framework, completes math timely with minimal mistakes, brainstorming is structured, correctly calculates growing perpetuity formula but may forget additional step of discounting it back a year
Excellent Candidate	Complete MECE framework, completes math timely with no mistakes while engaging interviewer, structured brainstorming with many ideas when pressed, correctly calculates NPV of cash flow

Howliday Inn

Industry: Market Sizing
Quantitative Level: Difficult
Qualitative Level: Easy

Behavioral Questions

Question 1:

- Describe a time when you had to have a difficult conversation with someone at work.

Question 2:

- Name three traits that describe you.

Howliday Inn

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #1:

- Your client is a private equity firm considering an investment in Howliday Inn, a national chain providing doggy daycare and boarding services. Your client has asked you to size the market for doggy daycare and boarding services in the U.S.

Interviewer Guidance:

- Doggy daycare is essentially childcare for dogs. Daycare is for short-term stays, while boarding is longer stays typically used when the owner goes on vacation, etc.
- Provide the following if requested or if the candidate raises the item as part of their methodology. If candidate assumes numbers that are close, let them use those.
  - **320m** people in the United States
  - **2.5** people per household
  - **40%** of households own a dog
  - Average rate of doggy **daycare** in the U.S. is **$20/day**
  - Average rate of dog **boarding** in the U.S. is **$40/night**
  - If candidate raises the addressability of daycare/boarding services, present relevant exhibits
- This case uses a top-down approach. Bottoms-up is also fine, but no solution is provided due to variability. If candidate is unsure, guide them toward a top-down approach.
- If candidate has assumptions that feel off base e.g. *"9 out of 10 friends I know own dogs, therefore 90% of U.S households own dogs",* question those assumptions.
- The final number should be a dollar figure, not number of nights, etc.

Howliday Inn

DUKE FUQUA SCHOOL OF BUSINESS

Interviewer Guidance on Exhibits:

- A great candidate may recognize that some households own more than one dog. Indicate that the exhibits account for this (e.g. 3-5x a week for doggy daycare would be 3-5x a week in total for the household for both dogs)
- The sample size in either exhibit is not required to do the analysis

Exhibit #1

DUKE
FUQUA
SCHOOL OF BUSINESS

Survey of U.S. dog owners

Q: Does your household regularly use doggy daycare services? If yes, how often?

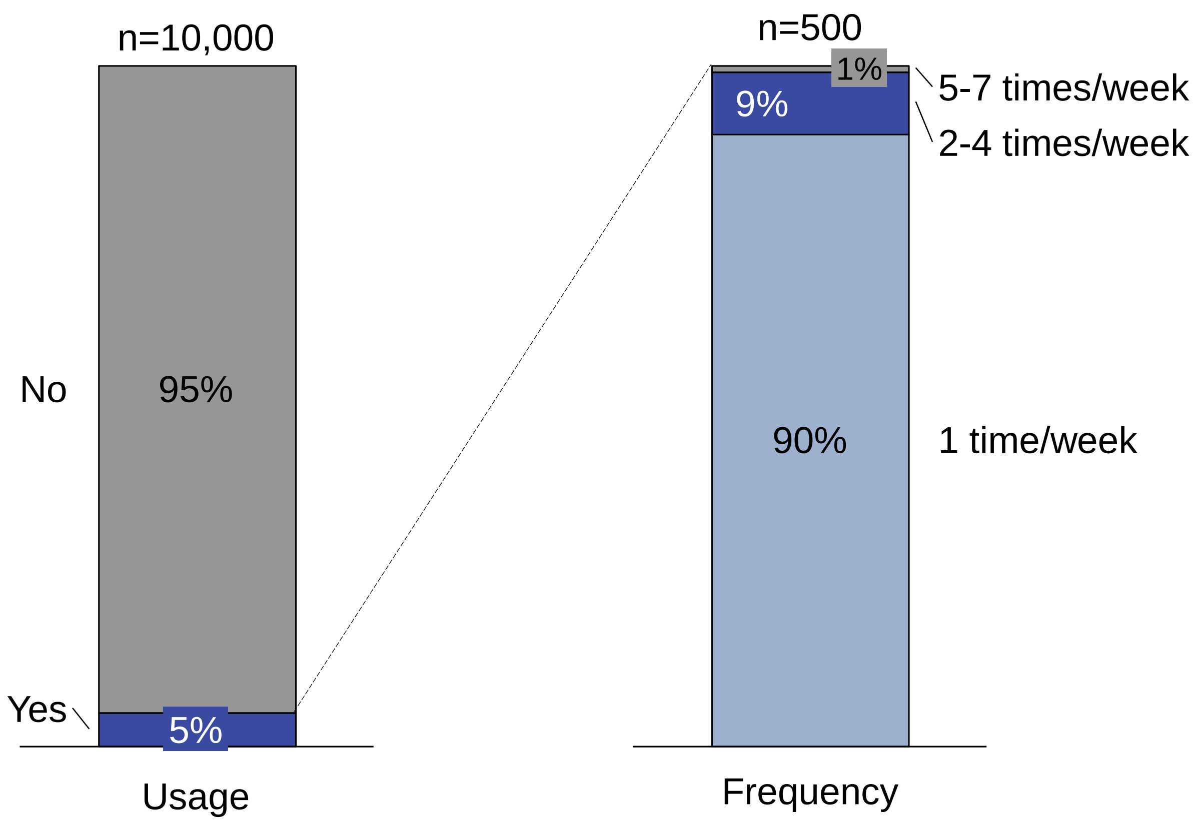
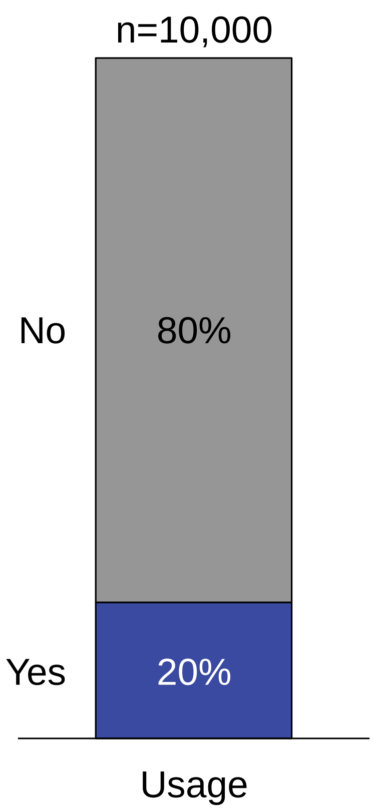


Exhibit #2

Survey of U.S. dog owners

Q: Does your household regularly use dog boarding services?



Expert Commentary

"There isn't a lot of great data available on how many times people bring their dogs for boarding each year, but I'd say most households on average use boarding services twice per year"

-Data Analyst, ASPCA

"Most of my customers board their dogs for the weekend, and my customers are pretty representative of the U.S. average. So maybe each stay on average is about 2 nights long"

-Regional Manager, Howliday Inn

Howliday Inn

True market size is $5.6b for dog boarding (and grooming) according to the American Pet Products Association, so variability is fine if they are close to that range

DUKE FUQUA SCHOOL OF BUSINESS

Interviewer Guidance:

General Notes:

- The sample sizes in the exhibits are not necessary to find the market size.
- Some candidates may raise the fact that some households own more than one dog. In that case, indicate that the exhibits take that into account, e.g. of dog owning households who use doggy daycare services, 9% use doggy daycare services 2-4x a week for both dogs.

Framework:

- 320m people in the U.S. **/** 2.5m people per household = 128m households in the U.S.
- 128m households **x** 40% of households own dogs = 51.2m (~50m) dog owning household

Doggy daycare market size:

- 50m dog owning households **x** 5% regularly using doggy daycare = 2.5m households regularly using daycare
- Of households using doggy day care services, households average 1.2 days of boarding per week. For the math below, 5-7 times a week is averaged to 6, 2-4 times a week is averaged to 5, etc.
  - 1% **x** 6 times per week = .06
  - 9% **x** 3 times per week = .27
  - 90% **x** 1 time per week = .9

  1.23 days of daycare per week (~1.2)
- 2.5 m households **x** 1.2 days of daycare a week **x** 52 weeks in a year (can use 50) **x** $20/day = **$3b**

Dog boarding market size:

- 50m dog owning households **x** 20% using boarding services **x** 2 stays per year **x** 2 nights per stay **x** $40 per stay = **$1.6b**

Total market size: $3 billion + $1.6 billion = **~$4.6 billion**

Howliday Inn

Recommendation:

- The client has asked for an update and would like to hear your thoughts on the market size of the doggy daycare and boarding industry, and if there is anything else they should be considering.

Interviewer Guidance:

- The candidate should provide some high level thoughts on the market size they found, such as an initial judgment on whether the market size seems large enough for an investment. Since answers can be relatively variable for the market size depending on a top down or bottom up approach, you are mostly looking for clear communication and logical reasoning behind their explanation.
- Candidates can raise several questions that the client should explore, such as:
  – Growth of the market
  – The competitive landscape/saturation of the market
  – Trends affecting the market, such as ‘humanization of pets’
  – Adjacencies and new offerings that StarWoof can provide to increase revenue, such as grooming, training, retail

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	• Completes the market sizing exercise, but either has some questionable assumptions or makes multiple math errors • Finds the market size but leaves the number ‘hanging’ – market size is not given meaning unless prompted • Provides limited direction to client during recommendation • Does not raise the importance of market growth • Provides market size in nights/days vs. dollars • Activity is a relatively quiet process – strong market sizers will be interactive
Good Candidate	• Methodology is mostly logical and clear. May provide reasoning behind assumptions and have strong math, but not in all cases • May evaluate the market size without being prompted, but evaluation is limited “market size feels big” vs. “market size feels big…here’s what it means in the context of our client”
Excellent Candidate	• Methodology is always logical and clear – candidate either ensures interviewer is following, and/or walks through methodology before diving in • Candidate is engaging and positive • Provides reasoning behind assumptions, or is upfront about uncertainty with assumptions • Sense checks the market size number upon completion and provides meaning behind the number • During recommendation, a stellar candidate might not only suggest looking at market growth, but also suggest how • Picks up on nuances, e.g. “some households may have 2 dogs”

Retire on the House

Industry: Financial Services
Quantitative Level: Easy
Qualitative Level: Difficult

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Pick any trend in any industry right now and talk about it.

Question 2:

- Pretend you are talking with my 5 year old son and explain what a management consultant does.

Retire on the House

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #1:

- Your client is a large, private financial services company. They are the largest 401k provider in the US with over $5T assets under management. However, they are seeing tightening margins on their financial products and have approached your firm for help. The majority of their customers are aged 55+ and are fearing their ability to afford rising retirement costs. With this in mind, what are some potential avenues for revenue growth?

Interviewer Guidance:

- This is a revenue growth case and not profitability so will focus on revenue. The key here is having a structured approach to identifying new opportunity spaces leveraging the clients current customer base
- **Geography**: Headquartered in Boston, the client serves its customers through 10 regional offices and more than 190 Investor Centers in the United States. With 40,000-plus associates, their global presence spans eight other countries across North America, Europe, Asia, and Australia.
- **Products**: Client currently provides financial planning and retirement options such as IRAs, annuities, and managed accounts; brokerage and cash management products; college savings accounts; and other financial services for millions of individual investors. Client works with employers to build benefit programs for their employees. Offers clearing, custody, investment products, brokerage, and trading services to a wide range of financial firms. The client is not a bank and does not offer any loan products.
- **Competition**: Market share leader and competitor financial information is not available.
- **Business model**: Earn basis point fees on assets under management. Current margins down due to roboadvisors
- **Customers**: Majority of customers are 55+ and the general population trend of 10,000 retiring American's daily has prompted the client to review new products targeting this customer base

Retire on the House

Interviewer Guidance:

- This case is meant to be driven along by the interviewee so wait for him/her to do so after each prompt
- Interviewee should develop a MECE framework that covers most or all of the following examples: existing/new customers, existing/new products (can be illustrated in a 2x2 grid), competitive landscape, entry strategy (build/borrow/buy), market size, risks, regulations, among others.
- If the interviewee does not mention anything about new products, probe further in order to guide him/her towards this direction

Retire on the House

DUKE FUQUA SCHOOL OF BUSINESS

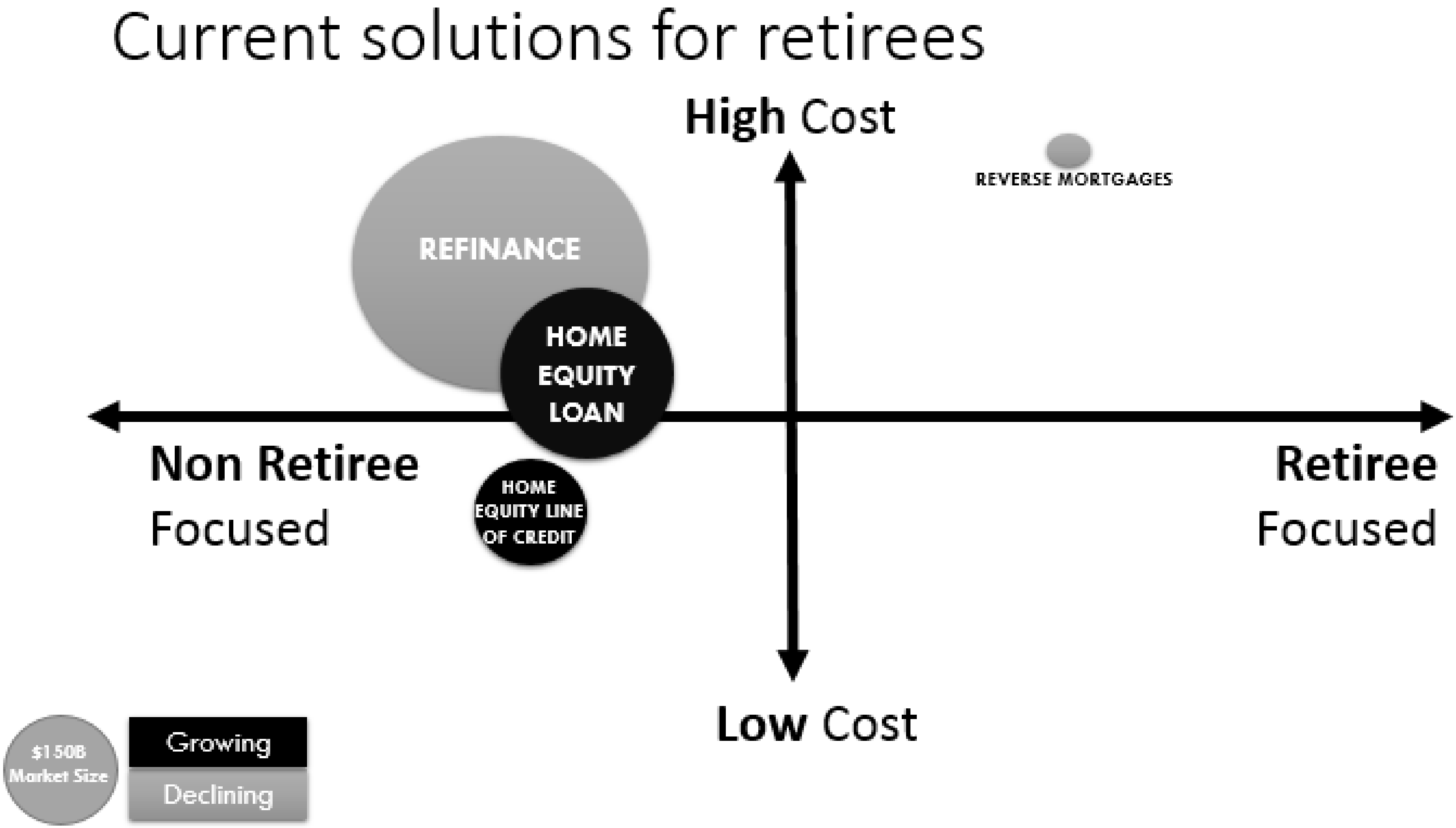
Prompt #2:

- The client is primarily interested in entering the mortgage lending market. The loans would be targeted to the client's retired customers aged 55+ to help them extract equity from their homes to use the cash to pay for everyday living expenses in retirement. Tell me what the client should consider when evaluating entering this market.

Interviewer Guidance:

- Candidate should discuss things like: How the client can win (competitive advantage), how the solutions to the needs can be scaled, a revenue model behind the needs solution, market size, market complexity to reach the customer, customer willingness to pay, competition, regulatory restrictions, etc.

Exhibit #1



Current solutions for retirees
High Cost
Low Cost
Non Retiree Focused
Retiree Focused
REFINANCE
HOME EQUITY LOAN
HOME EQUITY LINE OF CREDIT
REVERSE MORTGAGES
$150B Market Size
Growing
Declining

Interviewer guidance on Exhibits

Exhibit #1 Guidance:

- Here is data on the existing products to help retiree's extract equity from their homes. What are your insights?
- Market sizes if prompted:
  - Refinance: $900B
  - Home Equity Loan: $300B
  - Home Equity Line of Credit: $150B
  - Reverse Mortgages: $10B
- High cost and low cost is the cost to the customer
- These are current solutions for retirees to pull out cash from their homes

Analysis:

- Most home loan products are not focused on the retiree market
  - This is because these products all require a debt to income ratio to be approved (with pension plans disappearing, retirees without income cannot approve for these products)
- Reverse mortgages are predatory and client would never offer these for brand protection reasons
- Interviewee should identify a large opportunity space in a retiree focused product below reverse mortgages
- Interviewee should notice home equity line of credits and loans are growing.

Retire on the House

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #3:

- How would you go about sizing the market for this opportunity?

Interviewer Guidance:

- The candidate should not dive into numbers, rather should explain the process and data needed to collect in order to size the market
- Candidate should look to understand the revenue model of mortgage lending. If prompted, provide that the lender makes a small percentage (1-2%) on the total loan value called origination fees.
- Important data to collect could include: population of those over 60 years old that own a home, % of those homeowners with extractable equity, % of those homeowners that need cash

Retire on the House

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation

- The client's chief innovation officer is about to come in. What is your final recommendation?

Interviewer Guidance:

- The analysis shows an opportunity space to create a new product to help retirees unlock equity in their home to cover rising retirement costs

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	Will consider profitability of current products instead of evaluation strategy of new products, fail to drive the case, make arithmetic mistakes, forget details, and fail to put numbers into context
Good Candidate	Will develop a custom and complete framework, make accurate but slow calculations, will remember details and put everything into context
Excellent Candidate	Will develop a structured MECE framework, understand the clients business model, remember to ask for industry avg. origination fees, put numbers into a perspective, and will drive the case forward at each step, recognize that accessing liquidity is more adjacent to current business than other needs

Fringe Science

Industry: Healthcare

Quantitative Level: Medium

Qualitative Level: Difficult

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:
• If a previous coworker was asked to describe you, what three qualities would they highlight?

Question 2:
• Describe a time when you and a coworker had different opinions on how best to proceed on a project or solve a problem. How was this situation resolved?

Fringe Science

Prompt #1:

Massive Dynamic is a multi-national pharmaceutical company. One of their assets, Cortexiphan, is an anti-infective that successfully treats three major types of hospital-born illness and is currently in Phase II clinical trials. Unfortunately, Massive Dynamic only has the capital to finance a Phase III clinical trial for one of the three illnesses with Cortexiphan treats. Walter Bishop, Chief Medical Officer of Massive Dynamic, has enlisted your help to decide which of the three possible indications for cortexiphan they should pursue to maximize profits over a five year-period post-launch.

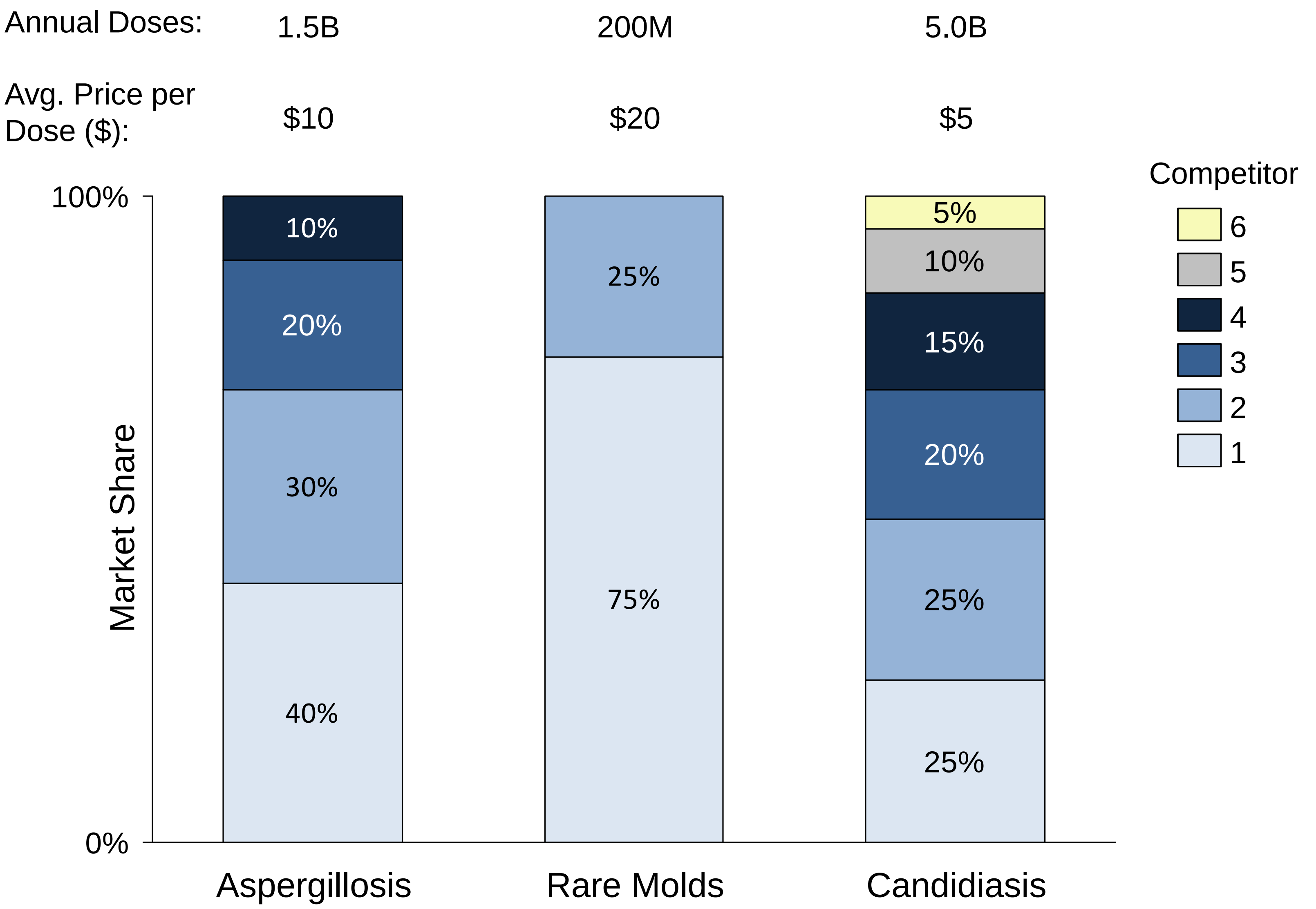
Interviewer Guidance:

Clarifications to be provided:

- Drug is only likely to be approved in the US at this time
- Drug will be sold directly to hospitals by Massive Dynamic; therefore, no need to consider distribution channel cots, etc.
- No need to calculate based on NPV, just do total over five years w/out discounting

- Provide **Exhibit 1** when asked about market size and/or competition
- Provide **Exhibit 2** when asked about development costs or clinical profile
- Provide **Exhibit 3** after an initial indication selected and pricing prompt given

Exhibit #1



Annual Doses:
1.5B
200M
5.0B
Avg. Price per Dose ($):
$10
$20
$5
Competitor
6
5
4
3
2
1
100%
0%
Market Share
10%
20%
30%
40%
25%
75%
5%
10%
15%
20%
25%
25%
Aspergillosis
Rare Molds
Candidiasis

Interviewer Guidance: Exhibit 1

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

Interviewer Prompt: Here is preliminary analysis of the three potential indications for cortexiphan. What are your initial thoughts based on this information?

Potential questions:

- No new entrants other than cortexiphan are likely to enter the market in the time frame we are considering
- Market for all three indications is not expected to grow or decline over time

Analysis:

- Qualitatively, candidate should recognize:
  - Asp. indication has four products available, two of which are used quite sparingly
  - Rare molds indication has only 2 products available, with one clear market leader; physicians likely want more options AND the potential for a lower-cost option than $20/pill (2-4x the other two treatments) is very high provided that our client can make the economics work at that price.
  - Candidiasis is a very crowded indication, with no clear market leader; very strong clinical profile (i.e. the efficacy of the drug relative to other available options within that indication) will be required to penetrate
- Candidate should also calculate total market size for each indication
  - Asp. = 1.5B x $10 = **$15B**
  - Rare Mold = 200M x $20 = **$4.0B**
  - Cand. = 5.0B x $5 = **$25B**
- Candidiasis is biggest, but info on development costs and likely market share in each indication is required before making a decision; candidate should request info on clinical profile (Exhibit 2)

Exhibit #2

Metric	Aspergillosis	Rare Molds	Candidiasis
Probability of Phase III Trial Success	50%	25%	60%
Phase III Trial Cost	$2 Billion	$500M	$1 Billion
Production Cost Per Dose	$7.0	$5.0	$2.0
Safety Profile (vs. Market Leader)	Equal	Equal	Poor
Efficacy Profile (vs. Market Leader)	Superior	Equal	Equal

Interviewer Guidance: Exhibit 2

Exhibit #2 Guidance:

Interviewer Prompt: Our development team has provided the following information on cortexiphan's clinical profile, based on the Phase II trial results

Potential questions:

- Cortexiphan can be assumed to be priced at market average for initial analysis
- Hypothetical market share should be first estimated by candidate based on the information provided in Exhibit 1 & 2 combined
  - Asp = Superior clinical profile to current options; likely to become new market leader (50-60%)
  - Rare Molds = Equal clinical profile; likely to pretty much split the market with current leader; maybe cortexiphan gets a bit less since competition has advantage of being first to market (40-50%)
  - Cand. = Clinical safety profile is worse than leader in a crowded market; at same price as competition we are unlikely to be a significant player (much less than 25% share of market leader)

Analysis:

- Candidate should have sound rationale for market share assumptions; after discussion tell them to use the following for calculations
  - Asp = 60%
  - Rare Molds = 40%
  - Candidiasis = 10%
- Candidate should now proactively calculate annual profits with market share

Profit = (Revenue per Dose – Cost per Dose)*(Market Share * Total Annual Doses)

- Asp = ($10-$7) * (60% * 1.5B) = **$2.7B**
- Rare Molds = ($20-$5) * (40% * 200M) = **$1.2B**
- Cand. = ($5 - $2) * (10% * 5.0B) = **$1.5B**

- Clinical trial costs and probability of success should also be included to make final decision (5 year period); calculations on next page

Interviewer Guidance: Exhibit 2

Analysis:

Profit Calculations					
	Annual Rev.	5 Year Revenue	Trial Cost	Trial Succeeds Profit	Trial Fails Loss
Aspergilosis	$2.7	$13.5	$2.0	$11.5	($2.00)
Rare Mold	$1.2	$6.0	$0.5	$5.5	($0.50)
Candidiasis	$1.5	$7.5	$1.0	$6.5	($1.00)

Trial Outcomes	
Success	Fail
50%	50%
25%	75%
60%	40%

Expected Profit	
Aspergilosis	$4.75
Rare Mold	$1.00
Candidiasis	$3.50

Expected Profit = (Prob Success * Profit if Success) – (Prob Fail * Loss if Fail)

- Asp = $11.5*50% - $2.0*50% = $4.75
- Rare Molds = $5.5*25% - $0.5*75% = $1.0
- Candidiasis = $6.5*60% - $1.0*40% = $3.5

- Candidate should drive to conclusion that Aspergillosis is the most profitable indication if successful, and has the highest expected profit even when accounting for potential failure; therefore, this should be indication chosen

Fringe Science

Prompt #2:

Dr. Bishop agrees with your initial assessment that the aspergillosis indication is a good first indication. Next, he is wondering whether pricing at either a discount or premium to the market will result in increased profitability. What do you think are the main pros and cons of both strategies?

