



STERN SCHOOL
OF BUSINESS

MBA Casebook

2023-2024



MANAGEMENT CONSULTING
ASSOCIATION

NYU STERN SCHOOL OF BUSINESS

Acknowledgements



The creation of this book was a collaborative effort building on the hard work of many previous classes. Many thanks to all who contributed, including but not limited to the following:

2023-24 MCA Presidents: Arnab Chatterjee and Bani Chilana

2023-24 VPs of Casing Initiatives: Andrew Dohmann, Hailey Shin, Graham Lesko, and Mitchel Pattullo

2023 MCA Case Competition Winners: Elizabeth Mardeusz and Max Soifer ('24)/ Arnab Chatterjee and Spencer Lee ('24)/ Flora Lau, Bradley Wo, Grace Yan ('24)

We would also like to thank the following firms for contributing cases for inclusion into the casebook:



Deloitte.

McKinsey&Company

2023-24 MCA Sponsors

Platinum sponsors



Gold sponsors



Silver sponsors



To view historical NYU Stern MCA sponsors, please visit <https://nyustern.campusgroups.com/mca/home/>

Introduction



We proudly present the NYU Stern Management Consulting Association's 2023 casebook. This document is meant to provide a brief overview of the case interview process, industry overviews, casing tools, and a series of practice cases. For each case, we have specified the case type and concepts tested, difficulty level, and industry. Some cases are also specific to certain formats used by the various firms.

We highly encourage you to practice with fellow MBA1s as well as MBA2s, as this method best simulates the case interview process. We have updated the industry overview sections of this casebook based on the most recent information available. The materials in this casebook are intended to provide a starting point for interview preparation, and we encourage you to build upon the information by doing your own research on industries and engaging with firms to gain a deeper understanding of their practices.

Best of luck in the upcoming recruiting season!

-The Casing Initiatives Team

Contents

Section	Page No.
Intro to Casing	6
Casing Math	15
Industry Overviews	21
Feedback Form	37
Practice Cases	41



Introduction to Casing



MANAGEMENT CONSULTING
ASSOCIATION

NYU STERN SCHOOL OF BUSINESS

Case Types and Interview Methods

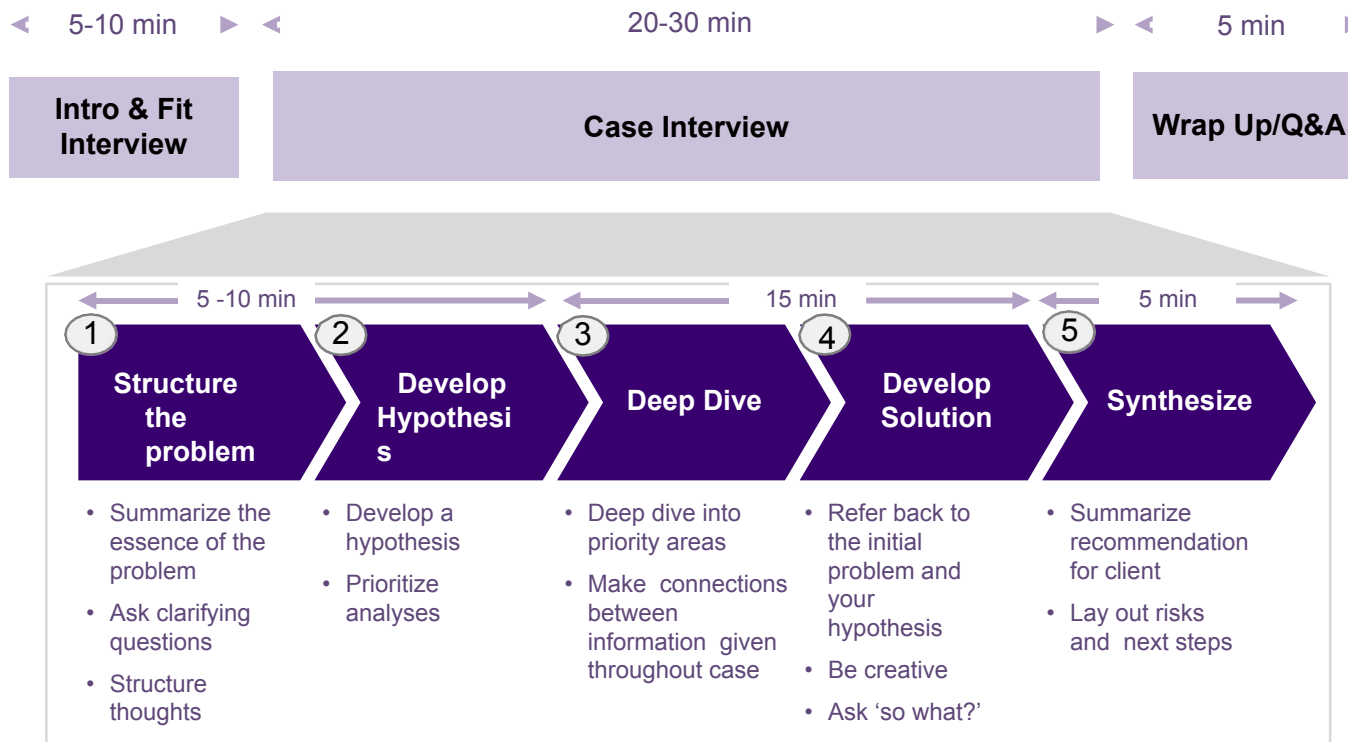
- **What is a case?**
 - A business issue/problem company is facing in a few sentences
 - Takes about 25 minutes; has limited data which is usually provided if asked for
 - Approach to solution is more important than the final solution

- **There are two common case interview methods:**
 - **“Go with the flow” (typical of most firms)** – You will determine which areas to explore and lead the discussion, i.e. drive the case
 - **Command and control (typical of McKinsey)** – Interviewer guides the discussion and case has heavy brainstorming components and quantitative work

Common Case Topics

Format	Focus
Profit improvement	Analyzing causes for recent drop in profits / ways to increase profits
Market entry	Analyzing a firm's opportunity to expand into a new business or segment
Opportunity assessment	Examining the potential purchase / sale of a new or existing business or installation / abandonment of infrastructure
Increasing sales	Identifying ways in which a firm can optimally increase sales
Merger / Acquisition	Evaluating whether a firm should merge or purchase another company
Market sizing	Determining the size, usually in terms of a firm's revenue potential, of a market
Industry analysis	Evaluating an industry's structure and/or desirability
Starting a new business	Similar to entering a new market; then taking an investment point of view
Growth strategies	Determining the optimal ways to grow a company
Developing a new product	Assessing a new product offering
Reducing costs	Identifying internal or external costs that are out of line
Competitive response	Evaluating ways to address a competitor's action (e.g., new product launch)
Turnarounds	Gathering info on why company is failing and then suggesting corrective action

A Typical Case Flow (Standard Case)

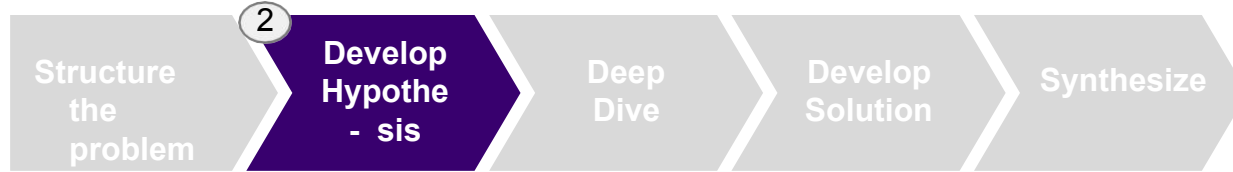




- **Get the facts right – ask clarifying questions**
 - Make 100% sure that you understand the objective: e.g. if the objective is to be the market leader, clarify what this means (highest market share, revenue, profit?)
- **Summarize the essence of the problem**
 - Do not just repeat all the facts back to the interviewer
- **Draw out your approach to solving the problem (i.e. framework)**
 - Try to include at least 2 levels of depth in your framework
 - Customize your framework to the case
 - Be MECE
- **Walk your interviewer through your framework**

Remember: since every case is unique, don't try to force fit standard frameworks!

Develop Hypothesis

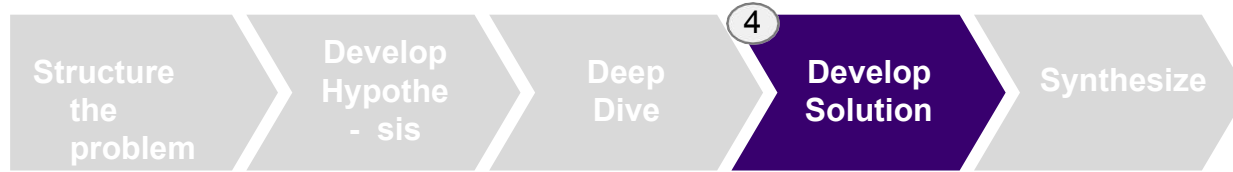


- **Use the info provided to form an initial hypothesis**
 - For example, if the case asks you to determine whether to enter a new market, take a position (e.g., enter), and list out the questions you would need to answer in order to validate your hypothesis
- **Use your hypothesis to prioritize your analyses**
 - What is most important to look into first, second, and third?
- **Engage with the interviewer**


Deep Dive Into 1 or 2 Areas



- **Treat your notes as “slides”**
 - e.g. separate pages for revenue analysis, cost analysis, profit analysis
- **Link various data points together**
 - Look at the case holistically and tie together information provided at various points in the case
- **Structure quantitative data “Excel-style” / in tables**
 - Before doing any calculations, write out your approach to solving the math problem (e.g., write the formula in words)
 - Turn the page around and walk the interviewer through your math structure (similar to how you would walk them through your framework)
 - Don’t start calculating numbers until you’ve received your interviewer’s buy-in that your approach will lead you to the right solution



- **Be sure to ask the ‘so what’ questions**
 - Don’t just state the obvious; explain what each conclusion means for your client
 - **Develop creative solutions**
 - Pressure test your solution
 - If you think the goal is not achievable then suggest alternatives
 - **Always consider implementation implications, risks and mitigation**
 - **Utilize your analysis to make a powerful statement – take a stand, don’t hesitate**
 - **Always end your case with a succinct recommendation**
- A good solution is:**

 1. **Best among alternatives**
 2. **Practical**
 3. **Based on facts**
- 



- **Take a moment to prepare your thoughts**
 - But be prepared for the “elevator test”(interviewer doesn’t allow you time to prepare your thoughts)
- **Provide your recommended approach, backed up by facts**
- **List out risks that the client should consider when evaluating your recommendation**
- **Recommend next steps for analysis**

Tip: Highlight or circle main points as you go through the analysis to facilitate a concise summary



Casing Math



MANAGEMENT CONSULTING
ASSOCIATION

NYU STERN SCHOOL OF BUSINESS

Casing math is one of the essential skills to master. While the specific mathematics are rarely complex, quick recognition, shortcuts, and application of key concepts are essential to progressing efficiently and saving time to focus on other aspects of the case.

