RETHINKING
THE BOUNDARIES

DUKE
THE FUQUA SCHOOL OF BUSINESS

The Duke MBA Consulting Club Casebook 2018-2019

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Editor’s Note

Welcome students:

The Duke MBA Consulting Club (DMCC) is proud to present the 2018-2019 DMCC Casebook. This year we have included over 15 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!

Aidan Fitzgerald and Ragi Ragavan

The DMCC 2018 Casebook Team

Acknowledgements (TBD)

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.

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

Casebook Overview

- The first section provides key industry one pagers followed by a case table of contents and practice cases
- Qualitative and quantitative case difficulty is identified within the case table of contents; difficulty is rated as easy, medium and difficult. Medium is considered to be at the level of a typical interview case.
- Ask the behavioral questions EVERY TIME you give a case!
- Most cases are adaptable, so try to familiarize yourself with the case prior to giving it
- Print exhibits before giving the case or be prepared to share digitally (we tried to ensure that all exhibits are effective when printed in black and white, but recommend double checking your print outs to be sure!)
- **HAVE FUN!**

Industry Overviews

Consumer Packaged Goods (CPG)

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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/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. Recent American shale oil boom, & slowdown have seen the price of oil have high variance.

Manufacturing

Products/services	Includes companies 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)

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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

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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

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 (TBD)

Fuqua Casing Resources

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

https://orgsync.com/117005/files/807678

- Included in this year's book is a case from BCG and on OrgSync cases from PWC. 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://tinyurl.com/yc5kbwj8

Case List

Case #	Name	Industry	Qual	Quant
1	ShipTech Wrecked	Transportation	Medium	Easy
2	Should we drop Lonely Lodge	Media/Video Games	Easy	Medium
3	Healthy Spending	Health Care	Medium	Medium
4	Resistance	Pharma	Medium	Medium
5	Sneaky Chat	Tech	Medium	Medium
6	Drugs “R” Us	Pharma	Medium	Medium
7	Utility Co.	Energy	Medium	Medium
8	Chemical Imbalance	Chemicals	Medium	Medium
9	Green Ride	Finance/Social	Hard	Medium
10	Mapflix Nollywood	Tech	Medium	Hard
11	Chipster Technology	Tech	Hard	Hard

“Greatest Hits” Case List

Case #	Name	Industry	Qual	Quant
12	Activist Action (‘15-16)	Consumer Products	Difficult	Difficult
13	Duck Island Beer Company (‘16-17)	Consumer Products	Medium	Medium
14	Going Green (’14-15)	Market Entry	Medium	Medium
15	Goodbye Horses (‘16-17)	Healthcare	Difficult	Medium
16	Sardine Airlines (‘16-17)	Transportation	Medium	Medium
17	Royal Health System (’17-18)	Healthcare	Medium	Medium
18	Fringe Science (‘17-18)	Healthcare	Difficult	Medium
19	Congo's Drumming (‘17-18)	E-Commerce Operations	Difficult	Medium

ShipTech Wrecked

Industry: Transportation
Quantitative Level: Medium
Qualitative Level: Easy

Behavioral Questions

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Question 1:
• Tell me about a time that you disagreed with a teammate.

Question 2:
• Tell me about a time that you used data to solve a problem.

Case Title

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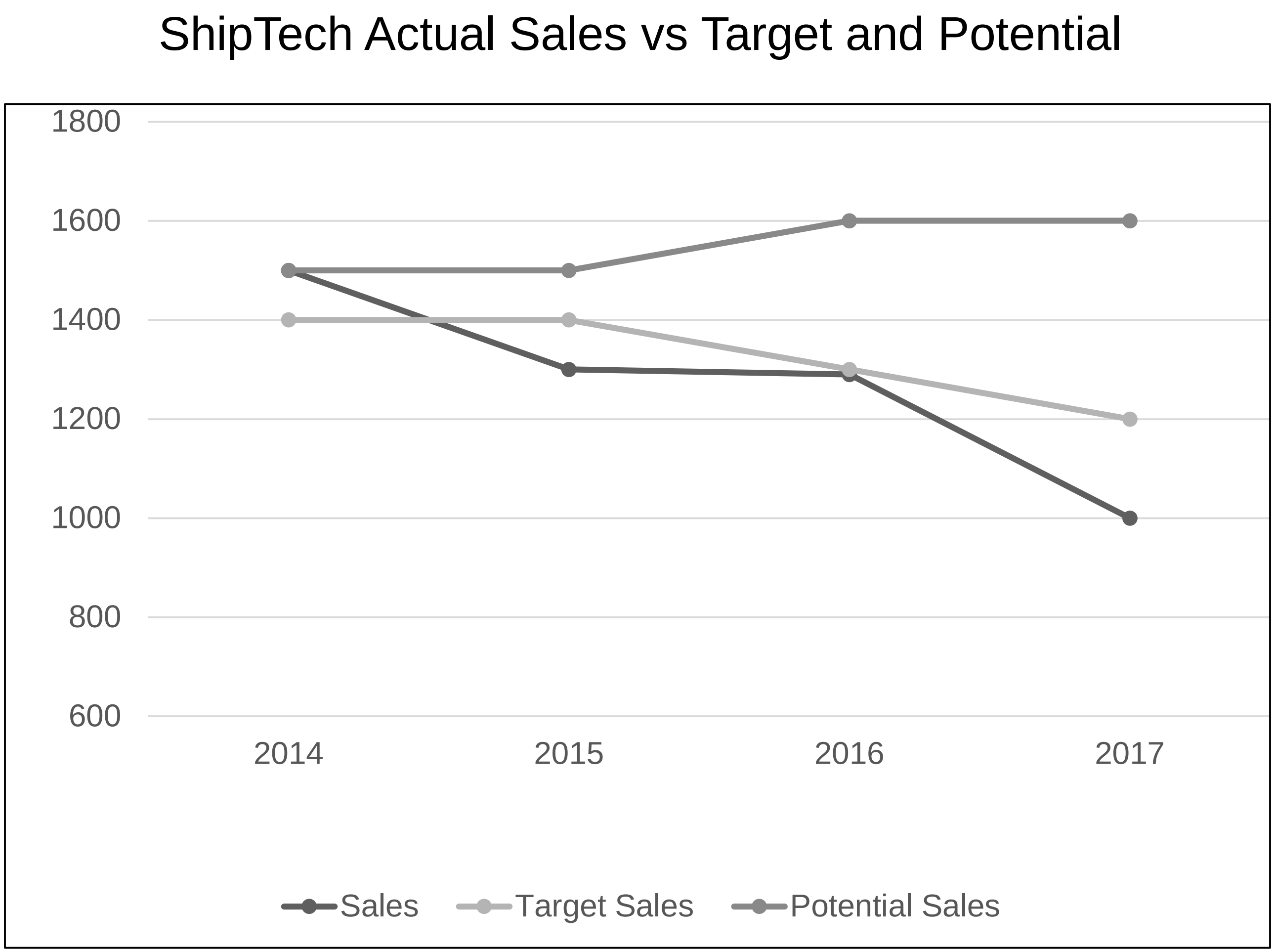
Prompt #1:

- Your client is ShipTech, a shipping company that specializes in ground transportation in the United States. ShipTech has experienced decreasing revenue in recent years and has asked your team for advice on how to reverse the trend

Interviewer Guidance:

- ShipTech would like to increase revenue by 10% or $100M in the near term
- ShipTech specializes in commercial transportation (bulk liquid, flatbed, large equipment, etc).
- No new competitors have entered the market or are taking significant share
- ShipTech does not outsource any part of its operations. It does not have any quality issues
- ShipTech pays a commission-based salary and drivers are not guaranteed pay

Exhibit #1


ShipTech Actual Sales vs Target and Potential
1800
1600
1400
1200
1000
800
600
2014
2015
2016
2017
Sales
Target Sales
Potential Sales

Interviewer guidance

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Exhibit #1 Guidance:

- You can explain to candidate that potential sales represents the total amount of business offered by customers

- Candidate should recognize trends and quantify them:
  - Sales have been declining: ~25% decrease in the last year or $300M
  - The client is not meeting its annual sales target: missed by ~20% or $200M last year
  - The client is leaving “business on the table” as its customers are offering 60% or $600M additional sales than the client can handle

- Excellent candidates recognize:
  - If client captured 66% ($400M of the $600M) in additional sales customers offered in 2017 they would have hit their target

Interviewer guidance

Brainstorm

- What could be causing the client to reject sales from customers? Assume that the client is aware of all potential sales from customers.

- Candidate should develop a list of factors that would limit the client's ability to meet customer needs:
  - Lacking Employees: drivers, support staff, maintenance, dispatch, etc
  - Poor quality or not enough equipment: trucks, tires, etc.
  - Geographical constraints: terminals too far from locations where customers need service

- Tell the candidate that the company has been having issues hiring and retaining drivers and provide Exhibit #2 and Exhibit #3

Exhibit #2

Survey Results: What drivers value most

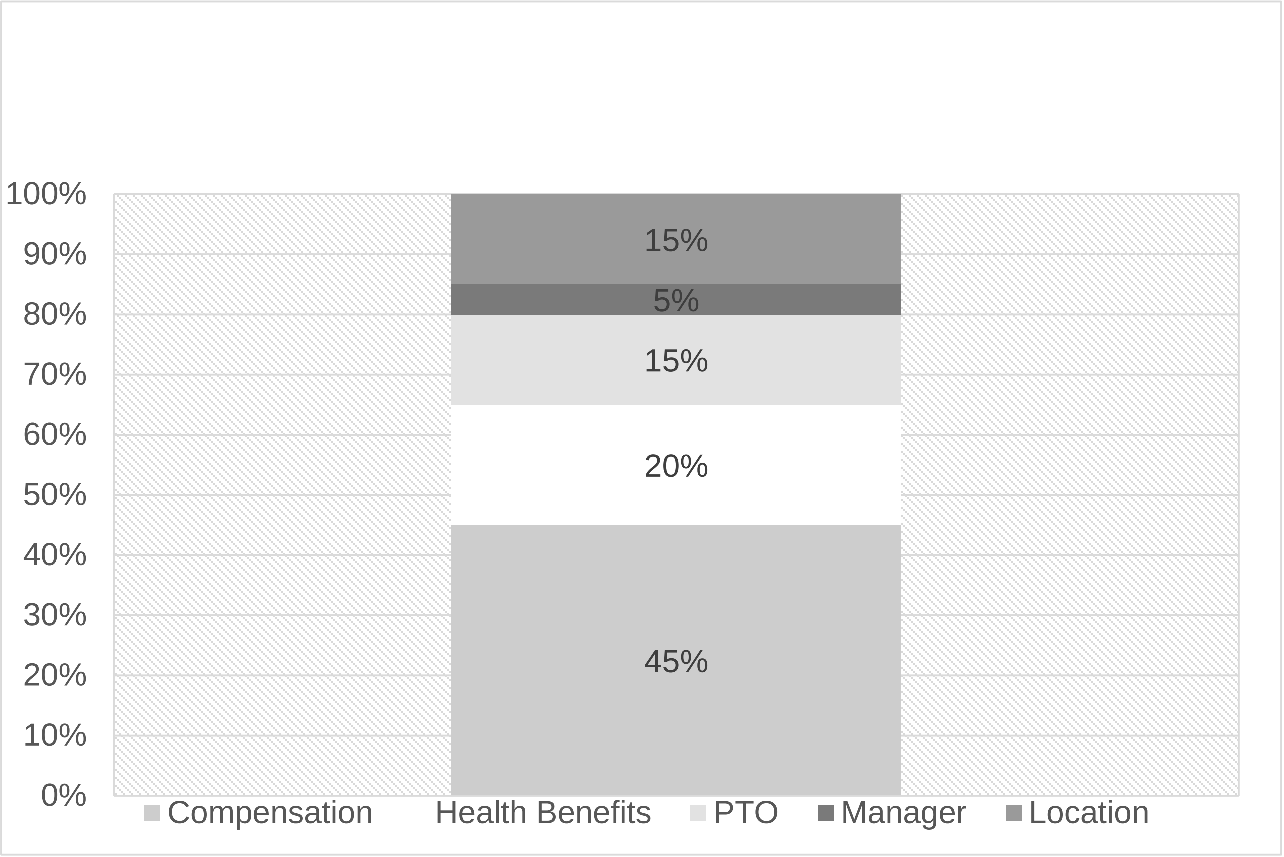
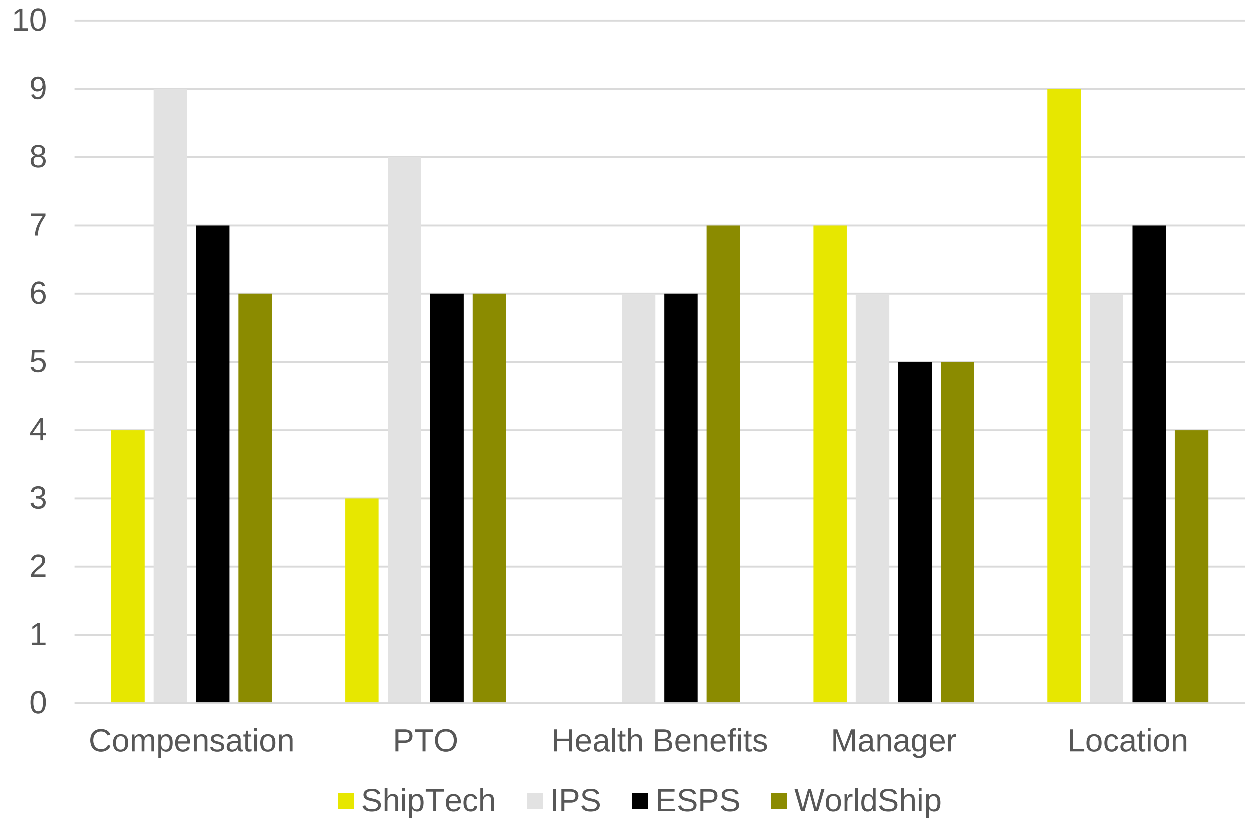


Exhibit #2

Drivers rated ShipTech's offerings against its competitors



Interviewer guidance

Exhibit #2 and #3 Guidance:

- Candidate should identify that compensation is the most valued offering for drivers
- In comparison to its competitors, ShipTech is providing significantly worse health benefits, PTO, and compensation.
- Candidate should prioritize compensation as it is the most important offering for drivers and ask for information on the compensation package
- Provide candidate with Exhibit #4

Interviewer guidance

Exhibit #4

- Tell the candidate that the client has agreed to increase their offerings to meet the industry standard. How many drivers will ShipTech need to hire assuming the following information:

- The Sales Target next year is the same
- Each driver produces $1,000,000 in Revenue
- Each driver's compensation package will increase to $60,000 per year
- Truck fixed costs (the candidate should clarify whether these costs are fixed and whether there is 1 truck assigned per driver)
  - $4,000 maintenance
  - $200,000 fuel
- ShipTech currently employs 4,000 drivers

Exhibit #4 Guidance

- $1,200,000,000 = $1,000,000 – $60,000+ $204,000(4,000+x) =

- ~1380 drivers need to be hired to meet the target next year

Interviewer Guidance

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Recommendation:
• ShipTech’s CEO is about to walk in to hear an update. What are you going to recommend?

Should we drop Lonely Lodge?

Industry: Media/Video Games
Quantitative Level: Easy
Qualitative Level: Medium

Behavioral Questions

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Question 1:
• Tell me about a time you had to convince a manager or colleague that their approach was ineffective.

Question 2:
• Tell me about a time that you exceeded expectations to deliver on a major project.

Should we drop Lonely Lodge?