Interviewer Guidance:

Brainstorming exercise; possible answers include:

Premium:

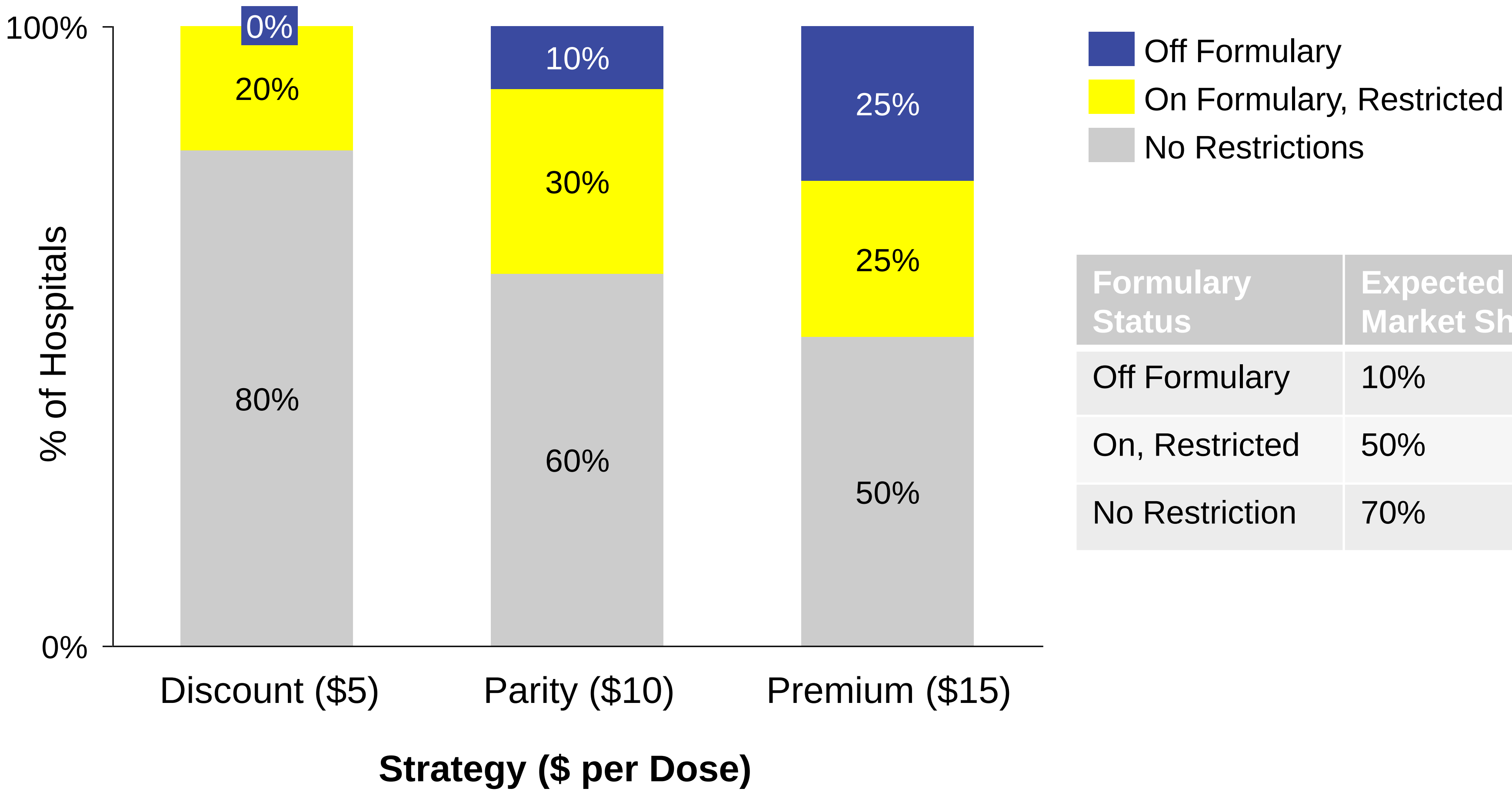
- Pros – Signals to market that product is better than what is currently available, which matches clinical profile; more revenue per dose; can selectively offer discounts to certain hospitals if required, but don't sacrifice revenue pro-actively in case where you don't
- Cons – Formulary status / market share are likely lower; bad publicity w/ current media and government pressure on high priced pharmaceuticals

Discount:

- Pros – High market share and quicker product uptake; can always take price increases over time
- Cons – Decreased revenue per dose; pricing choice for aspergillosis could hinder pricing potential for rare molds or candidiasis if pursue these indications later b/c low price is expected

Exhibit #3

Cortexiphan Aspergillosis Formulary Status Distribution by Pricing Strategy



Formulary Status	Expected Market Share
Off Formulary	10%
On, Restricted	50%
No Restriction	70%

Interviewer Guidance: Exhibit 3

Exhibit #3 Guidance:

Interviewer Prompt: Our market research team has now conducted preliminary interviews with both payers and providers to get more detailed information on how cortexiphan is likely to be used at different price points

Potential questions:

- All hospitals can be assumed to be of similar size for calculation purposes

Analysis:

- Candidate should recognize qualitatively that higher price leads to worse formulary status, and consequently lower market share
- Candidate should determine overall market share at each price point by using a sum-product of percentage of hospitals at each formulary status * expected market share
  - Discount: 80%*70% + 20%*50% = 66%
  - Parity: 60%*70% + 30%*50% + 10%*10% = 58% (round to 60%)
  - Premium: 50%*70% + 25%*50% + 25%*10% = 50%
- Annual revenue should be calculated based on price, market share, and total doses
  - Discount: 1.5B doses * 2/3 * $5 = **$5B**
  - Parity: 1.5B doses * 60% * $10 = **$9B**
  - Premium: 1.5B doses * 50% * $15 = **$11.25B -> five-year = $56.25B**
- Profit tracks with revenue b/c cost is the same, so only need to calculate for premium
  - ($15 revenue - $7 cost per pill) * 0.75B doses annually * 5 years = **$30B** - $2B trial cost = **$28B**

Fringe Science

Recommendation

Based on all of the information presented, what would be your recommendation for Dr. Walter Bishop regarding the development of cortexiphan?

Interviewer Guidance:

- Candidate should recommend pursuing the aspergillosis indication at a premium price of $15 / dose
- This recommendation will result in total expected revenue of $56.25B and profits of $28B over the five-year period post-launch
- Candidate should note risks of strategy (e.g., there is a 50% chance the trial fails, leading to a $2B loss for the cost of the trial)
- Aspergillosis indication is preferred because of cortexiphan's superior clinical profile, high expected market share, and relatively large market size; although candidiasis is bigger market, we are not expected to be a big player based on the clinical profile
- Pricing at a premium hinders formulary status somewhat, but the higher price per dose makes up for this; should also discuss potential cons of premium price

Fringe Science Evaluation Criteria

Candidate Level	Assessment
Average Candidate	• Framework touches only om minority of case components • Some guidance required in driving towards profitability, or misses requesting important information required to make calculations • Focused only on quantitative considerations, lacking on qualitative insights
Good Candidate	• Discusses all aspects of profitability case: market size, competition, market share potential, fixed and variable costs • Calculations are quick and sound • Makes clear, confident recommendations based on information presented
Excellent Candidate	• Framework is customized to healthcare considerations and not basic profitability framework • Proactively thinks about opportunity to pursue different pricing strategies and impact on potential revenue • Notes risks of preferred strategy

Skier? I hardly know her!

Industry: Hospitality

Quantitative Level: Medium

Qualitative Level: Difficult

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time you had a conflict with a colleague

Question 2:

- Tell me about a time you showed initiative

Skier? I hardly know her!

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #1:

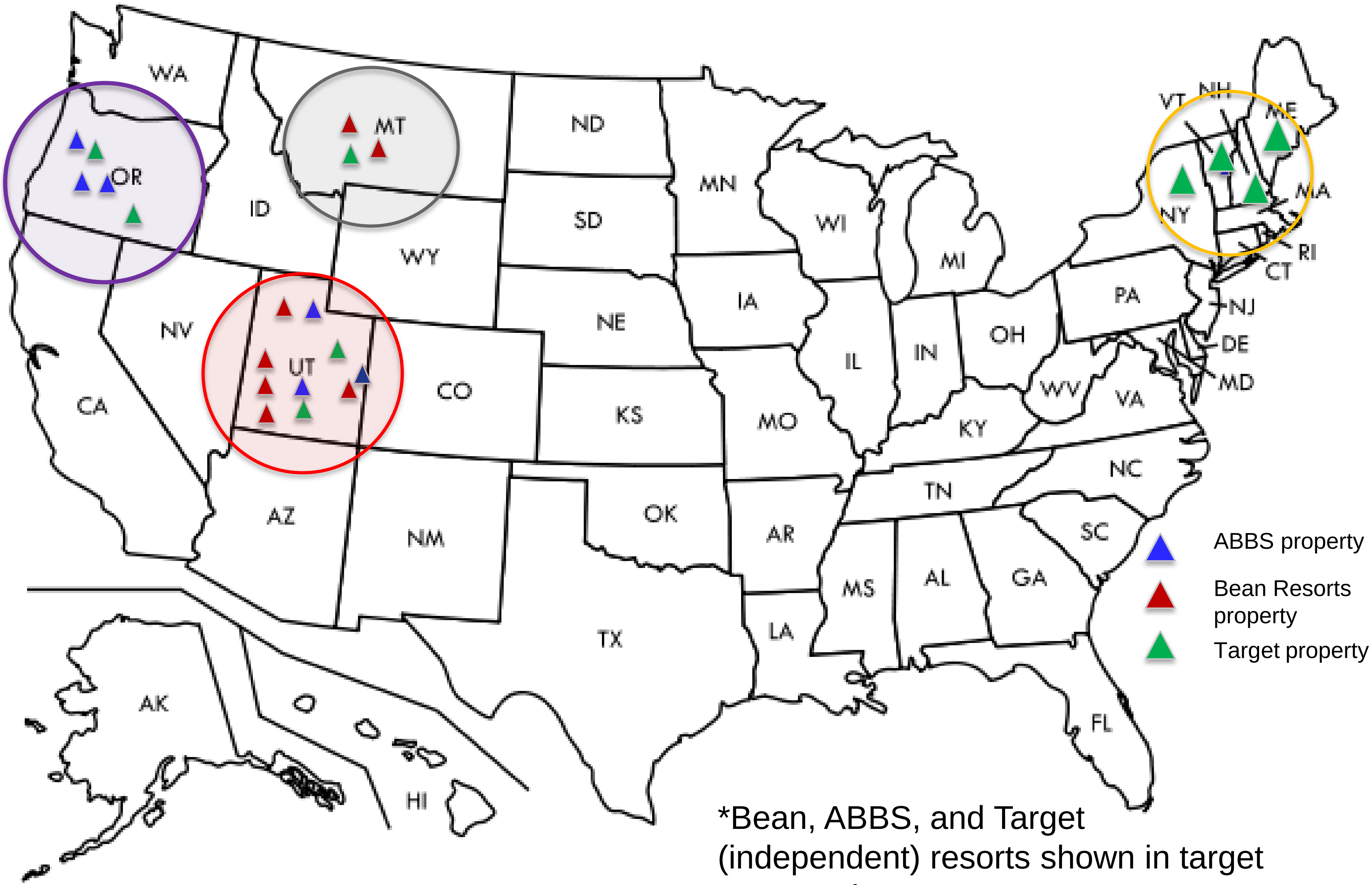
- Your client, **ABBS** (Always Be Being Skiing) **Resorts** is the #2 ski resort collective in the US, with multiple ski resorts throughout the country. They are looking to acquire another ski resort in the US. What should they consider?

Interviewer Guidance:

- Information to provide the candidate (if asked):
  - **Objective**: ABBS is most concerned with choosing a target that makes strategic sense (this could mean a lot of things, including potential market share, ROI, growth outlook, competition, culture fit, strategic locations, etc. **The candidate should come up with these on their own**). **<u>The candidate should uncover this, but make sure it is known that the investors are very demanding and it must be a profitable investment within a 5 year window</u>**
  - ABBS has some targets in mind (if candidate asks, let them know we will get into that later)
  - **Competition**: The #1 player is Bean Resorts (40% market share). Over the past several years, Bean Resorts has stolen more and more market share as it has pursued an aggressive acquisition strategy – something ABBS (20% market share) is looking to duplicate
  - Both ABBS and Bean Resorts are based in Utah, but own multiple mountains throughout the country
  - **Industry**: The US ski industry is $5b, with 20 million total skiers ("skiers" defined as snowsports participants and can include snowboarders)
- A good sample framework includes:
  - **Acquirer**: geographic locations, strengths, objectives, financials, existing market/demographic
  - **Target**: potential synergies (cross selling, multi-mountain ski pass, marketing under one brand, new innovations, cost reductions), risks (e.g. culture clash, saturated markets, low-growth demographics/geographies, cannibalism)
  - **Market**: growth in ski industry, changing demographics (e.g. millennials), customer loyalty to Bean Resorts, global warming
- The interviewee should ask for data on the targets. Ask them what kind of information they'd look for to evaluate the targets. Guide them to ask for relevant information (target price, revenue, demographic, location, growth, etc.)
  - Once most/all of these are requested, reveal that ABBS is considering 4 target states/regions – Oregon, Utah, Montana, and New England, and hand them Exhibits 1a, 1b and 1c

Exhibit #1a – Acquisition target regions

DUKE FUQUA SCHOOL OF BUSINESS



*Bean, ABBS, and Target (independent) resorts shown in target states only

Exhibit #1b – Regional metrics

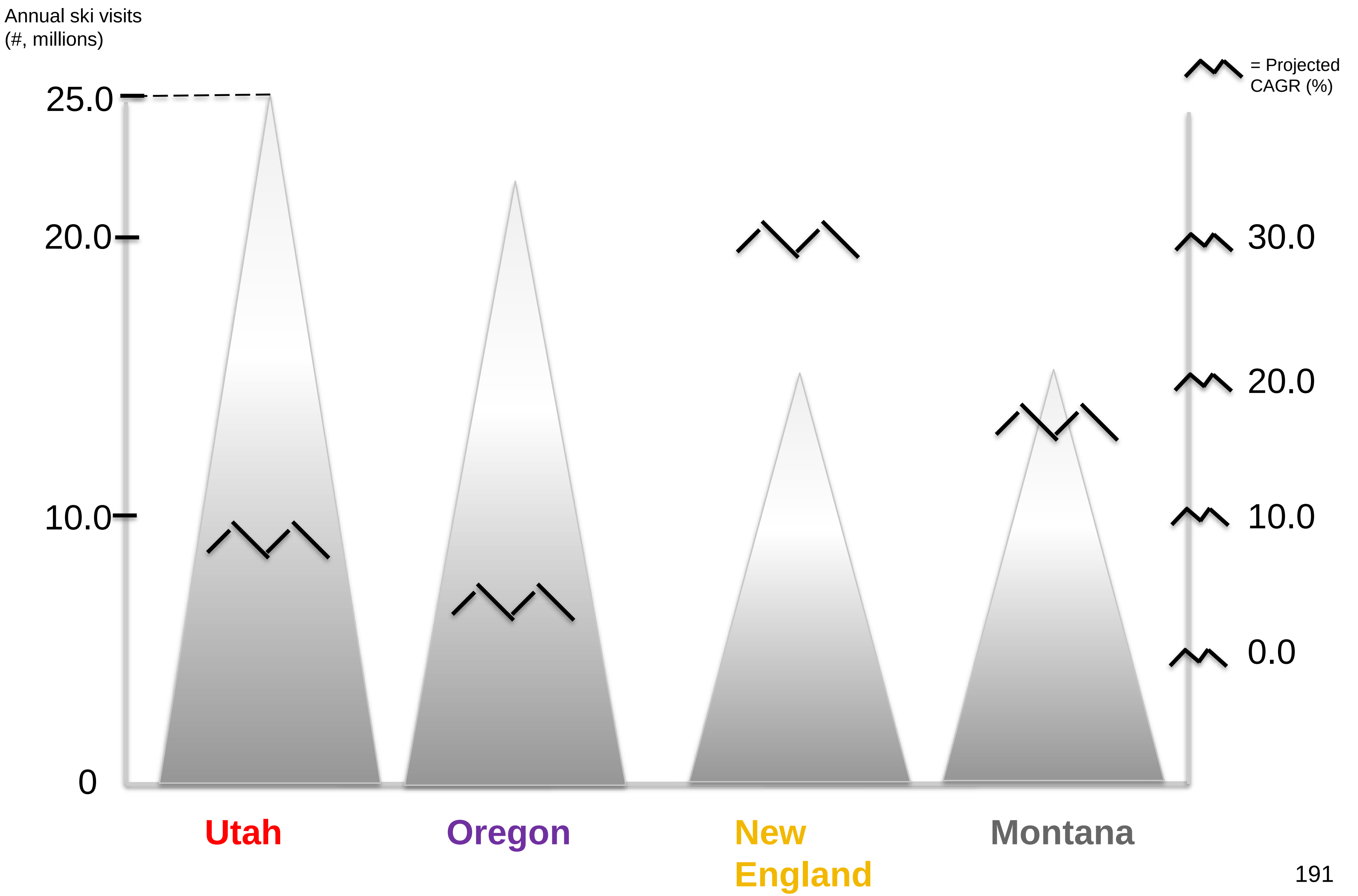
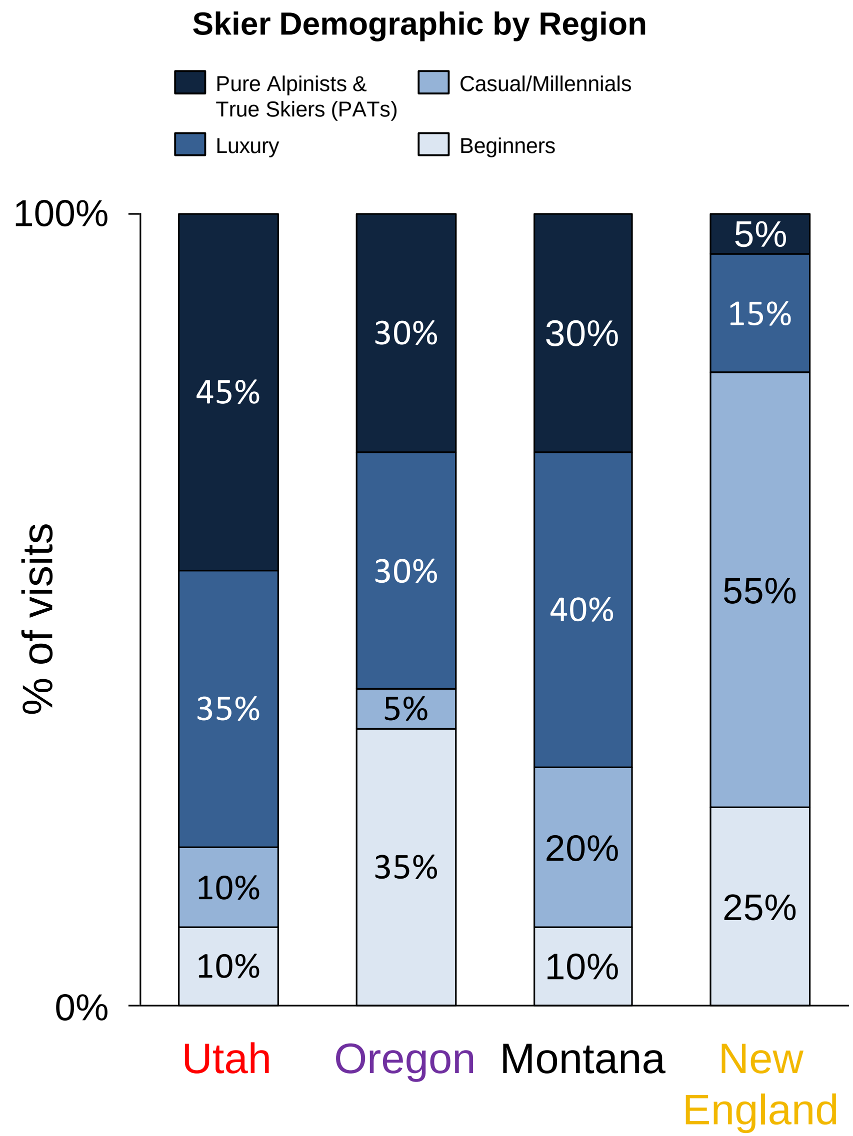
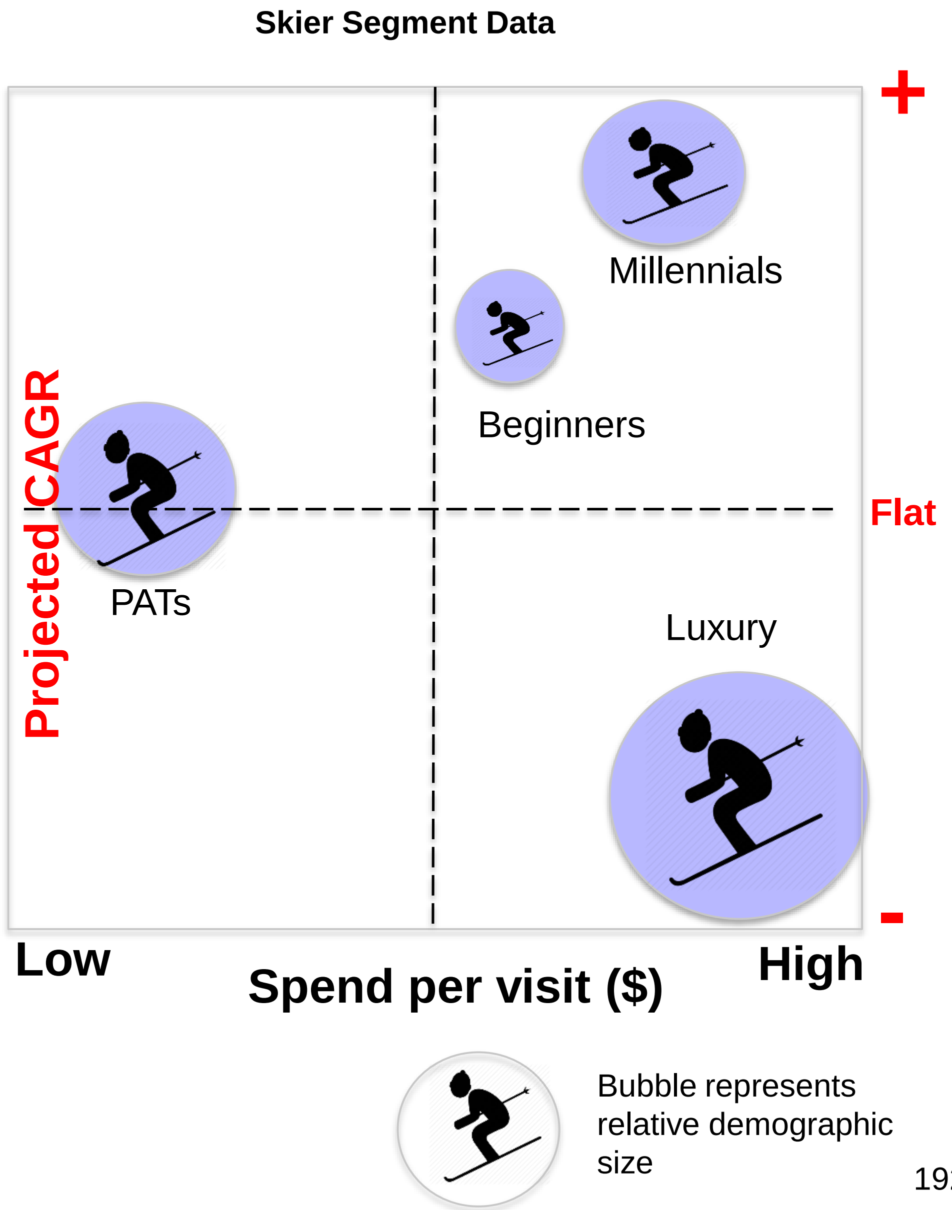


Exhibit #1c – Skier demographic data





Interviewer guidance on Exhibits

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

- Encourage candidate to draw a few insights from each exhibit before moving on to the next
- Math is not required here, however, in exhibit 1b, a very strong candidate might note that New England will surpass Utah in 3 years due to its high growth rate
- **Exhibit #1a:** Map of target regions. Note that this **only** shows mountains in target regions, and **only** shows ABBS, Bean, or independent (target) resorts
- **Exhibit #1b:** Graph of region size by annual ski visits on left axis and projected CAGR on right axis
  - If the candidate asks, it represents the total number of times skiers visit (so one skier could visit 5 times, and it would count as 5 visits)
- **Exhibit #1c**: Demographic composition for each region on the left, and projected CAGR/average spend by segment on the right
  - If asked about segments:
    - **PATs** – Pure Alpinists & True Skiers. These are regulars, the most frequent skiers (30+ times a year), extremely loyal to their local mountain, but lowest margin – they spend money on ski passes but not much else
    - **Luxury** – least frequent, but spend a lot of money on experience, food & beverage, and lodging
    - **Millennials** – high margin, casual (5-15 visits per year), love experiences, nightlife (apres ski)
    - **Beginners** – first time skiers. High margin because they purchase lessons, rent equipment, and buy food
- Each exhibit gives important, however incomplete data. A strong candidate will organize and synthesize, perhaps by using a table/chart to compare regions listing pros and cons

Analysis:

- Exhibit #1a:
  - **Key: New England is an attractive region due to lack of competition**
  - Oregon has no competitor presence, but ABBS already has some resorts in the area
  - Utah looks saturated
  - Montana looks dominated by the competitor, however it's the only region Bean has a presence where ABBS does not
- Exhibit #1b:
  - **Key: New England, despite having the lowest # of visits, is growing the fastest**. A great candidate will realize that at 30% CAGR, it will surpass Utah within 3 years for most annual ski visits
  - Utah and OR, despite being the largest, have the lowest CAGR
  - Montana, despite being a similar size as New England, has a lower growth rate
- Exhibit #1c
  - **Key: New England has the most millennials and beginners**. These two demographics are growing the fastest and spend a moderate to high amount of money each visit
  - Utah and Montana are mostly PATs (low spend, flat growth) and luxury (high spend, negative growth)
  - Oregon is pretty evenly spread out, but has the least high-growth millennials
- A great candidate might synthesize findings based on the charts in a table such as below, **and point out that NE is the best target option based on the information available**:

	Competition	Size	CAGR	Demographic	Score
UT	--	++	-	-	-2
MT	-	-	+	-	-2
OR	+	+	--	+	1
NE	++	-	++	++	5

Skier? I hardly know her!