What follows is a list of common concepts and constants that you should become familiar with. The list is by no means exhaustive but will provide a solid foundation for you to begin building speed and accuracy.

Finally, one of the most common mistakes made is with orders of magnitude. Find the way that most makes sense for you to keep track of zeros as they can make or break a case. For some, it's scientific notation while others prefer simply using letters.

example: $K * K = M$ and $B / K = M$

Numbers to Know

- Multiplication Table up to $20 * 20$
 - Be particularly familiar with perfect squares
- Division rules
- Be comfortable working with percentages
- Fractions as Decimals

$1/6$.1667

$1/7$.1428

$1/9$.1111

$1/11$.0909

$1/12$.0833

$1/15$.0667

$1/16$.0625

$1/18$.0555

Net Present Value

- Know how to set up NPV calculations for both perpetuities and annuities.
- Do not forget to include initial investment costs, if applicable
- Perpetuity (if the cash flow is constant, $g = 0$):

$$NPV = \frac{\text{Cash Flow}}{\text{Discount Rate} - \text{Growth Rate}} = \frac{c}{r - g}$$

Break Even

$$\text{Fixed Cost} = \text{Quantity} * (\text{Price} - \text{Variable Cost})$$

- Has many applications to solve for any unknown
- $P - VC$ is the *contribution margin*

Percent Change

$$\% \text{ change} = \frac{\text{ending value} - \text{beginning value}}{\text{beginning value}}$$

$$\% \text{ change} = \frac{\text{ending value}}{\text{beginning value}} - 1$$

Rule of 72

$$\text{Investments double in } \frac{72}{\% \text{ Annual Interest Rate}} \text{ years}$$

Return on Investment

$$ROI = \frac{\text{Gain} - \text{Cost}}{\text{Cost}}$$

Income Statement

GAAP	Non-GAAP
Revenue	
- COGS	
= Gross Profit	
- SG&A	= EBITDA
- Depreciation	
= Operating Profit	= EBIT
- Interest, Taxes	
+ Gains	
- Losses	
= Net Income	

note: Gains and Losses refer to Gains/Losses on, for example, the sale of PP&E.

Margins

$$\text{Gross Margin} = \frac{\text{Revenue} - \text{COGS}}{\text{Revenue}} = \frac{\text{Gross Profit}}{\text{Revenue}}$$

$$\text{Operating Margin} = \frac{\text{Operating Profit}}{\text{Revenue}}$$

$$\text{Net Margin} = \frac{\text{Net Income}}{\text{Revenue}}$$

Markups

$$\text{Markup} = \frac{\text{Price} - \text{Cost}}{\text{Cost}} \quad \text{note: do not confuse with margin}$$

Inventory Turns

$$\text{Inventory Turns} = \frac{\text{Annual COGS}}{[\text{Average}] \text{Inventory}}$$

$$\text{Inventory Turnover Period} = \frac{365 \text{ Days}}{\text{Inventory Turns}}$$

Market Sizing Approach

Market sizing is a common case interview component as it tests your structure, creativity, estimation skills, and mathematics. Familiarize yourself with the two most common approaches: top-down and bottom-up. Then follow this methodology:

- Lay out the problem **before** doing any multiplication
 - Structure the items you need, and how they'll interact (addition, multiplication, division, etc.)
 - Don't make it more complicated than it has to be
- Make and state assumptions. Be open to feedback from your interviewer and adjust if necessary.
 - Try to pick numbers that are easier to work with
- Always gut check your answer
 - There are wrong answers. If your sizing feels off, go back and challenge your assumptions.
 - If the number makes sense, don't stop there. Make an insight and drive the case forward.
- Market sizing questions can appear as part of a larger case or as the case itself
 - Recognizing the context of the question will help to inform the complexity of your approach

Always remember the scope of the market you are sizing (e.g., US vs Global) and never forget the **units** you are solving for!

Common Market Sizing Constants

- US Population: 320 M
- NYC Population: 8 M
- US Households: 120 M
- Average number of people per household: 2.5
- US Life Expectancy: 80 years
- US Population Growth (CAGR): ~0.7%
- US GDP: 19T
- US GDP CAGR: ~2%
- Median Household Income: ~\$60,000
- Europe Population: 740 M
- Asia Population: 4.4 B
- Africa Population: 1.2 B
- Global Population: 7.4 B

Additional Casing Resources

Resource	Uses
<i>Management Consulted</i>	<ul style="list-style-type: none">• Additional case access• Firm overviews, skill practice• 1-on-1 casing practice (\$)
<i>FastMath</i>	<ul style="list-style-type: none">• Mental math tutorials and practice
<i>S&P Industry Reports</i>	<ul style="list-style-type: none">• Industry insights (e.g., margins, growth, drivers)
<i>RocketBlocks</i>	<ul style="list-style-type: none">• Framework drills• Charts and data analysis skills work• Mental math practice
<i>Case Interview Secrets</i>	<ul style="list-style-type: none">• Various resources including fast math and framework practice to resume and cover letter coaching• Look Over My Shoulder program is a collection of audio files of example live-cases, both good and bad
<i>Case Coach</i>	<ul style="list-style-type: none">• Preparation for all aspects of consulting interviews

Other resources: <https://nyustern.campusgroups.com/mca/links/>



Industry Overviews



MANAGEMENT CONSULTING
ASSOCIATION

NYU STERN SCHOOL OF BUSINESS

Industry	Page #
Banking and Financial Services	23
Retail	24
Consumer Packaged Goods (CPG)	25
Technology	26
Healthcare Providers – Doctors, etc.	27
Healthcare Payers – Insurance	28
Life Sciences/Pharma	29
Airlines	30
Media & Entertainment	31
Oil & Gas	32
Industrials	33
Grocery	34
Non-Profit	35
Private Equity	36

Overview: Industry offers services like lending, insurance, and securities management

- Types of banks: commercial banking, retail banking, investment banking
- Products include credit cards, mortgages, loans, insurance, and checking/savings accounts
- Customers can be segmented by income levels, individual vs small business vs large business
- Highly competitive: international and national players compete with regional banks and new online banks

Revenue Drivers:

- Interest on loans (different loans include real estate, auto, etc.)
- Fixed or Variable Fees (trading commissions, M&A fees, asset management fees, transaction fees, currency exchange)
- Premiums – credit card APRs
- Credit Cards
- Carry (% above hurdle rate of return for wealth management)

Cost Drivers:

- IT (back-end processing, security, apps & websites)
- Real estate costs (physical branches)
- Labor (customer service commonly off-shored)
- Marketing
- Research (e.g., on securities)
- Losses on investments (e.g., loan defaults, bad debt expense)

Important Considerations / Trends:

- Use of AI / Blockchain to verify transactions
- Decentralized Finance as an alternative to traditional banking for investing & loans
- Growth of mobile banking; disruption in the industry from Fintech and online banks
- Changing customer acquisition model – increased emphasis on relationship building with customers
- Changes in customer demographics creating a larger market for retirement products

Risks:

- Change in savings behavior
- Loan defaults, interest rates, federal funds rates
- Regulations within the industry (e.g., Dodd-Frank increased capital requirements for banks)

Key Economic Drivers:

- Consumer confidence
- Household debt and disposable income
- Employment statistics
- Government Regulation and interest rates
- Urbanization and home purchases

Overview: Industry consists of department stores, wholesale retailers, discount stores, specialty retailers, and online retailers. Amazon and other online retailers caused major disruption in the industry by lowering operating costs and passing savings to customers. Technology also reduced bargaining power of retailers as customers can easily compare prices online.

Revenue Drivers:

- Traffic (foot / online)
- Conversion rate (visits vs purchases)
- Basket size (driven by consumer spending)
- Avg. price per item
- Margin retailer makes vs. distributor vs. manufacturer
- Other revenue (e.g., after sales services)

Key Metrics:

- Sales per square foot
- Inventory turnover
- $\text{Total revenue} = \text{traffic} * \text{conversion rate} * \text{basket size} * \text{avg. price per item}$

Risks:

- Industry is very impacted by economic conditions (e.g., disposable income)
- Supply chain issues
- Easy entry invites competition

Key Economic Drivers:

- Consumer Confidence Index
- Per capita disposable income, households > \$100,000 income, etc.
- GDP, Inflation

Cost Drivers:

- Cost of goods sold
- Returns
- Inventory management (storage and stock)
- Distribution
- Delivery
- Labor (workforce, in-store employees)
- Real estate
- Online retail – technology cost

Important Considerations / Trends:

- Seasonality is a big factor in retail sales – large portion of sales occur in holiday season / end of year
- Social media presence has a large impact on brand strength and perceptions, especially with growth of influencers
- Omnichannel retail is growing through e-commerce development or acquisition, and will soon be the dominant strategy
- More private label products (i.e. Walmart brand instead of manufacturer brand) and consumers are more receptive to them
- Use of data gathering to tailor the shopping experience – added focus on customer experience and personalization
- Co-branding has grown in popularity to bolster two seemingly unrelated brands (i.e. Doritos Locos Taco)

Consumer Packaged Goods (CPG)

Overview: Industry consists of household durable and non-durable products. Mature industry and concentrated market in the US with most growth coming from emerging markets. Sales are impacted by type of product – luxury vs basic necessity. Customers can be retailers or end users.