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Prompt #1:

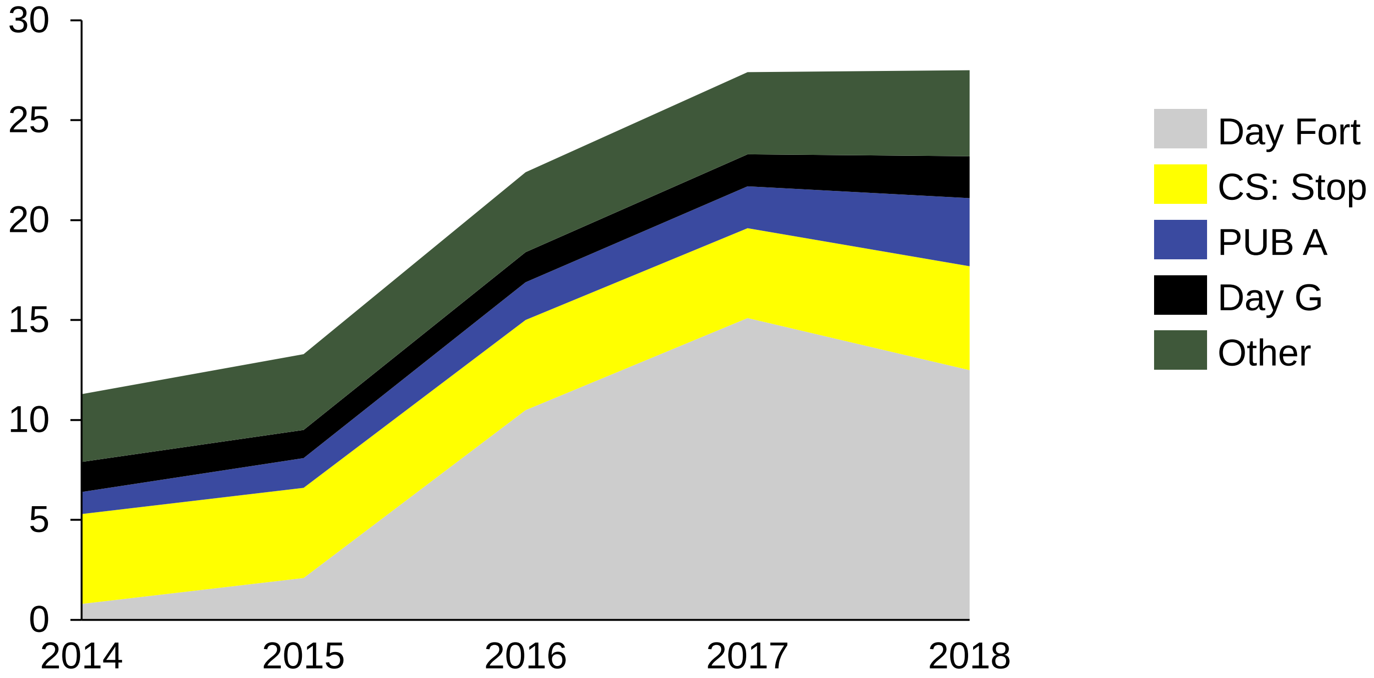
- Our client is the designer and publisher of Day Fort, a free-to-play multiplayer shooting game. Over the past 5 years, Day Fort has broken both revenue and profit records for the gaming industry. However, the client's profitability has declined recently. Your client has hired you to help them improve the profitability of Day Fort.

Interviewer Guidance:

- If asked: How does Day Fort make money if it is free to play?
  - Through selling customizable skins (outfits) for the in-game characters
  - Selling season "battle passes" that allow players to unlock skins by playing the game
- If asked: How do they source their "skins"?
  - They are made, for free, by the community of players
- If asked: Who are the customers:
  - People purchase the game on their computer and are from all over the world
- If asked: What is the timeline:
  - As soon as possible
- If asked: Is there a specific profitability target?
  - No specific goal

Exhibit #1

Online multiplayer games profit pool (2014-2018) ($M)



Interviewer guidance on Exhibits

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Exhibit #2 Guidance:

- Present this exhibit after the candidate asks for more information on the profitability of competitors
- The candidate should not start performing calculations, the insights drawn from this page can be derived without performing any math
- Once the candidate asks about customer preferences, provide them with exhibit 2

Analysis:

- Candidate should identify that:
  - Our client has the only game that lost profitability between 2017-2018
  - As a whole, the industry's profitability is increasing
- An exceptional candidate will identify that our clients profitability has decreased 10% over the 17-18 year while the industry's as a whole has increased 10%

Exhibit #2

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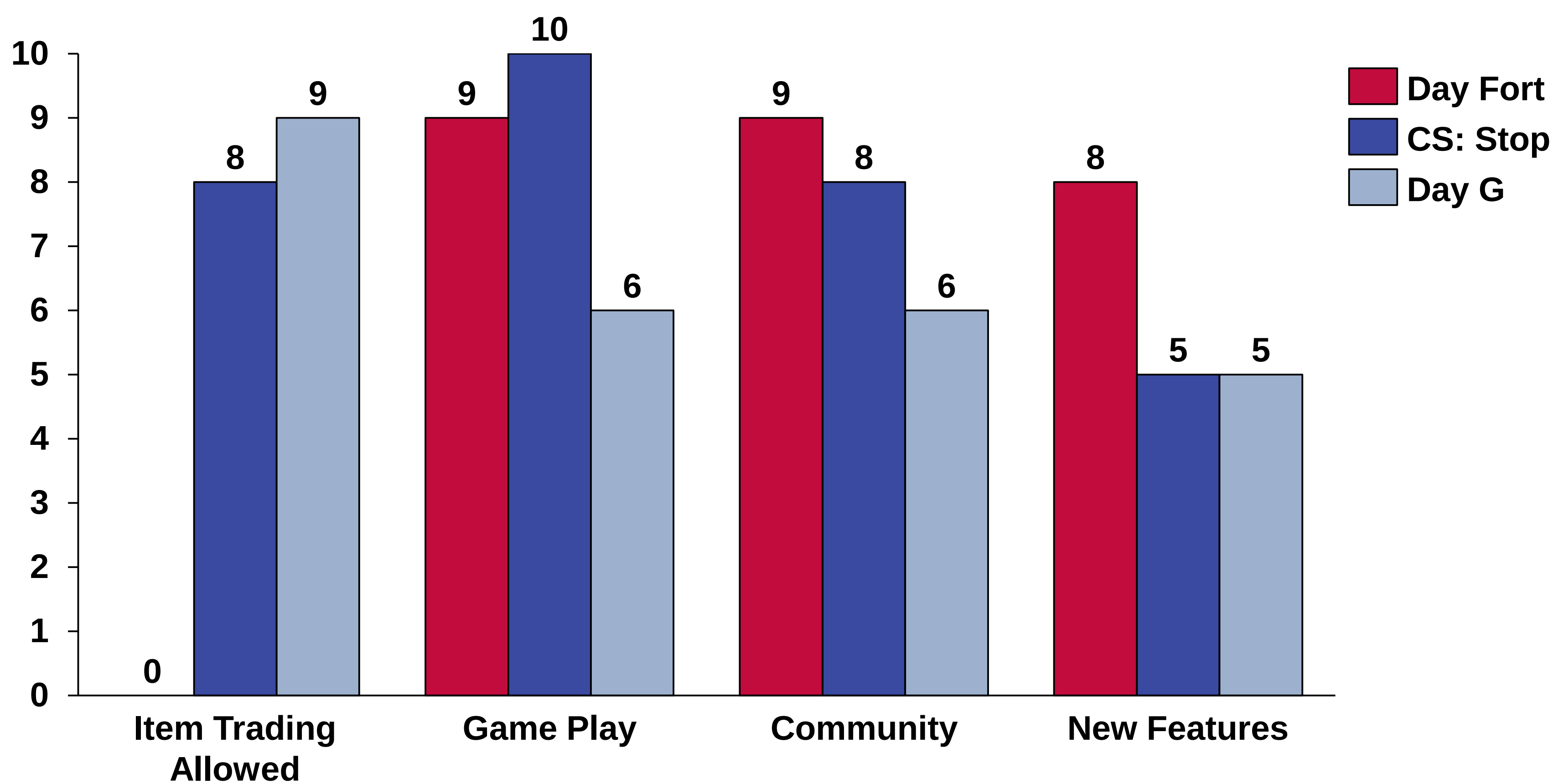
Online multiplayer games market research survey results

Importance/Performance (10=excellent most important, 1=poor/least important)



Interviewer guidance on Exhibits

Exhibit #2 Guidance:

- The candidate should not start performing calculations, the insights drawn from this page can be derived without performing any math
- Once the candidate provides the recommendation that the client should allow for item trading in game, provide them with the following numbers to compare profitability scenarios
  - Number of players: 125M
  - Current
    - Percent of players who purchase items: 1%
    - Average spend per year: $10
    - Profit margin %: 100
  - If trading is allowed
    - Percent of players who purchase items: 10%
    - Average spend per year: $3
    - Profit margin %: 50

Analysis:

- Candidate should identify that:
  - Our client is at the top/close to the top in every category except for “Item Trading Allowed”
- At this point, the candidate should recommend that the client allow for item trading in the game
- Analysis on profitability scenarios:
  - Current Profit: $12.5M
  - New Profit: $18.75M
  - Difference: $6.25M

Should we drop Lonely Lodge?

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Recommendation

- The CEO is about to walk into the room, please provide them with a recommendation.

Interviewer Guidance:

- Recommendation will include:
  - The client should begin to allow items to be traded; they have following behind industry trends.
    - Doing so will increase profits by $6.25M -> a roughly 50% increase
  - Next steps, work with the dev team to build out a trading system; analyze competitor practices to identify effective trading systems.
  - Risks: community doesn’t respond well to the change in skins; effective trading systems are patented -> client would have to build a new system without expertise.

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	The candidate fails to use a framework in question 1 and requires prompts to reach exhibit 1 and exhibit 2
Good Candidate	A good candidate has a clean framework that drives towards exhibit 1 (competitors analysis); the candidate identifies that customer preferences will be needed to drive toward exhibit 2; the candidate does not make any mistakes in the math
Excellent Candidate	The candidate does everything that a good candidate showcases and is able to do quick mental math on exhibit 1 to show percent changes of profitability

Healthy Spending

Industry: Health Care

Quantitative Level: Medium

Qualitative Level: Medium

Behavioral Questions

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Question 1:

- Who has been your best mentor? What made him or her so good?

Question 2:

- Tell me about the best team you have ever been on. What made it so great?

Healthy Spending

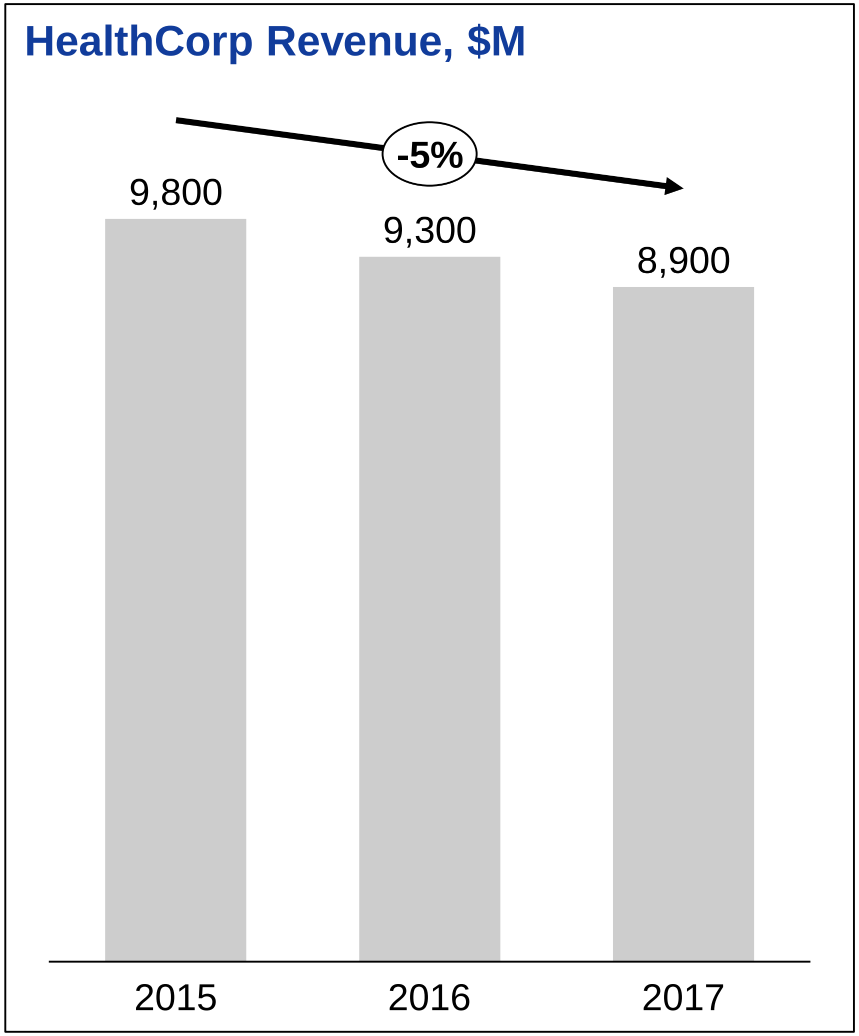
Prompt #1:

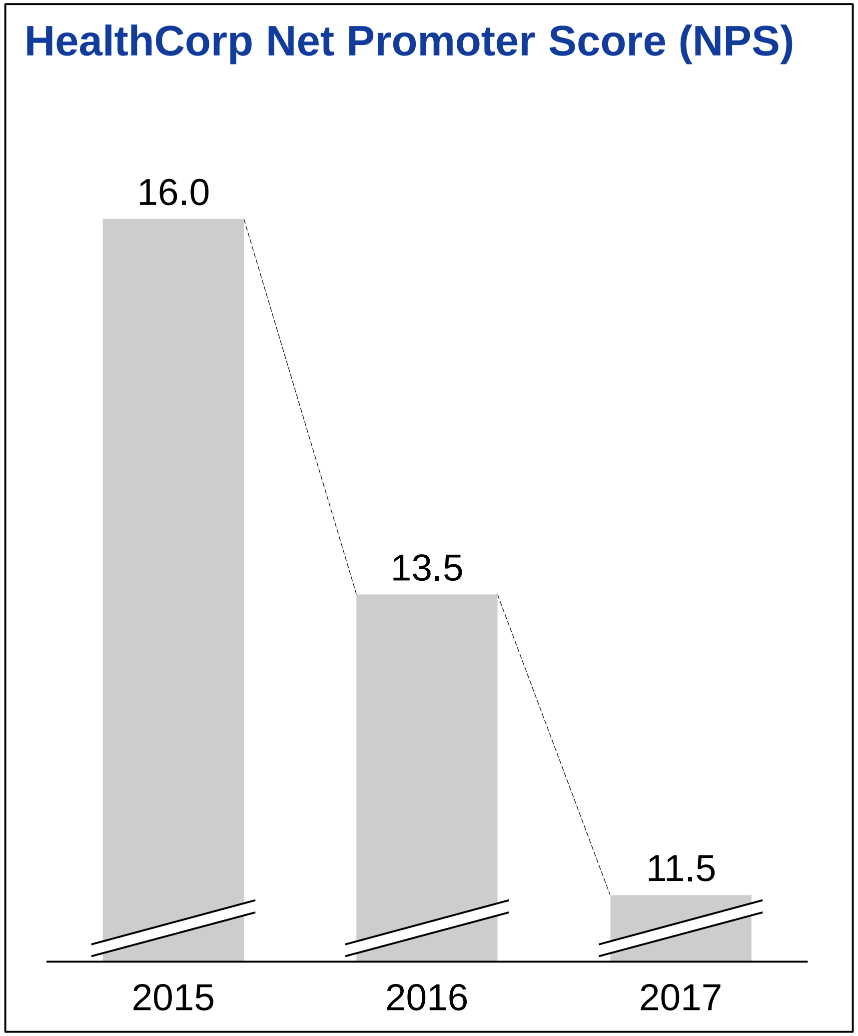
- The new CEO of HealthCorp, a not-for-profit health insurer, has recently engaged you to help her solve a budding problem. Over the last 3 years, HealthCorp has experienced revenue erosion while peers are experiencing both top and bottom line growth. HealthCorp would like you to help diagnose the cause of this poor performance, and eventually, help formulate a course of action to improve revenue by $1B in the next two years.

Interviewer Guidance:

- This is a growth case centered around customer experience
- General industry info: health insurers negotiate prices with physicians and hospital networks based system by system negotiations. Prices are typically related to Medicare reimbursements
- HealthCorp does not have a material number of Medicare or Medicaid patients
- The provider market with which HealthCorp works has undergone rapid consolidation within the last 5 years
- HealthCorp has seen a large, for-profit disrupter enter the market in the last 2 years

Exhibit #1


HealthCorp Revenue, $M
-5%
9,800
9,300
8,900
2015
2016
2017


HealthCorp Net Promoter Score (NPS)
16.0
13.5
11.5
2015
2016
2017

Interviewer guidance on Exhibit #1

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

Exhibit

- Present this exhibit after the candidate has finished his/her prompt
- If the candidate is unfamiliar with Net Promotor Score (NPS), explain that NPS is a measure that attempts to capture overall customer satisfaction and that a higher NPS indicates a more satisfied customer
- If the candidate asks, health insurance industry average NPS is 15

Brainstorm

- Once the candidate has identified that falling NPS is seemingly related to thedrop in revenue, ask him/her as to what sort of initiatives HealthCorp could undertake to increase NPS

Analysis:

- The candidate should quickly realize that there is a correlation between the decrease in revenue and the decrease in HealthCorp NPS
- The candidate should calculate a Revenue per point of NPS ratio and realize that every point of NPS is worth $200M of revenue.
  - 2016: ($9,800 – $9,300) / (16.0 – 13.5) = $200M
  - 2017: ($9,300 - $8,900) / (13.5 – 11.5) = $200M
- The candidate should then be able to conclude that in order to achieve the $1B target, HealthCorp must improve their NPS by at least 5 Points

Exhibit #2

Project	Cost	Time to Implement	Increase in NPS*
Customer journey mapping	$4M	13 months	2
Outsource customer service	$7M	22 months	3
Partner with premier providers	$3M	16 months	2
Redesign claims process	$2M	30 months	4
Invest in community initiatives	$5M	12 months	1
Develop mobile app	$1.5M	9 months	2
Implement rewards program	$12M	6 months	4

*NPS increase is realized only after project implementation

Interviewer guidance on Exhibit #2

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #2 Guidance:

- Present this exhibit after the candidate has finished Exhibit #1 and the associated brainstorm
  - Narrative: “The CEO and CSO concur with your assessment that NPS seems to be a driving factor behind the drop in revenue. While they engage their internal corporate development team to look for M&A opportunities, they want you to evaluate a portfolio of internal initiatives and help them decide what to do to.”
  - If the candidate asks: “They are cash strapped and only have $10M to spend on initiatives.”