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #2:

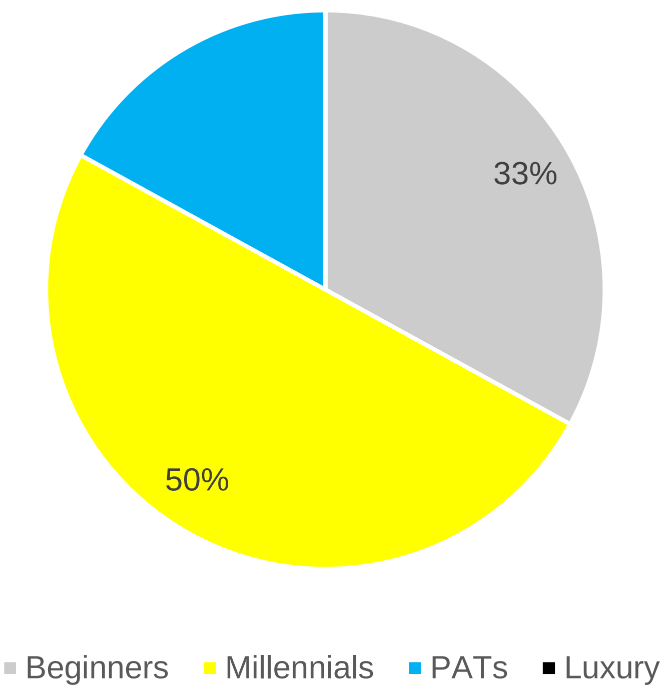
- ABBS is considering buying Owl's Peak, a resort in Vermont, for $1.3b. Should they do it?

Interviewer Guidance:

- **Interviewer: Instruct interviewee ignore discount rates as well as the growth rate of each segment**
- The candidate should drive the conversation:
  - This is a breakeven analysis, which is purchase price/contribution margin
  - Ask them where revenues come from: tickets, food, rentals, lessons, merchandise, etc. Let them show some creativity if possible.
    - **Interviewer: For simplicity sake, we will wrap these up into "contribution margin per visit"**
    - Once it's clear we are focusing only on a consolidated contribution margin per visit, ask them how they'd go about doing so. Drive them to call out that we'd need the total # of skiers and average spend per year. If you want to push them further (or for bonus points), they should call out that they'd break the total into skier segments, by number of days skied per year, and average spend per visit by segment
  - *Bonus points if the interviewee calls out potential cannibalization (skiers going to Owl's Peak instead of other ABBS resorts). Let them know that there's a cannibalization rate of 10% of total annual contribution margin (10% discount off of total contribution margin). If they don't mention it, it's called out on the Exhibit*
  - Once they provide a few ideas on how/what they'd collect in terms of revenue, hand them exhibit #2 and ask them to find the total annual contribution margin at Owl's Peak

Exhibit #2 – Contribution margin by segment (Owl's Peak)

Owl's Peak Customer Segments



	Contribution margin/visit	Total annual contribution margin ($, millions) [1]
Beginners	$ 100	
Millennials	$ 250	
PATs		$12.5
Luxury		

1. 10% of Owl's Peak's total annual contribution margin will come from existing ABBS' customers who choose to visit Owl's Peak instead

Interviewer guidance on Exhibits

Exhibit #2 Guidance:

- The candidate should ask for the total # of visits; let them know that Owl's Peak makes up 10% of New England's total ski visits (candidate should derive ~1.5M as 10% of the 15M skiers in New England from Exhibit #1b)
- **Candidates can round numbers**
- The candidate needs to calculate the total annual contribution margin. Start with the contribution margin by segment: Calculate the # of ski visits by segment (% of the 1.5M total), multiply $ contribution per visit, add them and then discount the total by 10%
- **Candidate should ignore growth rates provided in pervious exhibits for this analysis**

Analysis:

- Total ski visits: Total NE ski visits*% at Owl's Peak (15M*10% = 1.5M)
- Total Contribution Margin:
  - Beginner: 1.5M*33% = 500k visits.
    - 500k visits *$100 contribution margin = $50M
  - Millennial: 1.5M*50% = 750k visits
    - 750k visits * $250 = $187.5 (~$200M)
  - PATs: 1.5M-1.25M= 250k visits
    - $12.5M/250k visits= $50/visit *(this will come in handy later if they fill out these cells)*
  - Total: $50M+$187.5M+12.5M=$250M
    - $250M-10% (cannibalization) = ~$225M
- **This is not a worthwhile investment**. $1.3b purchase price / $225M contribution margin > 5 years to breakeven

Skier? I hardly know her!

Prompt #4:

- ABBS knows it needs to make some changes in order for this to become a worthwhile investment. It usually seeks to differentiate its resorts by offering unique, world-class skiing experiences for the skier. What are some ways that you think it can improve the overall experience for someone who is considering skiing at Owl's Peak?

Interviewer Guidance:

- This should be an open-dialogue brainstorm. Don't let the candidate take silent time to write down a list, but look for a **structured conversation**. Instead, have them come up with areas to improve the overall experience for the skier. Obvious/short term, and wildly innovative ideas welcome. Bonus points for creativity
- Drive the candidate towards structure while discussing. A great example of structure could be:
  - Planning/purchasing: ticket prices, options, online purchasing, adding lessons or rentals
  - Transportation to mountain: valet services, weather/road condition updates
  - Pre-mountain experience: parking, equipment storage, rental shops, ticket booths, daycare, mountain navigation, use of VR to check conditions
  - Mountain experience: faster chairlifts, wifi, better signage, food ordering, equipment valet, food and beverage options, grooming, mountain app, indoor summer skiing
  - Post mountain experience: après ski, babysitting, better food & beverage options, engagement/marketing

Skier? I hardly know her!

Prompt #5

- ABBS is evaluating two ideas to potentially make the investment in Owl's Peak worthwhile. For each option, assume cannibalization would be eliminated. Help ABBS evaluate each option:

Option #1 – Eliminate PATs

- Option #1 is a marketing campaign that would attract more millennials to Owl's Peak. It thinks this idea can be implemented immediately, at no cost, and will increase millennial skier visits by 33% ***at the expense of PATs visits***

Interviewer Guidance/Analysis:

- Hand the interviewee Exhibit #4 if they are struggling with direction
- Candidate should do the math here and determine the impact
  - 33% of 750k millennial visits = 250k millennial visits at the expense of the PATs (all of them)
  - Contribution margin difference (millennials – PATs) = $250-$50 = 200 * 250k visits = $50M difference
  - New profit = $300M ($250M + $50M)
  - Breakeven point = $1.3b/$300M = <5 years (4.3 years)
  - A strong candidate will note some of the PR/culture/community issues that would come with eliminating the PATs. If they don't mention this here, look for it in the recommendation

Option #2 – Food ordering app

- ABBS is considering implementing an app created by a startup called SkiGrub. It's a brand new technology that would allow customers to order food from anywhere on the mountain, and pick it up at the base area. If implemented correctly, this will increase food contribution margin by 20%. It would cost $5M, and could be implemented immediately

Interviewer Guidance/Analysis:

- Hand the interviewee Exhibit #4 if they are struggling with direction

Interviewee should uncover:

- We don't know the exact likelihood that the technology will work (it's unproven), but we know it's a high likelihood
- Food revenue is currently 50% of average contribution margin across all segments

Analysis:

- Beginners: Food contribution = 50%*$100=$50+20%($50)=$60 or $10 extra per all 500k visits = $5M
- Millennials: $25 (20%*$250*50%) per all 750k visits = $18.75M
- PATs: $5 (20%*50*50%) per all $250k visits = $1.25M
- New contribution margin = $250+$5+$18.75+$1.25-$5 = $270
- Breakeven point: <5 years (4.8 years)

Optional - Exhibit #4

Option #1: Eliminate the PATs

- Marketing campaign that would attract 33% more millennials
  - However, for every extra millennial visit, one PAT visit would be eliminated
  - Cost = $0
  - Implemented immediately
  - Eliminates cannibalization

Option #2: Food ordering app

- Food ordering app so skiers can order food on the chairlift/mountain to pick up at the base area
  - Brand new technology
  - Cost: $5M
  - Implemented immediately
  - Eliminates cannibalization
  - Increases food contribution margin by 20%

Skier? I hardly know her!

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation

- The CEO of ABBS, Reg “The Cat” Yomann, is about to walk into the room and ask for your recommendation. What do you want to tell him?

Interviewer Guidance:

- The interviewee should synthesize the prompts, recommending that ABBS target a mountain in the North East due to high growth, favorable demographics, and lack of competition. As far as Owl’s Peak goes, the candidate could make a recommendation either way; either don’t acquire, or acquire and implement one of the options (noting the potential shortcomings; either eliminating the PATs or the risks associated with implementing an unproven technology). An alternative could be to look at another mountain that might breakeven before the 5 year period.

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	Framework not MECE, completes math slowly with few mistakes, struggles with organization, brainstorming may not contain structure or creativity, even when pressed
Good Candidate	Provides complete MECE framework, completes math timely with minimal mistakes, brainstorming is structured, is organized but unable to weave insights throughout the case, perhaps misses key bonus insights (cannibalism, investors, etc.)
Excellent Candidate	MECE framework, structured & creative brainstorming, extremely organized and able to weave past insights throughout the case, makes it through the math with no problems, considers cannibalization and investors' demands

Covfefe Coffee

Industry: Manufacturing

Quantitative Level: Hard

Qualitative Level: Medium

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time when you had to influence a leader in the organization
  - Answer needs to be concise and top down
  - Interviewer should ask for specific examples
  - Interviewer should ask what people's reactions were and judge the complexity of the situation based on responses

Question 2:

- What has been your biggest non-professional achievement
  - Understand what makes the achievement commendable in the interviewee's mind
  - Answer needs to be concise and top down
  - Understand the scale of the personal achievement and the change the interviewee had to go through to accomplish this

Covfefe Coffee

Prompt #1:

- Covfefe a Colombian coffee company has had issues meeting its customer demand over the past few months. They have one manufacturing plant which used to be able to meet the customer demand, but now for some reason they cannot. Mr. Drumpf, the CEO of Covfefe has hired you to figure out what’s going on, and make a recommendation. Do you have any initial questions before we move on?

Interviewer Guidance:

- Manufacturing plant is in the US and only serves the US market
- Demand has been steady over the time frame considered
- Covfefe makes 5 types of coffee and all of them have very similar demand
- Only answer questions directly related to the prompt, this is not where the interviewee should start building a framework

Covfefe Coffee

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #2:

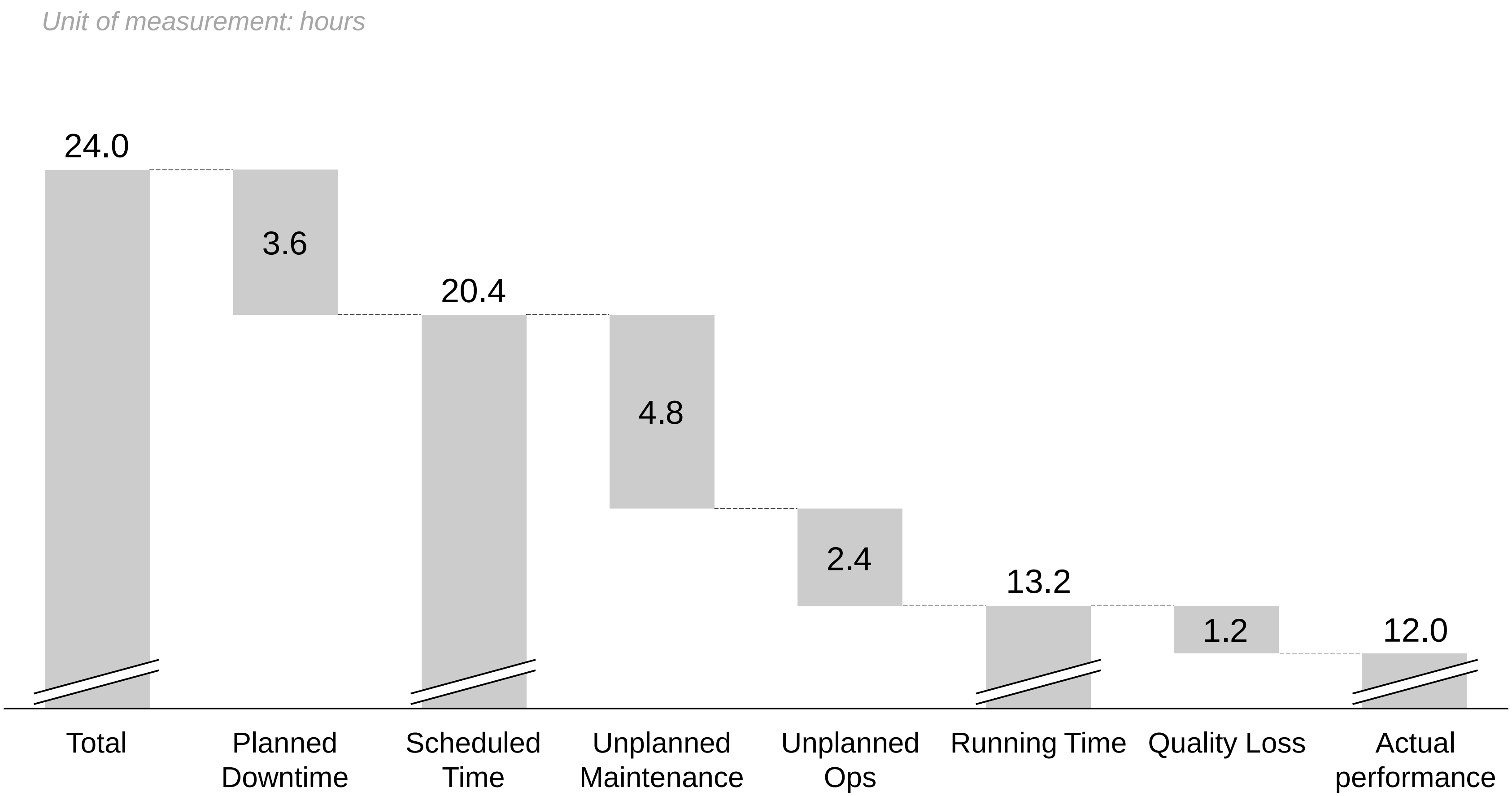
- How would you structure this problem? What aspects of Covfefe's manufacturing plant would you consider? Covfefe wants to be able to make 75k more coffee bags

Interviewer Guidance:

- This is an OEE case (Overall Equipment Effectiveness), the interviewee should think in 3 buckets (catering the problems to coffee is an added bonus)
  - Availability: "Lights on time", was the plant operating long enough to make the customer demand. Things such as scheduled maintenance, planned shutdowns would be considered in this bucket
  - Performance: Of the time that the plant was running, how well did it perform? Any delays or unplanned downtime due to machine breakdowns, operator issues etc. would be considered in this bucket
  - Quality: Coffee bags that were not to quality specification or any other quality issues
- Give the interviewee the next exhibit once he/she gets all these three buckets

Exhibit #1

DUKE FUQUA SCHOOL OF BUSINESS



Interviewer guidance on Exhibit 1

Exhibit #1 Guidance:

- Ask interviewee to calculate the percentage for planned downtime, unplanned maintenance, unplanned operations and quality losses
- Interviewee should see that planned downtime and unplanned maintenance are the 2 biggest buckets that need to be focused on

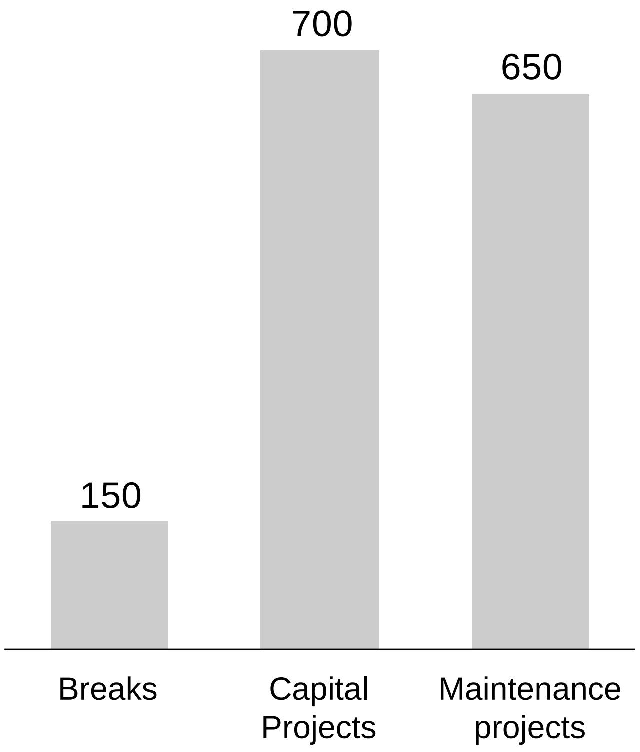
Analysis:

This are the percentages that the interviewee should get:

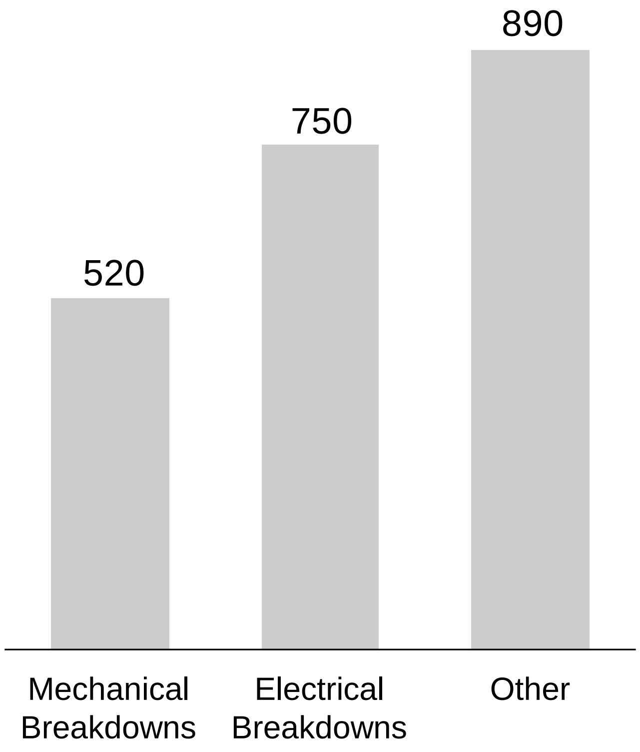
- Planned Downtime: 15% (3.6/24)
- Unplanned Maintenance: 20% (4.8/24)
- Unplanned Ops: 10% (2.4/24)
- Quality Losses: 5% (1.2/24)

Exhibit #2

Unit of measurement: hours



Planned Downtime Breakdown



Unplanned Maintenance Breakdown

Cycle time per coffee bag: 45 seconds

Interviewer guidance on Exhibit 2

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #2 Guidance:

- Ask interviewee how many more bags of coffee can you get if you resolved all the given downtime?
- Interviewee should figure out that "Other" is the largest downtime and its not classified. This should peak the interviewee's curiosity and make him/her think about why that is so
- Interviewee should remember that Covfefe wants to make 75k more coffee bags and pick which of the downtime reasons to tackle to be able to make that additional demand
- **Assumption:** 50% of Electrical, Mechanical and Maintenance projects gives us 30k, 20.8k and 28k which gives us the 75k additional bags that we need to make **(important to note that you cannot resolve 100% of any of these issues)**

Analysis:

45 seconds per bag = 80 bags an hour (3600/45 = 80)

Downtime	Extra capacity
Breaks	12k bags
Capital Projects	56k bags
Maintenance projects	52k bags
Mechanical breakdowns	41.6k bags
Electrical breakdowns	60k bags
Other	71.2k bags

Covfefe Coffee

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation

- Mr. Drumpf just walked into the room and wants to hear your recommendation

Interviewer Guidance:

- In order to make the additional 75k bags, Covfefe should focus on reducing planned downtime and unplanned maintenance issues by at least 50% specifically focusing on:
  - Maintenance projects
  - Mechanical breakdowns
  - Electrical breakdowns
- There should also be more focus put on identifying the root causes behind the “Other” category

Congo's Drumming

Industry: E-Commerce Operations

Quantitative Level: Medium

Qualitative Level: Difficult

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time that you’ve had to lead a diverse team
  - What were the challenges?
  - What did you learn from this experience?

Question 2:

- What is something your former supervisors would say you do well?
- What is something your former supervisors would say you need to improve?

Congo’s Drumming

Prompt #1:

- Your client, Congo.com (named after one of Earth’s rainforests), is one of the largest e-commerce retailers in the world. It specializes in a diverse logistics network, and its brand is built around consumer satisfaction. The company has grown dramatically over the last 5 years, but has started to notice recent profit margin dips. You have been hired to find the root causes that Congo must address to focus on profitability so they can continue to drive growth.

Interviewer Guidance:

- Congo gives its customers the best prices with the fastest delivery rates
- Congo is a worldwide company, but wants to focus on US profitability to drive expansion into other countries
- There are eight main distribution facilities in the United States
- Company growth has outpaced all competitors in the retail industry
- Any positive change in profitability is the goal. It’s up to you to quantify the impact of changes recommended.
- Profit margin = net income/total revenue

Exhibit 1

Unaudited, in millions

Congo.com Income Statement*

	2013	2014	2015	2016	2017
Operating Revenue					
Units Shipped	1,176	1,528	1,987	2,583	3,358
Avg $/unit	$ 4.00	$ 3.75	$ 4.25	$ 4.50	$ 4.00
Total Revenue	**$ 4,703**	**$ 5,732**	**$ 8,445**	**$ 11,624**	**$ 13,870**
Operating Expense					
Maintenance	$ 941	$ 1,146	$ 1,267	$ 1,162	$ 694
SG&A	$ 941	$ 1,003	$ 1,267	$ 1,162	$ 1,387
Transportation	$ 1,881	$ 2,293	$ 3,378	$ 5,812	$ 8,322
Permitting	$ 564	$ 688	$ 1,013	$ 1,395	$ 1,652
Other	$ 470	$ 573	$ 845	$ 1,162	$ 1,387
NI Pre Tax	**$ (94)**	**$ 29**	**$ 676**	**$ 930**	**$ 429**
Taxes	$ (28)	$ 9	$ 203	$ 279	$ 129
Net Income	**$ (66)**	**$ 20**	**$ 473**	**$ 651**	**$ 300**

*US Distribution Centers only

Exhibit 1 – Interviewer Guidance

Unaudited, in millions

Congo.com Income Statement*

	2013	2014	2015	2016	2017
Operating Revenue	**YOY CHANGE IN REVENUES FROM PRIOR YEAR**				
Units Shipped	-	30%	30%	30%	30%
Avg $/unit	-	-6.3%	13.3%	5.9%	-11.1%
Total Revenue	**-**	**22%**	**47%**	**38%**	**19%**
Operating Expense	**EXPENSES/NI AS A PERCENT OF TOTAL REVENUE**				
Maintenance	20%	20%	15%	10%	5%
SG&A	20%	18%	15%	10%	10%
Transportation	40%	40%	40%	50%	60%
Permitting	12%	12%	12%	12%	12%
Other	10%	10%	10%	10%	10%
NI Pre Tax	**-2.00%**	**0.50%**	**8.00%**	**8.00%**	**3.09%**
Taxes	30%	30%	30%	30%	30%
Net Income	**-1.40%**	**0.35%**	**5.60%**	**5.60%**	**2.16%**

*US Distribution Centers only

Exhibit 1 – Interviewer Guidance

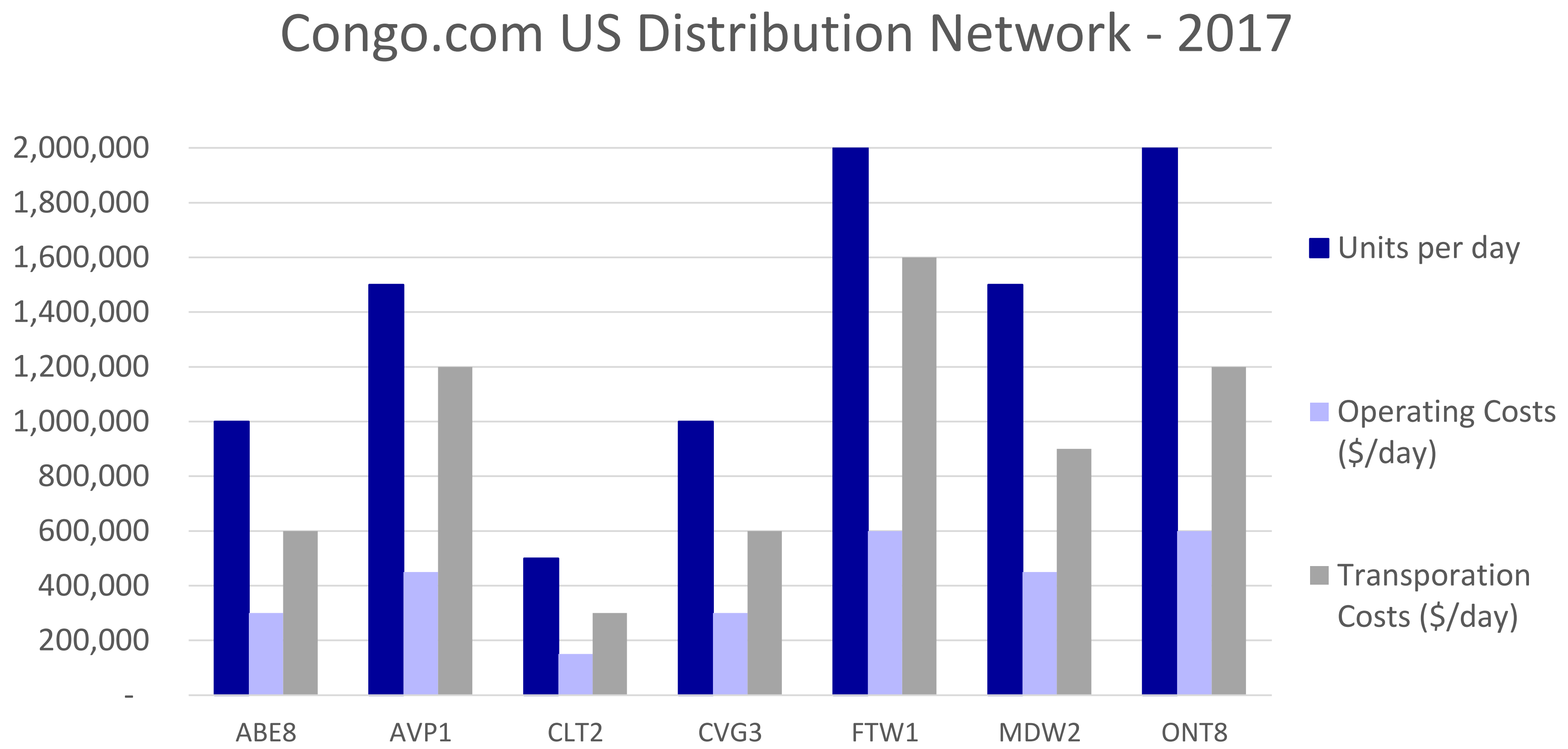
Exhibit #1 Guidance:

- The exhibit has too much data to synthesize in a reasonable amount of time
- Units shipped are driven by online sales increasing
- Avg $/unit is an aggregation of all online sales purchases, driven by consumer decisions
- Cost Breakdowns:
  - **Maintenance:** cost to maintain facilities
  - **SG&A:** cost to employ facilties
  - **Transportation:** cost to ship units to consumers both directly tied to distribution centers costs and other external costs the Company can't control
  - **Permitting:** cost to operate in communities
  - **Other:** general business expenses

Analysis:

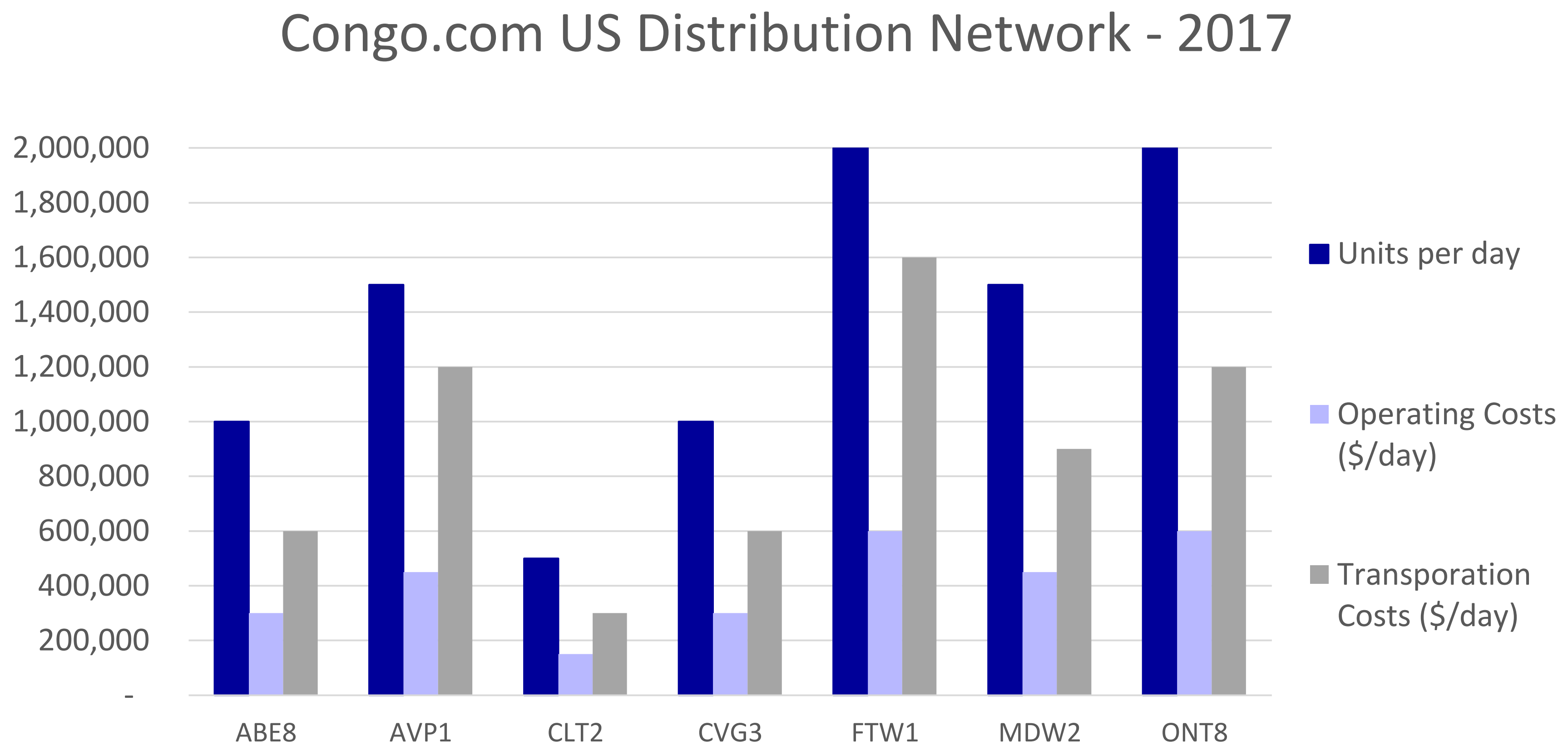
- The candidate should see that items shipped has continued to grow at a steady pace (30% YoY)
- Key item is that we are only concerned with profitability in recent years.
- If asked about $/unit changes, tell the candidate that Congo has little control over the market competitive pricing.
- All costs are rising YoY, but candidate should note that Transportation has risen by a larger percentage of revenue over the last two years (40% to 60%)
- If candidate identifies Transportation costs increasing being the biggest factor of profitability, give the candidate Exhibit 2.

Exhibit 2



Sq. Ft.	**500k**	**500k**	**500k**	**500k**	**500k**	**1M**	**1M**

Exhibit 2 – Interviewer Guidance



Sq. Ft.	**500k**	**500k**	**500k**	**500k**	**500k**	**1M**	**1M**
Unit/Sq. Ft.	2	3	1	2	4	1.5	2
Operations cost %	30%	30%	30%	30%	30%	30%	30%
Transport Cost %	60%	80%	60%	60%	80%	60%	60%

Exhibit 2 – Interviewer Guidance

Exhibit #2 Guidance:

- The purpose of this exhibit is for the candidate to identify specific facilities by percentages of output.
- Units per day are 2017 numbers for amount of SKUs shipped from each facility each day.
- Operating Costs are in $/day
  - Guidance sheet shows $cost/unit shipped
- Transportation Costs are in $/day
  - Guidance sheet shows $cost/unit shipped
- Square Footage is only meant to reference the size of the facility. Intuitively, larger facilities should output a larger amount per day
- Candidate may realize that Operating Costs + Transportation Costs > Units Shipped per day. Remind them that this graph ignores $/unit in revenue.

Analysis:

- The candidate should recognize that FTW1 and ONT8 ship more per day than any facility, but FTW1 has half of the square footage
  - Bonus points for stating that FTW1 has the highest productivity in the network (4 units/sq. ft.)
- 5 of the 7 facilities have identical cost percentages (30% for Operation, 60% for Transportation)
- FTW1 and AVP1 have 80% transportation costs. However, the candidate may not notice AVP1 because it produces less units/day than others.
  - *Bonus points for recognizing both facilities are opportunities for improvement.*
- The candidate should recognize that transportation costs are our best opportunity. If asked for a breakdown, please move on to Prompt #2.

Congo's Drumming

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #2:

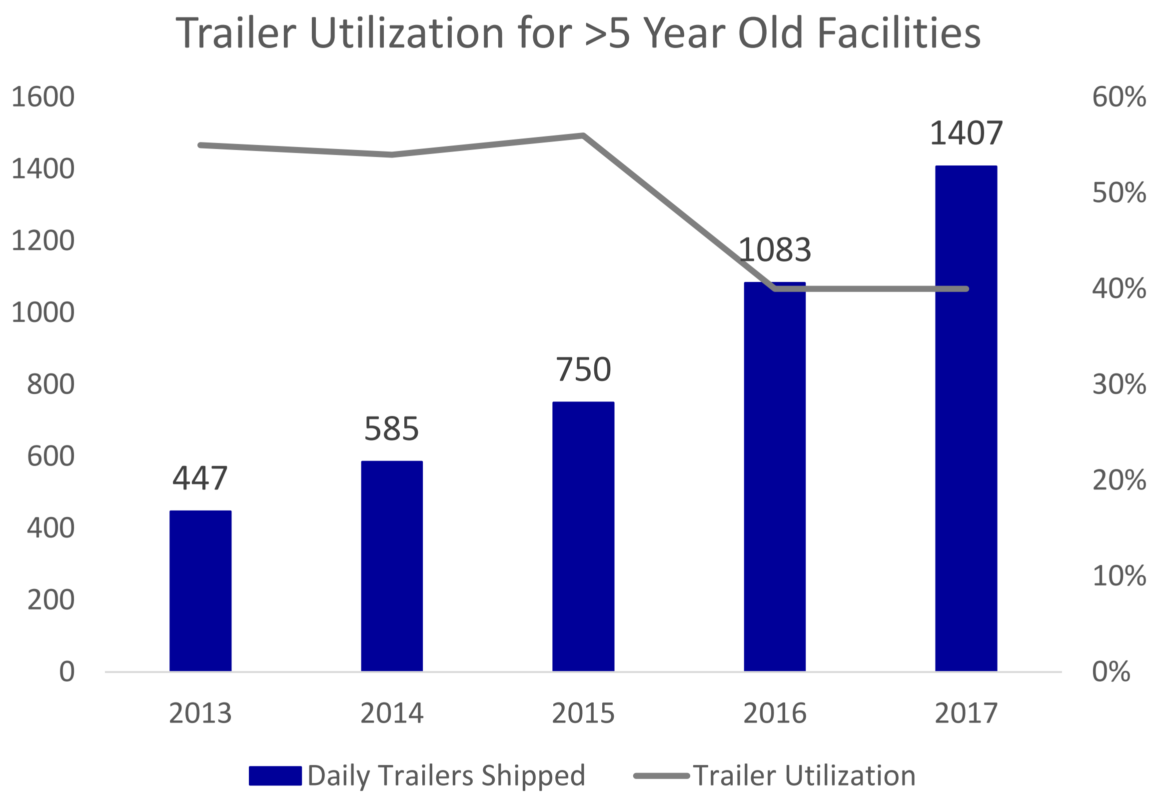
- Facility transportation costs are made up by three different factors: 1) lane cost to ship to a specific destination, 2) utilization of those trailers shipped, and 3) US Department of Transportation costs. Congo.com has been expanding the quantity of shipping destinations to fuel its growth. Where should Congo go from here?

Interviewer Guidance:

- "Expanding the quantity of shipping destinations" means: Congo is shipping to more destinations than before and shipping more to their previous destinations.
- Candidate should recognize if Congo is increasing its destinations, then it makes sense that lane costs and DOT costs should also rise accordingly.
- Push candidate towards wanting to look into #2 Utilization of Trailers.
- Candidate should recognize and ask about utilization costs for FTW1 *AND/OR AVP1*. *Do not give information about a facility that the candidate hasn't identified*.
- Trailer Utilization = % of truck trailer filled by actual SKU volume
- Once the candidate has identified that Trailer Utilization must be a problem, provide them with Exhibit #3.

Exhibit #3

DUKE FUQUA SCHOOL OF BUSINESS



Project Proposal:

- Automation upgrades would allow under-performing facilities to improve trailer utilization to Company standards.
- Current automation standards were implemented in all facilities built within the last 5 years.
- Improvements in Trailer Utilization would cut Transportation Costs by 25%
- Project cost: $10M/facility

Facility	ABE8	AVP1	CLT2	CVG3	FTW1	MDW2	ONT8
Years Old	4	7	3	2	8	2	4

Exhibit 3 – Interviewer Guidance

Exhibit #3 Guidance:

- The graph is a quick affirmation that even though Trailers Shipped is increasing, Trailer Utilization is our main problem.
- The candidate shouldn't get too caught up in the graph on this page, if they do – please move them along.
- Project Proposal summarized:
  - This project would cut costs by 25% at any facility not built in the last 5 years
  - Only AVP1 and FTW1 are older than 5 years
- This is the final chance for the candidate to recognize that there are two sites eligible for Transportation savings: AVP1 and FTW1.
  - If the candidate doesn't recognize this, do not reveal it to them.

Analysis:

- The graph affirms that increasing lanes of shipping has increased the amount of trailers needed to ship increasing amount of items.
- This project proposal does not apply to 5 of the 7 facilities.

Calculation:

- Have the candidate figure out opportunity of transportation savings on Congo's bottom line.
- Strong candidates will have been compiling numbers throughout the entire case.
- Assume 350 Operating Days/year

Calculation – Interviewer Guidance

Transportation Costs:

- Candidate may identify some or all of the possibilities
- FTW1: $1.6M * 25% save = $400k/day
  - $400k*350 working days = $140M/year
- AVP1: $1.2M * 25% save = $300k/day
  - $300k*350 working days = $105M/year
- Total Transportation savings = $245M/year

- Impact to NI (Pre-tax): $429+$245 = $674M
  - Or around a 60% increase in Net Income.
- If only FTW1 evaluated: $429+$140 = $569M
  - Or around a 33% increase in Net Income.
- In only AVP1 evaluated: $429+$105 = $534M
  - Or around a 25% increase in Net Income.

Analysis:

- Candidate should use a structured calculation method.
- Good candidates will have been compiling information throughout the case, but allow them to use the exhibits if they ask.
- If candidate has not identified there are two facilities eligible for savings, do not bring it up at this time.

- Once candidate has concluded calculation, move on to the final recommendation.

- If candidate is strong at math (and you have time) ask them to calculate new “trailers shipped” number if utilization is improved to 60% in 2017. (Exhibit 3)
  - Answer: 1225 trailers (next page for calculation)

Extra Calculation – Interviewer Guide

- Trailer Utilization = % of truck trailer filled by actual SKU volume
- (1 – Trailer Utilization) = amount of space that wasn't filled with SKU volume
- From Exhibit 3:
  - 2017 Trailer Volume = 1407 (round down to 1400)
  - 2017 Trailer Utilization = 40% (or 60% unused space)
- Increase in utilization yields lower amount of trailers based off of some volume constant from 2017
- 1400 = x*(1+(1-0.4)) -> 1400 = 1.6x -> x=875
  - x = volume constant from 2017
- Once you have volume constant, calculate trailer volume w/ 60% utilization
- x = 875*(1+(1-0.6)) -> x = 875*(1.4) -> x = 1225

Congo's Drumming

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation

- The CEO of Congo.com, Heff Crezos, will be joining us in a few minutes to hear your recommendations on how the Operations can improve profitability.

Interviewer Guidance:

- Candidate should have a recommendation that includes the following:
  - Congo should invest $20M in Automation upgrades at AVP1 and FTW1
  - Doing so will increase Net Income by $245M / 60% (or $140M/33% or $105/25%)
  - Implement productivity practices from AVP1/FTW1 at other facilities to increase output
  - Further Automation could also decrease SG&A costs
  - Risks: implementation costs, disruption of current operations, dependency on US DOT, more automation means higher maintenance costs
  - Next Steps: firm could help renegotiate trailer contracts, prepare distribution network for higher utilization and higher productivity at other facilities.

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	• Covers revenues and costs in framework • Doesn’t immediately recognize costs are driving profitability problems • Doesn’t quickly identify any particular facility to focus cost savings on • Incorrect or sluggish calculation, requires exhibits
Good Candidate	• Extensive framework, including: costs, revenues, unit cost, fixed and includes ideas like automation, logistics, competition • Quickly recognizes costs are main focus and can determine Transportation costs are main focus • Recognizes FTW1 is biggest cost saving opportunity • Requires exhibits for calculation, but correct
Excellent Candidate	• Framework is excellent • Quickly recognizes Transportation Costs as main • Keeps $ and volume notes about each exhibit • Recognizes FTW1 + AVP1 are best opportunity • Does not require exhibits (much) for calculation • Strong recommendation

MBAitis

Industry: Pharma

Quantitative Level: Medium

Qualitative Level: Difficult

Behavioral Questions

Question 1:
• What are your three greatest weaknesses?

Question 2:
• Tell me something interesting about yourself that is NOT on your resume

MBAitis

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #1:

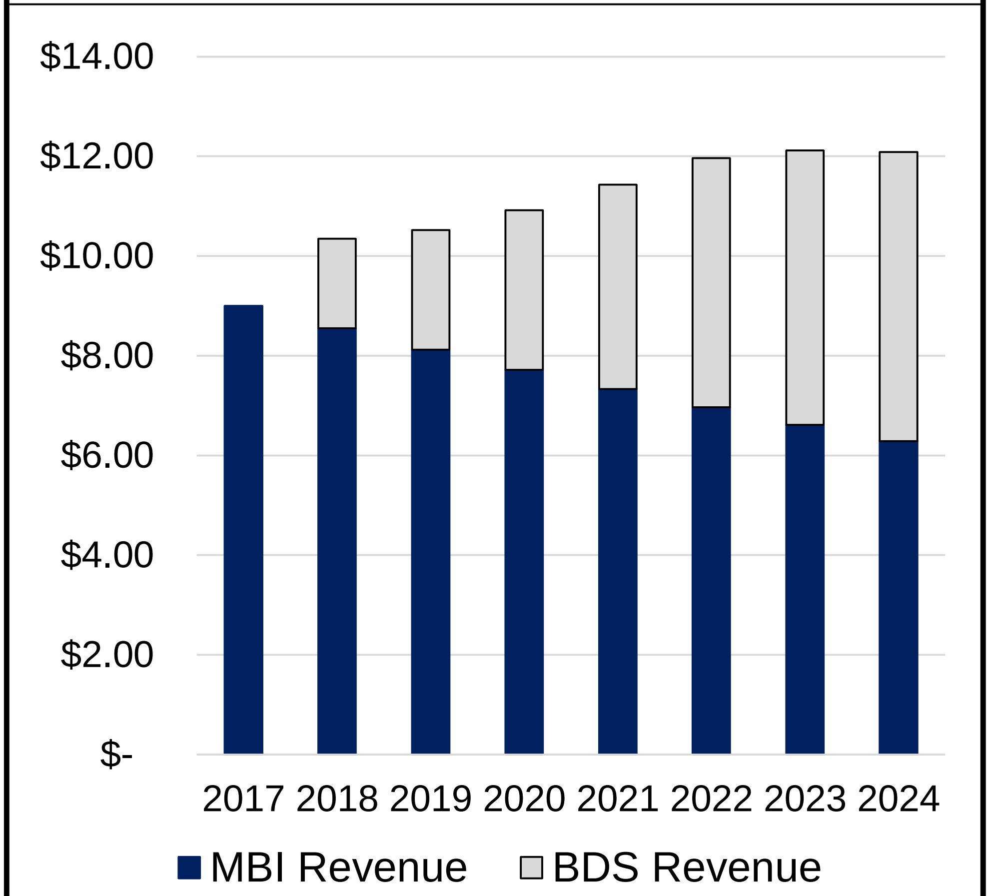
- Your client is a large pharmaceutical company that will be launching a new drug for the well-known illness, MBAitis. Their drug, Blue Devil Serum (BDS) is a high efficacy alternative to current therapies, and will launch in the next 18-24 months. What should they consider in planning the launch to maximize revenue over the first 3 years?

Interviewer Guidance:

- If asked, provide the following information:
  - Multinational company with many different drugs across diseases
  - Your team is hired to consider the US context only
  - The company already has a well-established manufacturing and supply chain
  - They sell other MBAitis drugs, including one that is potentially a direct competitor to BDS.

Market size and revenue estimates for BDS 2017-2024

Projected revenue for MBI[1] and BDS 2017-2024 ($M)



Prescriptions by MBAitis patient segment

	First diagnosis		Relapse	
	BDS	MBI	BDS	MBI
Early	7%	25%	24%	21%
Mid	20%	18%	18%	18%
Advanced	18%	10%	15%	8%
Terminal	10%	0%	10%	0%

BDS: Percent of BDS prescriptions to each patient segment

MBI: Percent of MBI prescriptions to each patient segment

[1]Myrtle Beach Injection (MBI) is your client's current therapy for MBAitis. It is a lower efficacy and lower risk therapy compared to BDS

Interviewer guidance on exhibits

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

- MBI drug accounts for the bulk of the company's revenue
- Each triangle represents the percent of the total drug sales that go to each patient segment (MBI drug is not prescribed at all to terminal patients (0%), but 25% of prescriptions go to first diagnosis, early stage patients)
  - GUIDE INTERVIEWEE IF THEY ARE STUCK
- MBI drug and BDS drug have 30% overlap in target patient segments
  - Introduction of BDS drug will result in a decrease in MBI drug revenue
- MBI drug's revenue remains important to the company but is falling steadily through 2024

Analysis:

- A good candidate will recognize that
  - MBI drug is of high importance to the company and revenue should be protected
  - BDS drug will cannibalize profits from MBI drug
  - Whatever marketing or messaging done going further will need to mitigate this cannibalization
- A great candidate will go a step further and see that
  - BDS drug will cannibalize 30% of revenue from MBI
  - Revenue from MBI is declining 5% each year
  - BDS drug will have to make __$/year to make up for this loss

MBAitis

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #2:

- Having recognized that BDS will be a direct competitor for a certain segment of patients already covered by your client's drug MBI, what are some ways to mitigate this cannibalization?

Interviewer Guidance:

- This should be a structured brainstorm, if the candidate doesn't start it in this way, guide her/him in that direction
- Help the candidate to start talking about the salesforce and how that could be leveraged in a unique structure to market the two drugs separately and minimize cannibalization.
- Other answers include:
  - Adjust ad campaigns to differentiate the two drugs
    - To patients and doctors
    - Try new media outlets
  - Reach *new* patients creatively through new channels (apps, personalized medicine like field nurses or other educational programming)
  - Shift brand messaging of MBI so that it doesn't appear to overlap with BDS
- **After brainstorming, explain that the client is looking at different salesforce options, give exhibit 2**

Profits associated with salesforce options

	A: Single salesforce MBI/BDS	B: Two separate salesforces	C: Two separate salesforce + CSO
Increase in FTEs	*20*	*30*	*30*
Cost/FTE	*90,000*	*90,000*	*80,000*
FTE-driven increase in revenue (% of FTE cost)			
Year 1	*125%*	*110%*	*110%*
Year 2	*125%*	*120%*	*120%*
Year 3	*125%*	*125%*	*125%*

CSO: Contract Sales Organization (external vendor to help with sales)

Interviewer guidance on Exhibits

Exhibit #1 Guidance:

- As you give the exhibit to candidate, explain that the client is evaluating 3 different salesforce options by the end of year 3
- She/he should start to calculate total revenue, costs, and profit from all options
- Option B (2 salesforces) yields dramatically greater revenue despite slow ramp-up per FTE and comparable profits to Option A

# FTEs	20	30	30
Cost/FTE	90000	90000	80000
FTE increased Rev/Year	1.25	1.1	1.1
	1.25	1.2	1.2
	1.25	1.25	1.25
Revenue			
Year 1	2.25E+06	2.97E+06	2.64E+06
Year 2	2.25E+06	3.24E+06	2.88E+06
Year 3	2.25E+06	3.38E+06	3.00E+06
Total rev over 3 years	6.75E+06	9.59E+06	8.52E+06
Total cost for 3 years	5.40E+06	8.10E+06	7.20E+06
Total profit	1.35E+06	1.49E+06	1.32E+06

Analysis:

- Good candidate will
  - Calculate total increased revenue
  - Calculate total increased profit
- Great candidate will
  - Calculate increased revenue and profit
  - Refer to prompt/framework and remember that the **goal of the client is increased revenue, not profit**
  - Give an appropriate "so what" that the client should go with Option B for salesforces

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation

- The CEO is rushing from one meeting to another and has just stopped by your team room. Give her a recommendation based on your work so far.

Interviewer Guidance:

- Given the urgency of the prompt, guide the candidate to practice NOT writing down her/his recommendation
- Just because she/he isn't writing the recommendation, don't throw out the "Headline with backup stats," "Risks," and "Mitigations" structure
- Ideal recommendation would include:
  - This client should pursue ___ salesforce strategy for the launch of BDS which yields projected revenue of ___ over __ years. Risks to this strategy include… which can be mitigated/further explored by____
    - Risks could include: cannibalization rate far exceeding projections despite having wholly separate sales forces with different messaging, etc.

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	• Get through the case qual/quant portions with some guidance • Remember to refer to PATIENTS not customers • Give smooth recommendation
Good Candidate (in addition to Average Candidate guidance)	• Come to appropriate qual/quant answers with minimal guidance • Well-structured brainstorm without prompting • Maintaining appropriate sensitivity around the patient condition (cancer) • Remember that the prompt is about maximizing *revenue* not profit
Excellent Candidate (in addition to Average and Good candidate guidance)	• Refer frequently to framework • High sensitivity about patient conditions • Highly structured, creative brainstorm • Crisp, structured recommendation, maintaining eye-contact

MedTrans

Industry: Medical Transportation

Quantitative Level: Medium

Qualitative Level: Difficult

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time you were part of a project or team and had an impact that would have been otherwise impossible if you were not part of that team.

Question 2:

- Tell me about a time you had a difference of opinion with someone more senior than you and how did you resolve this conflict?

MedTrans

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #1:

- Montachussett Hospital has hired you and your team to investigate consistently rising costs across their medical transportation benefit program. For context, assume that Montachussett has a series of patients with various afflictions and disabilities, and as a patient undergoing treatment at the hospital, the hospital covers the cost of picking you up and taking you to your appointments. Your team has been asked to identify the key drivers of cost creep, and make strategic recommendations to the hospital as to how they might be able to save money. Specifically, Montachussett is evaluating a technology-based ride scheduling platform to help schedule and track trips, and would also like your opinion on whether or not investing in such a solution would be wise.

Interviewer Guidance:

- If the candidate asks about how the hospital pays for these services currently, assume that this information is irrelevant – it comes out of a fund of donations given to the hospital by third parties.
- **Additional Information to provide the candidate (ALWAYS)**
  - Assume that right now, there are a limited number of vendors (taxi companies, van companies, etc) that the hospital has contracts with, but this is very much something they would be open to expanding if they can force more companies to compete on price.
  - Trips are billed to the hospital using a rate card that each taxi/van company shares with the hospital. This is a **blind bidding** system whereby the taxi/van/ambulance companies have no idea how their prices relate to the other bids submitted by competing taxi/van/ambulance companies.
- Transportation is coordinated by a central dispatching system at the hospital, and a scheduler calls taxi companies, wheelchair van companies, and ambulance companies to schedule all patient rides at least 3 days in advance.
- ***__Assume that trips which are coordinated on short notice are charged at a significant premium__
- If a candidate asks about trip duration/distance – assume that there is some variation, and this will be discussed later on in the case.
- A well-designed framework would focus on cost drivers – chiefly, number of patients needed to be transported, total distance traveled, how many drivers are available to transport these patients.
- A strong candidate will also realize that segmenting utilizers of this benefit will be vital to understanding the highest-cost populations.