Revenue Drivers:

- Sales direct to consumer (higher margins)
- Sales to retailers (lower margins)
- Shelf placement in stores
- Packaging and price tiering
- Product mix (cannibalization vs. complementary products)
- Acquisitions

Important Considerations / Trends:

- Discounts and price promotions have lowered margins
- Cannibalization can be a concern when introducing new products, so firms regularly rationalize brands
- Customer preferences (and marketing materials) shifting towards sustainability
- Tariffs and regulations play a role in imports / exports and where the firm is manufacturing or sourcing
- Small firms compete via specialization or local targeting
- High buyer power for retailers (e.g., Walmart)
- Demand has recently increased for organic / socially minded companies
- In-store experiences are one way to increase direct to consumer sales

Cost Drivers:

- Cost of goods sold (raw materials)
- Manufacturing facilities (owned or leased)
- Packaging
- Distribution & inventory management
- Marketing
- R&D – new product innovation
- Environmental and regulatory costs
- Durables – spoilage

Risks:

- Globalization of industry enables more ease of foreign competition
- Extensive competition impact on margins
- Changes in consumer trends and tastes

Key Economic Drivers:

- GDP Growth
- Consumer confidence index

Overview: Includes online services (security, productivity, platforms – Google, Amazon, Dropbox), hardware (computers, smartphones, servers – Apple, Samsung, Lenovo), software (search, storage – Microsoft, Oracle, Adobe). Key customer segments include: large companies, small/medium businesses, retail/consumers.

Revenue Drivers:

Online services

- Ad revenue (especially for free services)
- Subscriptions
- Membership fees

Hardware

- Sales: price * # of goods sold
- Accessories
- After sales services

Software

- Licenses
- Managed services (SaaS)

Cost Drivers:

Online services

- R&D / Product Development
- IT & back-end infrastructure
- Customer service

Hardware

- Component COGS
- Manufacturing & labor

Software

- High up-front investment in development
- Lower variable costs following product launch
- Privacy protection

Important Considerations / Trends:

- Innovation in the industry has reduced product life spans and increased obsolescence
- Firms are trying to create ecosystems (e.g., Google Home)
- Businesses want dynamic software with low implementation costs
- Software sales are highly dependent on network effects
- Key Terms: Internet of Things, cloud computing, Blockchain, AI / Machine Learning, GDPR (data protection regulation), SaaS, IP, Freemium
- Data Harvesting

Risks:

- Startups and new entrants
- Tariffs

Key Economic Drivers:

- Cyber security
- Demand for enterprises to go digital (e.g., mobile banking)
- Mobility
- Data and Analytics

Healthcare Providers (hospitals, nursing homes)

Overview: The industry consists of facilities, distributors, and service providers (e.g. hospitals, emergency care facilities, clinics, nursing homes, pharmacies). Rising healthcare costs in the US.

Revenue Drivers:

- Collections from third party payers (i.e. insurance companies)
- Co-payments for diagnostic tests, consultations, and treatments
- Government re-imbursement (~50% of spend)
- Payments from uninsured patients

Key Metrics:

- Patient Volume
- Level of Care Required
- Reimbursement Rates

Cost Drivers:

- High upfront investment in hospital facilities and equipment
- Physicians (i.e. doctors & nurses)
- Medical suppliers
- Treatment Costs
- SG&A
- Other labor
- Utilities (electricity running 24/7)
- Administrative technology costs (e.g., medical record keeping)

Important Considerations / Trends:

- Shortage of physicians and nursing staff
- Digital transformations including telemedicine
- Value-based care that focuses on delivering quality care at lower costs
- Wearables (e.g., Apple Watch) are keeping people healthier
- Focusing on health of populations such as communities and specific populations
- Increase in telemedicine (at-home virtual doctor visits)
- Artificial intelligence to identify patient trends

Healthcare Payers (insurance companies)

Overview: Industry provides insurance coverage to both companies and individuals. Insurance is heavily based on risk measurement and forecasting the inflows and outflows of cash. It is primarily divided into two classifications: life insurance and non-life insurance.

Revenue Drivers:

- Insurance premiums
- Government subsidies
- Investment returns

Key Metrics:

- Premiums paid by policyholders
- Fee income

Cost Drivers:

- Payouts to healthcare providers – insurance companies often negotiate directly with healthcare providers on reimbursement rates; billed price is typically paid at a discount
- Reinsurance
- Labor
- Technology (e.g., claims management technology)
- SG&A

Important Considerations / Trends:

- Digital transformations for consumers
- Industry has been affected by healthcare reform – increases in bottom line due to pressure to eliminate / lower coverage caps, reduce denials based on pre-existing conditions, and increase in insured population
- Firms differentiate based on broader network coverage, lower administration fees, steeper discounts on provider charges, and add-ons (e.g., case management)
- Price comparisons occur on exchanges / online marketplaces
- Emerging tech in claims management (e.g., Lemonade) makes digital-first insurance providers user-friendly and expedient
- Highly regulated industry

Overview: Industry encompasses originator drug producers, generic drug manufacturers and pure R&D firms. Customers can be doctors / providers or patients. It can take years to get a new drug approved and on the market. Companies often expand by acquiring a smaller company with a promising drug. Experimental drugs have to typically pass three phases of trials, with a 80%, 30%, and 30% success of passing each ($0.8 \times 0.3 \times 0.3$ total chance of success)

Revenue Drivers:

- Drug sales – difference in price comes from OTC / prescription drugs
- 3rd party payer reimbursement
- Government subsidies

Key Metrics:

- # of patented drugs
- Market sizing: total population \square % with illness \square % diagnosed \square market share of drug \square price of one dose * # of doses per year

Cost Drivers:

- High R&D
 - Suck cost of drug is not approved
- Regulatory and legal costs (e.g., patents, FDA)
- Manufacturing and production
- Distribution and sales
- Labor

Important Considerations / Trends:

- High growth in emerging markets
- Patents protect drugs for up to 20 years
- First mover advantage is real
- FDA approvals last 5 years with a high failure rate of drugs – many drugs fail during three phases
- Increasing demand for pricing transparency

Overview: Two types: cargo and commercial. Within commercial airlines segments include international vs national vs regional, and low cost vs legacy carriers. Two main traveller types: leisure (price sensitive) vs business (price inelastic). Industry faces extensive price competition and government regulation.

Revenue Drivers:

- Ticket fees
- Extra baggage fees
- In-flight purchases (e.g., food and beverages, entertainment)
- Tiered amenities (e.g., extra leg room seats)
- Ancillary revenue (e.g., reservation changes)
- Cargo fees

Key Metrics:

- Load factor = % of aircraft capacity filled by paying passengers

Cost Drivers:

- Gate leases
- Fuel
- Aircraft leases
- Insurance & Legal fees
- Maintenance / equipment
- Crew & ground staff salaries
- In-flight consumables (e.g., food and beverages, entertainment)
- Marketing
- Technology (e.g., booking system, app maintenance)

Important Considerations / Trends:

- Major consolidation within industry due to high fixed costs
- Fuel is becoming increasingly expensive
- Airlines use rewards programs (miles) and partnerships with hotels, car rentals and credit card companies to increase loyalty / differentiate
- Low cost carriers (e.g, Southwest, Spirit) creating price wars
- Reduce costs by fuel efficiency opportunities and route optimization

Overview: The industry encompasses the creation, licensing and/ or distribution of video, audio, and print media. Major disruption in the industry due to digital content. Disruptors include online news and online streaming services (e.g., Netflix, Hulu).

Revenue Drivers:

- Advertising (largest revenue category, especially for media offered free to customers)
- Subscriptions (tiered vs. Single membership fee)
- Licensing fees
- One-time purchases
- Merchandise

Key Metrics:

- Viewership / Readership

Cost Drivers:

- Media production (e.g., studios, equipment, printing presses)
- Talent (e.g., actors, editors, writers)
- Other labor (e.g., sales staff)
- Marketing
- Technology – especially for digital media
- Content acquisition (e.g., sporting event rights [Olympics, Superbowl] and exclusive show rights)

Important Considerations / Trends:

- Very consolidated due to history of conglomerates
- High importance of network effects to grow viewership / readership
- Most media has shifted to omnichannel presence
- Digital media has low barriers to entry, creates downward pressure on ad prices, and increases piracy risks
- Consumer and advertising spending is highly influenced by macroeconomic conditions
- Augmented reality / virtual reality technology

Overview: Oil & Gas is a stage based industry. Majority of market share tied to upstream operations.

- Upstream: Drilling and extracting raw oil (usually contracted out)
- Midstream: Transporting the raw oil
- Downstream: Refining and selling the finished petroleum products

Revenue Drivers:

- Upstream: Crude oil price
- Midstream: Transportation fees
- Downstream: Sale of gasoline, oils, fuel, and other petroleum products

Cost Drivers:

Upstream

- Exploration (e.g., land leases)
- Rig rates (usually daily) & rig utilization
- Drilling and extraction equipment & labor

Midstream

- Crude oil
- Storage
- Transportation
- Pipeline construction

Downstream

- Crude oil
- Refinery equipment & labor

Important Considerations / Trends:

- Organization of Petroleum Exporting Countries (OPEC) accounts for ~44% of global oil production and ~73% of the world's proven oil resources. OPEC effectively controls the price of oil.
- Tech (e.g., fracking) increases output and pushes costs down
- Liability for spills
- Regulatory approval

Overview: Provides products and services primarily used to produce other goods. Main sectors include electrical equipment / components, heavy machinery, construction, and aerospace and defense. Main customers include the government, OEMs, and B2B. Market is very consolidated, functioning as an oligopoly.