Analysis:

- The candidate should recall that they need to hit $1B in revenue growth over the next 2 years. In order to do this, the candidate must identify a portfolio of projects that delivers at least 5 pts of NPS.
- The candidate should calculate the efficiency of each initiative by dividing increase in NPS by the cost to come up with an efficiency index. Calculations have been provided for the interviewer on the following sheet.
  - Ultimately, the candidate should recommend spending a combined total of $8.5M on a mobile app, partnering with premier providers, and completing a customer journey roadmap

Exhibit #2 – Interviewer Guidance

Project	Cost	Time to Implement	Increase in NPS	NPS / Cost efficiency	Priority
Customer journey mapping	$4M	13 months	2	0.5	3
Outsource customer service	$7M	22 months	3	0.43	4
Partner with premier providers	$3M	16 months	2	0.66	2
Redesign claims process	$2M	30 months	4	2.0	Doesn’t meet 24 month deadline
Invest in community initiatives	$5M	12 months	1	0.2	6
Develop mobile app	$1.5M	9 months	2	1.33	1
Implement rewards program	$12M	6 months	4	0.33	5

Case Title

Recommendation

- The CEO and her CSO just requested a quick telecon, please present your recommendations.

Interviewer Guidance:

- The interviewee should **immediately** begin synthesizing their findings:
  - Which projects to undertake and the total revenue gain expected from the initiatives
  - Risks to the plan and other considerations
  - Mitigating actions and next steps

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	Will consider profitability instead of revenue, fail to drive case, make arithmetic mistakes, forget details, and fail to put numbers into context. An average candidate might need to be reminded of the size and timing of the revenue target.
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 and MECE framework, complete quick and accurate calculations, remember to ask about how much money HealthCorp has to spend on projects, put numbers into perspective, and will drive the case forward at each step

Resistance

Industry: Pharma

Quantitative Level: Medium

Qualitative Level: Medium

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Can you tell me about a time that you had a lead a team through a difficult or challenging scenario at work?

Question 2:

- Tell me about a time that you came up with an innovative solution to a problem.

Resistance: Prompt #1

Prompt #1:

- Action Med received many pharma products in clinical development as a result of a recent acquisition, including a drug, called BPL, to treat resistant HIV. The total cost of drug development is 2 Billion USD (includes R&D and anticipated marketing spend).
- Action Med wants to know the target patient population for this product, and how many patients will realistically take the drug. They also need to focus their marketing efforts on specific healthcare sites. How would you begin to think about this problem?

Interviewer Guidance:

- Patients have resistant HIV when combination therapy fails to achieve complete viral suppression (virological failure). BPL treats patients who have virological failure after taking 3+ meds.
- A good framework will include questions about the cost of development, the need for market sizing, a view of the competitive environment, and the anticipated price of the product.
- Interviewer should probe on what kinds of data would be needed to calculate the total market size by healthcare facility. The interviewee should mention number of hospitals, total patients per hospital with resistant HIV, percentage of patients who actually take the drug (uptake), and price of the product
- Exhibit 1 should be handed out after completion of the framework.

Exhibit #1

Type of healthcare facility	Number of facilities in the US	Average patients per hospital with HIV	% of patients with resistant HIV	Potential uptake of BPL among resistant HIV patients	Number of pills/ patient/ year	Price per pack of 6 pills
Private Hospital	200	2,000	20%	25%	24	$100
Academic Center of Excellence	150	4,000	20%	20%	24	$100
Small Private practice	2,000	500	5%	25%	24	$100

Interviewer guidance on Exhibit 1

Exhibit #1 Guidance:

- The client has already collected some key data points about the potential size of the market for BPL, but has not yet determined whether to go after academic medical centers, private hospitals, or private practices
- Key Question – how much revenue will the product generate after 5 years at each type of hospital?
- Assume there is no growth rate, and that the time value of money is not an issue (i.e. you can just multiply 1 year of revenue by 5 to get 5 years or revenue)
- They only have the marketing resources to target 1 type of healthcare provider at this time
- The uptake % is the percentage of patients with resistant HIV who will end up taking BPL if it goes to market
- A good candidate should use the numbers provided to calculate the annual revenue for each type of healthcare facility:
  - Private hospital: $192M in annual revenue, $960M after 5 years
    - (200 x 2,000 x 20% x 25% x (24/6) x 100) = 192M; 192 *5 = 960M
  - **Academic Center of Excellence: $230.4M in annual revenue, $1.152BN after 5 years – THEY SHOULD CHOOSE ACADEMIC CENTERS OF EXCELLENCE**
  - Small Private Practice: $120M in annual revenue, $600M after 5 years

Resistance: Prompt #2

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #2:

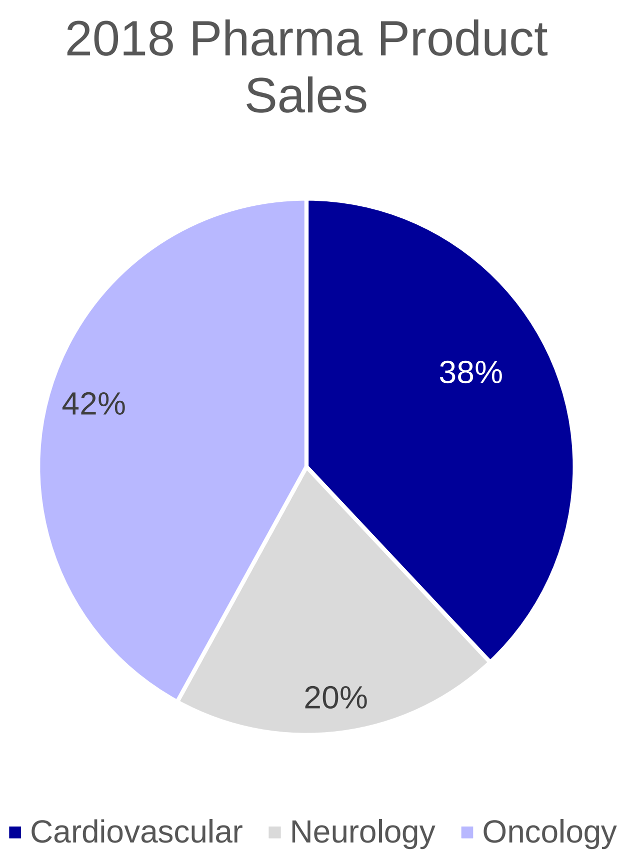
- Action Med also supplies APIs (active pharmaceutical ingredients) to other major pharma companies
- Action Med is currently solely focused in the Neurology therapeutic area (hand out exhibit 2), and supplies 70% of Sanofi's APIs in this area. Action Med's CEO has also asked us to take a look at competitive dynamics among other API suppliers, in order to predict any increase in profits from increased sales.
  - Based on the information given, what do you expect Action Med will see in additional revenue due to Sanofi's predicted 30% increase in market share in the Neurology therapeutic area? (I.e. compare 2018 and 2022)
  - Taking into account the revenue from targeting Academic Medical Centers (5 year combined revenue) AND the revenue from Sanofi's increased market share in 2022, will Action Med recover its R&D investment in BPL?
  - *After the calculation has been completed – take a minute to prepare your final thoughts for the CEO of Action Med*

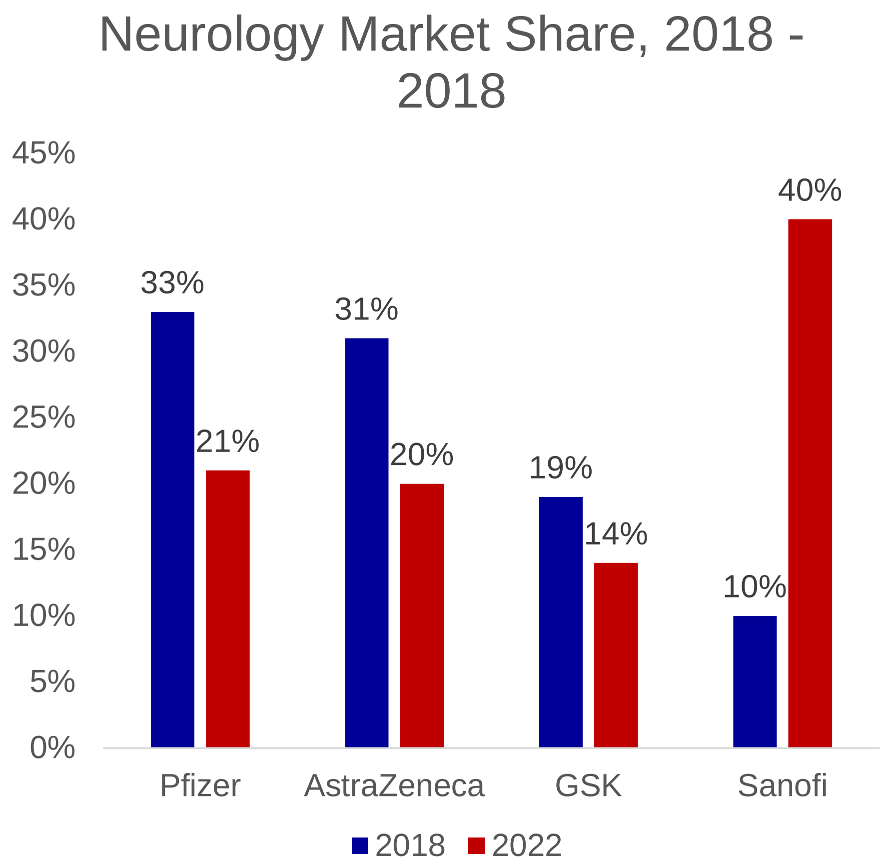
Guidance/Calculations for Exhibit 2

Interviewer Guidance/Calculations:

- For the purposes of this analysis, assume that Action Med is 100% focused on APIs in the Neurology therapeutic area
- Assume no growth rates – assume that market size stays the same and that the time value of money is not an issue
- Correct calculation should be:
- 20% * 200M patients = 40 Million Neurology patients
  - Sanofi 2022 share = 40% * 40M = 16M patients
    - Action Med supplies 70% share = .7 * 16M = 11.2M
    - 11.2M * 75$ per year = 848M
    - 848M + 1.152BN (*calculated from exhibit 1*) = 2BN
    - **Key takeaway: Action Med will get enough revenue by 2022 to cover their R&D/Marketing cost of 2BN**

Exhibit 2





Additional information:
- Total patients buying prescription medication = 200M

Additional information:
- Action Med Provides 70% of Sanofi's APIs in both 2018 and projected to 2022
- Avg. Price of Action Med API sold to Sanofi = $75

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	• Will need guidance when doing calculations • Will have a framework that neglects to mention market sizing, competitive environment, and other important factors
Good Candidate	• Will handle calculations with relative ease, checking understanding with interviewee • Will have a complete framework/ demonstrate understanding of the pharma industry • Will arrive at the conclusion that Action Med will recover R&D costs
Excellent Candidate	• Will easily complete calculations – explaining the “why” behind each step they take • Will demonstrate understanding of the pharma industry in the framework • **Will ultimately determine that while BPL is expected to recover its R&D/ marketing costs, it doesn’t appear to be a blockbuster drug**

SneakyChat

Industry: Tech

Quantitative Level: Medium

Qualitative Level: Medium

Behavioral Questions

Question 1:

- Tell me about the best day you had at your last job.

Question 2:

- If we were to give you an offer tomorrow would you accept it, and why?

SneakyChat

Prompt #1:

- Your client, SneakyChat, is a wildly popular Silicon Valley startup with a rapidly growing user base. SneakyChat's App allows users to send expiring pictures as well as connect with local people in their area. A potential acquirer has offered to purchase the Company for $500m, but on the condition that the Company will generate $2m in cumulative net income over the next 3 months, and have at least 700k daily active users as of the end of month 3. SneakyChat's CFO has hired you to help hit these metrics.

Interviewer Guidance:

- SneakyChat currently only operates in the US
- No current revenue, as company has focused solely on user growth and not monetization
- Company started operations this year
- *Net Income and daily active users are total at the end of 3 months*

Exhibit #1 – Current Operations

SneakyChat Operations

(in thousands)		**Current Month**
# Daily Active Users		100
Revenue	$	-
Employee Costs		150
Rent Costs		50
Marketing Costs		-
Total Costs		200
Net Income	**$**	**(200)**

Interviewer guidance on Exhibits

Exhibit #1 Guidance:

- ***Candidate should ask for information on current operations and profitability prior to receiving Exhibit 1.***
- Candidate should identify current user base of 100k, and therefore company strategy should achieve additional 600k new users.
- Candidate should identify that there is no current revenue.
- If asked about cutting costs, instruct candidate that all costs are constant except for marketing.

Analysis:

- Ask them to brainstorm ways to generate revenue streams (guide to this point if necessary).
  - At the end of brainstorm, tell them that the company has selected two ways to monetize users and provide verbal information: 1. Selling ads generates $1.50/user/mo., 2. Selling data generates $0.50/user/mo.
  - Note: the revenue amounts are net of any costs associated with the revenue. The company has chosen to do both for $2 / mo / user
- Ask them to brainstorm ways to acquire new users (guide to this point if necessary).
  - At the end of brainstorm, tell them that the company has come up with a couple of options, and provide Exhibit 2.
- Note: sequencing of the above brainstorms doesn't matter, however candidate needs to complete both before moving on to solve case. Guide to the second brainstorming if necessary.

Exhibit #2 – Marketing Proposal

SirSalesAlot Marketing Co. Proposal

(in thousands)	New Users Per Month 1	2	3	Cost Per Month 1	2	3
Online Ads	125	125	125	$ 100	$ 100	$ 100
Print Ads	50	50	50	75	75	75
Onsite Activations	100	100	100	100	100	100
Acquire Competitor	2,500	-	-	3,500	-	-
Super Bowl Ad	-	-	1,500*	-	-	1,000

Note: Current cash on hand is $3m as of the beginning of Month 1
*Estimates may fluctuate depending on viewership; will require full resources of Marketing team, precluding work on any other marketing strategies

Interviewer guidance on Exhibits

Exhibit #2 Guidance:

- ***Candidate should ask for information on increasing user base and costs associated prior to receiving Exhibit 2.***
- Candidate should recognize the footnotes indicating that an outside marketing firm has projected user growth (marketing firms tend to be fairly optimistic), and the cash on hand limits the amount of money that can be spent in month 1.
- A strong candidate will ask if user attrition should be factored in. Advise them that normally it would, but for the simplicity of the case they can assume no attrition at this time.

Analysis:

- Candidate should identify that two items can be eliminated before calculations are even performed (acquisition is cost prohibitive and print ads will not generate enough users to compensate for the cost).
- Candidate should calculate total current revenue and identify that if current users (100k) are monetized, the firm breaks even.
- Candidate should then calculate total net income for each strategy that has not already been eliminated.
- See solutions (next page) for specific calculations.

Solution to Exhibits

Exhibit 2 - Marketing Proposal

SirSalesAlot Marketing Co. Proposal

				Calculations					
	Cumulative Users			**Monthly Revenue**			**Total Rev**	**Total Cost**	**Total NI**
(in thousands)	1	2	3	1	2	3			
Online Ads	125	250	375	250	500	750	1,500	300	1,200
Print Ads	50	100	150	100	200	300	600	225	375
Onsite Activations	100	200	300	200	400	600	1,200	300	900
Acquire Competitor	2,500	2,500	2,500	5,000	5,000	5,000	15,000	3,500	11,500
Super Bowl Ad	-	-	1,500	-	-	3,000	3,000	1,000	2,000

* Cash on hand at beginning of Month 1 is $3M

Key Reminders:

- Company started with 100k users, if monetized at $2/user/mo, current monthly revenue = $200k, which offsets current costs of $200k (from Exhibit 1)
- Users are cumulative (and therefore so is revenue)
- Super Bowl is riskier, and if chosen cannot be combined with any other strategy (per footnote)
- Acquiring competitor is cost prohibitive (per footnote)

SneakyChat

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation

- Based on all of the information you have analyzed, what would be your recommendation to SneakyChat's CFO?

Interviewer Guidance:

- The candidate should recommend growing SneakyChat's user base through the combination of online ads and onsite activation
  - If a candidate chooses Super Bowl, or online, print and onsite, ask if there are other possibilities, and ask them to defend their selection.
  - Online ads & onsite activation is preferred over the Super Bowl ad as this is a much riskier strategy
  - The selection of Online+Print+Onsite will achieve the hurdle, but a good caser will recognize that print is less efficient and the company could allocate the resources elsewhere in the business.
- This recommendation will result in total net income of $2.1m at the end of 3 months, as well as an additional 675k users, which exceeds SneakyChat's targets

Evaluation Criteria

DUKE FUQUA SCHOOL OF BUSINESS

Candidate Level	Assessment
Average Candidate	• Framework touches on only a few of the case components • Guidance is required multiple times for brainstorming and/or working through exhibits • Insights are not driven from qualitative factors in addition to the quantitative calculations
Good Candidate	• Discusses all aspects of improving net income and user base (monetization, costs, etc.) • Calculations are quick and sound • Makes clear, confident recommendations based on information presented
Excellent Candidate	• Framework is customized to tech industry and investment considerations and not simply profitability • Proactively thinks about how to increase user base and start generating revenue • Asks about attrition • Notes risks of preferred strategy

Drugs “R” Us

Industry: Pharma

Quantitative Level: Medium

Qualitative Level: Medium

Behavioral Questions

Question 1:

- Tell me about a time that you had to meet a deadline that you felt was not feasible. How did you react?

Question 2:

- Tell me about your last performance review. In which area were you most disappointed?

Drugs "R" Us

Prompt #1:

- Your client is RX Co, a pharmacy retailer with stores across the United States. To bolster their presence in the Pacific Northwest, they are in talks with Drug Corp to purchase retail assets in the region. Though the acquisition seems sound, the RX Co CEO wants to be sure that the transaction will help them achieve growth.
- Can you help the company evaluate the deal?