Exhibit #1

DUKE FUQUA SCHOOL OF BUSINESS

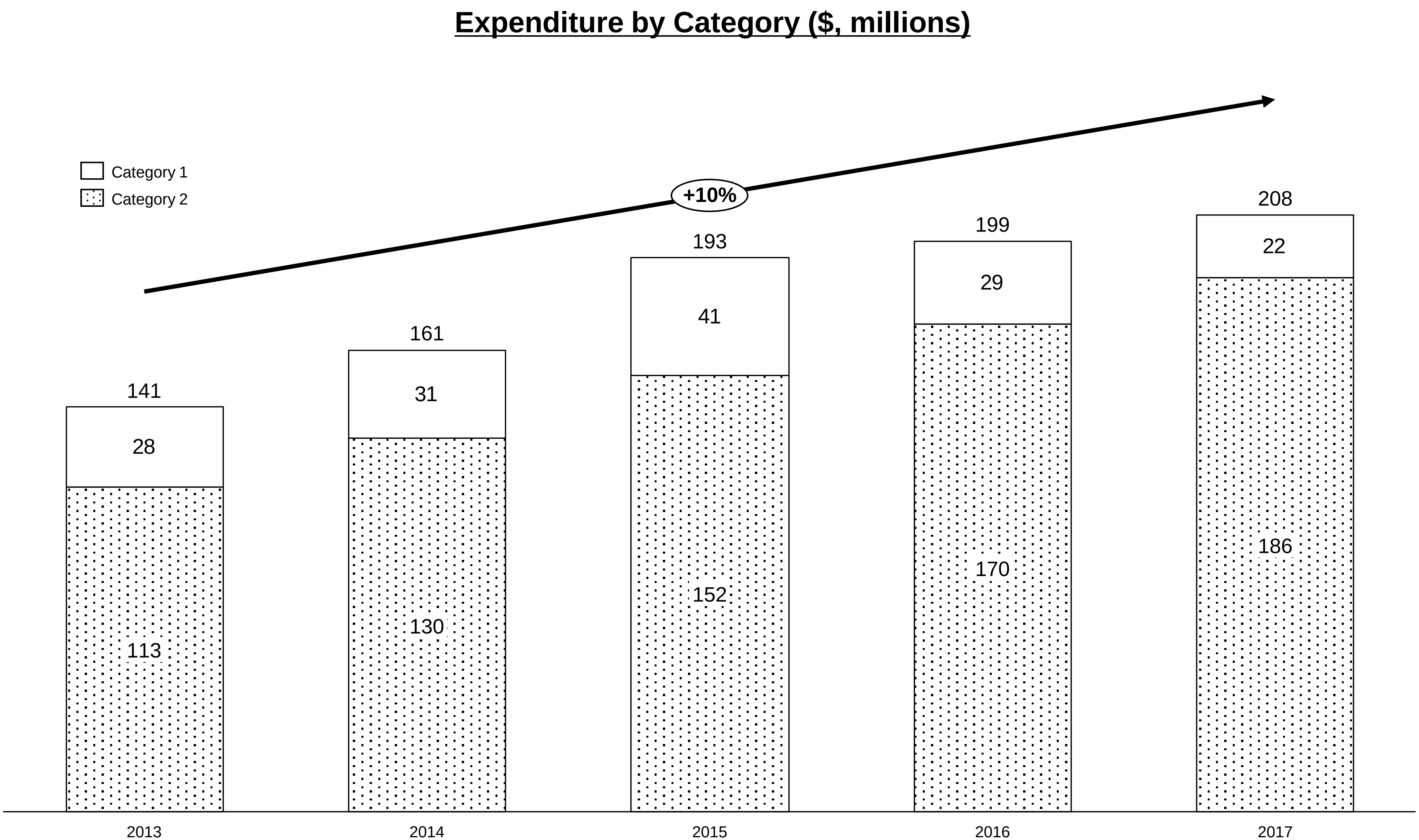
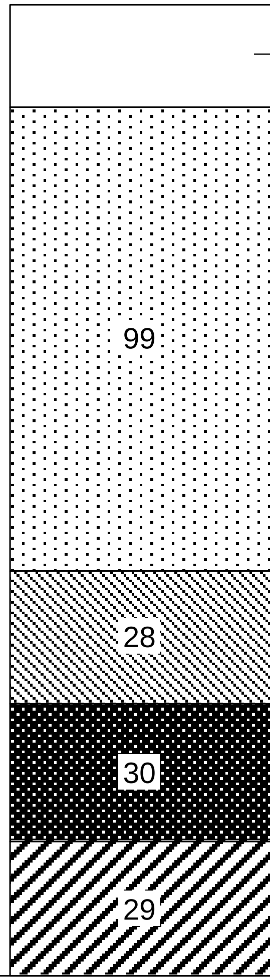


Exhibit #1B



	Annual Expenditure, 2017 ($, millions) 208	Utilizers	Average Cost Per Trip	Total Trips
Emergency/Ambulance	22	134,388	$10	200k
Wheelchair-Bound	99	8,697	$31	3.3MM
Substance Abuse	28	5,655	$22	1.9MM
Dialysis/Cancer Care	30	3,581	$22	1.1MM
Routine Check-ups	29	44,074	$22	1MM

Interviewer guidance on Exhibits

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

- Allow the candidate to absorb the two charts as they can be quite confusing
- Ask the candidate generally which populations appear to be the biggest drivers of annual costs, then proceed to ask candidate on a per-year basis, which demographic in Category 2 represents the most expensive patients to transport? (*** This is an EXCELLENT opportunity to show SMART ROUNDING, but I have included the exact answers below):
  - **Wheelchair bound:** $99MM / 8,697 = $11,383 per patient per year
  - **Substance Abuse:** $28MM / 5,685 = $4,951 per patient per year
  - **Dialysis/Cancer Care:** $30MM / 3,581 = $8,377
  - **Routine Check-ups:** $29MM / 44,074 = $657
- **Brainstorm:** What are some of the reasons you think there are such discrepancies of annual expenditure across each of these populations?
  - Distance of trips, frequency of trips, trips booked on short notice
- **Brainstorm 2:** What are some potential strategies the hospital could employ to help drive down cost on non-wheelchair bound trips?
  - Ride sharing, Trip Pooling, expanding the provider pool, leveraging live-bidding platform/technology

Analysis:

- Correct conclusions:
  - Total expenditure ~6% CAGR YoY since 2013
  - Excellent candidate will be able to quickly infer when looking at both exhibits together that everything except ambulance trips are considered Category 2.
  - Candidate should recognize the out-sized spend on transporting wheelchair-bound patients – largely because wheelchair vans are less widely available, and are generally much more expensive to own and operate than a taxi.
  - Good candidate will also see that almost half of the total program cost is from Wheelchair-bound patients
  - A great candidate will also see that 28% of all spend is being generated by ~5% of the population who actually uses the transportation benefit (Substance Abuse, Dialysis/Cancer Care) and suggest that this may be an interesting area to explore further for strategic options around rationalizing that cost and perhaps optimizing.

MedTrans

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #2:

- After a structured brainstorm around potential mechanisms to drive down costs on a per-trip basis, pose the following:
- Your team has found that 8% of volume across substance abuse, dialysis, and routine check-ups are being booked on short notice (resulting in trips which cost 2.5x normal base rates). The hospital has identified a start-up called RoundTrip that can help bring down this premium to base rates by opening up trip bids to Uber and Lyft drivers. The initial cost to deploy the platform would be $250k in addition to a $1 fixed per-trip premium for trips scheduled through this service. If Montachussett goes forward with this investment, what is the total potential savings gained from this model?

Interviewer Guidance:

NOW			
	8% of Vol.	2.5x Base Trip rate ($22)	
Substance Abuse	152,000		$55
Dialysis/Cancer Care	88,000		$55
Routine Checkups	80,000		$55
Total	320,000	$	17,600,000.00

ROUNDTRIP			
	8% of Vol.	New Rate (incl. $1 per trip prem.)	
Substance Abuse	152,000		$23
Dialysis/Cancer Care	88,000		$23
Routine Checkups	80,000		$23
Total	320,000	$	7,360,000.00
	+ Fixed Cost	$	250,000.00
	Total new Spend	$	7,610,000.00
Implied Savings	$ 9,990,000.00	** OK to approximate to $10MM*	

- Candidate should calculate this information error-free.
- *Shortcut*: Recognize that total trip volume across these categories is 4MM, and you can quickly get to 320K trips by taking 8% of this number.
- Strong candidate will include a **SO WHAT** after completing the calculation – despite the up-front cost of this new technology, RoundTrip can potentially reduce total expenditure by 5%
- Excellent candidate will pick up on the fact that this technology is being rolled out by a start-up which implies a whole host of operational risks if the hospital chooses to go all-in with this solution. Potential mitigating factors would be to roll out this via some sort of pilot program to litmus test whether real savings can be achieved.

MedTrans

Recommendation

Candidate should succinctly summarize key findings from throughout the case (Category 2 patients being the key drivers of program cost, approximately 30% of total cost is being generated by two population groups who account for less than 5% of total users)

Candidate should also firmly state that going ahead with RoundTrip would be a great solution in the near term.

Excellent candidate will also question/realize that RoundTrip has application beyond just short-notice trips, and could be used for all trip scheduling for non-wheelchair bound patients (thereby further reducing costs via Uber/Lyft supply pools)

Interviewer Guidance:

- Some risks that the candidate could highlight:
  - RoundTrip is a startup – scale concerns may arise for a startup that would need to handle the scheduling and booking of over 7MM rides/year
  - Transporting medical patients using Uber/Lyft presents all kinds of liabilities which would need to be dealt with – WAIVER PROGRAM may be necessary as mediating tactic.
  - Customer experience may vary widely depending on the quality of the Uber/Lyft driver who picks them up.
  - There is a risk that by opening up the current vendor pool to Uber/Lyft drivers, taxi companies and van services who have been serving the hospital for years go out of business or are not able to compete at the prices which are otherwise available in the market – but this is not (necessarily) a concern of Montachussett.

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	Struggles a bit conceptually to come up with cost savings tools available, misses the subtle hint that expanding the vendor pool via Uber/Lyft would necessarily imply that market forces would drive per-trip prices lower.
Good Candidate	Catches the subtleties of what is being asked of them when calculating the projected savings from RoundTrip. Recognizes that the bulk of costs for this program is being driven by a very small percentage of total utilizers.
Excellent Candidate	Further understands that RoundTrip may have applicability beyond just short-notice trips – by expanding the pool of vendors who bid on trips (ideally through an open bidding system), prices should self-regulate and only the true low-cost bidder would be able to get trips.

Ocean Co.

Industry: Technology

Quantitative Level: Medium

Qualitative Level: Difficult

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time when you went ahead and did something that you were not originally supposed to do. What was the biggest resistance you faced and how did you counter it?

Question 2:

- What are 2-3 things you bring to a case team?

Ocean Co.

Prompt #1:

- Wearable Technology is a quickly growing segment, and your client Ocean Co. is planning to enter the space by introducing a product called "Smart" jeans (denim jeans with embedded electronics to track heart rate, activity, etc). In what was supposed to be a product launch meeting with the SVP (Senior Vice President), you learn that the product has failed the pre-launch testing with 3 out of the 21 samples under test failing the garment wash test. You have worked with the client through the entire product development cycle, and the SVP looks at you seeking a way forward. Should Ocean Co. launch "Smart" jeans?

Interviewer Guidance:

- Ocean Co. is a giant in the tech industry with annual revenue of $25 billion
- They are one of the largest players in Consumer Hardware
- *Competitors*: No direct competition, as this is a first-of-its kind product. There are other players in the wearable tech space, but their product portfolio is very different from Ocean Co.
- *Product Price point*: US$ 200 (can use this when asked about target customers)
- *Target market* launch: 6 cities in the US (NYC, Atlanta, SF, Boston, Dallas, Denver)
- *Wash Test* is a normal product testing process for any conventional garment manufacturer to test its new product offerings before launching them in the market. The test includes 100 cycles (for denim trousers/jeans) comprising of 50 minutes of washing, followed by 70 minutes of machine drying (at 'high' temperature setting). So, totally, 5000 minutes of washing and 7000 minutes of machine drying are included in the test. Wash test is supposed to replicate actual consumer behavior. *Wash Test Failure* means the product is not functional after the Wash Test.
- "Smart" jeans: can do everything that a smart watch (like, Apple watch) can do.
- Candidate should layout initial structure considering profitability of the product, consumer appetites to buy such a product– with special consideration given to the design of the jeans, as well as a deep-dive into the risks/launch failure downsides, as well as potential exit plan should they decide to totally scrap the project.

Ocean Co.

Prompt #2:

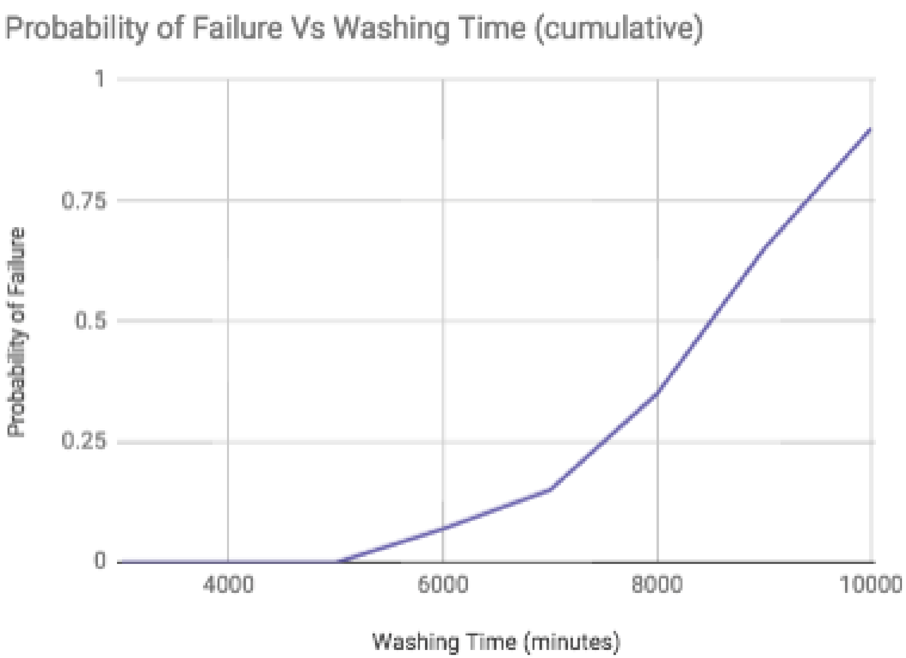
- To what extent do you think the failure during product testing should be a limiting factor to whether or not the company should move ahead with the launch?
- How representative do you think the observed failure rate is of real-world use cases?

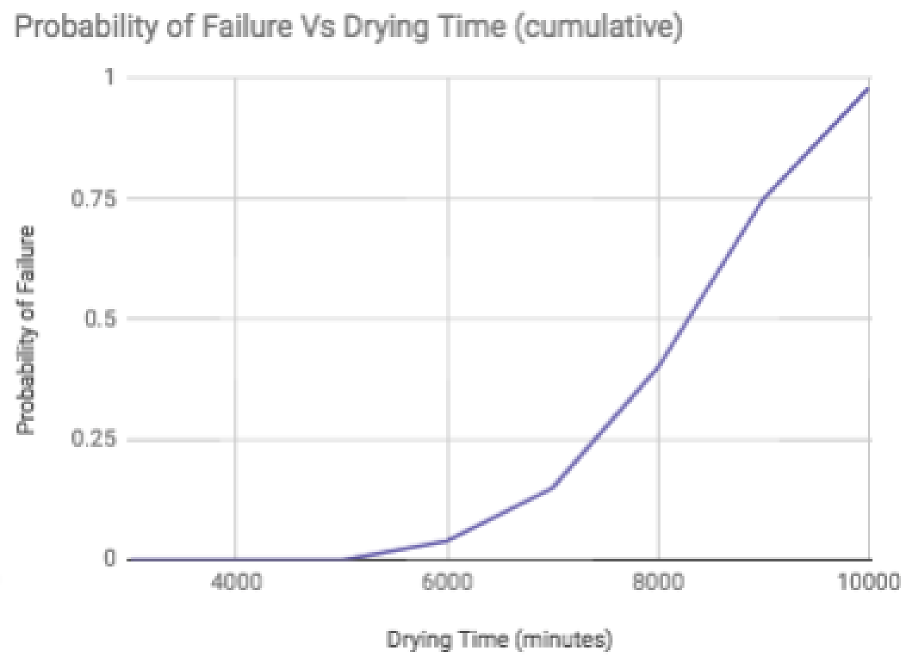
Interviewer Guidance:

- Candidate should determine whether the failure was due to insufficient manufacturing tolerances or over-intensity of the testing parameters.
- Push the candidate on why they believe the tests are representative or not. Could potentially ask the candidate to run through their normal experience with laundry.
  - Could approach this much like a market sizing where they go bottom-up on how long they keep a pair of jeans, how frequently they wash them, etc.
- Candidate could mention that garments come with care instructions – could

Exhibit #1

DUKE FUQUA SCHOOL OF BUSINESS





Drying, here, refers to machine drying only

Interviewer guidance on Exhibits

Exhibit #1 Guidance:

- Shows the probability for product failure given the washing and drying times.
- Probability of failure with 5000 minutes = 0
- Probability of failure with 7000 minutes = 0.15 (~ 3/21)

Analysis:

- Similar trend for washing and drying time
- Product Testing involved 5000 mins of washing and 7000 mins of drying
- For 5000 mins of washing, probability of failure = 0
- For 7000 mins of drying, probability of failure = 0.15. This is very close to 3/21 (observed failure rate seen in the lab)-> second level insight!
- Hence, it makes sense that the failures could have occurred due to excessive drying in the testing process, and not as a result of faulty prototypes.

Ocean Co.

Exhibit #2:

- The Product Design team has determined that the drying process (in testing) as the root cause of product failure. To validate if the 7000 minutes of drying that the testing process entailed was applicable in the practical context, the consumer behavior team conducted this analysis. For a pair of denim jeans, what is the average drying time per customer per year? Through the product shelf life (7 years, since the date of first wear), for how many minutes would it be 'dried' in NYC?

Interviewer Guidance:

- Keep an eye on how well is the candidate able to trace back calculations
- Calculations (Average drying time):
  - NYC: ((180 / 6) / 2) * 80 = 1200
  - ATL: ((140 / 5) / 2) * 60 = 840
  - SF: ((300 / 10) / 3) * 60 = 600
  - ATL: ((200 / 5) / 4) * 60 = 600
  - SF: ((120 / 4) / 2) * 70 = 1050
  - ATL: ((240 / 6) / 4) * 60 = 600
  - Average: 840 minutes
- Calculation (NYC 7 year drying duration): 1200 * 7 = 8400 minutes
- Once the candidate gets back with the 7-year figure for NYC, then ask them to share the final recommendation

Exhibit #2

City	No. of days (per year) target consumers wear denim (A)	No. of denim, on average, owned by a target consumer* (B)	Number of times a denim is worn between consecutive washes (C)**	Average drying time per drying cycle (minutes) (D)**
NYC	180	6	2	80
Atlanta	140	5	2	60
San Francisco	300	10	3	60
Boston	200	5	4	60
Dallas	120	4	2	70
Denver	240	6	4	60

*it can be assumed that the target consumer would equally prefer wearing any particular denim in their wardrobe.
**the consumer is not expected differentiate between normal denim and 'Smart' denim in terms of information provided in columns C and D.

Ocean Co.

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation

- Ideal recommendation would be to go ahead and launch the product, while taking care of the following:
  - There is adequate warning provided in the wash/care instructions, directing consumers to limit the drying cycles
  - Doing a double-check on the consumer data provided
  - Testing (and recommending, if found better) some other methods of drying the product. E.g., air drying, partial machine+air drying

Interviewer Guidance:

- There is potential for the candidate to get lost while working on the exhibit. Hence, the interviewer must check if the final recommendation stiches back with the main question – to launch or not to launch
- Possible Risks: Data inaccurate, issue prevalent in only a certain batch of produce (can be easily rectified by exercising supply chain based controls), some other product performance risks
- Way forward: Test the data, exercise stronger supply chain control on incoming materials and manufacturing process, must gain deeper understanding of the financials of a launch – how much have we sunk into R&D, what do variable costs of production look like?

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	- Needs some guidance on the calculations - Is not able to understand the main deliverable at the first go
Good Candidate	- Needs minimal guidance on the calculations - Is able to understand the main deliverable upon some prompting
Excellent Candidate	- Needs no guidance on the calculations, and is able to draw out a logical flow of the calculating process - Tries and understands/maps out the overall value chain - Is able to provide second level insights (tying back new findings to older ones or to information previously provided)

Took a Pill from Ibiza

Industry: Health Care

Quantitative Level: Difficult

Qualitative Level: Medium

Took a Pill from Ibiza

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #1:

- Your client is a large pharmaceutical company based in Ibiza looking to develop a marketing plan for its new prescription dietary drug (Product X). It is set to launch within the next few months. Weight loss is a new space for your client, and they are relying on you to help them construct a plan. **What types of things would you first consider as you begin to develop your marketing plan?**

Interviewer Guidance:

- Candidates should think through the various aspects affecting a promotion mix
- Additional background information if asked by the candidate:
  - Our client's **goal** is to **increase total prescriptions written for its product**
  - There is one other well known competitor in this space whose product has considerable market share
  - Our client's product has shown to be more efficacious and has a better dosing schedule than our competitor's drug
  - The client is based in Ibiza, but is marketing this product within the US
  - In general, cost is not a primary consideration; our client has set aside a large investment for this marketing effort and expects to incur significant costs (with the hope that this product has the ability to offset these)

Took a Pill from Ibiza

DUKE FUQUA SCHOOL OF BUSINESS

Interview Guidance (cont.):

- As the candidate shares his/her framework, some of the areas they might mention are:
  - Customers (how should I segment my customers – based on prescribing behavior, geography, specialty, etc.? Should I market to doctors or end consumers/patients?)
  - Channel (where should I engage my customers – TV, online, print, email, in-office, etc.?)
  - Content (what types of messages should I carry to my customers? What are my products' advantages?)
  - Competition (who are my competitors? How are they marketing?)
  - Cadence (how frequently should I be reaching out to my customers? Should I market across certain channels in a particular sequence?)
  - Other items candidates may mention include government regulations around advertising, internal coordination across other teams within the client, pricing/cost/revenue, the larger healthcare ecosystem, etc.

Took a Pill from Ibiza

Prompt #2:

- You and the client have decided to begin by identifying potential target customers for Product X
- You and the client decide to focus on doctors (prescribers) as your potential customer pool (rather than considering the end consumer or pharmaceutical companies – these are important players to consider, but to begin, you decide to focus on doctors)
- The client asks you to decide how you think the customers should be segmented
- **What are some ways you could segment potential customers for Product X?**

Interviewer Guidance:

- This is intended to be a structured brainstorm. As the candidate thinks through potential ways to segment the market, s/he may mention:
  - Geography (by region, urban vs. rural, etc.)
  - Specialty (dieticians, Primary Care Physicians (PCPs), other specialists)
  - Prescribing behavior (high prescribers vs. low prescribers)
  - Marketing engagement (receptive to digital marketing vs. print marketing)
  - Patient population (high number of eligible patients vs. low number of eligible patients)
  - Previous relationships (doctors our client already has a relationship with vs. new customers)
- Push the candidate to try to come up with at least four ways to potentially segment

Took a Pill from Ibiza

Prompt #3:

- Once the candidate has finished brainstorming, let him/her know that we have decided to segment the market based on **prescribing behavior**; we have used market research to segment doctors into four quartiles based on their likelihood of prescribing Product X
- **Give the candidate both pieces of Exhibit 1**
- Explain to the candidate that we have segmented both dietary specialists ("specialists") and primary care physicians ("PCPs")
- **Based on this information, which quartile would you like to target and why?**

Interviewer Guidance (Exhibit 1):

- The candidate should bring together the various pieces of Exhibit 1 to determine the total number of prescriptions expected for Product X within each quartile
- The candidate should then choose the quartile with the highest number of total potential prescriptions (specialists + PCPs) as the quartile to target
  - **Q1 has the highest number of total prescriptions and should be the target**
- The candidate should take a structured approach to these calculations. Rounding of numbers is fine and can be encouraged
- See the following page for the math breakdown
- Note: candidates cannot target specialists in one quartile and PCPs in another, must focus entirely on one quartile

Took a Pill from Ibiza

DUKE FUQUA SCHOOL OF BUSINESS

Interviewer Guidance (Exhibit 1 math):

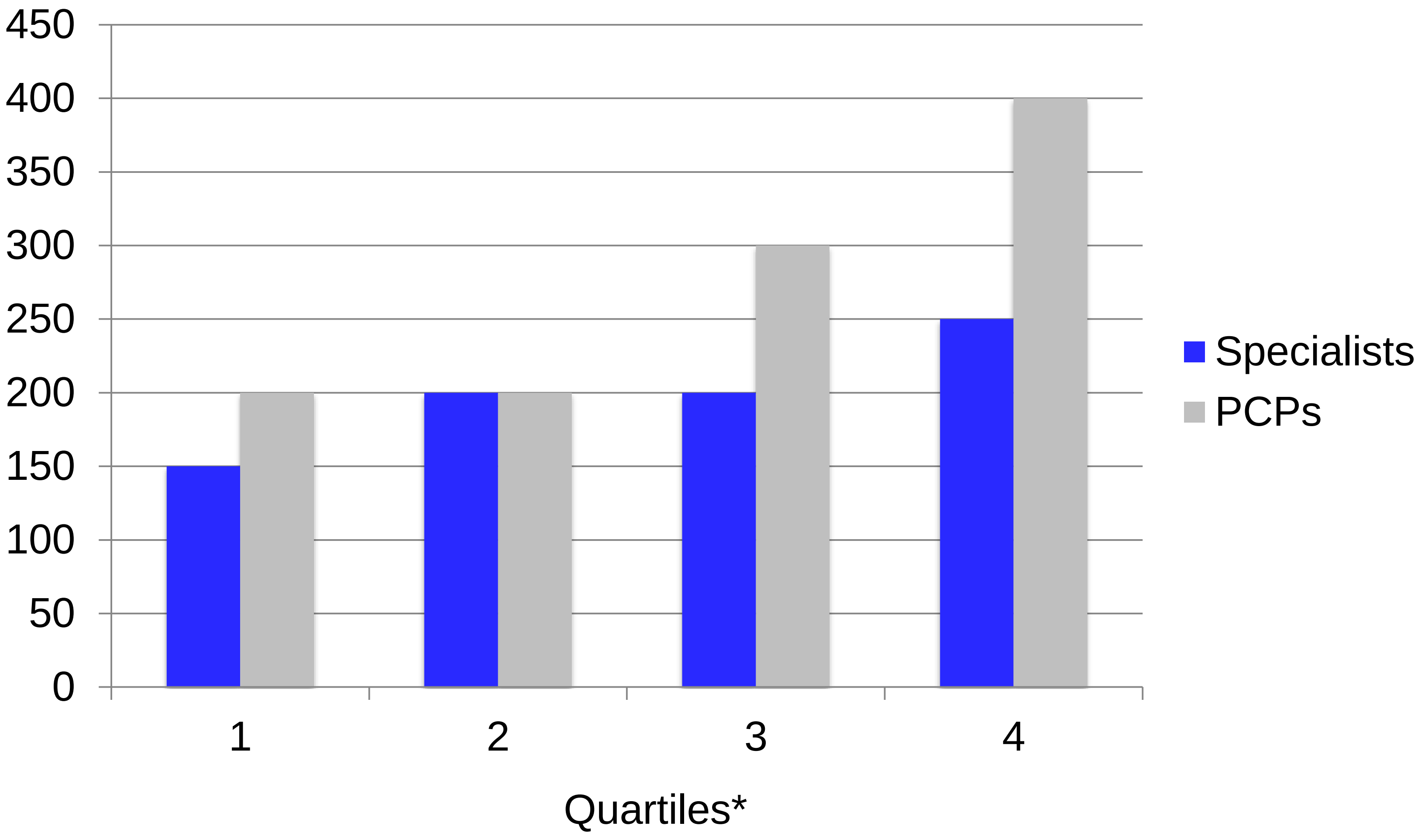
Quartile	Number of patients per doctor	Patients eligible for Product X	Number of patients receiving prescription	Number of Specialists	Total prescriptions
1	360	360 x 60% = **216**	216 x 75% = **162**	150	162 x 150 = **24,300**
2	420	420 x 60% = **252**	252 x 50% = **126**	200	126 x 200 = **25,200**
3	535	535 x 60% = **321**	321 x 33% = **106**	200	106 x 200 = **21,186**
4	1015	1015 x 60% = **609**	609 x 15% = **91**	250	91 x 250 = **22,838**

Quartile	Number of patients per doctor	Patients eligible for Product X	Number of patients receiving prescription	Number of PCPs	Total prescriptions
1	545	545 x 20% = **109**	109 x 80% = **87**	200	87 x 200 = **17,440**
2	600	600 x 20% = **120**	120 x 60% = **72**	200	72 x 200 = **14,400**
3	782	782 x 20% = **156**	156 x 30% = **47**	300	47 x 300 = **14,076**
4	1235	1235 x 20% = **247**	247 x 10% = **25**	400	25 x 400 = **9,880**

Q1 has the highest total Rx across both groups, Q1 should be the target

Exhibit 1

Number of Doctors within Each Quartile



*1st Quartile is comprised of doctors who are projected to be highest prescribers of Product X, while the 4th Quartile is comprised of doctors who are projected to be the lowest prescribers of Product X

Exhibit 1

Specialists	Quartile	Number of total patients for each doctor in quartile	Percent of patients eligible for Product X	Percent of eligible patients likely to be prescribed Product X by doctor
	1	360	60	75
	2	420	60	50
	3	535	60	33
	4	1,015	60	15

PCPs	Quartile	Number of total patients for each doctor in quartile	Percent of patients eligible for Product X	Percent of eligible patients likely to be prescribed Product X by doctor
	1	545	20	80
	2	600	20	60
	3	782	20	30
	4	1,235	20	10

Took a Pill from Ibiza

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #4:

- Having selected a quartile of physicians to target, let's think through how we could reach them.
- **What types of marketing channels and tactics would you use to promote Product X to this segment?**
- **After the candidate finishes brainstorming, ask if the candidate would focus on deploying specific channels first or in any particular order**

Interviewer Guidance:

- If the candidate mentioned channel as an area of consideration in his/her framework, encourage the candidate to refer back to those thoughts
- Some channels the candidate may consider are sales representative visits, emails, targeted search display, third party banners/ads on MD specific websites, Product X's brand website, journal article ads, conferences, etc.
- If the candidate struggles to come up with ideas, encourage him/her to consider how s/he has received promotion materials from companies in the past to help spur ideas
- There is no "right" answer on which channels should be focused on first, it is just a thought exercise to help the candidate develop a more nuanced recommendation

Took a Pill from Ibiza

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation

- The client's brand marketer lead just asked if we could provide her with our latest recommendation regarding our targets and how we plan to reach them. **Please update her on your recommendation.**

Interviewer Guidance:

- Candidate should lead with targeting Q1 specialists and PCPs because it is the opportunity for the greatest number of prescriptions at this time
- Candidate should mention 2-3 channels s/he plans to use to reach our targets (good candidates will hone in on a few, rather than citing the entire brainstorm list)
- An exceptional candidate will note opportunities for spillover effects – as we use certain channels to reach our targets, we will likely hit other specialists and PCPs outside of Q1 and reach beyond our original intent
- Candidate will mention risks/drawbacks: assess projections further on which plan is based, ensure we can actually reach targets through these channels, decide on messaging to carry to targets, analyze competitor actions in this space, ensure we have necessary knowledge for this new space, determine regulatory concerns, etc.
- Candidate should mention next steps: further assessing whichever risks were brought up, identifying key messages for targets, etc.