Revenue Drivers:

- Volume (driven by product type and demand)
- Contract length
- Bundling of product and services (e.g. maintenance package)
- Customization (made to order vs. large batch)
- New technologies and products (automation)

Key Metrics:

- Capacity utilization
- Inventory turnover
- Book-to-bill ratio

Cost Drivers:

- Manufacturing – capital intensive (can be leased / owned)
- Raw materials
- Labor – often unionized
- R&D
- Marketing & trade shows
- Distribution & inventory management

Important Considerations / Trends:

- Tied to gross domestic product (GDP) growth, production and capacity utilization, and economic indicators
- Greatly impacted by recession, as drop in overall capital and construction spend decreases
- Local assembly is cheaper because it's easier to ship (industrials are heavy – expensive shipping)
- Push to just-in-time inventory
- Often commoditized, with high switch costs

Overview: Industry consists of grocery chains, online grocery delivery, and smaller, local grocery stores. Amazon (through Wholefoods) and other online grocery (Instacart, etc.) caused major disruption in the industry by lowering operating costs and passing savings to customers.

Revenue Drivers:

- Traffic (foot / online)
- Conversion rate (visits vs purchases)
- Frequency of purchase
- Basket size (driven by consumer spending)
- Popularity of certain items
- Margin retailer makes vs. distributor vs. manufacturer

Key Metrics:

- Sales per square foot
- Inventory turnover
- Total revenue = traffic * conversion rate * basket size * avg. price per item
- Spoilage rate

Cost Drivers:

- Cost of goods sold
- Returns
- Inventory management (storage and stock)
- Distribution
- Delivery
- Labor (workforce, in-store employees)
- Real estate
- Online retail – technology cost

Important Considerations / Trends:

- High competition, low margins
- More private label products (i.e Trader Joes' products are considered very popular)
- Use of big data to tailor the shopping experience – added focus on customer experience
- Home delivery services, such as Instacart, and car-side pickup are majorly disrupting traditional industry
- Store layout and shelf placement are huge factors in customer sale

Overview: Non-profit organizations serve the public interest and are exempt from federal income taxes. However, many non-profit organizations are organized in a similar way to for-profit companies and have a C-suite, Board of Governors, by-laws and annual meetings. Examples of non-profit organizations include non-governmental organizations (NGOs), charitable organizations, religious institutions, educational departments and organizations, social workers, health and human services, activists, and community developers.

Revenue Drivers:

- Donations
- Funds
- Ticket sales (for charity events)
- Memberships (for museums or other similar organizations)
- Tuition (for educational institutions)
- Government subsidies
- Endowment returns

Cost Drivers:

- Labor (workforce, employees)
- Real estate
- Technology cost (website/app maintenance)

Important Considerations / Trends:

- Growing emphasis on companies to incorporate more corporate social responsibility initiatives and non-profit arms into their organizations
- Growing emphasis on environmentally-conscious initiatives and sustainability
- Firms are often evaluated by donors on metrics related to what percentage of profit goes towards cause (vs. Reinvestment in the non-profit)

Overview: Private Equity (PE) firms are a source of investment capital for companies. They purchase private companies or acquire public companies to make them private, often using large amounts of debt. The goal of a PE firm is to invest in companies, create value through margin expansion, revenue growth etc., and then exit via sale, IPO, etc. to generate returns for their investors ("LPs"). PE Firms make money via fees and carried interest. Examples include Blackstone Group, Carlyle Group, KKR, etc.

Revenue Drivers:

- Fees on committed capital (0-3%, average 2%)
- Carried Interest – % of interest kept by PE firm after hurdle rate (target investment return of LPs) is exceeded
- Other consulting/advisory services
- Portfolio companies can cover all industries but may enjoy revenue through cross-selling with other portfolio companies

Key Metrics:

- EBITDA / Cash EBITDA
- Revenue

Cost Drivers:

- Deal Fees
- Salaries
- Overhead costs
- Due Diligence
- Portfolio companies can cover all industries but have very large interest expenses from the loans utilized to take the company private

Important Considerations / Trends:

- Two main types of PE firms: active (give operational support to management and increase synergies) and passive (depend on management to grow company)
- Exit opportunities include selling its position to a competing firm or M&A with another company, putting its private companies up for IPO, or shutting down and selling off assets
- PE firms create value through deal origination and execution, and through portfolio oversight and management
- Typical target companies for PE firms are sourced through networks of high-ranking partners and based on investment theses for value creation
- Venture Capital is similar to Private Equity but targets young companies and value revenue over profitability. VC does not use debt to finance acquisitions (e.g., startups / early stage)



Feedback Form



Case Interview Feedback

Case setup and structure	Rating (1-3)*
Listens to the case prompt carefully; asks appropriate clarifying questions	
Clearly understands and defines the problem/question; breaks problems into components	
Takes a well-structured approach to solving the client's problem	
Shows a deep/case-specific understanding of the client's problem and industry	
Please provide specific feedback to support your ratings:	
Quantitative Abilities	Rating (1-3)*
Structures quantitative analyses in a clear and logical manner	
Simplifies complex math to minimize time and possible errors in calculation	
Performs math calculations with minimal errors	
Please provide specific feedback to support your ratings:	

***1- Needs Improvement/Coaching, 2- Good; needs some coaching, 3- Excellent**

Case Interview Feedback

Communication and Team Skills	Rating (1-3)*
The candidate clearly communicates their ideas in a structured and engaging manner	
Good listener; receives coaching in an open and thoughtful manner	
Projects confidence when providing recommendations and solutions	
Friendly and personable in case discussions; appears relaxed and confident	
Please provide specific feedback to support your ratings:	
Business Acumen and Creativity	Rating (1-3)*
Demonstrates strong business acumen in structuring client analyses	
The candidate is able to drive the discussion in a hypothesis-driven and logical manner	
Provides numerous creative solutions to client problems; structures brainstorm	
Shows strong business judgment and pragmatism when making their recommendations	
Please provide specific feedback to support your ratings:	

***1- Needs Improvement/Coaching, 2- Good; needs some coaching, 3- Excellent**

Case Interview Feedback



Please provide an overall rating of the candidate based on the case (circle one):		Needs improvement	Good	Excellent
Strengths (circle 2)		Weaknesses (circle 2)		
Framework / Structure	Creativity/insights	Framework / Structure	Creativity/insights	
Analytics / Data Interpretation	Driving the Case	Analytics / Data Interpretation	Driving the Case	
Qualitative Analysis	Creativity/insights	Qualitative Analysis	Creativity/insights	
Synthesizing	Conclusion	Synthesizing	Conclusion	

Please provide any other specific feedback:



Practice Cases

List of Cases

Legend:



Benchmark



MCA
NYU STERN'S MANAGEMENT
CONSULTING ASSOCIATION

#	Case Name	Led By	Quant	Structure	Case Type	Industry	Page #
1	Chococo	Interviewer	4	6	Market Entry	Consumer Goods	43
2	The Pricing Games	Interviewer	5	7	Product Pricing	Technology	48
3	Stance at a Distance	Interviewee	4	7	Cost Reduction	Education (Public Sector)	58
4	Drinks Gone Flat	Interviewer	7	6	Revenue Growth	Retail	72
5	Apple of My Eye	Interviewee	7	6	Market Entry	Food and Beverage	80
6	Tres Burritos	Interviewer	5	8	Profitability	Restaurant	88
7	Men's Extra Comfortable Essentials	Interviewer	8	6	Growth Strategy	Consumer Goods	97
8	Adventure Capital	Interviewer	8	5	Investment Decision	Archaeology	107
9	All Night Long	Interviewee	7	4	Cost/Benefit Analysis	Entertainment	115
10	Steel Co.	Interviewee	7	7	Cost Reduction	Industrial Goods	123
11	GGC Health	Interviewee	6	8	Revenue Growth	Healthcare	130
12	Gassy Convenience	Interviewee	7	5	Opportunity Assessment	Retail & Tech	139
13	Nook Co.	Interviewee	8	7	Private Equity	Hospitality	149
14	Apartment Co.	Interviewee	7	8	Profitability	Real Estate	161
15	Sternofi	Interviewer	8	6	M&A	Pharmaceutical	172
16	Cups	Interviewer	8	7	Opportunity Assessment	Consumer Goods	179
17	Fungicide	Interviewer	7	9	Profitability/ Operations	Industrial Products	194
18	Hybrid Work Model	Interviewee	8	8	Cost / Change Management	Entertainment	204
19	Toto Foundation	Interviewer	7	8	Opportunity Assessment	Non-Profit	214
20	WiFi in the Sky	Interviewee	9	7	Market Entry	Airline	224
21	Take Your Pills!	Interviewee	9	7	Revenue growth	Pharmaceutical	234
22	Great Burger	Interviewer	8	9	M&A	Food and Beverage	244
23	Uranus Co.	Interviewee	9	7	Market Entry	Travel/Hospitality	255
24	Green Dreamz	Interviewee	9	8	Growth strategy	Retail	266
25	Jimmy's Dilemma	Interviewee	9	9	Investment Decision	Recruiting	281
26	Dr. Stern's Botanicals	Interviewer	8	7	Profitability	Consumer Goods	292
27	Mord Motor Co	Interviewer	7	8	Market Entry / Product Mix	Automotive	300
28	Curling and Careers	Interviewer	8	7	Operations	Non-Profit	310
29	Center Stage	Interviewer	8	5	Market Entry	Theatre / Producing	318
30	Pharmaggedon	Interviewee	7	9	M&A	Pharmaceutical	329

Authors: Justin Sable, Sam Knopf, Molly Joyce (Stern '20)
[Interviewer-Led]

Quant: 4
Structure: 6

Case Prompt:

Chococo is a premium chocolate company based in Lima, Peru. The company has been operating profitably in its first few years of business and is now looking to expand into the United States. What should Chococo consider before launching this expansion?