Interviewer Guidance:

- Candidate should quickly try to specify and quantify the specific goal of the acquisition – growth. If asked (and only if asked), RX Co **aims to grow annual revenue by 20% from current levels.** They want this to happen the first year after the acquisition is complete. Assume the acquisition can be completed and the assets operational in one year.
- When evaluating the framework, make sure the candidate understands this is a revenue case – and steer them away from costs.
- Try to push the candidate to explore the sources of revenue for pharmacy retailers, namely RX and Front of House Merchandise.

Exhibit #1

	Pharmacy Revenue %	Front-of-House Merchandise Revenue %	Overall Revenue / Day	Total US Stores
RX Co.	70%	30%	$11,000	8,400
Drug Corp			$7,800	2,400

Interviewer guidance on Exhibits

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #1 Guidance:

- The candidate may try to calculate the daily pharmaceutical revenue for RX Co by multiplying 0.7*$11,000*8,400. If they do, remind them that we are only interested in stores in the NW Region. Rx Co has 5,000 in the region, and Drugs has 900.
  - If asked, the candidate can assume stores in the NW region have the same revenue makeup and average overall revenue as stores nationwide

- RX Co current pharma rev is 0.7*$11,000/day*365 days/year*5000 NW stores = ~$14B. Growth target is $14B * 1.15 = ~$16.1B
- Pharma rev to be added from acquisition is 0.7*$7,800/day*365 days/year*900 NW stores = ~$1.8B

- Candidate should clearly conclude that the acquisition will not help RX Co achieve their revenue growth targets the next year.
- A strong candidate could calculate the exact number of Drug Corp stores that would need to be purchased to achieve the proper targets
- It is OK to round to the nearest hundred million.

Drugs "R" Us

Prompt #2:

- What else should else should be considered when evaluating / calculating the additional revenue that RX Co can achieve through Drug Corp acquisitions?

Interviewer Guidance:

- Candidate could mention:
  - Sales cannibalization. Acquiring stores in the same region may drive customers away from certain stores and towards other stores
  - Sales retention. Customers develop relationships with brands and Drug Corp stores may lose customers/sales if they begin operating as RX stores
  - Increasing retail pricing of the RX items

Drugs "R" Us

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation

- The RX Co CEO is walking into the room in 30 seconds. What do you have to tell him about the viability of this acquisition? Should they make it?

Interviewer Guidance:

- Assuming no sales cannibalization and 100% sales retention, it is already clear that RX cannot meet its pharma revenue targets through the acquisition. Additional risks below that could be mentioned compound this recommendation.
- Risks
  - Sales Cannibalization
  - Sales Retention
  - Issues with transferring DEA licenses
  - Delays in acquisition and conversion through regulatory delay (DEA licenses, liquor licenses, etc), brand conversions, IT/HR/Accounting/Back Office systems integration, etc.
  - Consumer backlash if pricing is increased

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	Candidate does not ask relevant clarifying questions. Tries to calculate profitability and framework has a large degree of overlap and/or doesn't touch on factors outside of company financials.
Good Candidate	Candidate asks clarifying questions that help them identify revenue growth target. Framework is mostly MECE. Math should be structured, although calculations may take longer. Lists risks/next steps in rec
Excellent Candidate	Candidate tries to confirm exact target/purpose of the acquisition right after prompt. Identifies revenue as the goal and does not mention costs. Framework is MECE, and candidate remembers that they should be calculating sales only for the NW region – not all US stores. Math is very structured, with little or no mistakes. Explores other avenues for reaching revenue targets outside of acquiring Drug Corp Stores.

Utility Co.

Industry: Energy

Quantitative Level: Medium

Qualitative Level: Medium

Behavioral Questions

Question 1:
• Tell me about a weakness.

Question 2:
• Tell me about a time when you led a team through ambiguous circumstances.

Utility Co.

Prompt #1:

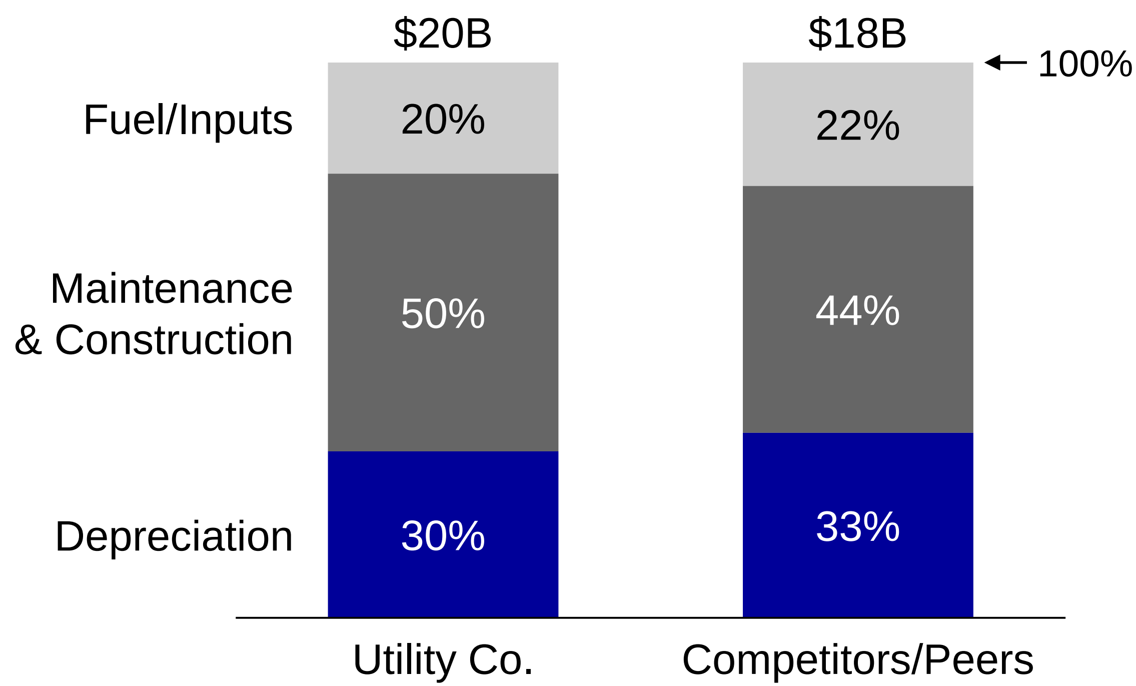
Our client is Utility Co., a US-based utility company that operates on the West Coast of the United States. Utility Co. has been profitable over the last several years, and has seen relatively stable/favorable business conditions during that time. However, 2 weeks ago, regulators began pressuring Utility Co. to reduce its costs in order to improve prices/rates for customers. Utility Co. operates in a highly-regulated energy market, and is required to justify the prices/rates it charges customers through an annual process that examines a provider's cost structure and attaches a "reasonable return" on top of its cost structure in order to arrive at prices/rates. The CEO of Utility Co., Larry "Chipper" Jones, has engaged our team to identify where and how Utility Co. can reduce its costs by $500M.

Interviewer Guidance:

- This is an interviewee led case, but will require the interviewer to nudge/direct the interviewee during the case. The interviewee is expected to provide structured thoughts backed by evidence/experience. That may not always mean that the interviewee's initial hypothesis/best guess will align with where the case is going. The key is for the interviewee to "earn" the slide/exhibit before they are provided.
- Information to provide if asked:
  - Utility Co. provides both gas and electric services, but both businesses operate the same
  - Utility Co. is a fully-integrated utility, performing all functions of the utility value chain: generation, transmission, and retail
- Good structure will segment the utility by activities and consider:
  - Generation: cost of fuel (e.g. renewables, gas/coal, nuclear, etc.) and efficiency, efficiency/throughput (TPT) of labor & assets (including maintenance/repairs and capital expenses)
  - Transmission/maintenance: cost of maintaining assets (e.g. power lines), construction of new assets, TPT/efficiency of labor
  - Retail: call center costs & TPT/efficiency, cost of customer billing/payment, overhead/SG&A, building/infrastructure costs, technology/systems

Exhibit #1

FY18, West Coast Utility Industry Costs
$B



	Utility Co.	Competitors/Peers
Revenues ($B)	$25B	$25B
Asset Age & Use (Index)	2.0	2.0

Interviewer guidance on Exhibits

Exhibit #1 Guidance:

- Exhibit shows revenues and costs of the client and competitors/peers
- The candidate should calculate relative cost differences and identify that the client's higher relative cost structure is driven by maintenance & construction costs
- Asset Age & Use Index should demonstrate that the age and use of underlying assets are not driving depreciation or maintenance/construction costs differences

Financial Data, $B	Client	Competitor/Peer
Rev	$25	$25
Cost	$20	$18
-Fuel	$6	$6
-Main.	$10	$8
-Depr.	$4	$4
Profit	$5	$7

Analysis:

- The client and competitors/peers have similar revenues, but the client has higher costs
- Higher costs are driven by maintenance & construction
- Asset age & use are similar – demonstrating that the client's depreciation aligns w/ competitors and that higher relative maintenance & construction costs are not driven by greater use/age
- Good/Excellent candidates will ask about maintenance & construction costs and identify potential drivers: (1) TPT/efficiency of maintenance & construction teams (2) Labor cost rates & type (union vs. non-union) (3) Number of assets to maintain (4) Geographical dynamics – Proximity of assets to service centers

Exhibit #2

Maintenance & Construction Activity Log/Observations

Observed Daily Activity	Average Time per Worker
Wait for tasks/instructions (in the office)	30 min
Driving to job site	15 min
Wait for materials	30 min
Break	30 min
Wrench time	150 min
Lunch	60 min
Wrench time	60 min
Break	30 min
Wrench time	30 min
Drive time from job site	15 min
Team meetings/admin	30 min

Labor agreements mandate that employees receive at least 60 minutes per day for lunch + breaks

Interviewer guidance on Exhibits

Exhibit #2 Guidance:

- Exhibit shows time activity for maintenance and construction workers
- Candidate should identify wasteful activities that drive costs, and begin to ask for information that would provide potential savings. Please provide the following when asked:
  - Cost rate ($/HR): $50
  - Workers: Workers per Job - 10, Annual Jobs - 500K (assume 1 job can be completed in 1 day)
- Once candidate quantifies time savings opportunities, ask them to brainstorm tactics for reducing wasteful time

Hours Saved:	
Hours Saved/Worker	2
Workers/Job	10
Annual Jobs	500K
Annual Hours Saved	10M
Cost Rate:	
$/HR	$50
Total $'s Saved:	**$500M**

Analysis:

- The candidate should identify the following time activities as addressable opportunities: (1) Waiting for tasks/instructions (2) Wait for materials (3) Lunch (4) Breaks
- Addressable opportunity = Wasted Time (180 min) – Mandatory Breaks/Lunch (60 min) = 120 min (2 hours)
- Brainstorm on tactics for addressing wasteful time:
  - Performance Mgmt.: Measure/incentivize workers and teams based on # of job completed (e.g. gamify by posting standings, offer bonuses/awards for top performing teams, etc.)
  - Planning/Management: Assign jobs the day before (to reduce time waiting for assignments), deliver materials prior to start of job (rather than day of)

Utility Co.

Recommendation

- Larry “Chipper” Jones is about to walk into the room and wants to hear our findings and thoughts. What do you recommend?

Interviewer Guidance:

- Good candidates will take a moment to gather thoughts and state the following:
  - Utility Co. can save $500M by improving labor efficiency – reducing wasteful time among field work crews
  - Tactics for reducing wasteful work: (1) Adjust incentives/performance management (2) Ensure that jobs and materials are assigned/ready prior to worker arrival at job sites
  - Risks: (1) Push-back/adoption challenges w/ workers (2) Manager time – additional performance management/measurement and materials coordination/verification processes & responsibilities
  - Next-steps: (1) Working with HR/Tech teams to design performance mgmt. capabilities (2) Work with HR/managers to craft messaging/roll-out of new performance mgmt. policies and systems

Chemical Imbalance

Industry: Chemicals

Quantitative Level: Medium - High

Qualitative Level: Medium - High

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Describe a time when you had to “burn a bridge”.

Question 2:

- Tell me about a situation where you had to lead by influence rather than by authority.

Chemical Imbalance

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #1:

- Your client, ChemCo, is a large multinational company in the chemicals industry. ChemCo is a leading industry player with a diverse portfolio comprising of commodity and specialty products. However, in recent years, ChemCo has been facing declining margins. You have been brought on to help reverse the downward slide.

Interviewer Guidance:

- If asked, ChemCo sells its products across the globe.
- Describe commodity and specialty products, if asked.
  - Commodity products are standard products, processed in large batches. These are low cost, low margin products with end-use in multiple industries.
  - Specialty products are highly customized products, processed in small batches. These are made to order based on specific customization instructions of the clients and hence, they are typically high cost, high margin products.
- If asked, clarify that ChemCo sells its products through "direct sales" approach where sales representatives do site visits to all their clients to share information about ChemCo's products, understand the client's requirements, and record orders.

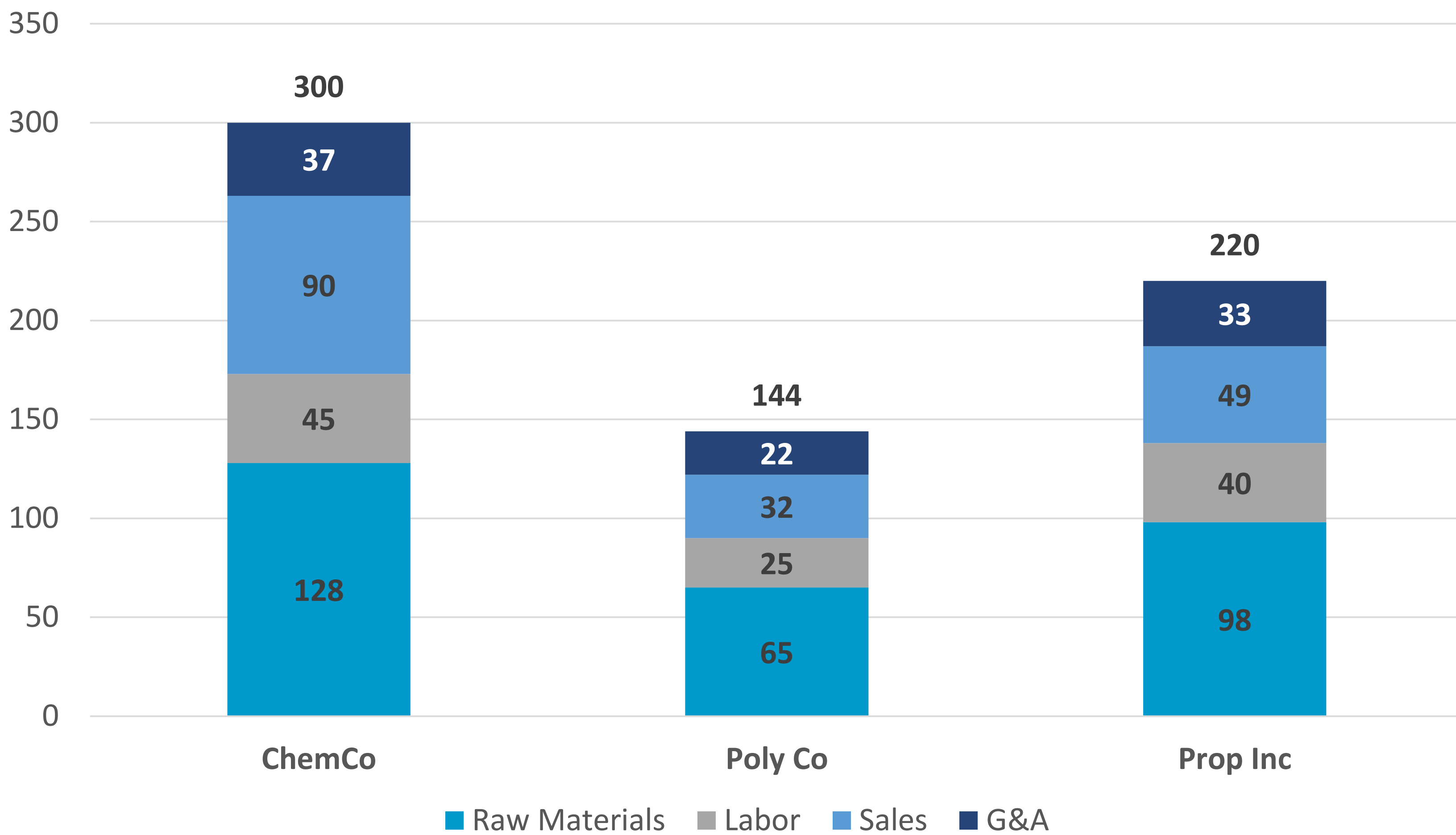
Chemical Imbalance

Interviewer Guidance:

- The interviewee should recognize that at its core, this is profitability problem: Revenue-Costs framework and External Factors. They should detail each “bucket”. For example, Sales: Volume x Price. Costs: Raw materials, Labor, Sales, etc. External Factors: Industry is declining, Poor economic conditions, Regulatory restrictions/ fees increasing etc.
- If asked, say that sales are growing in line with industry and ChemCo is the market leader in sales, but its margins are lagging the industry.
- Provide **Exhibit # 1** if asked about comparative analysis of cost vs. competitors. In case the interviewer does not ask about this, guide them towards this exhibit.

Exhibit #1

- **Break-down of costs* for ChemCo and other industry players ($M)**



*** Costs are proportional to sales**

Interviewer guidance on Exhibit#1

Exhibit #1 Guidance:

- This Exhibit shows a break-down of the costs of the top 3 players in the industry. The number at the top of each bar is the total cost.
- If candidate asks about margin/ sales or seeks clarification on footnote, state that while our sales are higher than competitors, our competitors have better margins (re-direct them to this Exhibit and focus on costs).

Analysis:

- The key takeaway is that Sales cost for ChemCo is much higher than the other industry players
- For added quantitative testing, the interviewee should be asked to calculate each component of cost as a % of the total cost.
- The % calculation works out as below:

	ChemCo	Poly Co	Prop Inc
Raw Materials	43%	45%	45%
Labor	15%	17%	18%
Sales	30%	22%	22%
G&A	12%	15%	15%

Chemical Imbalance

Prompt #2:

- Once the candidate identifies “Sales” costs as the driver of lower profitability, ask them to brainstorm some of the potential reasons for higher Sales cost.