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	Average candidates will have a moderately developed framework; will make it through the math with a few mistakes; will need assistance brainstorming; recommendation focuses on Q1 targets but not on channels to use
Good Candidate	Good candidates will have a well developed framework; will execute the math with one or no mistakes; will have a thorough brainstorming list; recommendation is concise and focused – considers risks and next steps
Excellent Candidate	Excellent candidates do everything a “good candidate” does but pulls in additional insights such as potential for spillover marketing effects, notes the need to investigate competition further, mentions wanting to look at cost/revenue numbers, etc.

AlphaKeni

Industry: Information Technology

Quantitative Level: Medium

Qualitative Level: Difficult

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:
• Tell me about a time you dealt with conflict.

Question 2:
• Tell me about a time when you had to solve a complex problem.

AlphaKeni

Prompt #1:

- Your client is AlphaKeni, a BPO enterprise that helps various businesses outsource their customer service operations. The business has been experiencing a declining customer satisfaction rating owing to which it has been losing business to competition. The CEO has engaged you to understand what is driving this trend and how it can be remedied.

Interviewer Guidance:

- Additional information to give the candidate if asked:
  - AlphaKeni has operations only in South Asia (India, Bangladesh and Sri Lanka)
  - The scope of operations is only to service inbound calls regarding reservations, tech support, loyalty programs and baggage assistance.
  - Annual revenue: $2 billion
  - The business specializes in serving clients in the commercial aviation space such as British Airways, Etihad, Emirates, Air France etc.
  - Customer satisfaction scores have progressively dropped from a high of 82 in 2015 to 68 in 2017. AlphaKeni is seeking to raise its satisfaction scores to 2015 levels.

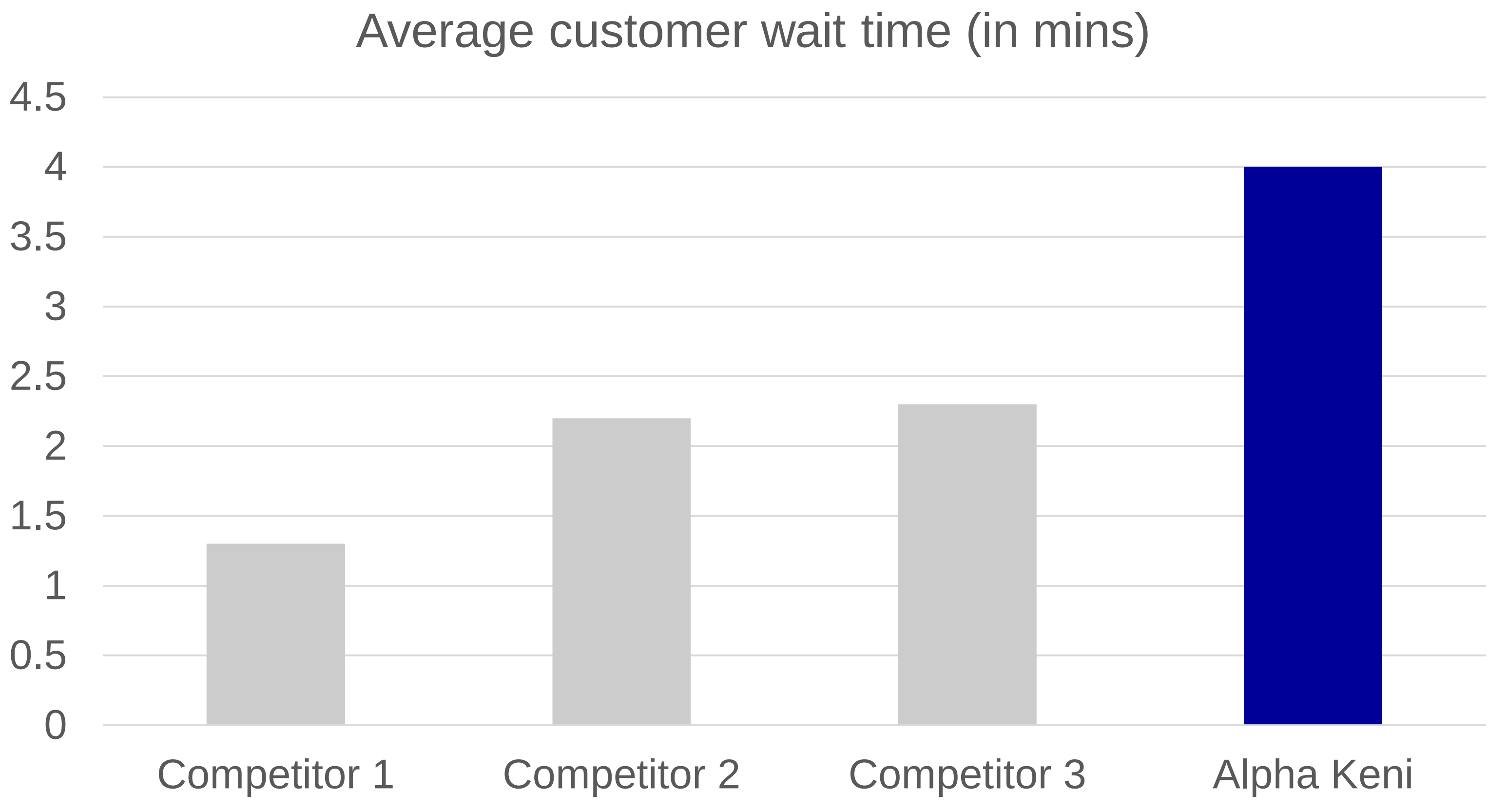
Interviewer guidance

DUKE FUQUA SCHOOL OF BUSINESS

Interviewer guidance:

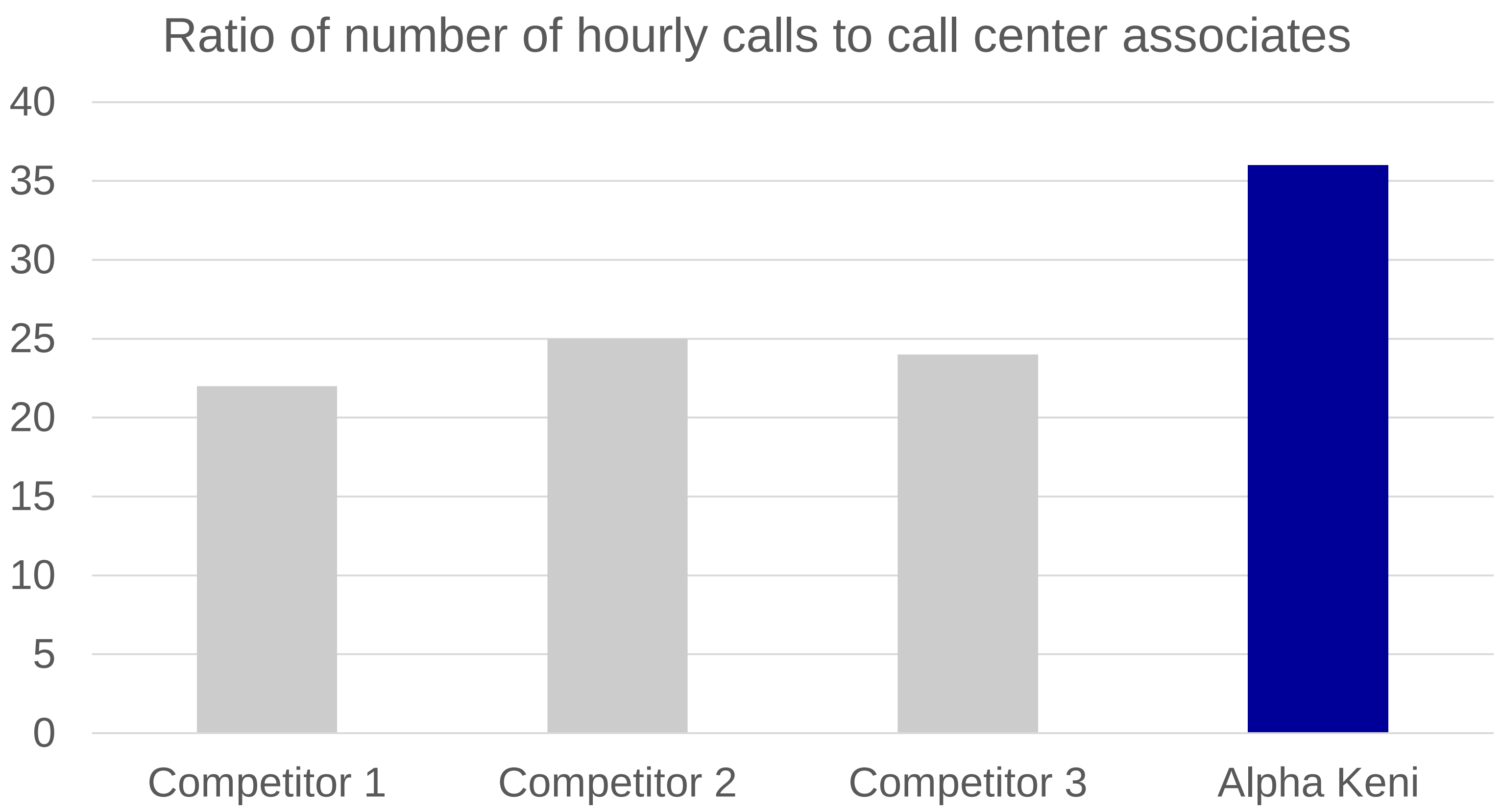
- Allow the candidate a few minutes to map out their framework and talk through their ideas
- In their initial analysis, the candidate should be able to identify potential operational, technology and people issues as one of the areas for further exploration
- Upon completion, provide them Exhibit 1&2

Exhibit #1



[1]Average wait time tracks how long it takes for customers to connect with an agent who can address their needs

Exhibit #2


Ratio of number of hourly calls to call center associates
40
35
30
25
20
15
10
5
0
Competitor 1
Competitor 2
Competitor 3
Alpha Keni

Interviewer guidance on Exhibit 1 & 2

Interviewer guidance:

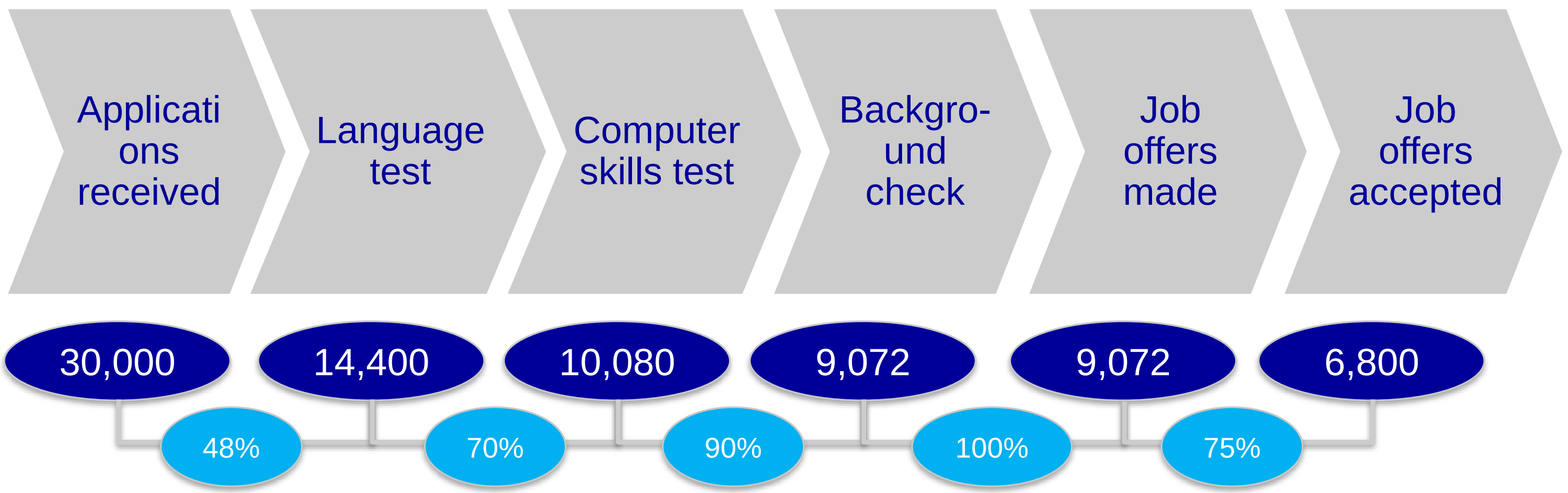
- Allow the candidates to come up with potential reasons on what may be driving the pattern observed in the benchmarking exercise
- If the candidate is able to identify multiple issues, ask them to prioritize their analysis and give reasons on what their hypothesis might be and what data would help prove or disprove that hypothesis
- Once the candidate identifies understaffed call centers as an issue, provide them with Exhibit 2 and 3

Analysis:

- The candidate should be able to brainstorm on ideas that are resulting to an increased wait time. Some of the ideas may potentially be:
  - Outdated technology that is slowing down throughput of calls
  - Poor training of agents which does not allow them to effectively address customer queries
  - Poor demand forecasting: wherein the number of calls received is frequently higher than what has been forecasted
  - Understaffed call centers which either speaks to lack of adequate supply of talent or a high turnover rate in call center associates

Exhibit 2: Illustration of application funnel

ONLY FOR ILLUSTRATIVE PURPOSES



— Indicates number of applicants in each stage of the process

— Conversion rates between stages

Exhibit 3: Benchmarking data

Particulars	A	B	C	AlphaKeni
# of applications	100%	100%	100%	100%
Stage 1: % clearing language test	62%	64%	60%	65%
Stage 2: % clearing computer skills test	54%	50%	51%	57%
Stage 3: % clearing background check	90%	92%	93%	89%
Stage 4: Job offer acceptance rate	74%	80%	84%	86%
Quarterly attrition rate	86%	73%	75%	92%
Avg. annual pay per associate	$5,000	$6,000	$6,500	$6,800

Interviewer guidance on Exhibit 3 & 4

DUKE FUQUA SCHOOL OF BUSINESS

Interviewer guidance:

- Mention to the candidate that an industry survey suggests that the **salary is the most important criteria for applicants**
- Exhibit 2 is purely for illustrative purpose and its purpose is purely to help the candidate understand how the application funnel works, not necessarily use the data
- Language test in the funnel is to test the verbal English skill of candidates
- Computer test is to test their knowledge of how to use a computer
- Candidates may say that poor company culture may contribute to attrition but rule this out as a problem area
- Once the candidate identifies the potential problem as attracting the wrong talent or their improper assessment, ask them to brainstorm a few ideas on how this can be addressed

Analysis:

- By looking at Exhibit 3 The candidate should quick realize that AlphaKeni outperforms on funnel conversion rates and should rule this out as a potential issue area
- The candidate should notice that attrition rates for AlphaKeni are very high compared to its peers, despite it having the highest salary
- Given that AlphaKeni outperforms on funnel conversion rates and has the highest attrition, the candidate should infer that potentially the problem may lie in:
  - ***<u>Sourcing suitable candidates</u>***: Employees leaving by themselves due to lack of a job fit
  - **<u>Incorrectly assessing applicants</u>**: Employees being asked to leave for performance reasons

AlphaKeni

Recommendation

- The CEO, Mr Jurgen Klopp is going to be joining us in a few minutes to hear your recommendations and findings.

Interviewer Guidance:

- A good candidate will take a few minutes to structure their thoughts. These thoughts may include:
  - Reframing the objective of improving the customer satisfaction rating to 2015 levels
  - Synthesizing finding across exhibits and suggest that higher than normal wait times is a result of a high calls to agents ratio, which is potentially due to high attrition rates
  - Further analysis of application funnel leads us to believe that improving assessment and sourcing of applicants is important because
    - ❑ Conversion rates across the funnel are comparable to better than AlphaKeni peers so there is limited scope for improvement there
    - ❑ Average annual compensation, the most important criteria for job applicants, is also higher than its peers
- Next steps
- Risks

LM Pharma

Industry: Pharma

Quantitative Level: Difficult

Qualitative Level: Medium

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time when you had to resolve a conflict with a colleague, client, or teammate.

Question 2:

- What is the most innovative thing that you have ever done?

LM Pharma

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #1:

- LM Pharma is a large pharmaceutical manufacturer with a portfolio of drugs targeting cardiovascular diseases and diabetes. Generating close to $10B in revenue in the past year, LM Pharma is a market leader in the therapeutic areas in which it is active.
- Driven by an aggressive corporate development team, the company has grown significantly over the past 10 years. However, growth has recently declined dramatically due to a drug patent expiration.
- With a desire to improve revenue stability, the CEO has hired your team to evaluate whether the company should enter the VMS (vitamins/minerals/supplements) space.

Interviewer Guidance:

Additional Information (provide only if asked)

- Financial Objective: LM Pharma only invests in NPV positive projects and firm discount rate is 10%.
- Geography: Company operates exclusively in the USA.
- Timing: If expanding, LM Pharma would want begin generating revenue within 12-18 months.

Framework

- An excellent candidate will quickly identify that this is a Market Entry case, and develop a MECE framework that includes the following elements: Market Sizing, NPV, Product Mix, Customer Segmentation, Competitive Landscape, and Entry (i.e., Build/Borrow/Buy).

Interviewer guidance on Exhibit 1/2

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

- **Hand Exhibit 1/2 to interviewee. Explain that a market assessment/ sizing was completed in the first phase of the study. This is the output of that effort.**
- Candidate should identify an NPV analysis as the next logical step, and ask how long it will take to reach "Steady State."
- Inform the candidate that this will occur in Year 1 for simplicity.
- Provide the following information when asked:
  - $20M in initial investment at Y0
  - Ignore any implied changes in Net Working Capital.

Analysis:

- Candidate should calculate the average Factory Price, create an income statement, and then determine the NPV.
- Average Factory Price = $8.00
- Year 1 FCF = $48.34M
  - Revenue = $116.0M
  - Gross Profit = $69.6M
  - Operating Profit = 34.6M
  - Net Income = FCF = $22.49M
- A perpetuity formula can then be used to determine the terminal value, which happens to also be the NPV of the project once Y0 investment is subtracted.
- **NPV = $204.9M**
  - Yr. 1 FCF = $22.49M
  - Discount Rate = 10%
  - Y0 Investment = $20M

LM Pharma War Game

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #2:

- As LM Pharma would need to file an Abbreviated New Drug Application (ANDA) prior to launching the product line, their competitors will have some opportunity to prepare for and defend against the launch. How do you think their main competitor (who has a 60% market share) will respond, and what can LM Pharma do to address this?

Interviewer Guidance/Analysis

- An excellent candidate will provide a structured brainstorm that clearly answers both aspects of the prompt. There is no “right answer” (and this should be an exercise that solicits creative responses), but a MECE structure will include the 4Ps (product, price, promotion, and place).

- **Once brainstorming is complete, ask the candidate which tactic is most likely to be used by the competitor.**

Interviewer guidance on Prompt 3

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #3 Guidance:

- **Explain that the competitor will most likely reduce prices, and our consulting team has decided that we should be priced at parity to the competition, which translates to us taking a 10% price decrease. Ask the candidate what our breakeven unit sales will be at this new price point.**

Analysis:

- Candidate should structure this problem with fixed costs (Marketing, General & Administrative) as the numerator and the per unit Gross Profit as the denominator. Taxes can be ignored as there will be $0 in pre-tax income.

- New Factory Price = $7.20
- Cost per Unit Sold = $3.20
  - $46.4M divided by 14.5M unit sold
- Fixed Costs = $35M
- **Breakeven Unit Sales = 8.75M units**

LM Pharma

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation

- The CEO has just walked into the team room, and would like a status update. Please make your recommendation.

Interviewer Guidance:

- An excellent candidate will begin with the key takeaway (whether LM Pharma should pursue this opportunity or not) and provide a quantitative metric to support this recommendation. This should be followed by 1-2 key risks, and next steps intended to solve for these.

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	Makes multiple math errors and requires ongoing coaching to proceed through the case. Framework may also be off topic (e.g., focused on LM Pharma profitability) and incomplete.
Good Candidate	Demonstrates the majority of the criteria for an Excellent Candidate, but makes a math error or needs some coaching on one to two of the case sections. May also have a generic Market Entry framework, or overly wordy/off-topic recommendation.
Excellent Candidate	Demonstrates a mostly MECE, customized framework focused on Market Entry, identifies objective and solves each quantitative section with no errors/limited guidance, displays creative responses to War Games, and has a succinct recommendation that brings in information from the prompt.

Exhibit #1

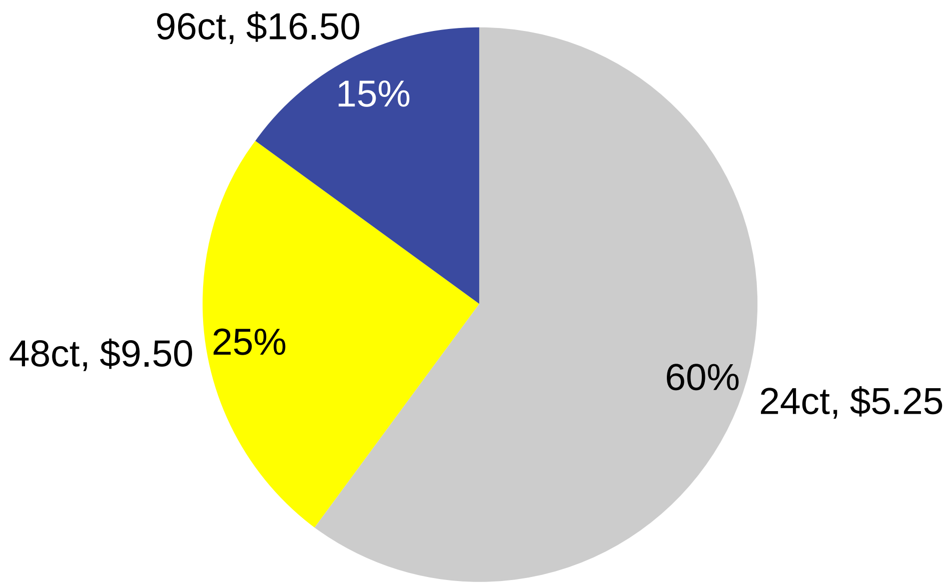
LM Pharma - Pro Forma Income Statement Key Statistics[1]

	Steady State
Unit Sales	14.5M
Cost of Goods Sold	$46.4M
Marketing Costs	$30.3M
General & Administrative Costs	$4.7M
Tax Rate	35%

1 This summarizes all revenues and expenses generated by the VMS line
Note: This scenario assumes LM Pharma develops a product line internally

Exhibit #2

Variety Split & Factory Prices (price paid to LM Pharma)



Pūr and Kleen Water Company

Industry: Mining

Quantitative Level: Difficult

Qualitative Level: Difficult

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time you had a conflict with a coworker. How did you approach the conflict and how was it resolved?

Question 2:

- What are three personality traits that you think a good consultant has?

Pūr and Kleen Water Company

Prompt #1:

- The Ice Trawler Canterbury is planning to journey from its home port on Ceres to the Jupiter Trojan asteroids on an ice mining mission. Due to a population explosion, water is now a highly valued good and the Canterbury stands to make a significant amount of money for its parent company, Pūr and Kleen Water Company, if they retrieve a large amount of ice. The captain of the Canterbury has approached you to analyze a series of asteroids to determine which are the best targets. What are your first steps?

Interviewer Guidance:

The interviewee should determine that this is a profitability case- push them in that direction as they ask questions. They should maintain their focus throughout the case on determining operating income (gross income – operating expenses).

They must understand the business model if they are going to be successful with the case: The ship mines ice from asteroids and sells it to space stations.

This case is interviewee led. Provide the exhibits as they are asked for.

If asked for, this information can be given at any time:

- The capacity of the ship is 20M cubic meters.
- The price of water is $100 per cubic meter.