Case Overview:

Industry: Consumer Goods

Case Type: Market Entry

Concepts Tested:

- Market Sizing
- Brainstorming

Overview Information for Interviewer:

- The case will test the candidate on two concepts:
 - Market sizing. The first part of the case is to have the candidate estimate the addressable market size (\$).
 - Brainstorming. The second part of the case asks for potential qualitative risks and has the candidate determine the best channels with which to enter the US.
- **Note:** No final recommendation question exists at end.

Clarifying Information:

- **Time frame:** Chococo is looking to enter the US immediately.
- **Operations:** Currently, Chococo only operates in Peru and only sells chocolate in stores.
- **Pricing:** Chococo sells their bars for the same price as competitors.
- **Financials:** Chococo made \$100M in revenue this past year.
- **Market growth:** Premium chocolate industry has seen strong growth (>10%) for each of the past few years.

Interviewer Guide:

- **A Good Framework Will Mention:**
 - Market factors
 - Size of premium chocolate industry in US
 - Competition
 - Customer preferences
 - Chococo's capabilities
 - Capacity (manufacturing, resources)
 - Operations (distribution, marketing)
 - \$\$
 - Factors to consider upon entrance
 - Differentiators (organic, fair trade, quality, unique ingredients)
 - Channels (stores, online)
 - Regulatory issues (FDA, other US gov)
- **A Great Framework Will Mention:**
 - Additional factors to consider upon entrance
 - Competitor response
 - Opportunity cost to entering alt country
 - Additional channels/revenue sources
 - White-label (hotel, company gifts)
 - Chocolate of the month club / subscription service

Question #1: US Premium Chocolate Market Size

- What is the size of the premium chocolate industry in the United States?

Notes to Interviewer:

- This is an example response. Answers may vary as there are several ways to approach the addressable market size. If candidate estimates a market size that is significantly different than \$4B, gently guide candidate to pressure test assumptions. Analysis can be done by gender or by age cohort.*

US Total Pop = 320 M	Male	Women
Gender (50/50)	160M	160M
% who purchase chocolate	30%	60%
% who purchase premium	20%	33%
Avg # of bars purchased per year	5	10
Avg price per chocolate bar	\$10	\$10
Total Market Size (\$ USD)	\$480,000,000	\$3,200,000,000

- Great answers will include assumptions of growth of the premium chocolate industry and how that will affect Chococo.
- Follow up question:** Chococo is comfortable moving forward if they reach \$100M revenue by year 2. Should they move forward with their market entry plans? *Candidate should estimate the percentage of the market Chococo would need to capture (~3% = \$100M/\$4B) and determine if that is feasible.*

Question #2: Risks of Entering

- What are some risks associated with entering the US market?
- **Note:** If the interviewee already discussed risks in framework or if time remains, ask them to come up with additional risks, dive deeper, assess severity and/or discuss ways to mitigate risk.

Notes to Interviewer:

- A **good response** may include:
 - Competition
 - Highly saturated market
 - Difficult to build brand awareness (need to differentiate brand)
 - Implementation
 - Establishing shipping connections
 - Obtaining FDA/government approval (timely, costly)
 - Production capacity (raw materials, labor, facilities, storage)
 - Relationship
 - Have to develop relationships with customers and vendors
 - Financial
 - Loans, currency exchange issues, lack of liquidity
- A **great response** will rank the risks in order of magnitude and provide examples of how to mitigate these risks. For example, they could label the risks high/medium/low and discuss ways to differentiate their brand such as package design, unique taste profile, etc.

Question #3: Channels of Entry

- Through what channels should Chococo enter the US market?
- **Note:** Push the candidate to create an exhaustive list. A strong candidate will rank these channels by certain criteria to come up with a prioritized list.

Notes to Interviewer:

- List of potential channels:
 - Online (own website or Amazon)
 - In retail stores (grocery or specialty chocolate)
 - Coffee shops
 - Chococo branded store
 - Alternative
 - Partnerships
 - Subscription services
- List of potential criteria to evaluate:
 - Ease of implementation (startup and continuous)
 - Financial return (margin)
 - Consumers reached and converted
- **A great response** will provide a final recommendation for best channel(s) to enter and may include a potential timeline or prioritization. Probe for recommendation if candidate has not provided or time permits.

The Pricing Games



Authors: Will Wang (Stern '19), Di Mo (Stern '19) **Firm Round & Case Style:** BCG Round 1
[Interviewer-led]

Quant: 5
Structure: 7

Case Prompt:

Your client is Next Level Gaming (NLG), a start-up in the E-sports and computer gaming industry based in Los Angeles, California. NLG is planning to launch its first game – an online, multiplayer role playing game that is unlike any existing franchise. Being a new player in the industry, NLG's CEO, Bobby Beck, has asked for your help in deciding its business model. The company is considering 3 alternatives: a subscription model where players pay a monthly fee; a retail model where players pay full price at initial purchase, and a free-to-play model where the game is free to play but charges players for in-game merchandise. How would you advise NLG to proceed?

Case Overview:

Industry: Technology

Case Type: Product Pricing

Concepts Tested:

- Market Sizing
- Revenue & Profitability Forecast

Overview Information for Interviewer:

- The case will test the candidate on 3 concepts:
 - Market sizing. The case starts by asking the candidate to estimate addressable market size in # of players
 - Profitability calculations. Candidate will be asked to calculate profitability under each of the 3 business models
 - Brainstorming. The case concludes by asking for qualitative factors to determine the optimal launch strategy

Clarifying Information:

- **Time frame:** NLG is looking to launch immediately.
- **Competition:** The online gaming industry is dominated by 3 major players who control 35%, 25%, and 20% share respectively. There is a long tail of smaller gaming companies.
- **Target Market:** Based on preliminary market research, NLG expects the majority of players to be between the ages of 21 to 40.
- **Geography:** NLG is planning to launch its game in the US only.
- **Platform:** NLG's game is compatible for both Apple and Windows computers
- **R&D Cost:** NLG spent 10 million USD to develop its first game (the candidate should recognize this as a sunk cost and not factor it into the decision)

Interviewer Guide:

- **A Good Framework Will Mention:**
 - Break down drivers of profitability for each of the 3 business models
 - Consider # of players acquired and \$ revenue per player
 - Consider fixed and variable costs including infrastructure (fixed) and customer acquisition (variable)
 - Factor in qualitative factors for each business model
 - Consider potential competitive responses
 - Consider customer acquisition costs and long-term retention rate of player base
 - Explore other sources of income such as merchandising
- **A Great Framework Will Incorporate:**
 - Potential for future expansion
 - Launch 2nd generation game
 - Expand to other platforms including mobile and console
 - Expand to geographies outside of US
 - Host E-sports tournaments

The Pricing Games: Market Sizing

Question #1: Addressable Market Size

- What factors would you consider to estimate the number of players NLG can target with its first game? How large is this player base in the US?

Notes to Interviewer:

- This is an example response. Good answers may vary as there are several ways to approach the addressable market size. If candidate estimates a market size that is significantly different from 10M, gently guide candidate to pressure test assumptions*

Factors	Age	0 – 20	21 – 40	41+
Population Size		80M	80M	160M
% who owns computers		50%	75%	75%
% who play computer games		25%	25%	5%
% who is willing & can afford to try new genre of games		30%	40%	10%
Total Addressable Market		3M	6M	~1M

The Pricing Games: Profitability

Question #2: Profitability Calculations

- What is NLG's expected first year profitability with each of the 3 pricing models?
- Show candidate exhibits 1 and 2

Math Solution:

Revenues:

Subscription: $10M * 10\% * \$10/\text{mon} * 12\text{mon}/\text{yr} = \mathbf{\$120 M}$

Retail: $10M * 12\% * \$60 = \mathbf{\$72 M}$

Free-To-Play: $10M * 50\% * 30\% * \$100 = \mathbf{\$150 M}$

Costs:

Subscription: $10M * 10\% * (\$50 + \$35) + \$5M + \$10M = \mathbf{\$100 M}$

Retail: $10M * 12\% * (\$22 + \$18) + \$5M + \$10M = \mathbf{\$63 M}$

Free-To-Play: $10M * 50\% * (\$13 + \$7) + 10M * 50\% * 30\% * \$10 + 5M = \mathbf{\$130M}$

Profits (Margin):

Subscription: $\$120 M - \$100 M = \mathbf{\$20 M (16.67\%)}$

Retail: $\$72 M - \$63 M = \mathbf{\$9.0 M (12.50\%)}$

Free-To-Play: $\$150 M - \$130 M = \mathbf{\$20 M (13.33\%)}$

Math Information:

- All information required for calculations can be found on Exhibits 1 & 2
- Guide the candidate towards the footnote in Exhibit 2 if he/she misses it as it contains critical information
- Interviewee should note that the absolute profit amounts for subscription and free-to-play are identical
- Strong candidates will calculate profit margins

Question #3: Qualitative Brainstorm

- What non-financial factors would you consider in the subscription vs. free-to-play business models?