Interviewer Guidance:

- Some of the potential causes for higher Sales cost:
  - Overstaffed sales org (higher # of employees)
  - Higher salary/ commission compared to industry (higher cost per employee)
  - Poor internal controls for expenditure reimbursement for Sales staff
  - Higher marketing/ advertising spend compared to industry

Prompt #3:

- **PROMPT:** In case the candidate has not earlier asked about the sales model, clarify that ChemCo sells its products through “direct sales” approach where sales representatives do site visits to their clients to share information about ChemCo’s products, understand the client’s requirements, and record orders.
- Further, hand the candidate **Exhibit # 2** and explain that ChemCo has collected some data about customers in their biggest geographical market, US.

Exhibit #2

- **ChemCo's customer and product profiles in the US market**

Customer segments by industry	Product categories			
	Commodity		Specialty	
	# of customers	Sales ($M)	# of customers	Sales ($M)
Consumer goods manufacturers	390	130	180	81
Industrial goods manufacturers	750	1,875	450	1,575
Automobiles manufacturers	95	1,140	65	1,625
Total	1,235	3,145	695	3,281

Interviewer guidance on Exhibit#2

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #2 Guidance:

- This Exhibit shows the breakdown of number of customers and sales figures for each product and customer category. Customer categories are based on industry.
- If candidate asks about costs, state that all customers are serviced through direct sales approach and cost of serving all types of customers is somewhat similar.

Analysis:

- The candidate should proceed to calculate the revenue per customer for each of the categories:

Customer segments by industry	Product categories	
	Commodity	Specialty
	Sales per customer ($M)	Sales per customer ($M)
Consumer goods manufacturers	$ 0.33	$ 0.45
Industrial goods manufacturers	$ 2.50	$ 3.50
Automobiles manufacturers	$ 12.00	$ 25.00

- The key insight is that consumer goods manufacturers are generating the least amount of revenue per customer, but account for 30% of the total number of customers. Given the cost of servicing all the customers is similar, there is an opportunity to optimize sales cost here.

Chemical Imbalance

Prompt #4:

- Once the candidate delivers the key insight from **Exhibit # 2**, ask them to brainstorm some potential ways to reduce the cost of serving consumer goods manufacturers.

Interviewer Guidance:

- Some of the potential ways to optimize the cost of serving the consumer goods manufacturers:
  - Sales through distributors
  - Changing internal sales model (use indirect sales model)
    - E-commerce (sale through website/ app)
    - Sales through mailed paper catalogues
    - Sales through in-house call center (remote sales)

Prompt #5:

The CEO of ChemCo is about to walk-in. What is your recommendation to him?

Chemical Imbalance

Recommendation

- Recommendation: I recommend that ChemCo should adopt indirect sales or sale through distributors to service consumer goods manufacturers (for Commodity products).
- Result: This will result in optimization of salesforce headcount and associated Sales cost, which is currently much higher than competitors.
- Justification: Direct sales approach is expensive and consumer goods manufacturers do not yield enough revenue to justify the cost of direct sales approach.
- Risks/ Challenges: Customer concerns for quality of service, Employee backlash due to headcount reduction, Building new capabilities/ relationships with dealers, etc.
- Next step: Get more data on costs of direct and indirect sales approach, estimate costs for introducing recommended mode to determine cost savings

Interviewer Guidance:

- There is room for optimizing the sales model for servicing the consumer goods manufacturers. **The recommendation is designed to be somewhat flexible as long as the interviewee suggests selling through distributors or changing internal sales model for these customers backed by sound reasoning, that should be considered as a valid recommendation.**
- An **exceptional candidate** will note that specialty products require more customer inputs and hence, recommend distributor/ indirect sales approach for commodity products only.

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	Framework may be high level Revenue – Cost. Follows the path towards changing sales model for the consumer goods manufacturers. Small math errors. Moderate brainstorming
Good Candidate	Framework may be Revenue – Cost and contains detailing about different categories of cost. Follows the path towards changing sales model for the consumer goods manufacturers, but is cognizant of associated risks. Small math errors. Strong brainstorming.
Excellent Candidate	Framework may be Revenue – Cost, but customized for industry and contains detailing about categories of cost, including sales cost. Drives towards changing sales model for consumer goods manufacturers **for commodity products**, but is cognizant of associated risks and mentions concrete next steps. No math errors. Strong, creative brainstorming and business intuition.

Green Ride

Industry: Finance/Social

Quantitative Level: Hard

Qualitative Level: Medium

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time where a conflict didn’t go your way.

Question 2:

- What do you feel is your greatest accomplishment?

Green Ride?

Prompt #1:

- Your client, Clean Ventures (CV), is an impact investment fund that focuses on technologies with the potential to improve the environment or reduce humanity's carbon footprint. CV has been approached by PickUp, a ride hailing app, regarding a potential investment. Management would like your help determining whether PickUp is a worthwhile investment for CV.

Interviewer Guidance:

- The candidate should recognize that as an impact investor, their client will have social impact goals in addition to financial goals.
- If asked, let the candidate know that the impact goals are just as important as the financial goals, and that impact goals are typically measured in tons of CO_2 avoided.
- The candidate's framework should address both financial and social considerations.
- Just North America for now
- Allow the candidate to drive towards either the financial or social considerations and direct them to either the next prompt or exhibit based upon that. They should be expected to work through both problems.

Prompt #2

Prompt #2:

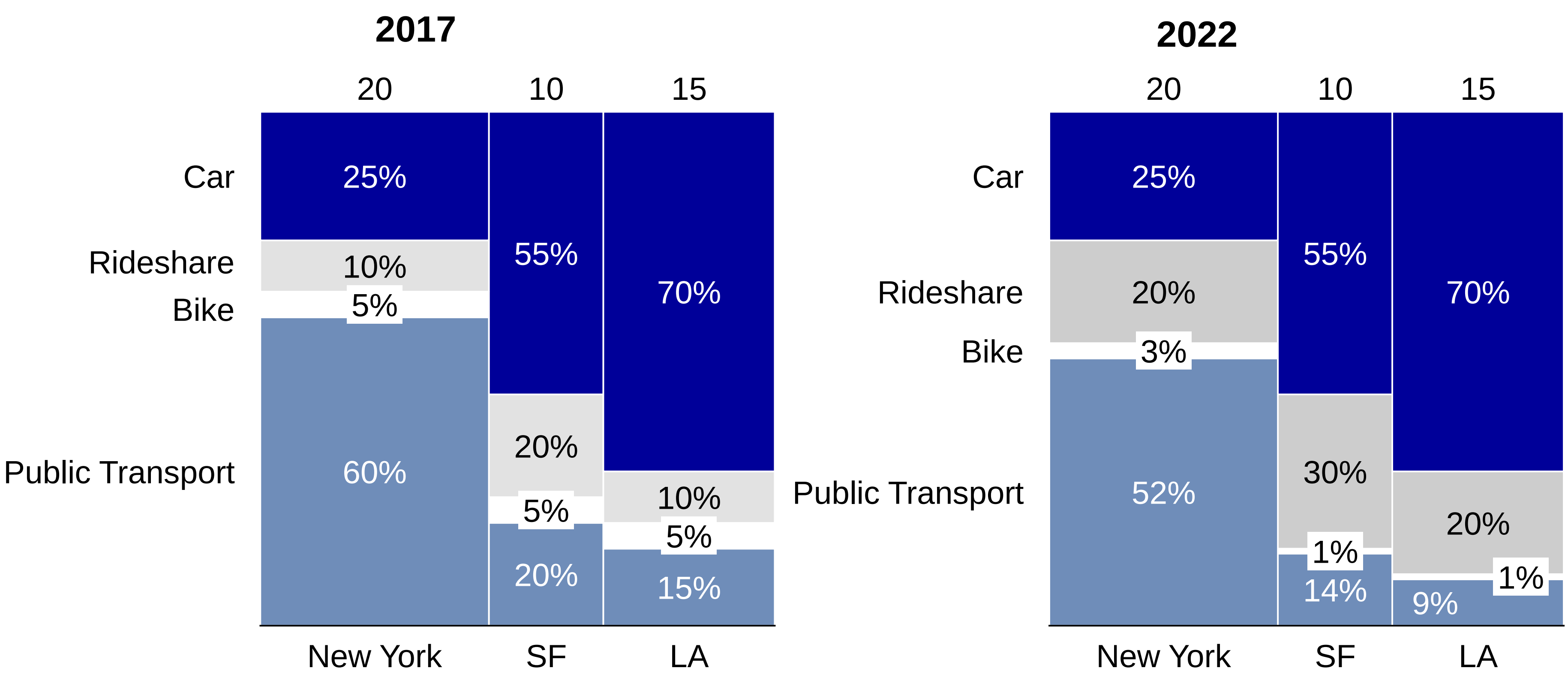
- How would you go about valuing this opportunity?

Interviewer Guidance:

- Allow the candidate to brainstorm ideas
- The candidate should identify things like payback period, DCF, NPV and other financial methods of valuation
- Once they are done brainstorming provide the following info:
  - Your client expects for there to be a liquidity event in 2022
  - In 2022, the overall market for ridesharing will be **$15b**
  - Your client believes Pickup will command a 20% market share
  - The profit margin for rideshare firms is 30%
  - Valuation multiples are expected to be 8x
  - The firm is being offered a 5% stake for $200M
- **Analysis: $15B x 20% = $3B x 30% = $900M x 8 = $7.2B x 5% = $360M value at exit**
- This looks likely to be a worthwhile investment
- Bonus points for identifying a need to discount the exit value in order to determine NPV. We will not require the candidate to do this, identifying it is enough

Exhibit #1

Commuters by Type
(selected cities in millions of passengers per day)



Interviewer guidance on Exhibits

Exhibit #1 Guidance:

- Ask the candidate to evaluate the exhibit without giving any specific instruction
- The purpose of the exhibit is to evaluate the investment's potential impact on the client's social impact goals
- The candidate should recognize that additional information is needed to calculate the CO2 impact
- Some rounding is acceptable
- Additional data:
  - 10 miles per person per day commute
  - Cars – 25 lbs of CO2 per mile
  - Bikes – 0lbs of CO2 per mile
  - Public Transport – 2lbs of C02 per mile
  - Car Share – 2 passengers per car average

Analysis:

- Passenger Numbers
- 2017 2018

	NYC	SF	LA		NYC	SF	LA
Car	5	5.5	10.5	Car	5	5.5	10.5
Rideshare	2	2	1.5	Rideshare	4	3	3
Bike	1	0.5	0.75	Bike	0.6	0.1	0.15
PT	12	2	2.25	PT	10.4	1.4	1.35
Total	20	10	15	Total	20	10	15

- Calculating the delta:
- Cars: No change
- Rideshare: 10 – 5.5= 4.5M passengers * 10 miles * 25lbs of Co2 = 1,125M / 2 = 562.5M lbs of CO2 per day
  - Note the rideshare has the added step of incorporating the 2 passengers per car
- Bike: 0 emissions so no change
- PT: 13.15 – 16.25 = -3.1M passengers * 10 miles * 2lbs of CO2 = -62 lbs of CO2 per day

- **Net: 500.5lbs CO2 per day increase**
- **The candidate should note that this investment will likely increase CO2 emissions which would go against the firms core values**

Green Ride

DUKE FUQUA SCHOOL OF BUSINESS

Recommendation

- You are about to walk into the investment committee meeting at your client. What is your recommendation to the committee?

Interviewer Guidance:

- While the investment appears worthwhile from a financial perspective it does not fit in with the firm's social goals
- Potential Risks/Next Steps:
  - Perhaps the cities not selected will have different ridership changens
  - How reliable is the forecasting
  - How will autonomous vehicles affect our forecasts

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	Will get through the case, but will need some nudging along the way. Their framework will be relevant, but not that creative The math also may take some time.
Good Candidate	Will get through the case with very little guidance. Their framework will be strong and somewhat creative. They should move through the math at a reasonable pace. They will identify a reasonable risk and next step or two
Excellent Candidate	Will require no nudging to get through the case. Their framework will be both strong and creative. They will move through the math quickly and will succinctly summarize the key points of the case with relevant and actionable risks and next steps.

Mapflix Nollywood

Industry: Tech

Quantitative Level: Medium

Qualitative Level: Hard

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- Tell me about a time when you had to change somebody's opinion.

Question 2:

- Tell me about a time when you disagreed with a colleague.

Mapflix Nollywood

Prompt #1:

Our client is Mapflix, a US-based video streaming company that streams movies/shows over the internet. Mapflix has established market leadership for online content/video streaming in the US/Europe, and has successfully entered emerging/growth markets such as Mexico, Brazil, and India. Mapflix CEO, Chris Bosh, is interested in expanding into Africa, and believes Nigeria would be a great market to enter. Before doing so, Chris Bosh has hired our team to provide a go/no-go recommendation on this opportunity. What are the factors Mapflix should consider when deciding to enter Nigeria?

Interviewer Guidance:

- This is an interviewer-led case, and requires the interviewer to direct the interviewee through a series of questions/analyses
- Information to provide if asked:
  - Mapflix goal is to achieve positive NPV
  - Competitors: No other major competitors have entered Nigeria, though there is a relatively small local provider
  - Content: Mapflix desires to stream its current content library and acquire the rights to stream local content, as the Nigerian film industry (‘Nollywood’) is the 3rd largest in the world
  - Economic conditions: Nigeria’s GDP, wage growth, streaming services market penetration are growing annually by double digits
- Good structure will consider:
  - Market/Customer factors: Size/Growth of Nigeria streaming (or cable TV) market, Customer content needs (local vs. US/EU content?), price sensitivity/WTP
  - Political/Economic factors: GDP/Wage growth, internet/technical infrastructure, data security/IP protections laws
  - Competitor capabilities: exclusivity w/ local content, marketing/distribution (partnerships w/ internet service providers, brand recognition), prices/bundles

Mapflix Nollywood

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #2:

- Nigeria's video streaming industry is still nascent, as only one local competitor is in operation. Mapflix feels that the demand for video streaming services is largely untapped. How would you size Mapflix Nigerian market potential (in USD) for video streaming services? (tell candidate to ignore F/X translation)
- For penetration rates & market share: ask the candidate which data points he/she could use to estimate/benchmark penetration rates and market share potential before providing values below.

Interviewer Guidance:

- Provide information when requested:
  - Nigerian HHs (50M)
  - Nigerian HHs w/ internet access (50%)
  - Monthly Fee ($8)
  - Video Streaming Penetration Rate (reflecting Mexican rates): 20%
  - Mapflix Market Share Potential (reflecting Mexican rates): 75%
- Market Size Answers:
  - Nigerian HHs (50M) x Nigerian HHs w/ internet access (50%) x Monthly Fee ($8) x 12 months x VS Penetration Rate (20%) x Market Share (75%) = $360M

Mapflix Nollywood

Prompt #3:

Mapflix believes this is a substantial market opportunity, and is interested in exploring market entry strategies. What are Mapflix strategic options for market entry? What are the benefits / risks for each of those strategies?

Interviewer Guidance:

- Candidate should leverage a build, buy, partner framework
- When the candidate provides partner option, mention that Mapflix is interested in partnering with a local internet service provider (ISP), and to consider benefits / risks of this option.

Description	Benefits/rationale	Risks/drawbacks
Build infrastructure (data centers/ servers)	• Build greenfield w/ best-in-class MPFLX technology/expertise • Most control over data streaming/content process	• Highest risk exposure– economic uncertainty (wages, consumer spending), regulatory, tech infrastructure (data speed/capacity) • High up-front technology development & integration costs • Slowest time-to-market • Strategic tech misalignment – developed markets moving to cloud-based infrastructure
Acquire local competitor	• Local content access – if they have access to 'Nollywood' contacts • Quickest ramp-up – access to local client base and distribution • Brand recognition w/ current video streaming customers	• Largely unproven execution/scalability of competitor • High acquisition cost • Operations/integration challenges
Partner w/ local internet service providers	• Smallest investment cost - incremental technology costs (data center servers) split w/ partner • Low-cost distribution • Lowest data speed/capacity risk - selling data/internet alongside VSS • Lowest economic/regulatory risk exposure	• Lower CF potential due to profit/revenue sharing model • Need to alter technology/streaming processes to address partner-specific configuration needs • Lack of control; Dependence on alignment with 3rd party

Mapflix Nollywood

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #4:

- The client believes partnering with a local internet service provider, and sharing 50% of post-tax profits, is its best option. The client is only interested in pursing this option so long as it is NPV positive. For the purposes of conducting a valuation, what inputs would you need? Should Mapflix pursue this option? (Please provide candidate blue-highlighted inputs below upon request)

Interviewer Guidance:

Inputs	Values	Formulas
Rev, $M	360	
Margin, %	10%	
Profit, $M	36	Rev x Margin%
Tax, %	25%	
Post-tax profit, $M	27	Profit x (1 - Tax%)
MPFLX Profit Share, %	50%	
MPFLX PT Profit, $M	13.5	PT profit x MPFLX Profit Share%
WACC, %	15.0%	
Growth, %	5.0%	
Terminal Value, $M	135	Post-tax profit / (WACC - Growth)
MPFLX Investment Cost, $M	90	
NPV, $M	45	TV - Investment

Mapflix Nollywood

Recommendation

- Chris Bosh is about to walk into the room and wants to hear our findings and thoughts on whether Mapfix should enter Nigeria. What do you recommend?

Interviewer Guidance:

- Good candidates will take a moment to gather thoughts and state the following:
  - Mapflix should enter the Nigerian market by partnering with local ISPs given: (1) Size of market / opportunity (2) Growth opportunity (3) Positive NPV valuation
  - Risks: (1) Nigerian internet / data infrastructure (2) Pricing / Customer WTP – wage growth, global pricing model (3) Access to local content / customer preference changes (4) Local ISP capabilities (5) FX volatility
  - Next-steps: (1) Vetting local ISPs – distribution, technology fit, etc. (2) Develop GTM strategy and integration plan

Chipster Technology

Industry: Technology

Quantitative Level: Hard

Qualitative Level: Hard

Behavioral Questions

DUKE FUQUA SCHOOL OF BUSINESS

Question 1:

- What was the biggest challenge you have faced in your professional life

Question 2:

- What is one thing you are proud of that is not on your resume?