Calculation Cheat-Sheet

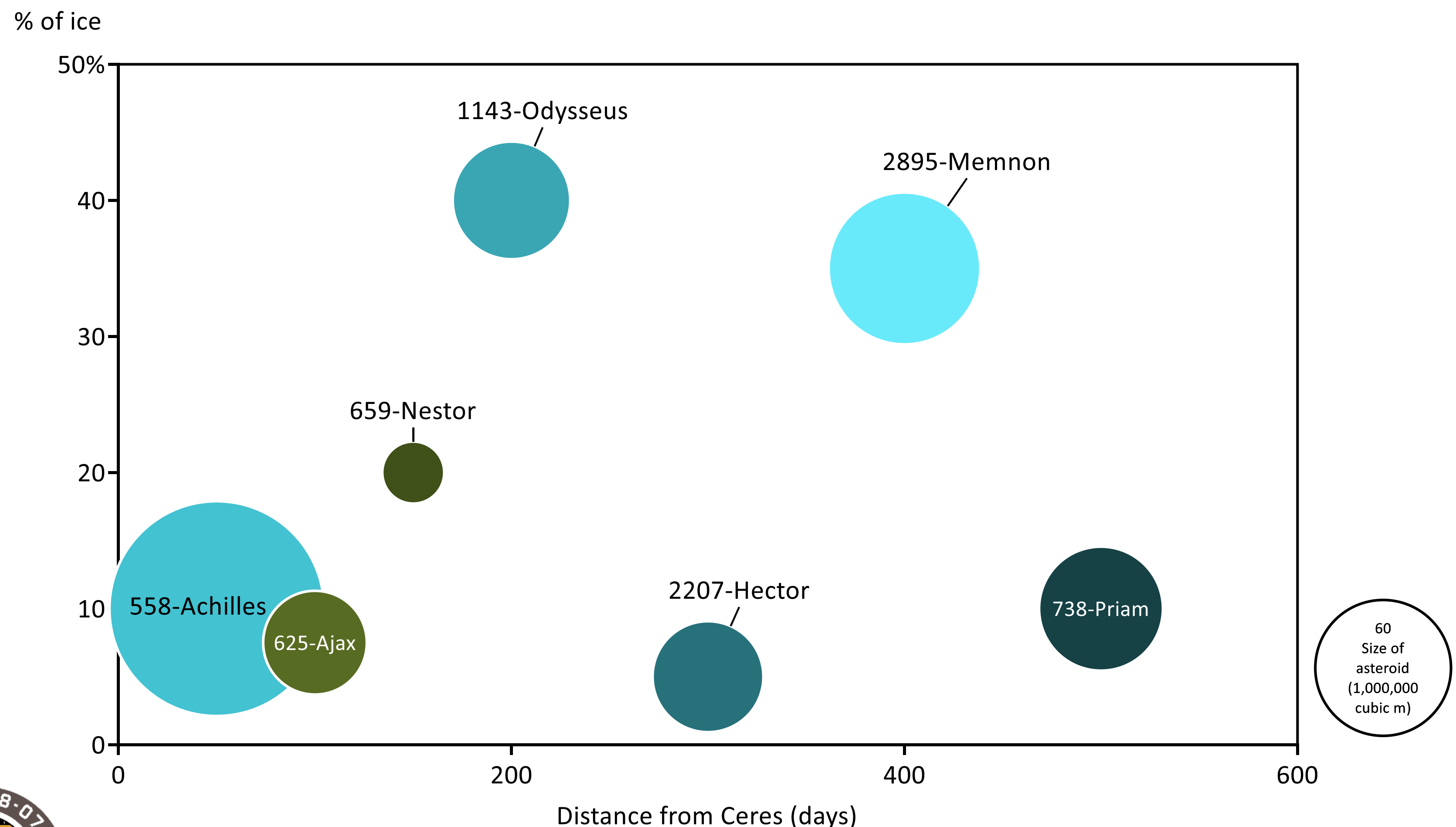
DUKE FUQUA SCHOOL OF BUSINESS

**** DO NOT GIVE TO INTERVIEWEE****

		738-Priam	2207-Hector	1143-Odysseus	558-Achilles	2895-Memnon	659-Nestor	625-Ajax
Revenue								
	price of ice on ceres (m^3)	100	100	100	100	100	100	100
	size of asteroid (m^3)	50,000,000	40,000,000	45,000,000	150,000,000	75,000,000	12,500,000	35,000,000
	% water	0.1	0.05	0.4	0.1	0.35	0.2	0.075
	asteriod ice (m^3)	5,000,000	2,000,000	18,000,000	15,000,000	26,250,000	2,500,000	2,625,000
	ship capacity (m^3) (1000x100x100)	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000
	ice hauled (m^3)	5,000,000	2,000,000	18,000,000	15,000,000	20,000,000	2,500,000	2,625,000
	total revenue	500,000,000	200,000,000	1,800,000,000	1,500,000,000	2,000,000,000	250,000,000	262,500,000
Costs								
	fuel per day	500,000	500,000	500,000	500,000	500,000	500,000	500,000
	distance in days	500	300	200	50	400	150	100
	total fuel	$ 250,000,000	$ 150,000,000	$ 100,000,000	$ 25,000,000	$ 200,000,000	$ 75,000,000	$ 50,000,000
	size of asteroid (m^3)	50,000,000	40,000,000	45,000,000	150,000,000	75,000,000	12,500,000	35,000,000
	mining rate (m^3)/day	200,000	200,000	200,000	200,000	200,000	200,000	200,000
	# of days to mine	250	200	225	750	375	62.5	175
	mining cost per day	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
	mining costs	$ 250,000,000	$ 200,000,000	$ 225,000,000	$ 750,000,000	$ 375,000,000	$ 62,500,000	$ 175,000,000
	life support costs per day	5,000	5,000	5,000	5,000	5,000	5,000	5,000
	total crew	42	42	42	42	42	42	42
	total days	750	500	425	800	775	212.5	275
	total life support	$ 157,500,000	$ 105,000,000	$ 89,250,000	$ 168,000,000	$ 162,750,000	$ 44,625,000	$ 57,750,000
	Ceres docking fees	$ 50,000,000	$ 50,000,000	$ 50,000,000	$ 50,000,000	$ 50,000,000	$ 50,000,000	$ 50,000,000
	Total Cost	$ 707,500,000	$ 505,000,000	$ 464,250,000	$ 993,000,000	$ 787,750,000	$ 232,125,000	$ 332,750,000
	Operating Income	(207,500,000)	(305,000,000)	1,335,750,000	507,000,000	1,212,250,000	17,875,000	(70,250,000)

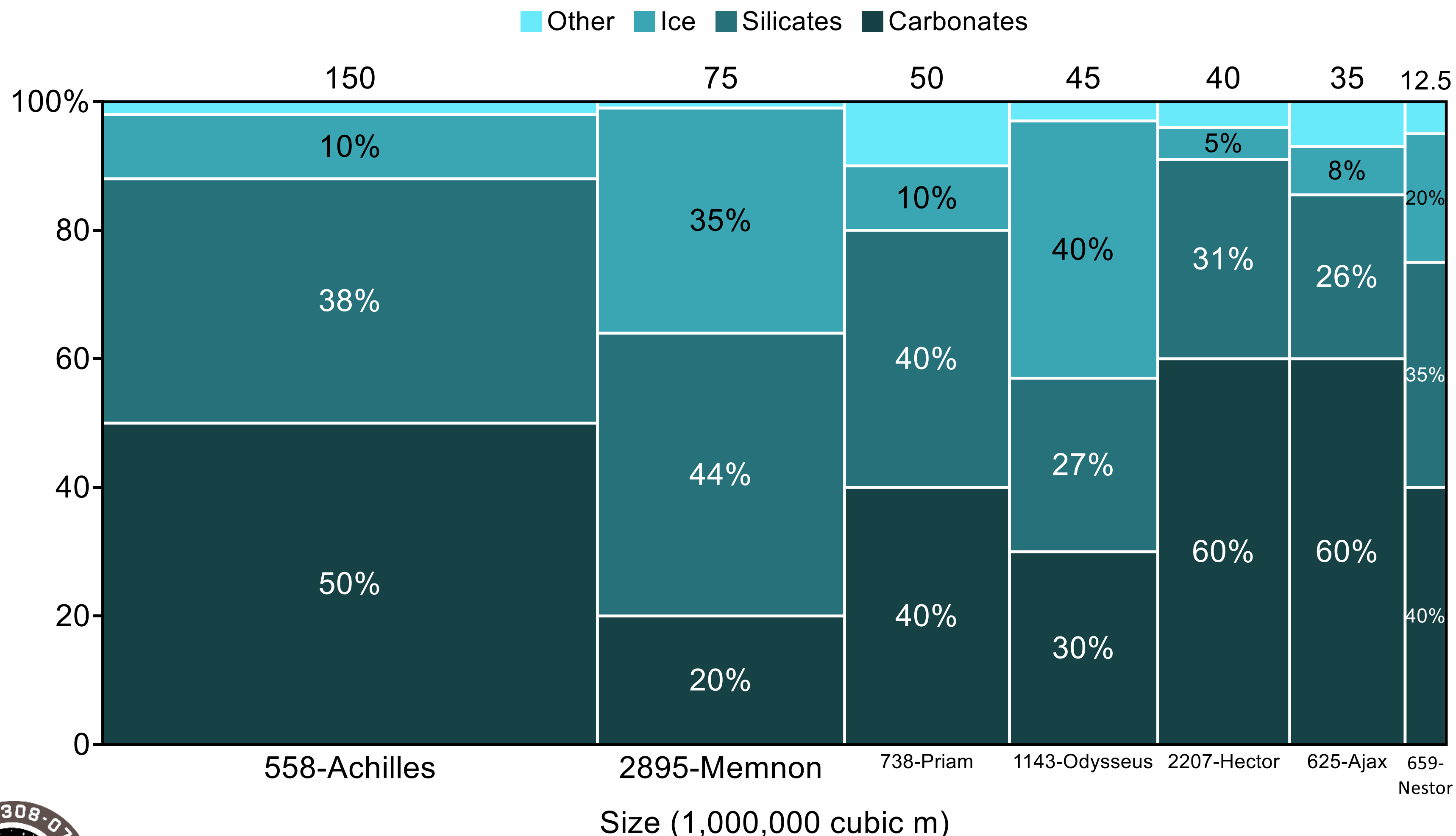
Exhibit 1a: Seven prospective Jovian Trojans for Canterbury missions

DUKE FUQUA SCHOOL OF BUSINESS



*All prospecting data is proprietary. Passing this information to unauthorized readers may result in prosecution under UN / Martian law.

Exhibit 1b: Although all Type-D, each asteroid has a unique composition



*All prospecting data is proprietary. Passing this information to unauthorized readers may result in prosecution under UN / Martian law.

Interviewer guidance on Exhibits

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

- Provide 1a and 1b when they ask for information about revenues.
- The numbers next to the names of asteroids are part of the naming convention of asteroids. They do not indicate any trait relevant to this case.
- The interviewee has everything they need at this point to determine revenue: Price of ice and the amount of ice on each asteroid.
- ****For the purposes of evaluating potential destination asteroids, do not need to consider implied costs of a return trip when evaluating which asteroids to prioritize for mining.**

Analysis:

- They should quickly clear the two slides and narrow down the choices to Achilles, Odysseus, and Memnon.
- After realizing that these three should be the primary targets, they should do some quick math to understand how much ice is on each. (guidance on quantities provided in prior table)
- The interviewee must think about the capacity of the ship (20M cubic meters) and the price of ice ($100 per cubic meter) at this point if they haven't already.

Costs Prompt

DUKE FUQUA SCHOOL OF BUSINESS

Prompt:

- When asked for data on costs, ask them to brainstorm what kinds of costs would be associated with mining asteroids.
- Keep exhibit 3 nearby so you can give the relevant data if it is part of their brainstorming.

Analysis:

- A good candidate will structure the brainstorming.
- The candidate should recognize that the bulk of costs will be variable (fuel, live support, mining time, etc.) but if asked if there are any recurring costs related to this mission, just mention the docking fees at Ceres which are identical.
- Variable costs will be associated with the amount of time spent in space.
- Each time they identify a relevant cost and you give them the data, they should capture it in a structured way to use it in calculating total cost.
- At the end of determining the types of costs, they should move toward creating an equation that will give them the total cost associated with each asteroid.

Exhibit 2: Distances from belt stations during mission corridor

	Eros	Tycho	Ceres
738-Priam	400	600	500
2207-Hector	250	450	300
1143-Odysseus	300	250	200
558-Achilles	75	100	50
2895-Memnon	300	475	400
659-Nestor	125	200	150
625-Ajax	175	215	100

*All prospecting data is proprietary. Passing this information to unauthorized readers may result in prosecution under UN / Martian law.

Exhibit 3: Typical Canterbury cost figures (offer after brainstorm)

Cost Figures	
Life Support Costs	$5k per crewmember per day
Fuel Costs (dependent on projected fuel prices)	$500k per day of transit
Mining Costs	$1M per day of mining
Ceres Docking Fees	$50k
Total Crewmembers	42
Ice Mining Rate (applied to entire asteroid)	200k cubic m per day

Interviewer guidance on Exhibits

Exhibit #2/3 Guidance:

- Give the interviewee exhibit 2 after completion of the brainstorm. Exhibit 3 information can be given as the candidate discovers them during brainstorming, **or can be given outright if the candidate is struggling or is running out of time.**

Analysis:

- After the brainstorm, it is straightforward math. They should determine the cost of mining each asteroid.
- Ensure the candidate walks you through a structured approach to their math including a brief summary of the formula(s) they intend to use to arrive at a total revenue potential and costs implied.

Pūr and Kleen Water Company

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation

- The interviewee should recommend Odysseus based on calculated profit:

1143-Odysseus	558-Achilles	2895-Memnon
1,335,750,000	507,000,000	1,212,250,000

- Interviewee should give an example of what risks they would face and how it would impact their calculations (eg: Memnon is a close second, what would make it best?)
- Finally, they should describe next steps: verifying data, negotiating better costs, etc.

Interviewer Guidance:

- Be mindful of the time and make sure they don't spend too much time creating the final recommendation. Good recommendations will be actionable (tell you what asteroid to mine), concise, well-reasoned, and have all of the calculations complete.
- If Memnon is selected as the best, check to see if they violated the Caterbury's ice capacity when doing their calculations

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	Understands that this is a profitability case. May not complete all calculations. May not account for ship capacity. May misinterpret slides or make assumptions that are not valid.
Good Candidate	Completes all calculations, but may not get all math right. Brainstorm yields %70 of costs. Has a conclusion that is close to an actionable recommendation. May not maintain focus on operating income throughout.
Excellent Candidate	**Leads the case from beginning to end**, checking in with the interviewer throughout. Completes all calculations without major errors. Asks questions to clarify points that are unclear. Maintains composure at all times. Gives an actionable and clear recommendation, complete with thoughtful risks and next steps.

RETHINKING
THE BOUNDARIES

DUKE
THE FUQUA SCHOOL OF BUSINESS

The Duke MBA Consulting Club Casebook "Greatest Hits"

Activist Action

Industry: CPG
Quantitative Level: Difficult
Qualitative Level: Difficult

Behavioral Questions

Question 1:
Leadership skills can help develop the relationship with a client. Can you share an example where you led a group and what the outcome was?

Question 2:
When have you had to convince someone to change their mind? Were you able to do it and if so how?

Activist Action

DUKE FUQUA SCHOOL OF BUSINESS

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

DUKE FUQUA SCHOOL OF BUSINESS

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

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 <u>should approximate using the graph</u>. 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 <u>savings are too far out for an activist investor</u>. Regardless of the NPV, this project should be secondary to a short-term strategy.

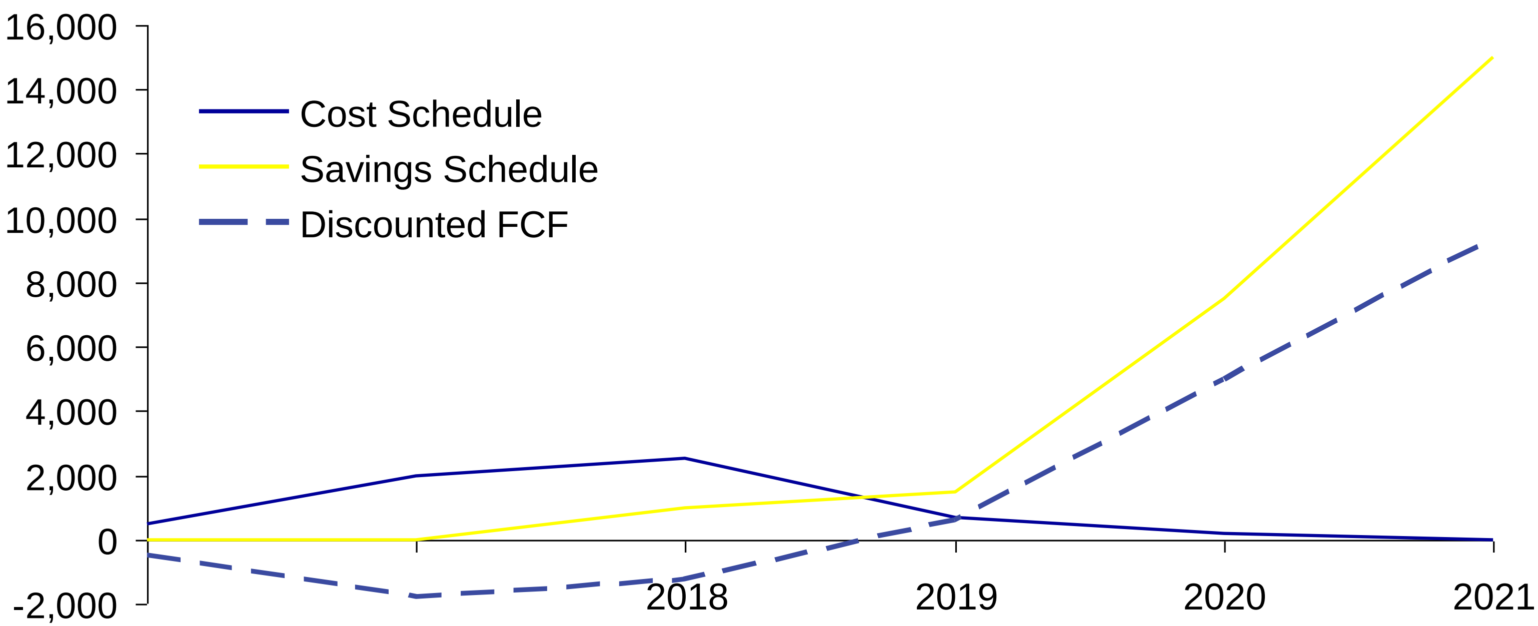
Once this option is deemed insufficient read Prompt 2.

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

DUKE FUQUA SCHOOL OF BUSINESS

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

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

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	• Few mathematical errors • Frames the problem and dynamics between investor and company goals (short-term/long-term)
Good Candidate	• Performs the above plus… • Correctly evaluates the options (quantitatively and qualitatively) • Quickly moves through overall case
Excellent Candidate	• Performs the above plus… • Drives toward short-term opportunity to sell brands (may mention CPG examples) • Provides 1-2 creative options in addition to the case defined options

Duck Island Beer Co.

Industry: Consumer Products

Quantitative Level: Medium

Qualitative Level: Medium

Behavioral Questions

DUKE 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 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.

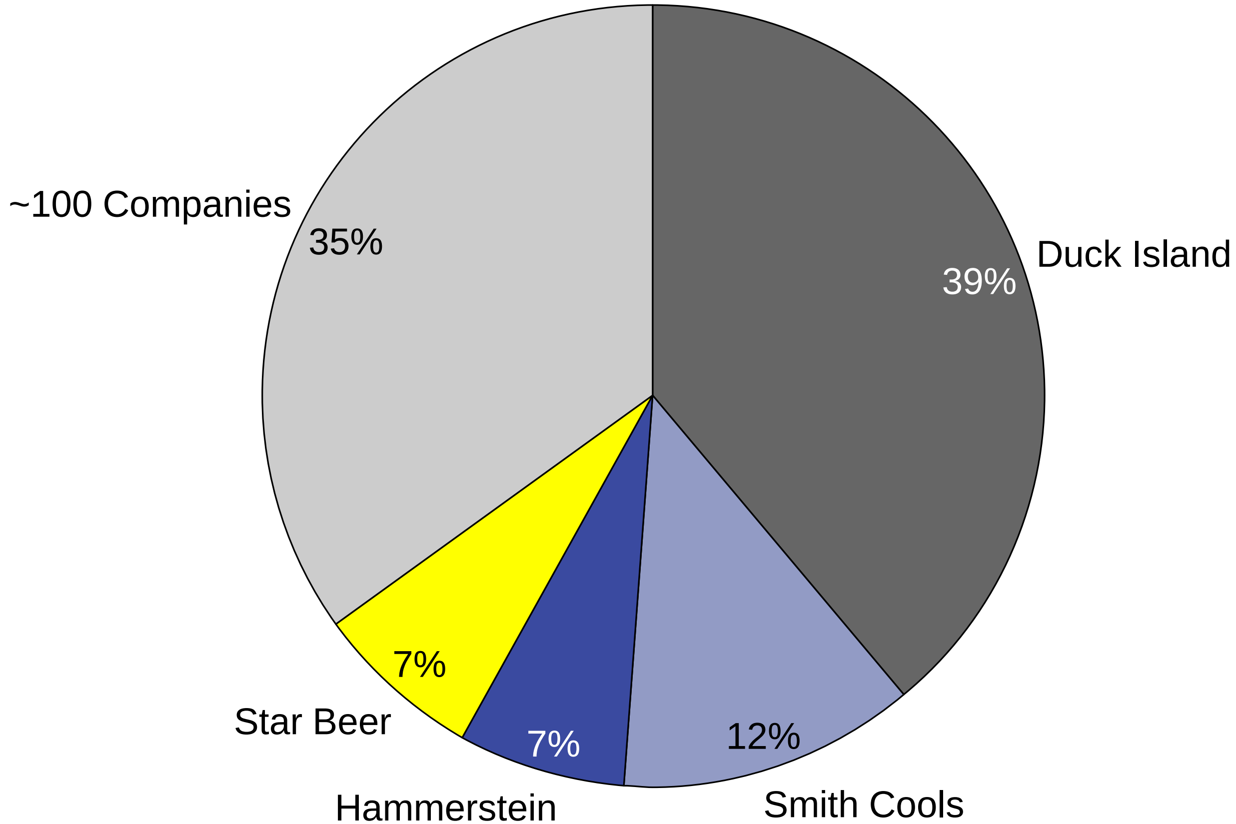
- Most candidates will recognize that this is a profitability case. But a good candidate will see aspects of market entry and tailor their problem solving accordingly. Additionally, he or she will focus on the qualitative aspects of the beer industry.

- 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

DUKE FUQUA SCHOOL OF BUSINESS

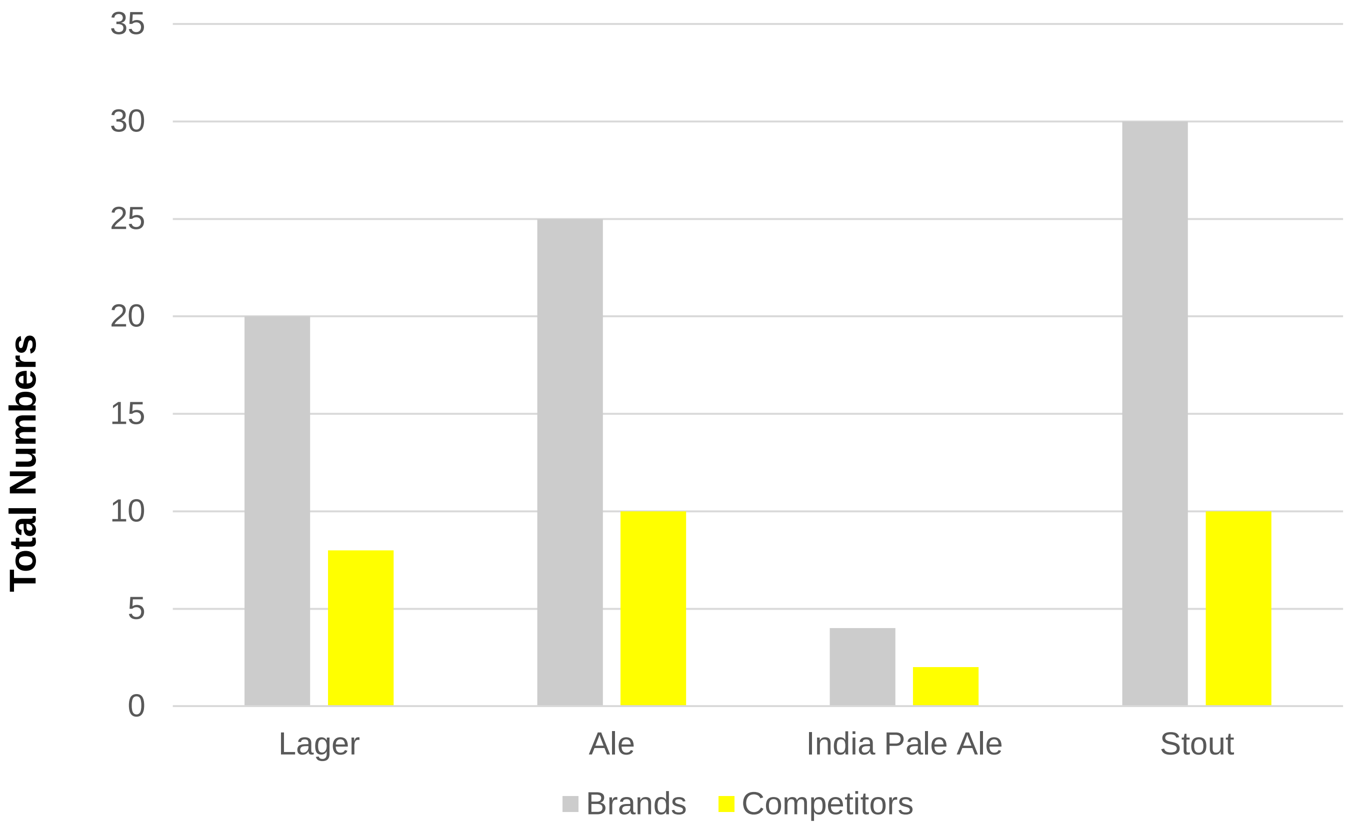
Exhibit #1 Guidance:

- To be handed whenever asked about market share

Analysis:

- 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

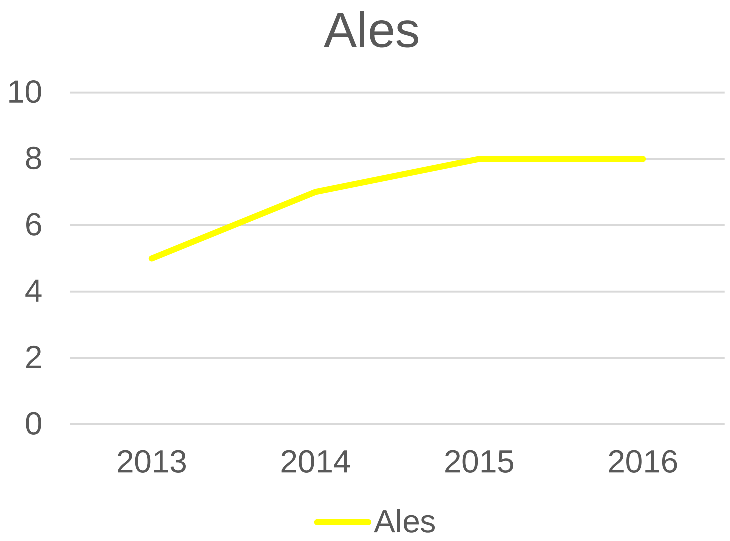


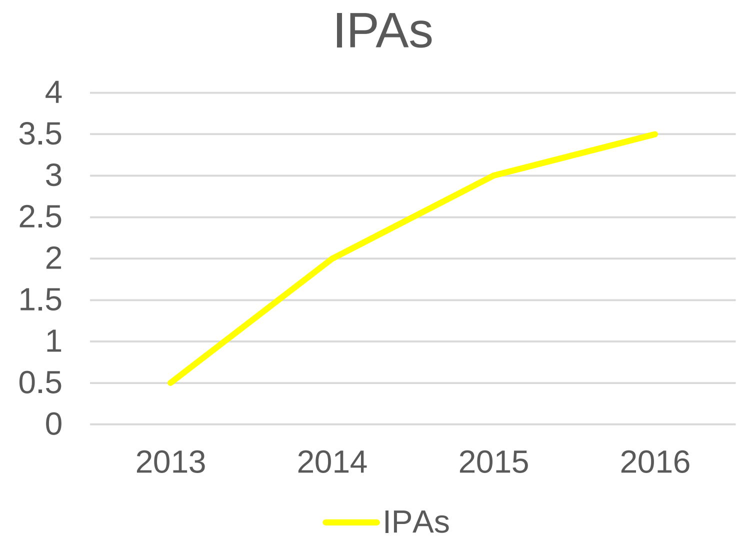
Interviewer guidance on Exhibits

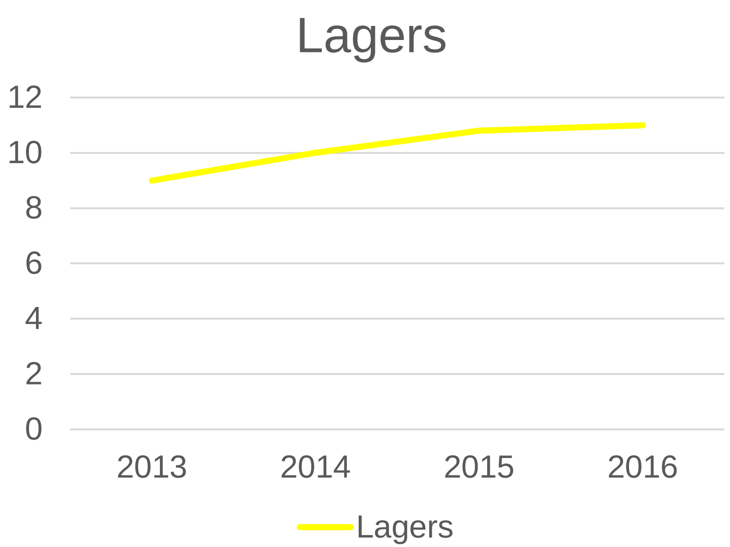
DUKE FUQUA SCHOOL OF BUSINESS

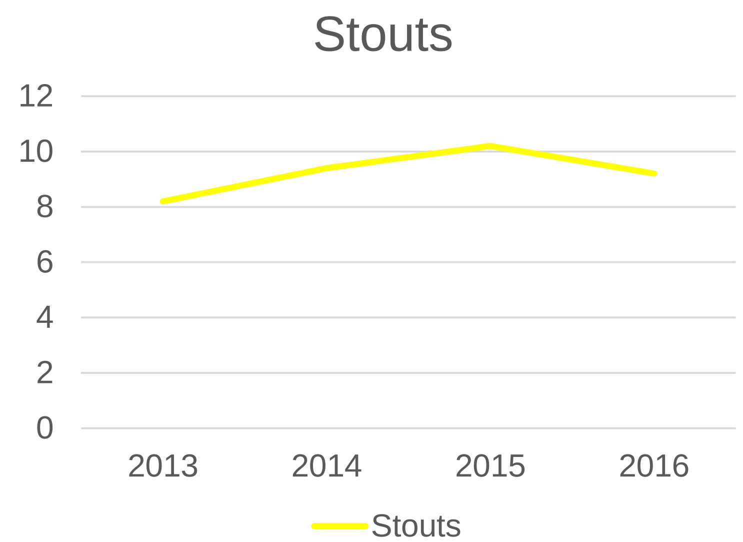
Exhibit #2 Guidance:	Analysis:
• Exhibit shows total amount of brands by style in the marketplace and how many competitors own those brands	• The IPA category has the least amount of brands and competition

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









Interviewer guidance on Exhibits

DUKE FUQUA SCHOOL OF BUSINESS

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 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 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)

DUKE FUQUA SCHOOL OF BUSINESS

- 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

Going Green

Industry: Market Entry

Quantitative Level: Medium

Qualitative Level: Medium

Case 10: Going Green

Behavioral Questions

- Describe a time a teammate was not pulling their weight. What did you do about it?
- What three things would your previous supervisor identify as your areas of improvement?

Prompt

Over the last few years some states have legalized medical marijuana sales on a prescription basis, and some have even legalized recreational use. The cultivation and sales of marijuana most often take place in small storefronts called dispensaries. In most states, limits have been created on how many dispensaries are allowed to exist at any one time.

Your client, North Carolina Tobacco Company, made $8 Billion in revenue and $2 Billion in profits last year, but has seen declining use of cigarettes in the United States, which currently makes up 25% of its total revenue and profit. NC Tobacco is considering moving into the recreational marijuana market. What should they do? Assume that federal regulations are not a concern in this case.

Interviewer Guidance

Provide if requested:

- Global use of tobacco has not declined and is even increasing in some areas
- NC Tobacco is interested in diversifying their portfolio of products
- NC Tobacco is normally focused on long-term profitability, but because this is a very new market they aren't completely sure what else they should be thinking about.
- NC Tobacco only interested in entering the recreational market, as medical marijuana is highly regulated and requires the dispensary to be a not for profit organization. (Assume recreational dispensaries are for-profit)

A good candidate will recognize that this is a market entry question. The framework can include:

- **Market Evaluation**: Market Size, barriers to entry,
- **Entry**: Buy, Build, Partner
- **Economics**: Costs, Revenue, synergies with cigarette business, NPV
- **Risks**: Political fallout in NC (tobacco centric state), Negative PR for getting in drug business, potential substitution of cigarette sales, consumer distaste for 'big corporate', problems with financing (banks don't want to finance due to risks associated with Marijuana).

Case 10: Going Green

DUKE FUQUA SCHOOL OF BUSINESS

Prompt

NC Tobacco is interested in Washington and Colorado, which are two states that have legalized recreational use of marijuana. What is the potential market size in Washington and Colorado?

Interviewer Guidance

Guide the candidate toward a top-down approach. Provide the following information if requested:

- Colorado Population: 5 Million
- Colorado Population that smokes: 15%
- Washington Population: 7 Million
- Washington Population that smokes: 10%
- Number of grams consumed per week: 1
- Price per gram (assume this is the equivalent of 1 marijuana cigarette): $15

Candidate should lay out information requested on an organized chart or data table.

Analysis

Washington Market size: $15/gram * 50 grams/yr * 7M people * 10% = $525 M
Colorado Market Size: $15/gram *50 grams/yr * 5M people * 15% = $562.5 M

Candidate should note a fairly large market size relative to current NC Tobacco profits, and a relatively larger market size in Colorado.

Case 10: Going Green

Prompt

Now that NC Tobacco understands the market size, how should they enter the market?

Interviewer Guidance

The candidate should analyze the cost/benefits for buy, build or partner. Guide them to the primary analysis of buy or build, if they don't arrive there quickly. If candidate inquires about JV, assume NC Tobacco wants full control of the process. The candidate should approach this in a structured way that analyzes the positives and negatives of each. Utilizing a table is one way to facilitate this:

Analysis

Strategy	Buy	Build
Benefits	• Quick to ramp up and capitalize on first mover advantage • Utilize local expertise • Few states have marijuana cigarettes so easy to consolidate • Utilize local brand recognition	• Easier to build culture • Few consolidated competitors means less competition • Similar products may allow ease of entrance into market
Disadvantages	• Integration into new company • Scattered, independent operators may make consolidation challenging • Financing may be challenging for marijuana dispensary purchases	• **Limited licenses distributed restrict ability to build from scratch** • Time to grow plants, establish brand name and sell may take too long – other competitors may enter

Recommendation

Candidate should recall limited amount of licenses distributed and recognize that building would be more difficult. Client should buy rather than build.

Case 10: Going Green

Prompt

NC Tobacco is interested in purchasing a portion of the dispensaries currently in the market. What do they need to know in order to determine the worthiness of the investment, and which market they should enter, if any?

Interviewer Guidance

Potential avenues of pursuit could be an ROI, a Breakeven, or an NPV analysis. Guide the candidate towards an NPV analysis and a determination of the value of the purchases to NC Tobacco. Once they have asked for financial information, provide Exhibit 1.

The first step of this analysis is to determine the revenue for each individual dispensary. Candidate should recognize that they require the number of individual dispensaries in each state. See below for information – individual revenue numbers are on interviewer copy of Exhibit 1.

- Total number of dispensaries in Colorado: 100
- Total number of dispensaries in Washington: 200

One they calculate the individual revenue, the candidate should begin pursuing an NPV valuation with the data at hand. Provide the following information upon request

- Total number of dispensaries in Colorado available for sale: 10
- Estimated purchase price of each Colorado dispensary: $4M
- Total number of dispensaries in Washington available for sale: 30
- Estimated purchase price of each Washington dispensary: $1.5M
- Discount rate: 10% (assume the NPV is in perpetuity)

Case 10: Going Green

Exhibit 1

Estimated Income Statement for a Future NC Tobacco Dispensary

	Colorado	Washington
Revenue	?	?
Cost of Goods Sold	$2,175,000	$1,050,000
Overhead	$1,100,000	$450,000
Salary	$525,000	$375,000

Case 10: Going Green

Exhibit 1: Interviewer Guidance

Estimated Income Statement for a Future NC Tobacco Dispensary

	Colorado	Washington
Revenue	$5,625,000	$2,625,000
Cost of Goods Sold	$2,175,000	$1,050,000
Overhead	$1,100,000	$450,000
Salary	$525,000	$375,000

Case 10: Going Green

DUKE FUQUA SCHOOL OF BUSINESS

Analysis

	Colorado	Washington
Market Size	$562,500,000	$525,000,000
# of Dispensaries	100	200
Revenue/Dispensary	$5,625,000	$2,625,000
Cost of Goods Sold	($2,175,000)	($1,050,000)
Overhead	($1,100,000)	($450,000)
Salary	($525,000)	($375,000)
CF/store	$1,825,000	$750,000
# of stores available for purchase	10	30
Total CF/Store	$18,250,000	$22,500,000
Discount Rate	10%	10%
DCF of purchased stores	**$182,500,000**	**$225,000,000**
Cost to purchase 1 store	($4,000,000)	($1,500,000)
Cost to purchase available stores	**($40,000,000)**	**($45,000,000)**
NPV	**$142,500,000**	**$180,000,000**

Recommendation

A good candidate will immediately note the higher NPV for Washington over Colorado. An excellent candidate will realize that both are viable options due to the positive NPV..

Case 10: Going Green

Prompt

Should NC Tobacco move forward with purchasing dispensaries? What are some other factors that NC Tobacco might want to consider before moving forward with their decision?

Interviewer Guidance

Candidate should provide a conclusion slide clearly identifying the recommendation, along with the risks associated with the strategy. Recommended action would be to move forward with purchase of both Colorado and Washington dispensaries due to NPV, but the candidate can make a case for either moving forward or for not purchasing as long as sufficient support is provided. This is a good opportunity to push the candidate with 'what else' questions, particularly during the risk assessment.

Case 10: Going Green

Analysis

Potential Rationale for moving forward with purchase:

- Positive NPV
- Higher profit margin than cigarettes
- First mover advantage
- Potential high-growth market as more states legalize
- Synergistic opportunities in supply chain, marketing, etc.
- New (and highly loyal) customer base
- Cigarettes inviable for long term

Potential Rationale for not continuing:

- NPV small for company making $8 Billion/yr in revenue
- Potential variability in projected vs. actual income statement estimates
- Potentially low estimate of purchase price (given low NPV/store)
- Potential first mover disadvantage
- Negative PR for getting in 'drug' business
- Potential substitution of cigarette sales
- Potential consumer distaste for 'big business'
- Problems with financing (banks don't want to finance due to risks associated with Marijuana)
- Cigarette sales still strong abroad – focus on international opportunities

Case 10: Going Green

DUKE FUQUA SCHOOL OF BUSINESS

Performance Evaluation

- This case tests the candidate's ability to:
  - Work through complicated math
  - Develop structured approaches to problems
  - Recall key facts discussed earlier in the case
  - Understand key factors that drive market entry and M&A cases
  - Make a recommendation in the face of ambiguous information
  - Remain professional in a business case that may otherwise encourage individuals to lose their professionalism

- Good interviewees will:
  - Will have an understanding where the case is going throughout
  - Have 1-2 math errors but recovers appropriately
  - Displays good ability to utilize public math
  - Creates basic MECE structure (bucketed approach, etc.) to analyze problems
  - Provides conclusion with support
  - Provides a recommendation after analysis with 3-4 potential risk factors
  - Maintains professional composure throughout

- Exceptional interviewees will
  - Drive the case forward throughout with hypothesis based inquiry
  - Have 0 math errors
  - Will maintain composure throughout the math
  - Add creative ideas to qualitative analysis
  - Addresses prompts with advanced matrices or analytical structures that show depth of thinking and organization
  - Is engaging, displays interest in the subject and has appropriate body posture and presence
  - Provides a strong, efficient, concise recommendation with at least 4-5 risk factors.

Goodbye Horses

Industry: Healthcare

Quantitative Level: Medium

Qualitative Level: Difficult

Behavioral Questions

DUKE 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

DUKE FUQUA SCHOOL OF BUSINESS

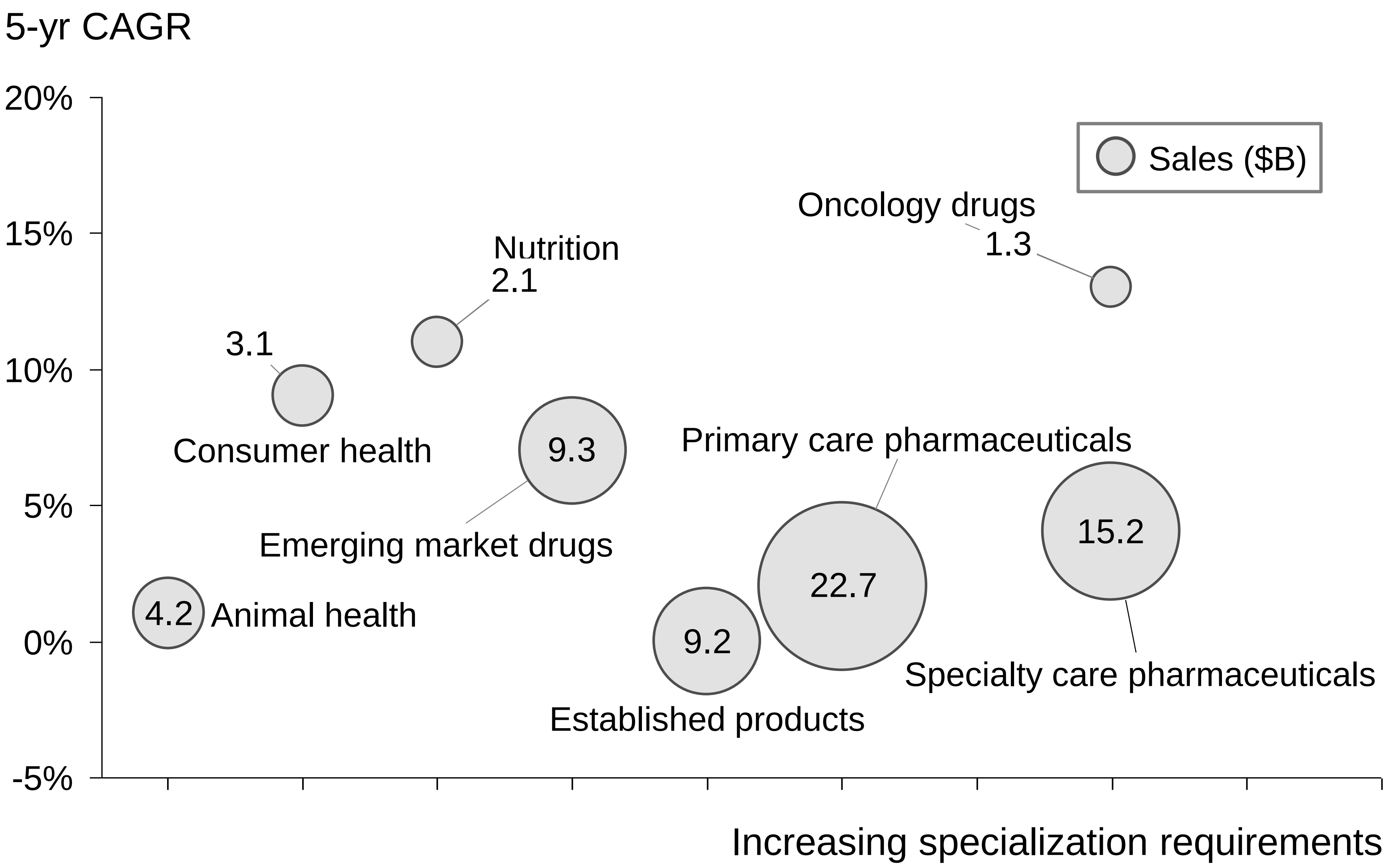
Prompt #1:

- 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

DUKE FUQUA SCHOOL OF BUSINESS

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.

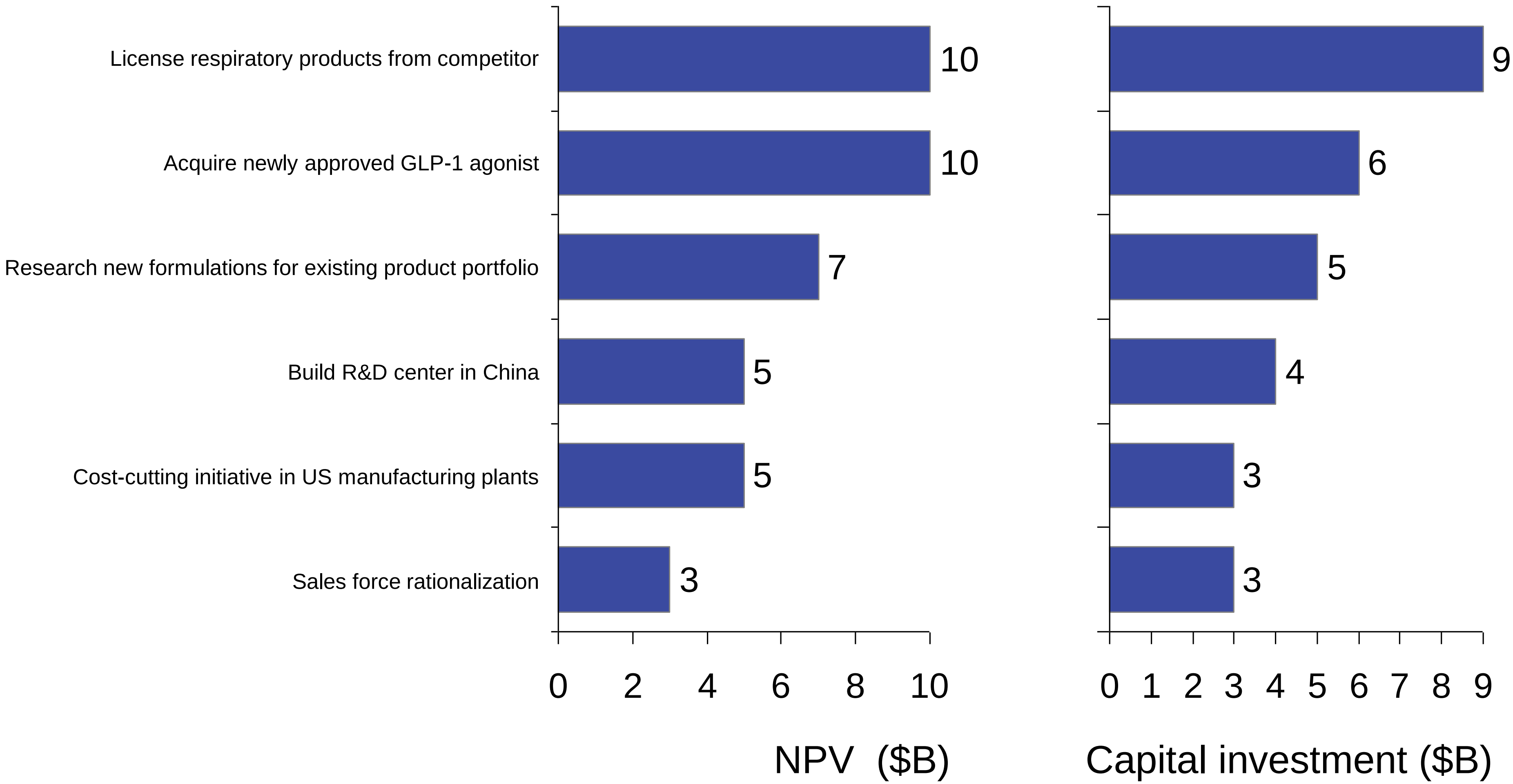
Interviewer Guidance:

- 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

DUKE FUQUA SCHOOL OF BUSINESS

Project NPV | **Capital Investment Required**



Interviewer guidance on Exhibit #2

Exhibit #2 Guidance:

- Provide the exhibit and let the interviewee walk through it verbally
- If asked, tell the interviewee that the NPV includes 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

Sardine Airlines

Industry: Transportation

Quantitative Level: Medium

Qualitative Level: Medium

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

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

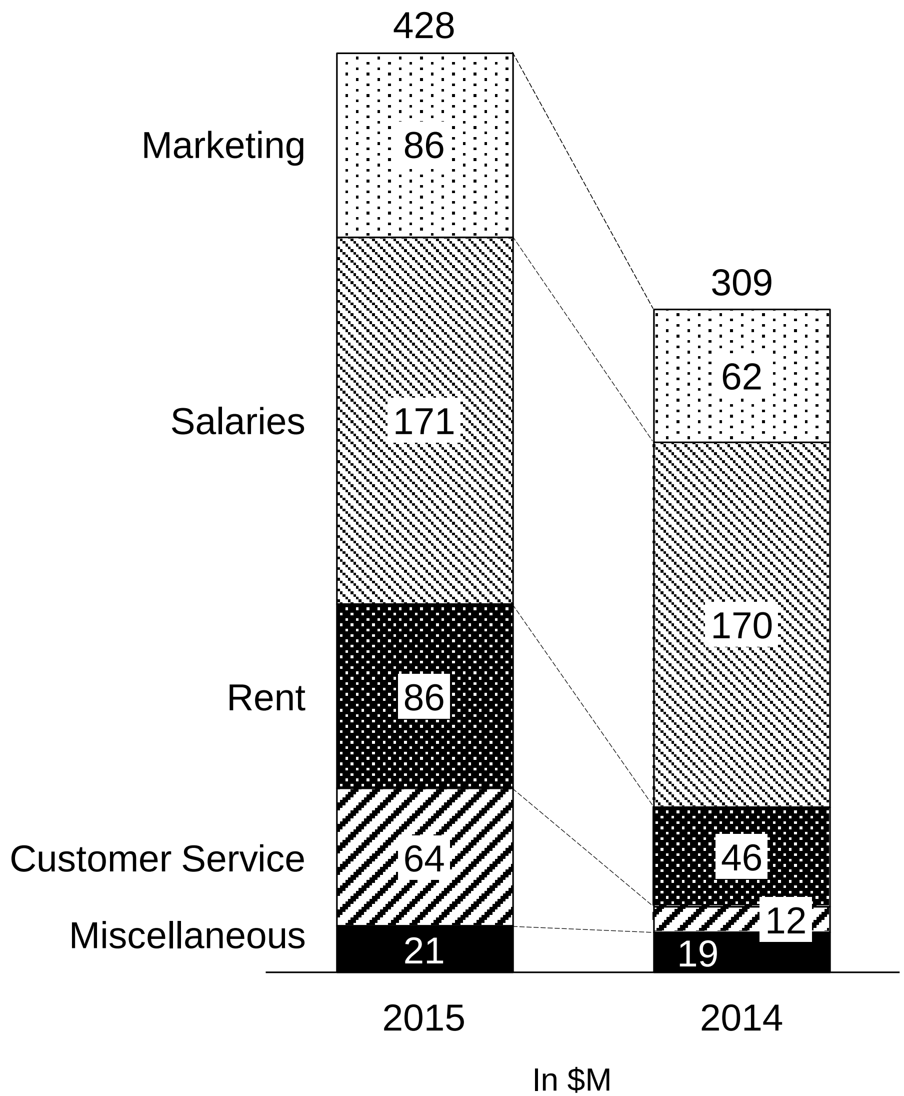
Exhibit #1 Guidance:

- 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

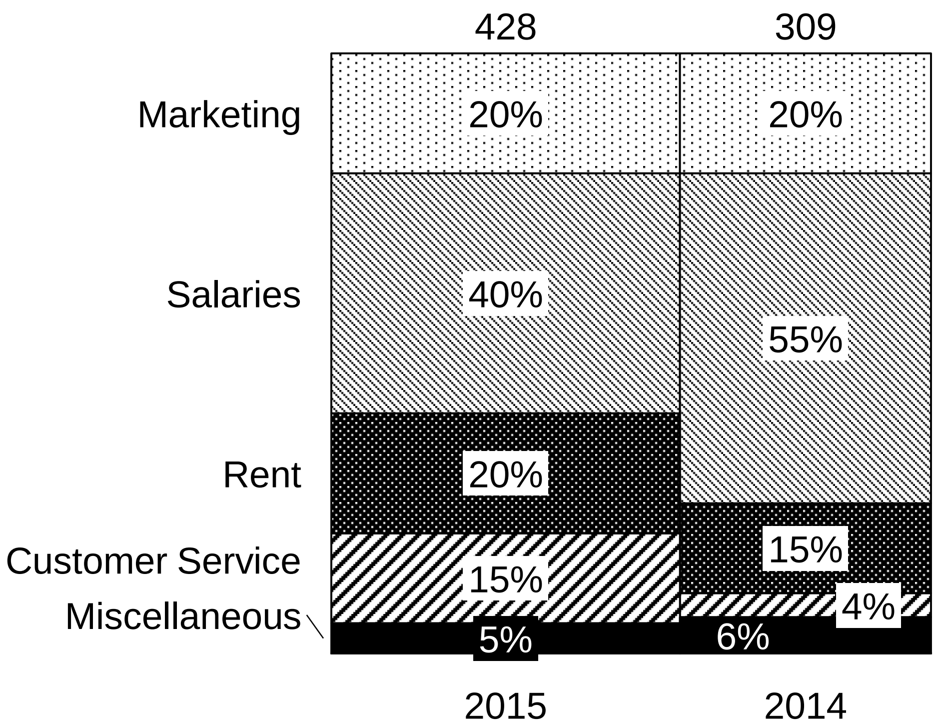


Interviewer guidance on Exhibit 2

DUKE FUQUA SCHOOL OF BUSINESS

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

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

DUKE FUQUA SCHOOL OF BUSINESS

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