Notes to Interviewer:

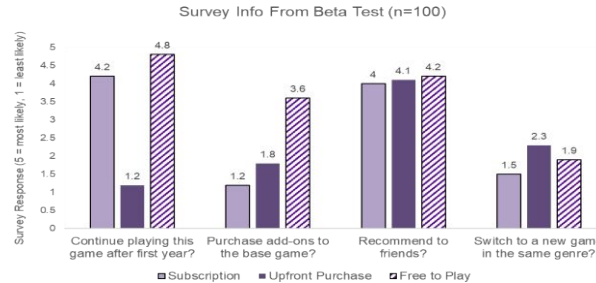
- *A strong candidate should display an organized structure while brainstorming. For example, grouping thoughts into mutually- exclusive buckets is a recommended practice. A strong candidate should mention, among other considerations:*
 - **Competitive response:** what if a new competitor launches a game in the same genre? How sticky is NLG's player base when faced with competition?
 - **Growth potential:** is there an opportunity for NLG to expand its product offering to attract more players? Potential paths for growth include:
 - New platform: expanding from PC to mobile or console
 - New geography: expanding outside of US
 - New game: launching 2nd generation game to create new content for players
 - **Alternate revenue streams:** can NLG explore alternate revenue streams such as merchandising? Can NLG participate in E-sports tournaments (contingent on reaching a large enough player base)
 - **Consumer preference changes:** will more players migrate to non-PC platforms such as mobile? Will a new generation of players lose interest in our game genre?

The Pricing Games: Chart Interpretation

Question #4: Qualitative Brainstorm

How does this information impact your outlook on the 3 different business models? [Show Exhibit 3].
After the candidate has processed the chart, push for a final recommendation.

Notes to Interviewer:



- Exhibit 3 contains qualitative information that candidates can use to guide their final recommendation.
- If the interviewee is unfamiliar with “Beta tests” in the video games industry, inform them that it is part of NLG’s market research to offer early trial experience to a select group of players
- Interviewee should realize that a higher value is not favorable for the last survey question
- Interviewee should note that the retail model would have low customer loyalty and low potential for additional revenue. The free-to-play and subscription responses indicate high levels of customer loyalty.
- A strong interviewee would comment on the statistical relevance of the survey as it has 100 responses, a statistically significant amount

Recommendation, Risks & Next Steps

- NLG's CEO, Bobby Beck, wants to meet for lunch to discuss your findings. How would you summarize your recommendation?

Recommendation:

- *The candidate may recommend either the subscription or the free-to-play business model. A strong candidate will display consistency based on his or her brainstorm from Q3 and cite relevant insights to support the recommendation, along with mentioning profit margins (if calculated) A strong candidate should also recognize short and intermediate-term risks and suggest tangible methods for mitigation.*
- *An example recommendation:*
 - "I recommend for NLG to pursue the free-to-play business model. This model captures the largest player base which puts NLG in a **strong position against competitive threats**. It also allows NLG to launch **future games**, expand to **new geographies**, or move into **other platforms** such as console or mobile. Even though short-term financial benefits are equivalent to that of subscription, the free-to-play model puts NLG in a more competitive position long-term."
 - "Key risks associated with free-to-play model is generating a sufficient percent of paying players and growing revenue per player. To mitigate this risk, I recommend designing two types of in-game purchases. Players can either pay to "beautify" in-game characters to improve aesthetic appeal; or, players can pay to expedite the levelling journey and save time from "grinding" through stages. These efforts will help NLG capture a sufficient segment of paying customers based on two sustainable value propositions."

The Pricing Games: Exhibit 1

Predicted Revenues

	Subscription	Retail	Free-To-Play*
Target Audience	10M	10M	10M
Predicted Market Share	10%	12%	50%
% Buy In-Game Content	-	-	30%
Monthly Subscription Fees	\$10	-	-
Retail Price	-	\$60	-
Annual In-Game Purchases	-	-	\$100

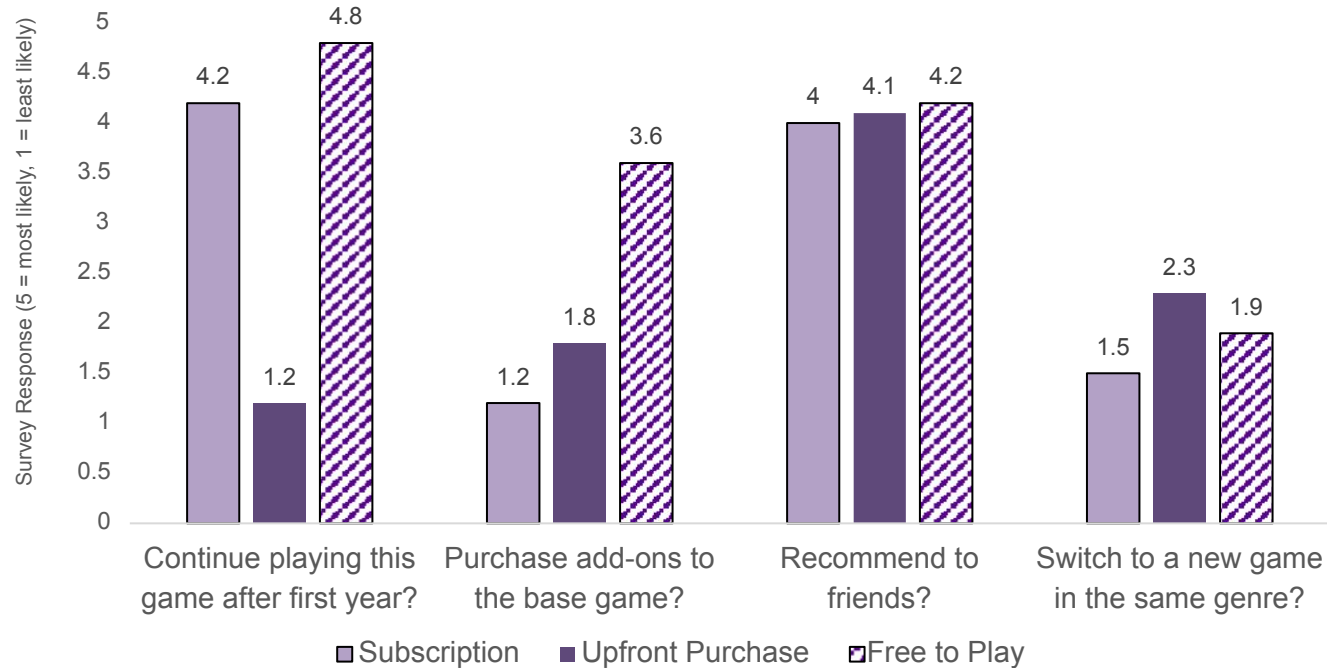
Cost Structure

	Subscription	Retail	Free-To-Play*
Annual Variable Cost	\$50	\$22	\$13
Customer Acquisition Cost	\$35	\$18	\$7
Annual Product Dev	\$5 M	\$5 M	\$5 M
Server Costs	\$7 M	\$7 M	\$7 M
Other Fixed Costs	\$3 M	\$3 M	\$3 M

*Per customer costs in the table are for all customers, including non-paying customers.
Paying customers incur an additional average variable cost of \$10

The Pricing Games: Exhibit 3

Survey Info From Beta Test (n=100)



Stance at a Distance



Authors: Natalie Ashbridge, Cortne Edmonds, Stan Tunstall (Stern '21) **Firm Style & Round:** BCG Round 1
[Interviewee-Led]

Quant: 4
Structure: 7

Case Prompt:

Our firm has just wrapped up a project with The Stance School, which offers K-12 education in Philadelphia, to help them with developing two major strategic initiatives. The first initiative, which is the priority, is an e-learning platform for their students to facilitate remote learning, in response to a global pandemic that resulted in students having to take classes from home for the last few months of the school year. The other initiative is a professional development tool to help the teachers with developing and effectively providing a remote curriculum to the students. The team that worked on the strategic planning determined that the cost would be \$1M. You are now tasked with determining how these initiatives will be funded within the next year and whether or not the school should move forward with this project.

Case Overview:

Industry: Education (Public Sector)

Case Type: Reducing Costs

Concepts Tested:

- Accounting
- Brainstorming
- Creativity

Overview Information for Interviewer:

This case can also be given in an interviewer-led style, following the math and exhibit question order. However, in an interviewee-led case, it will likely flow this way naturally.

Interviewee should be able to...

- Identify the major sources of funding and expenses for a school
- Complete basic math efficiently
- Maintain structure and rigor throughout the brainstorms that flow out of the funding analysis

Key case steps:

- Determine proper levers to pull for school funding and drive in a logical direction
- Evaluate revenue and cost through a pro-forma income statement and quantify cost-savings from provided data
- Assess qualitative risks and challenges of cost-cutting and implementation

Clarifying Information:

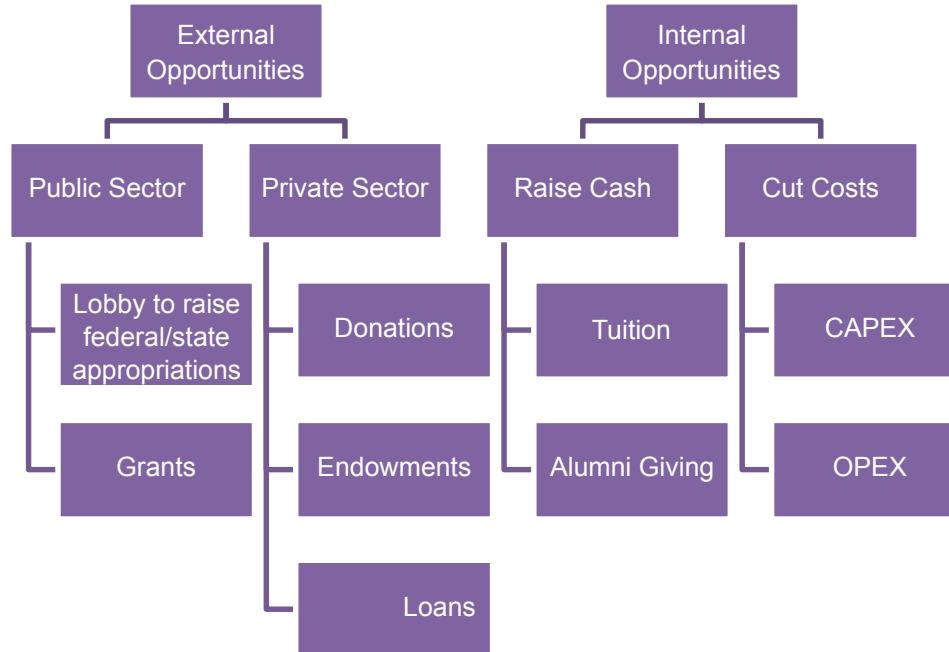
- **Timeframe**
 - Currently it is 2020 H1 (First Half)
 - The initiatives will be launched at the start of the 2020-2021 school year
 - The last income statement we have is from FY '18
- **School Details**
 - The school is a private school in a major metropolitan city in the US
 - The school consists of a lower and upper school, educating levels K-12
- **Student Demographics**
 - There are 1000 students in the school
 - Students are primarily middle-upper middle class
- **Funding Questions**
 - ~10% of the students are on scholarship
 - No need to consider ongoing costs for the program. With the \$1M in savings per year, that should also cover ongoing run-rate of the initiatives.
 - Endowment is allocated for specific purposes and to ensure that the school is funded in the long-term. The endowment would not be an option for funding the initiatives.