Chipster Technology

Prompt #1:

- Chipster Technology is a multi billion dollar technology company. The CIO has hired you to review the current talent profile of the IT organization. The company has previously operated with a “closed culture” mentality. Currently the IT group has 10,000 employees which support 90,000 other employees. The CIO would like you to ensure that the company is operating as “best in class.”

Interviewer Guidance:

- The interviewee should look to clarify the goal. If asked, clarify:
  - Primary goal - Make sure the company is not spending more on IT labor then its peers (save money is possible without sacrificing effectiveness)
  - Secondary - to ensure the young talent is learning relevant skills and are being pushed up through the organization

Other Details

- Location: The company is global and currently operates 29 separate IT support sites
- 10,000 employees are comprised of full-time and contract employees

NOTE – The Case will focus on the primary goal, however great casers will incorporate the talent effect of proposed changes

Exhibit #1

DUKE FUQUA SCHOOL OF BUSINESS

Chipster vs Benchmark data

	Chipster	Benchmark*
Attrition	9.5%	10%
Average Time at Level	4 yrs.	3.5 yrs.
% full time employees	80%	60%
% of heads in emerging markets	50%	50%
IT Hub locations	8	4
IT Satellite locations	22	11

* Benchmarks are IT function specific for Fortune 250 companies with headcounts between 70k-150k

Interviewer guidance on Exhibits

Exhibit #1 Guidance:

- This shows that Chipster is behind the average in Full Time % and Location when compared to benchmark, remember the goal is to be “best in class”.
- Key Takeaways
  - 1. the difference between FT % this will help the interviewee drive towards cost savings without reducing total head count
  - 2. Chipster has too many locations

Analysis:

- The interviewee should use the benchmarks to get comfortable with the differences between chipster and the market.
- The analysis should conclude with questions about costs of locations and or costs of converting employees from full time to contractors.

Good Candidates will get one insight and ask for cost, Great candidates will recognize both.

Exhibit #2

Cost Matrix By Market

	Emerging	Mature
Full-Time	100K	120K
Contractor	50K	100K
Hub	30M	40M
Satellite	20M	30M

Interviewer guidance on Exhibits

DUKE FUQUA SCHOOL OF BUSINESS

Exhibit #2 Guidance:

- The interviewee should start by calculating the current spend for Chipster. Give them some time and direct them to do so if they don't after 90 second.
- Do not let them calculate the benchmark amounts first, they should be more concerned about Chipsters current spend.
- Once they calculate the Chipster spend, tell them that you spoke with the client and "senior leadership believes they can reduce payroll spend by 10% by leveraging more contract labor, but shifting to benchmark won't be possible, they do think they can shift to benchmark from a location standpoint because many of the current locations are leftovers from acquisitions that never got properly closed"
- The interviewee should easily see to split the location spend in half and reduce FT and Contract labor by 10% this results in $410M of Savings

Analysis:

- Mature Market Costs
  - Full Time – 50% of 10k in Mature market and 80% of them are full time. Therefore 5,000 are in Mature markets and 4,000 are FT, 1000 are contractors.

120,000*4,000= 480M

100,000*1,000= 100M

4 Hubs * 40M = 160M

11 Satellites * 30M = 330M

Total = 1,070M

- Emerging Markets
  - Full Time – 50% of 10k in Mature market and 80% of them are full time. Therefore 5,000 are in Mature markets and 4,000 are FT, 1000 are contractors.

100,000 * 4,000 = 400M

50,000 * 1,000 = 50M

4 Hubs * 30M = 160M

11 Satellites * 20M = 220M

Total = 940M

Post Math Brainstorm

Prompt #2:

- NOTE: Great candidates will do this without being prompted.

”Now that you see the opportunities for cost savings, what is are some of the potential risks of making these changes “

Interviewer Guidance:

Good or Great Candidates need to talk about the effect it may have on the young talent in the organization. It is important the interviewee is bringing back information from the beginning of the case.

If the interviewee doesn’t brainstorm something around talent prompt them too.

Other thoughts can be but are not limited to : Effects on business strategy, bad PR, upset contracting partners, HR push back, cost of closing site

Case Title

Recommendation

- Inform the CIO how the company is doing as opposed to benchmark
- Note the cost savings opportunities
- Touch on something around talent implications
- Discuss risks and next steps.

Interviewer Guidance:

- Good candidates will regurgitate the math
- Great candidates will loop in info from the prompt and their talent brainstorm on top of the math.

Evaluation Criteria

Candidate Level	Assessment
Average Candidate	Gets through math but doesn’t see the short cuts, also has to be prompted to brainstorm and doesn’t get to the talent piece
Good Candidate	Sees math tricks, but has to be prompted to brainstorm and brings back the talent piece
Excellent Candidate	Gets math shortcuts and never has to be prompted to bring info back

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

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.

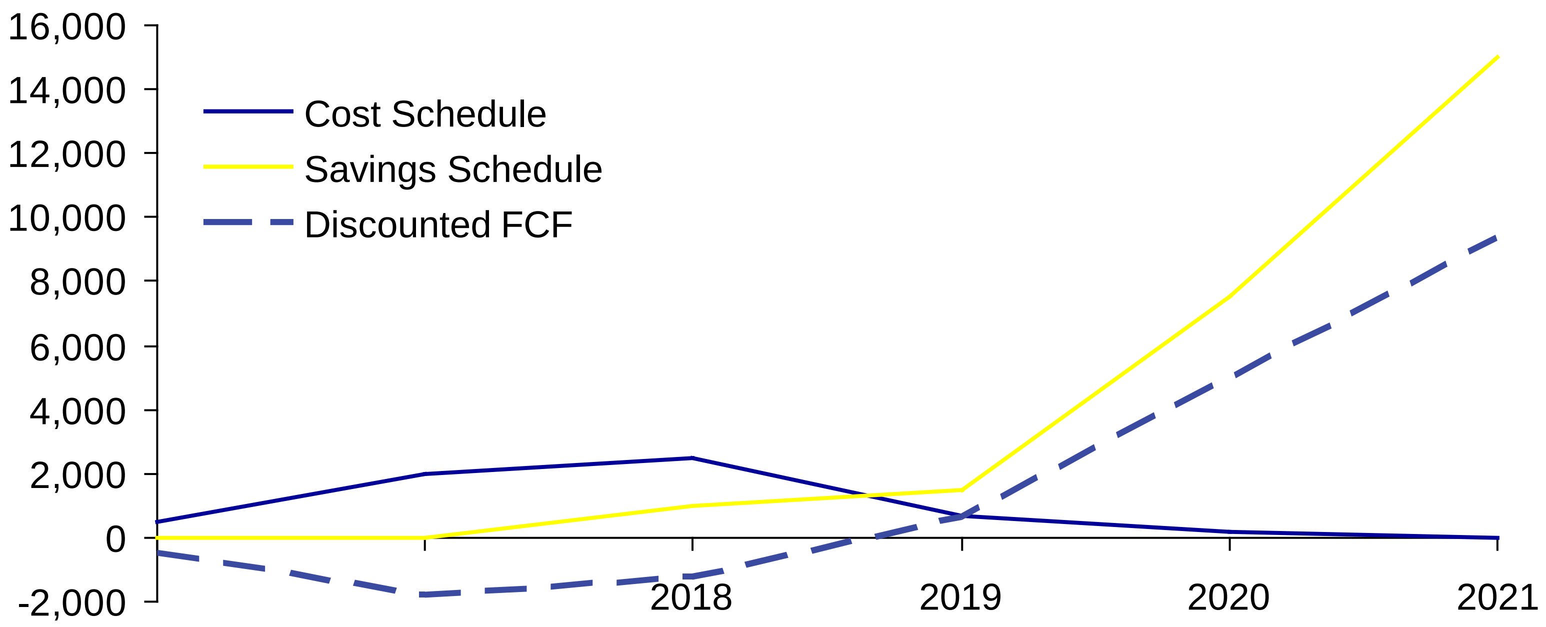
Once this option is deemed insufficient read Prompt 2.

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

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

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.

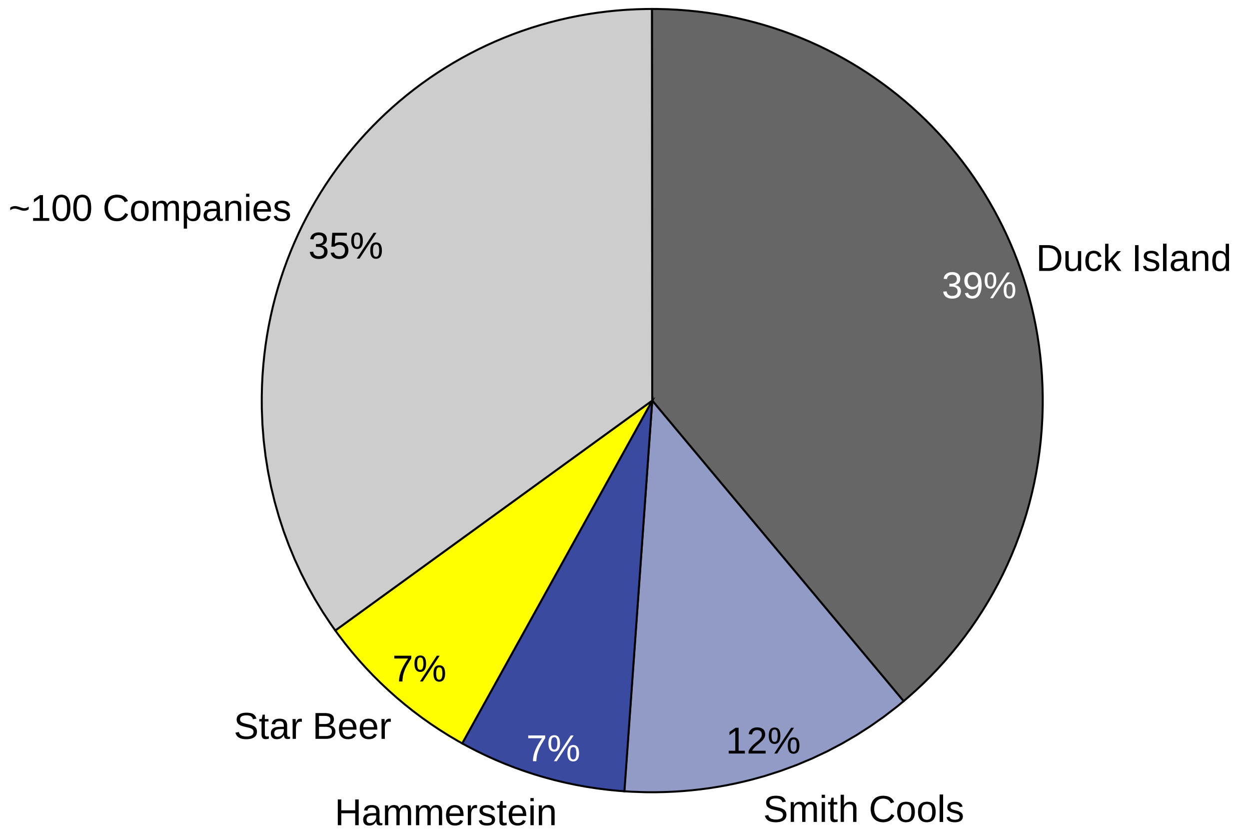
- Most candidates will recognize that this is a profitability case. But a good candidate will see aspects of market entry and tailor their problem solving accordingly. Additionally, he or she will focus on the qualitative aspects of the beer industry.

- 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

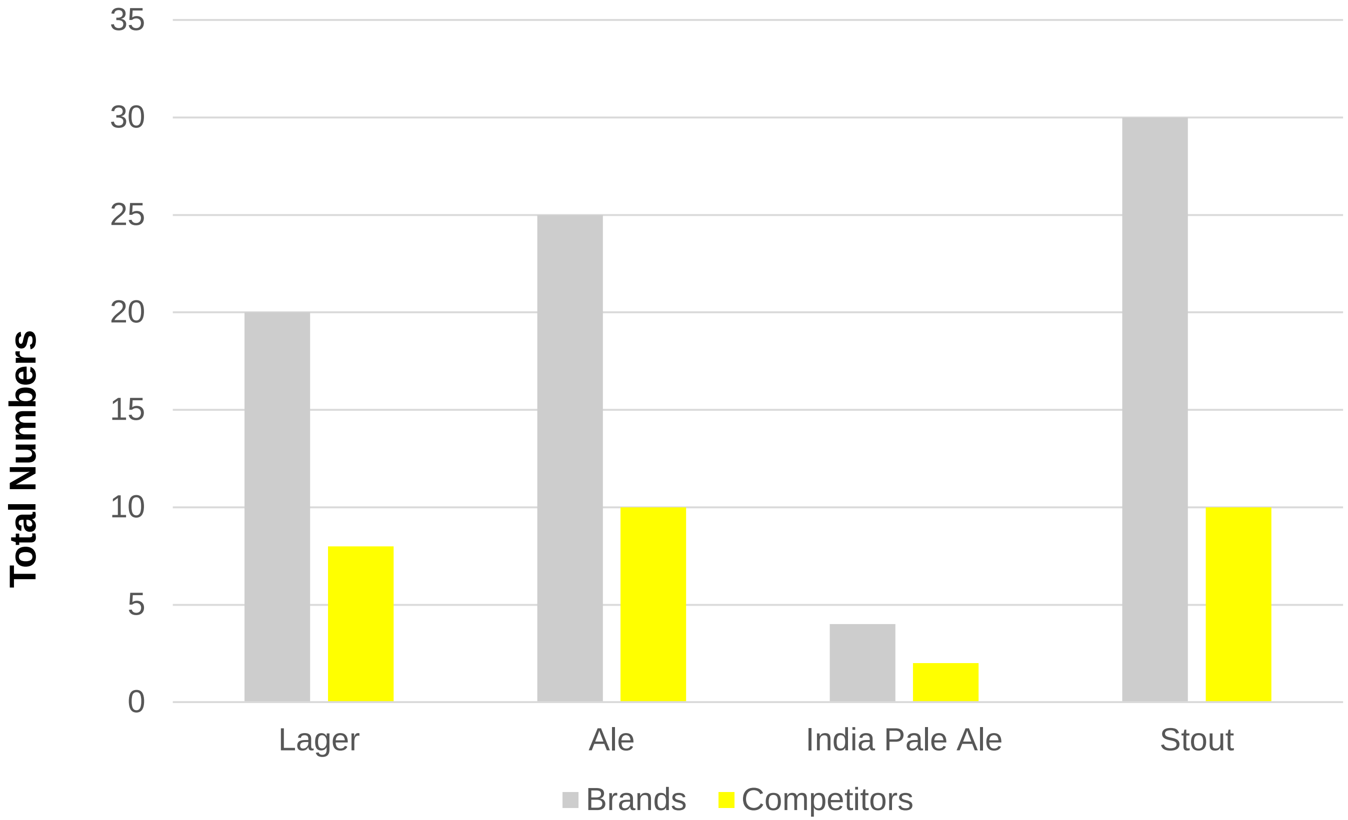
Exhibit #1 Guidance:

- 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

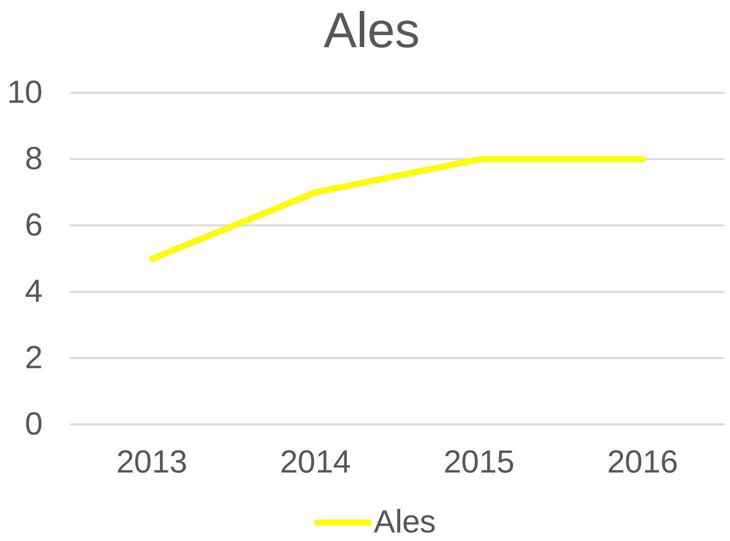
Exhibit #2 Guidance:

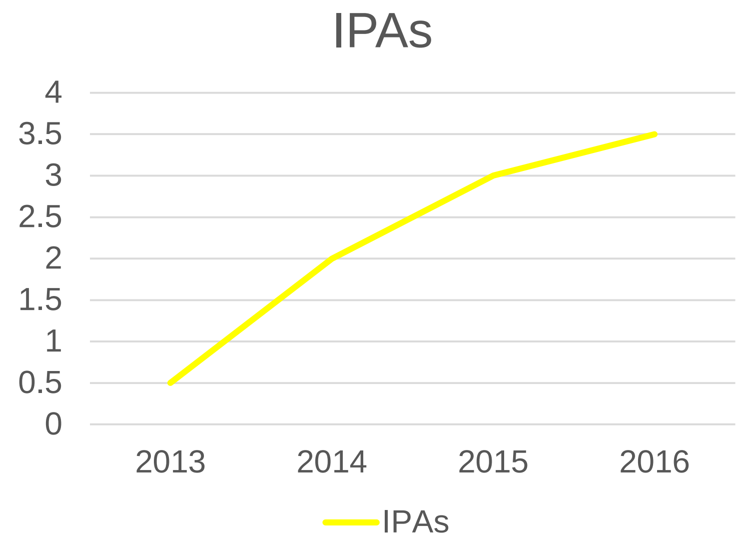
- Exhibit shows total amount of brands by style in the marketplace and how many competitors own those brands