Interviewer Guide:

- **Necessary Information that should be given only when specifically asked for by interviewee:**
 - To evaluate profitability of the school (Provide Exhibits 1 & 2 together)
 - Exhibit 1 – Pro Forma Income Statement
 - Exhibit 2 – Historical Tuition Data across Competitor Schools
 - To calculate cost-savings from staff salaries
 - Exhibit 3 – Roles, Salaries, Headcount, and Benchmark against Competitor Schools
 - Exhibit 4 – Specific Roles, Salaries, Headcount, and Goal Headcount
- **Additional Guidance / Case Flow**
 - After the initial structure, guide candidate to understand the school's revenue and expenses and explore internal funding opportunities (faster to achieve given timeframe)
 - Provide exhibits 1 and 2 together
 - After reviewing exhibits 1 and 2, guide candidate to evaluate costs (specifically salaries) if the candidates does not arrive there on their own
 - Provide exhibit 3 and have them determine where they see opportunities
 - If the candidate notices the salary total on Exhibit 1 differs from the total of salaries on Exhibit 3. This is because the income statement line item includes additional benefits offered, which is usually ~50% of the annual salary for a role. The candidate likely won't as that math is long and beyond the scope of the question
 - Provide exhibit 4 with specific roles outlined by the school and have them calculate the savings
 - Conduct the brainstorming questions (can be done interviewer-led, if necessary)
 - Wrap up with conclusion

Stance at a Distance: Framework Guide

Below is an example of a good framework



- This is just an example of a suitable framework. A profit tree is also an appropriate approach to use
- Make sure to push back on interviewee to generate additional ideas to raise the money to fund the initiatives

Stance at a Distance: Math Question 1

Math Question:

- What conclusions or insights can be drawn from examining The Stance School and its competitors' line items?

Math Solution:

\$ thousands	The Stance School	Rittenhouse Prep	Chestnut Hill Day School
Tuition & Fees	\$35,000 (100%)	\$14,500 (100%)	\$29,000 (100%)
Grant Revenues	5,250	2,175	4,350
Student Services	\$5,250 (15%)	\$2,175 (15%)	\$3,480 (12%)
Salaries, Wages, & Benefits	12,250 (35%)	3,625 (25%)	6,670 (23%)
Scholarships & Fellowships	10,500 (30%)	5,800 (40%)	11,600 (40%)
Maintenance Expense	\$7,000 (20%)	\$2,900 (20%)	\$7,250 (25%)

*The Stance School is currently receiving 100% of eligible grants

*Grants are not allocated to school expenses

Evaluation Criteria:

- Poor Candidate: Attempts to compare expense items in absolute terms. Candidate rounds expense items aggressively and doesn't offer any deeper insights after figuring out which expenses are out of line with competition.
- Good Candidate: Examines exhibits 1 and 2 and comes to the conclusion that Stance needs to focus on cutting costs rather than topline growth. Works through math quickly and offers insight into why they'd like to know more about salaries.
- Great Candidate: In addition to what the good candidate does, they drive the case by asking for specific additional information such as average salary by job function, headcount, or staff growth rates (to compare to enrollment growth from exhibit 2).

Math Information:

- Candidates should examine exhibit 2 and realize that the school can not raise tuition without impacting enrollment.
- Exhibit 1 informs them that Stance is not eligible for additional grants (Footnote 1).
- All expenses are a proportion of Tuition & Fees (Footnote 2).
- If candidates round within reason, they should still reach the conclusion that salary expenses are out of line with competitor schools, in addition to being the highest line item
- Scholarships are the second largest expense. If candidates consider reducing scholarships, inform them that Stance will receive significantly less grant funding than they currently receive.

Stance at a Distance: Math Question 2

Math Question:

- The school has determined that these would be the positions they would look to reduce to be able to reallocate funds for the initiatives. Calculate annual cost savings if the school were to match the benchmark ratio of students to position for these 5 positions (refer to Exhibit 4)

Math Solution:

Position	Salary	Headcount	Benchmark Students/Position	Goal #	Difference	Annual Savings
Administrative Assistant	\$45,000	3	500:1	2	1	\$45,000
Custodian/Maintenance Staff	\$40,000	17	100:1	10	7	\$280,000
Guidance Counselor	\$65,000	15	100:1	10	5	\$325,000
IT Technician	\$60,000	6	200:1	5	1	\$60,000
Librarian	\$50,000	8	250:1	4	4	\$200,000
Total		49		31	18	\$910,000

The school will be short of it's \$1M goal by \$90,000

Evaluation Criteria:

- Poor Candidate – Will struggle with the math; this is basic division, subtraction, and multiplication so the candidate should go through the math smoothly
- Good Candidate – Will determine how much will be saved by matching the benchmark number of roles per student that can be reallocated to the initiatives.
- Great Candidate – Will say the above and will also move into brainstorm 1 naturally (considering risks and potential costs that would be incurred from cutting these positions)

Math Information:

- Number of Students in the School: 1000
- Funding Goal: \$1M

Brainstorm 1:

- What are the potential risks and associated costs that you anticipate when eliminating these roles?

Notes to Interviewer:

Interviewer should prompt candidate to do this brainstorm if they don't do it on their own following the calculations and analysis of exhibit 4

Common Responses:

- Financial Costs
 - Severance costs
 - Pension costs
 - Union negotiations
- Non-Financial Costs:
 - Time frame to be able to eliminate roles and how that impacts annual budget/funding
 - Negative PR associated with lay-offs
 - Potential decline in enrollments
 - Negative outcomes for mental health of the student population

Evaluation Criteria:

- Poor Candidate: Laundry list with no structure
- Good Candidate: Structured, but only gets 4-5 ideas and no creative ideas
- Great Candidate: Structured, with at least 9 ideas and 1-2 ideas that are creative/unique to the candidate

Stance at a Distance: Brainstorm 2

Brainstorm:

- What are some ways that The Stance School could close the funding gap in order to reach the \$1M goal?

Notes to Interviewer:

Common Responses:

- Lobby for additional appropriations from the state
- License the teacher training platform or student learning platform to other schools
- Offer remote tutoring or additional classes on the platform for a fee
- Solicit donations from students, parents, alumni, or other external parties
- Target high net worth alumni to donate a gift (offer rooms or awards named after them)

Evaluation Criteria:

- Poor Candidate: Laundry list with no structure
- Good Candidate: Structured, but only gets 4-5 ideas and no creative ideas
- Great Candidate: Structured, with at least 9 ideas and 1-2 ideas that are creative/unique to the candidate

Stance at a Distance: Recommendation

Recommendation:

- **Move forward with project:**
- Eliminate the 5 roles, resulting in \$910K of savings per year
- Additional funding can be sourced through alternative routes to make up for the remaining \$90K/year
- **Do not move forward with project**
- Role elimination will not generate 1M; school needs to get in line with benchmarks before it moves forward with any projects

Risks:

- Negative PR from lay-offs
- Decline in enrollments due to reduced student-staff ratios
- Negative performance implications (unlikely as this role is not as student-facing as the teacher roles)
- Missing out on key technology for teachers and opportunity to help modernize school
- Negative impacts to school by lay-offs of staff

Next Steps:

- Ensure no negative impact to enrollments, which impact revenue
- Start contract reviews and process of eliminating roles to finalize budget and savings reallocation for next school year
- Conduct in-depth analysis on the pros and cons of eliminating roles
- See if there are any additional ways to generate revenue

Bonus: Guide to an excellent case

- The candidate logically concludes that within a year, the fastest way to funding is through cost-cutting rather than increasing revenue
- When math is done and candidate recognizes that there is a funding gap, the candidate will refer to their original framework to see if there are other ways to close the gap to move the initiatives forward

Stance at a Distance: Exhibit 1

Income Statement Line Items (FY '18)