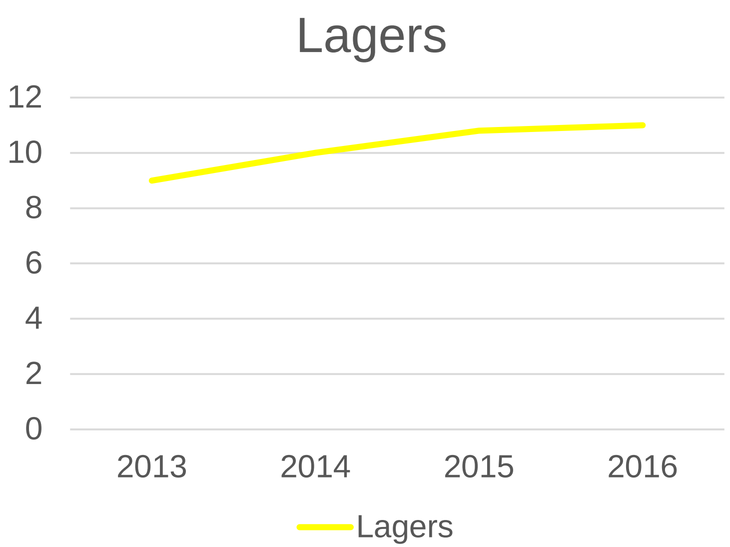
Analysis:

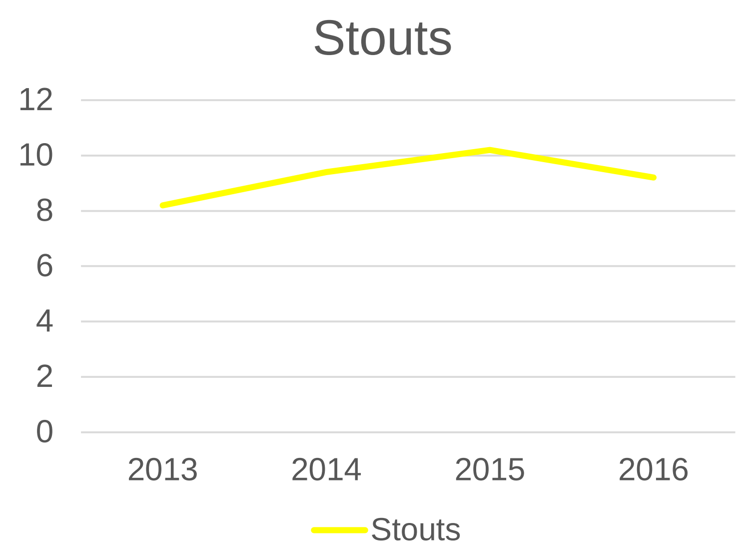
- The IPA category has the least amount of brands and competition

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









Interviewer guidance on Exhibits

Exhibit #3 Guidance:

- Exhibit shows recent trends in sales by style of beer

Analysis:

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

Duck Island Beer Co.

DUKE 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)

- 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

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

DUKE FUQUA SCHOOL OF BUSINESS

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

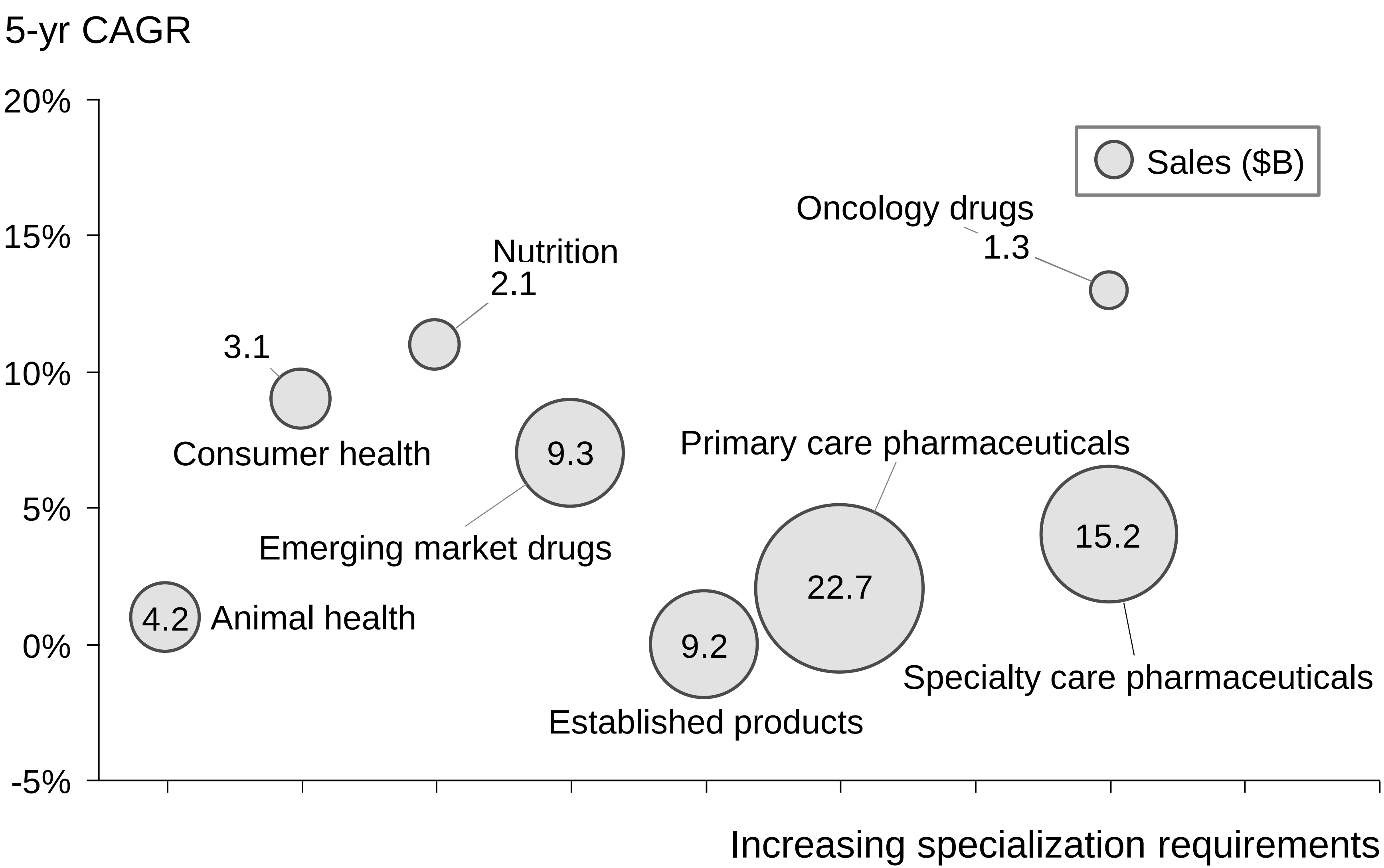
Prompt #1:

- 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

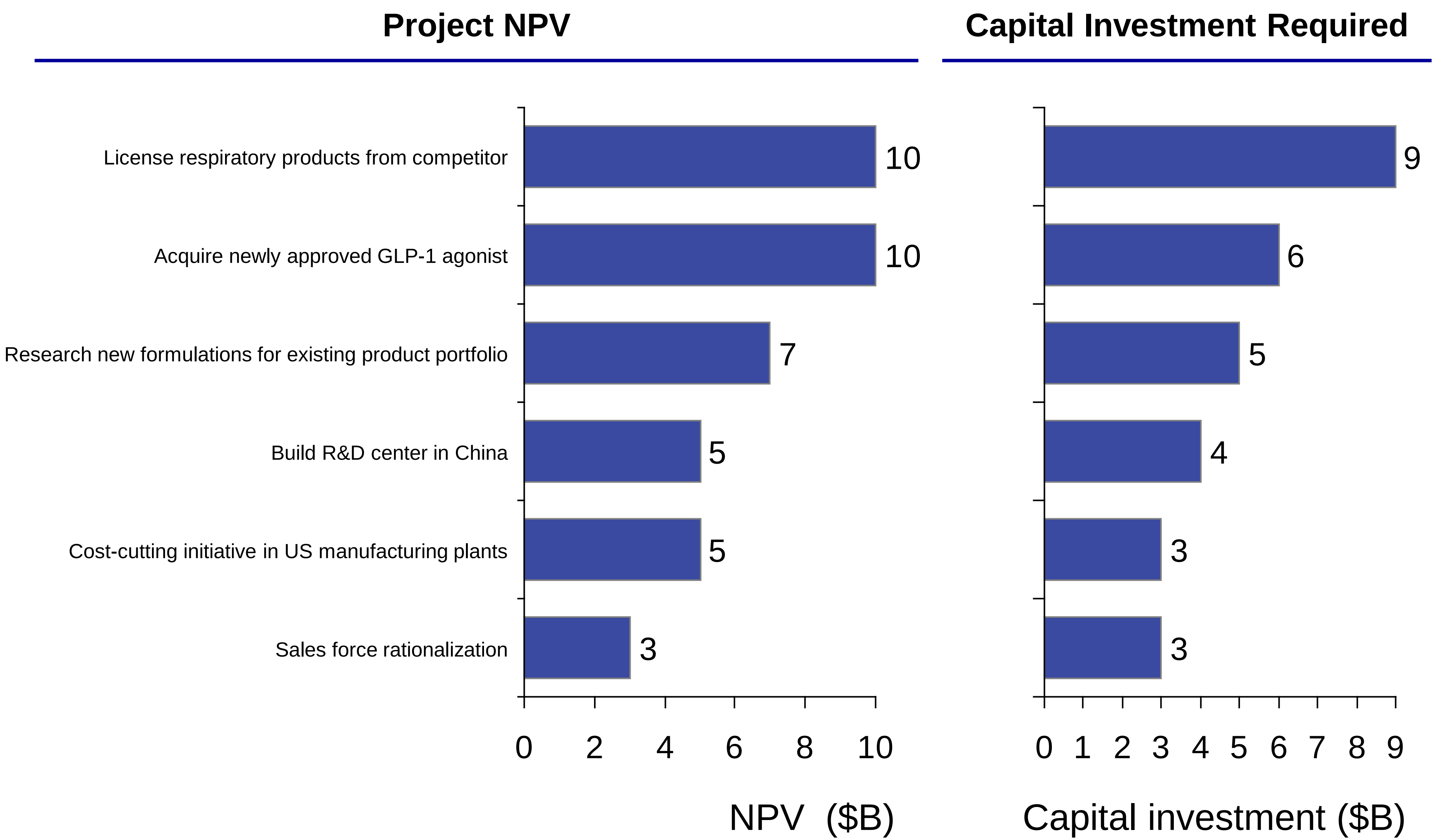
Prompt #2:

- 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



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

DUKE FUQUA SCHOOL OF BUSINESS

Prompt #1:

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

Interviewer Guidance:

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

Exhibit #1 – Statement of Operations

Unaudited, in millions

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

Exhibit #1 – INTERVIEWER GUIDE

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

Interviewer guidance on Exhibit 1

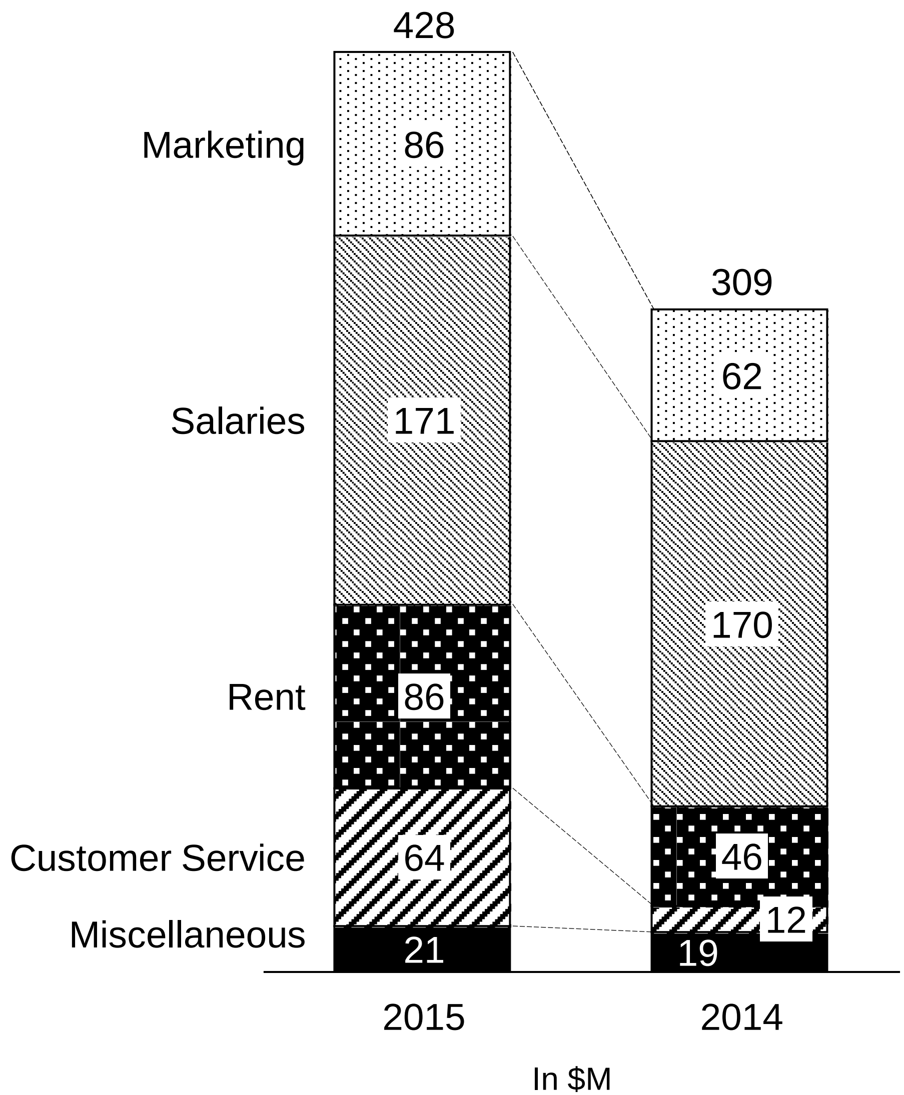
Exhibit #1 Guidance:

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

Analysis:

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

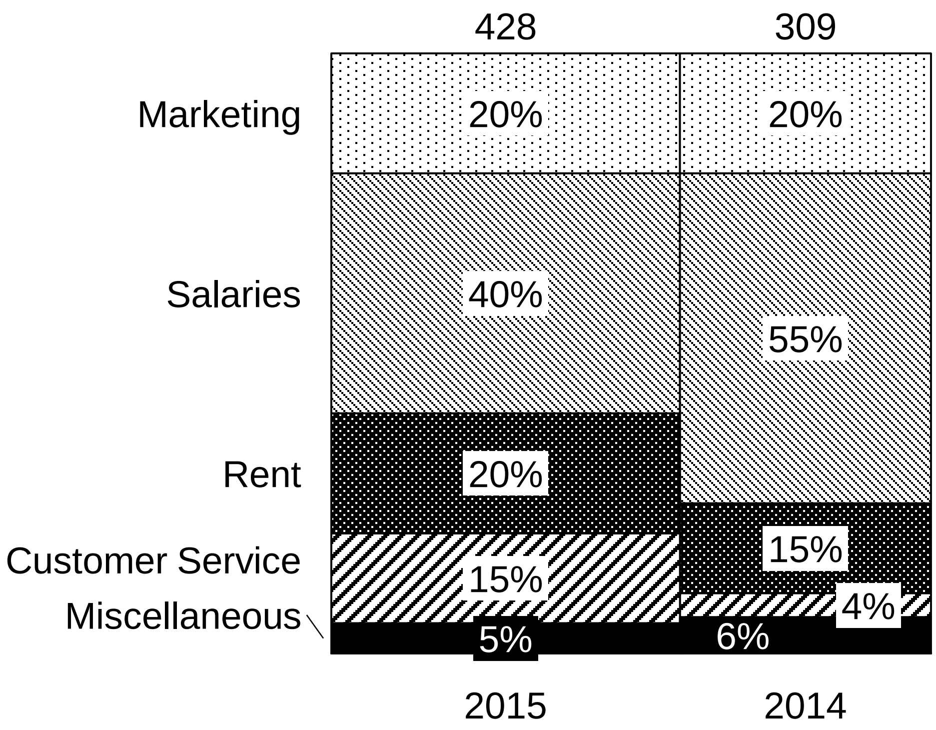
Exhibit #2 – SG&A Breakdown



Interviewer guidance on Exhibit 2

Exhibit #1 Guidance:

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



Analysis:

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

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

Exhibit #3 – Sardine Maintenance

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

Royal Health Services

Industry: Healthcare

Quantitative Level: Medium

Qualitative Level: Medium

DMCC Case-writing Competition Winner 3rd Prize

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

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

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

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

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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

DUKE FUQUA SCHOOL OF BUSINESS

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

Fringe Science

Industry: Healthcare
Quantitative Level: Medium
Qualitative Level: Difficult

DMCC Case-writing Competition Winner 1st Prize

Behavioral Questions

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:

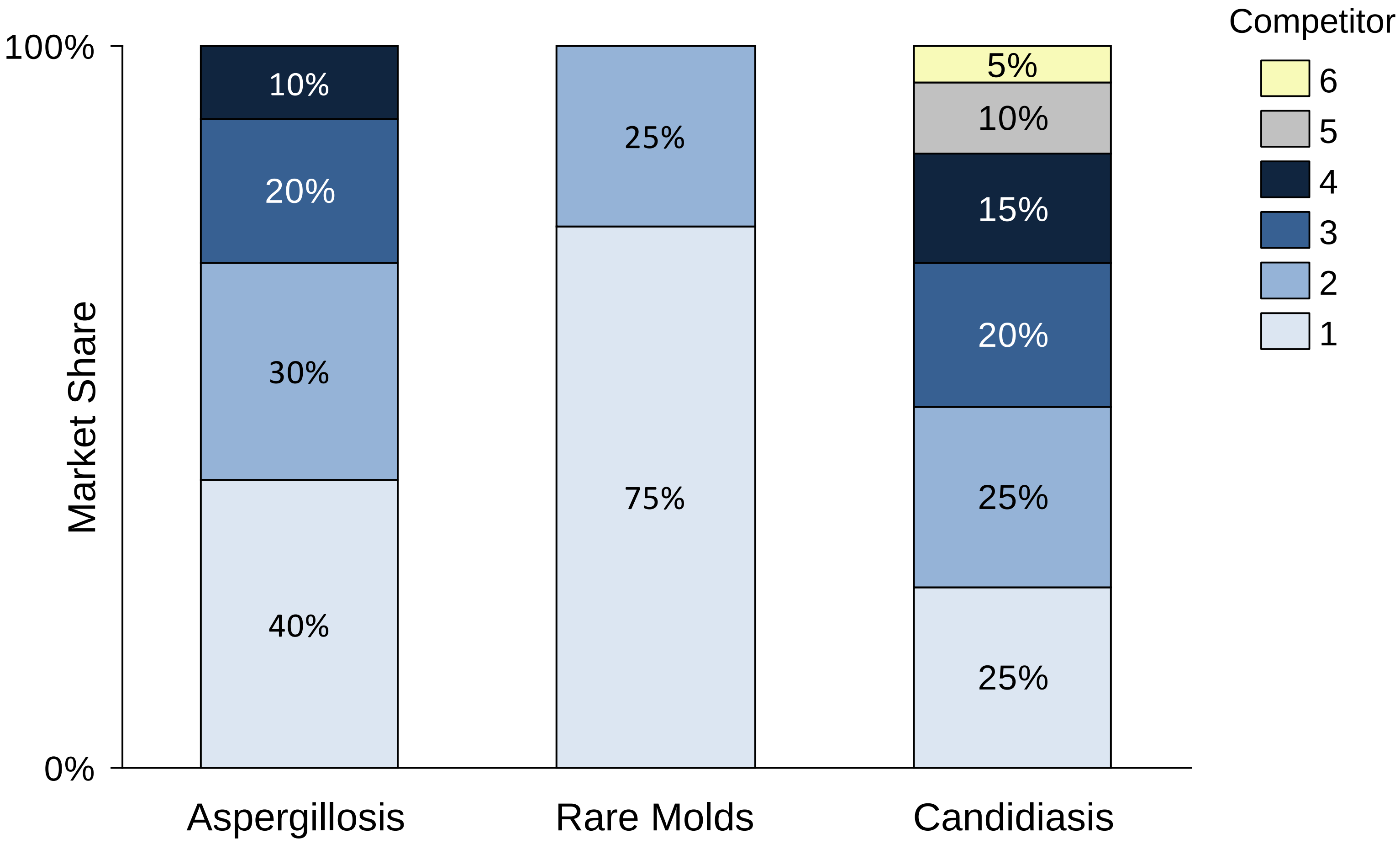
Clarifications to be provided:

- 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

	Aspergillosis	Rare Molds	Candidiasis
Annual Doses:	1.5B	200M	5.0B
Avg. Price per Dose ($):	$10	$20	$5



Interviewer Guidance: Exhibit 1

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

DUKE FUQUA SCHOOL OF BUSINESS

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:

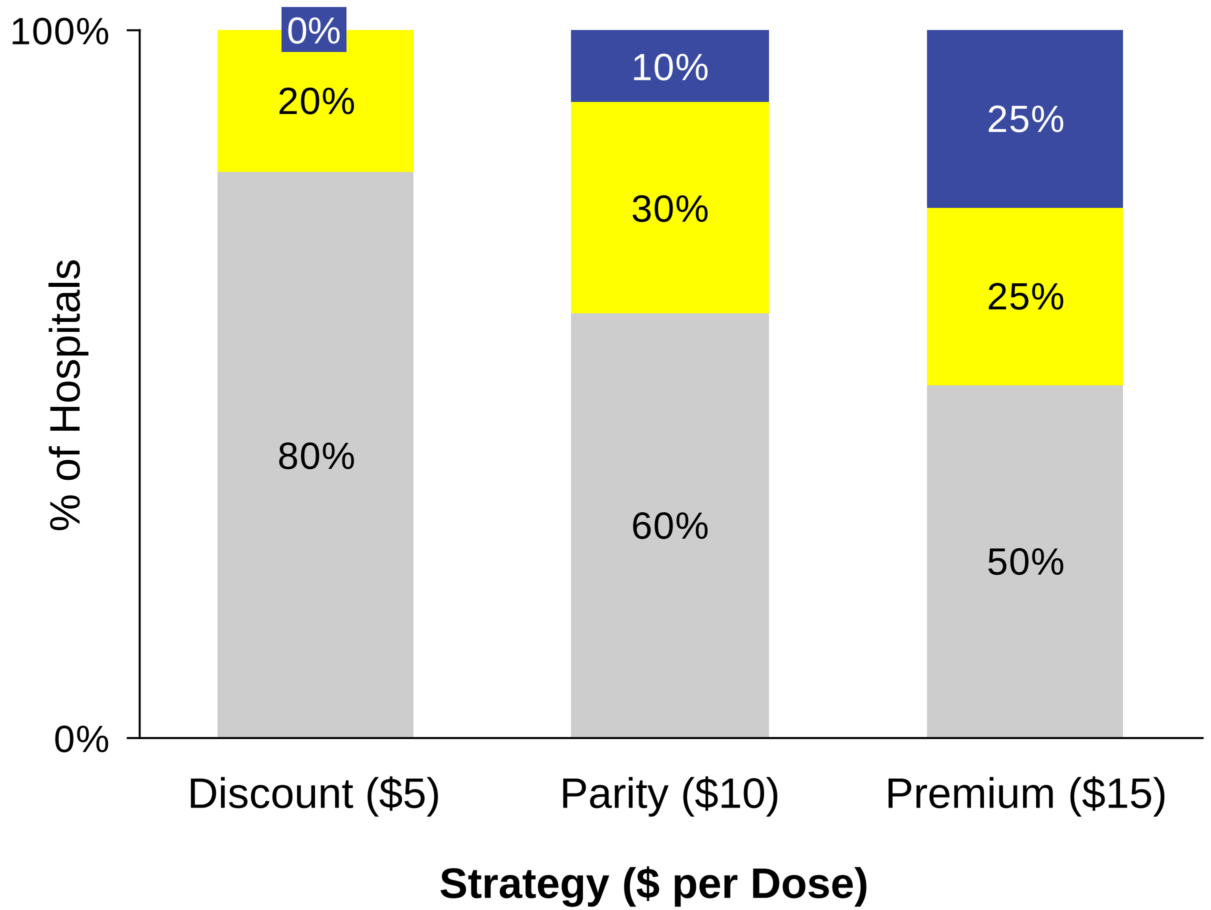
- Pros – Signals to market that product is better than what is currently available, which matches clinical profile; more revenue per dose; can selectively offer discounts to certain hospitals if required, but don't sacrifice revenue pro-actively in case where you don't
- Cons – Formulary status / market 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

DUKE FUQUA SCHOOL OF BUSINESS

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

Congo's Drumming

Industry: E-Commerce Operations

Quantitative Level: Medium

Qualitative Level: Difficult

DMCC Case-writing Competition Winner 2nd Prize

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

DUKE FUQUA SCHOOL OF BUSINESS

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

DUKE FUQUA SCHOOL OF BUSINESS

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

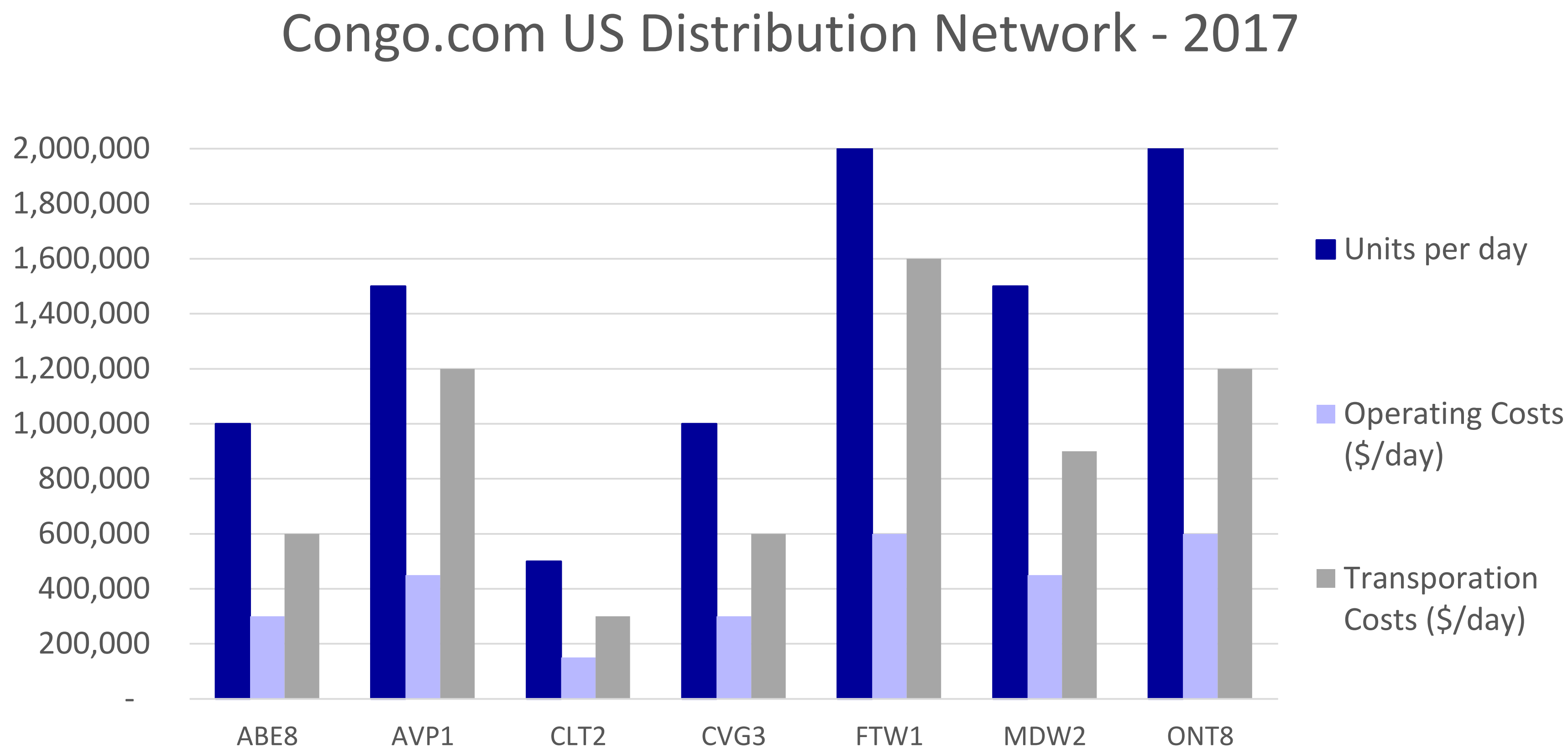
Exhibit #1 Guidance:

- 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:

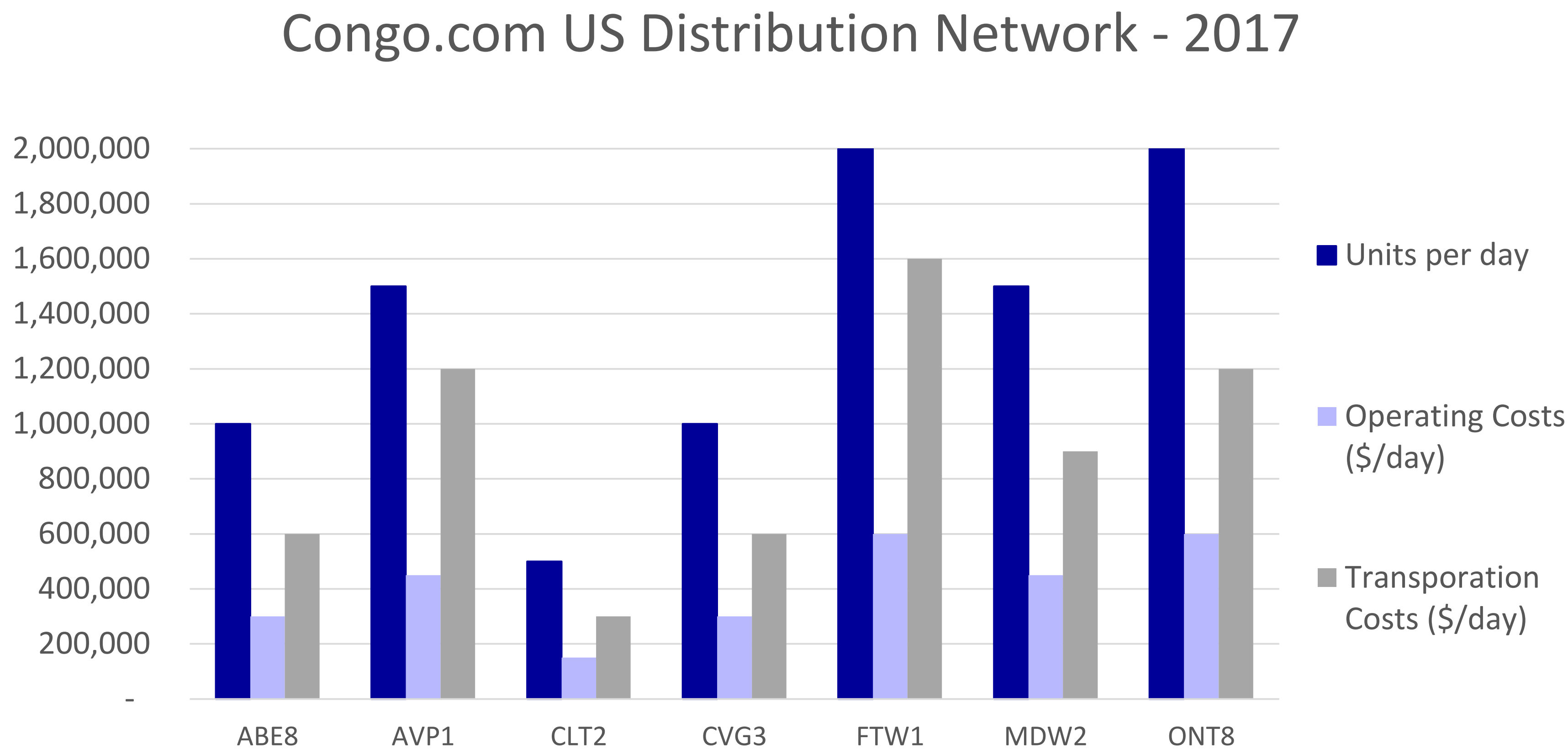
- The candidate should see that items shipped has continued to grow at a steady pace (30% YoY)
- Key item is that we are only concerned with profitability in recent years.
- If asked about $/unit changes, tell the candidate that Congo has little control over the market competitive pricing.
- All costs 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

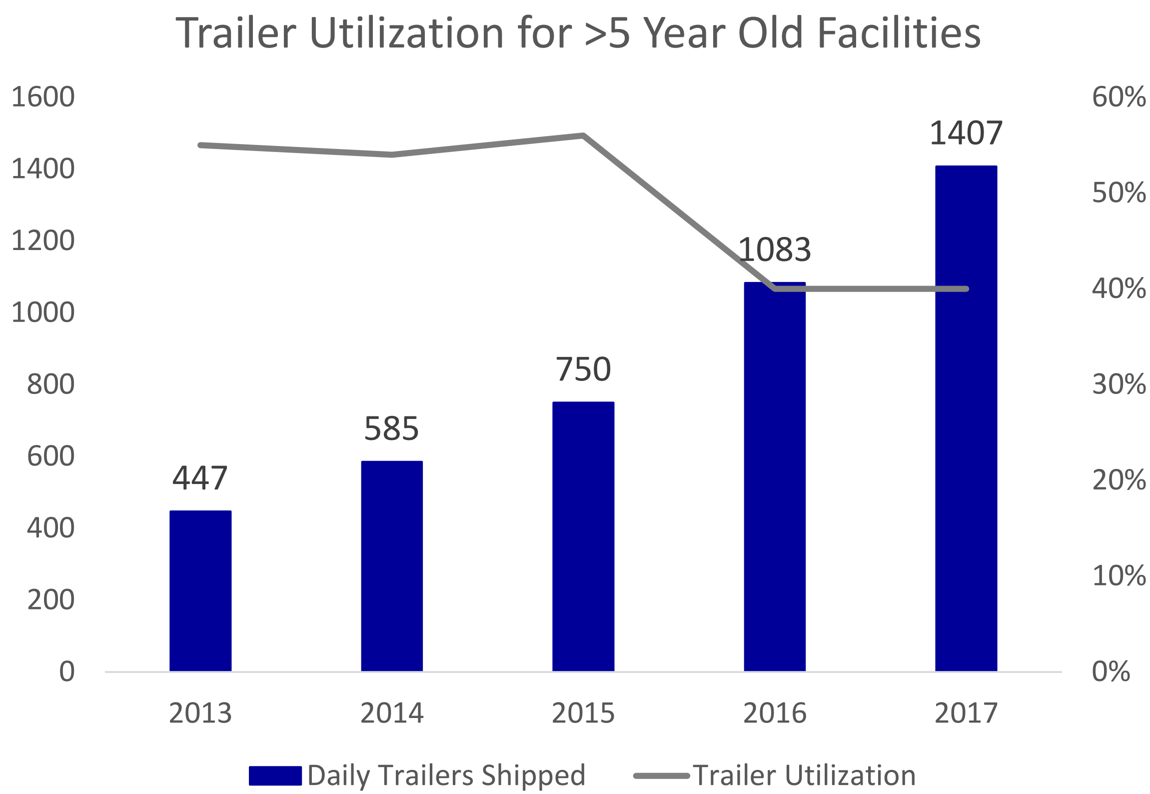
Prompt #2:

- 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



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