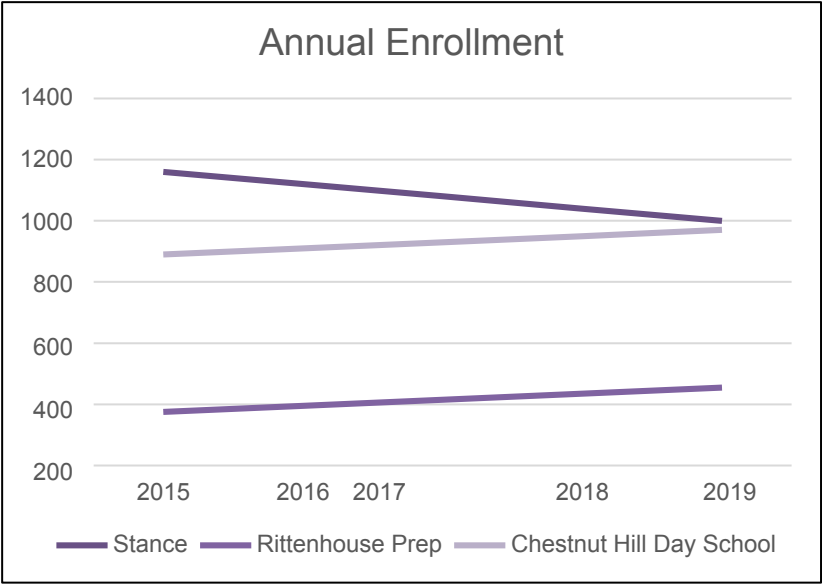
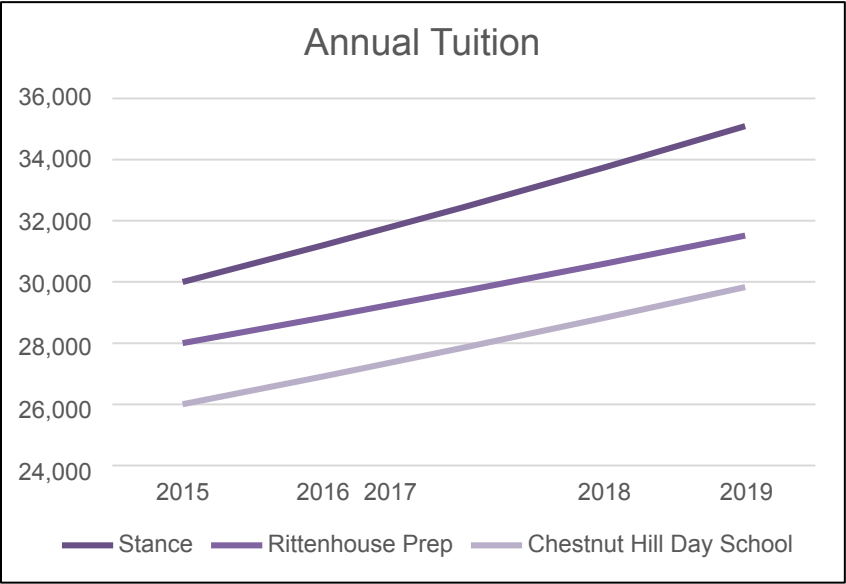
\$ thousands	The Stance School	Rittenhouse Prep	Chestnut Hill Day School
Tuition & Fees	\$35,000	\$14,500	\$29,000
Grant Revenues	\$5,250	\$2,175	\$4,350
Student Services	\$5,250	\$2,175	\$3,480
Salaries, Wages, & Benefits	\$12,250	\$3,625	\$6,670
Scholarships & Fellowships	\$10,500	\$5,800	\$11,600
Maintenance Expense	\$7,000	\$2,900	\$7,250

*The Stance School is currently receiving 100% of eligible grants

*Grants are not allocated to school expenses

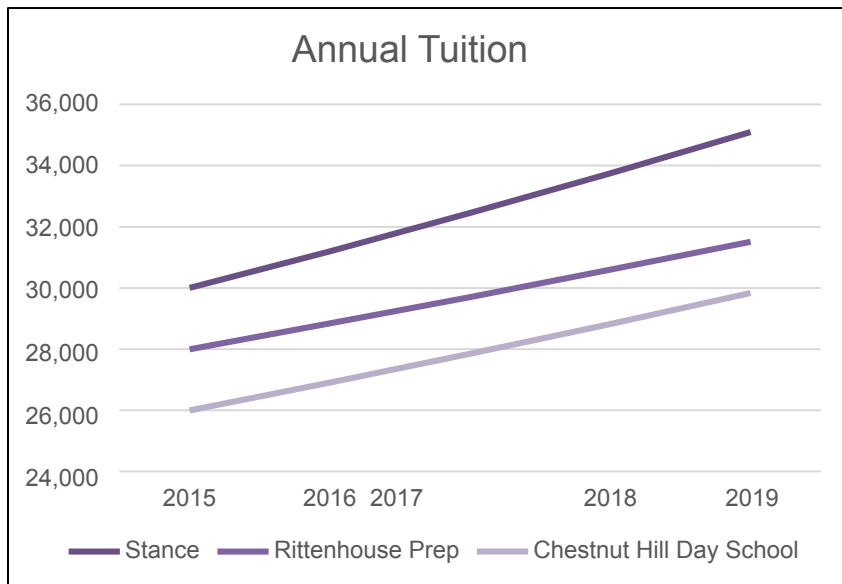
Stance at a Distance: Exhibit 2

Stance Tuition and Enrollment Information, with Benchmarks to Competitor Schools



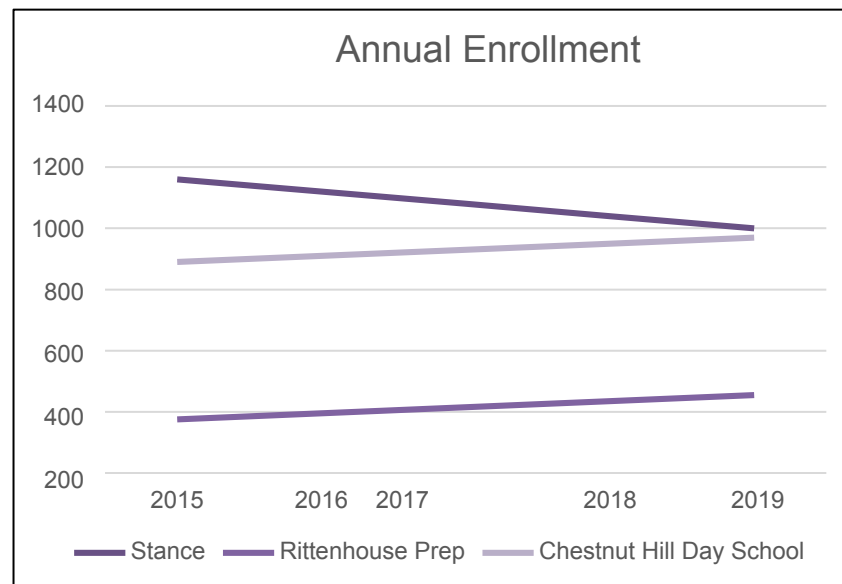
Stance at a Distance: Exhibit 2 Notes for Interviewer

Stance Tuition and Enrollment Information, with Benchmarks to Competitor Schools



Stance has the highest tuition and the highest rate of increase (30k, 4%).

Because tuition is the highest of the four schools, you can't increase it so candidate should look for ways to cut costs



Stance enrollment has declined as tuition has gone up. Candidate should infer that people have left Stance to go competitor schools and should look for other ways to cut costs

Stance at a Distance: Exhibit 3

Positions, Salaries, Headcount, with Benchmarks to Competitor Schools

Position	Salary	Headcount	Average Headcount at Competitor Schools
Administrative Assistant	\$45,000	3	2
After-School Program Coordinator	\$40,000	4	5
Assistant Dean	\$80,000	2	2
Custodian/Maintenance Staff	\$40,000	17	10
Dean	\$90,000	1	1
Food Service Specialist	\$35,000	10	12
Guidance Counselor	\$65,000	15	9
IT Technician	\$60,000	6	3
Librarian	\$60,000	8	5
Nurse	\$50,000	4	5
Teacher	\$75,000	50	55
Teacher Aide	\$40,000	25	20

Stance at a Distance: Exhibit 3 Notes for Interviewer

Positions, Salaries, Headcount, with Benchmarks to Competitor Schools

Position	Salary	Headcount	Average Headcount at Competitor Schools
Administrative Assistant	\$45,000	3	2
After-School Program Coordinator	\$40,000	4	5
Assistant Dean	\$80,000	2	2
Custodian/Maintenance Staff	\$40,000	17	10
Dean	\$90,000	1	1
Food Service Specialist	\$35,000	10	12
Guidance Counselor	\$65,000	15	9
IT Technician	\$60,000	6	3
Librarian	\$60,000	8	5
Nurse	\$50,000	4	5
Teacher	\$75,000	50	55
Teacher Aide	\$40,000	25	20

Key Insights Interviewer Should Look For:

Candidate may jump into doing math, but the goal is to look qualitatively to determine which positions they would focus on for savings and provide a rationale. Make sure they focus on roles where the school is: 1) over-hired relative to competitors; and 2) would have minimal impact on the academic performance of the students.

Evaluation Criteria:

- Poor Candidate: Will pick roles based on what makes the most savings without any qualitative rationale
- Good Candidate: Will note that the school is over indexed in non-educator positions relative to similar school districts and will focus on identifying a few of those roles that they would want more information
- Great Candidate: Will say the above but also deeper insights: note that there are risks in eliminating these roles and what they are. Will move toward asking for data that helps them to understand if there is a good number of these roles that a school should have in order to not affect school performance

Stance at a Distance: Exhibit 4

Benchmark Ratio of Students to Headcount

Position	Salary	Headcount	Benchmark Ratio of Students to Headcount
Administrative Assistant	\$45,000	3	500:1
Custodian/Maintenance Staff	\$40,000	17	100:1
Guidance Counselor	\$65,000	15	100:1
IT Technician	\$60,000	6	200:1
Librarian	\$50,000	8	250:1

Drinks Gone Flat

Interviewer-led

Quant: 7
Structure: 6

Case Prompt:

The beverage department of a regional supermarket has seen a drop in revenue over the last year and has hired your firm to determine the cause of the decline and recommend ways to reverse the trend.

Case Overview:

Industry: Retail

Case Type: Revenue Growth

Concepts Tested:

- Pricing
- Brainstorming

Overview Information for Interviewer:

- Interviewer should let the interviewee drive the case and offer up information / exhibits only when asked.
- The case is a good test of time management of the interviewee. It can be completed in under 15 minutes.
- A good candidate will remain high level, only drilling down after having determined the interviewer has the asked-for information and not wasting time where there is no information.

Clarifying Information:

- Client is a leading regional grocer within the southeastern U.S.
- Competitive landscape has not changed in the last year
- Revenue decline is specifically within the beverage segment
- Client wants to find the cause of the declining revenue and recommendations for how to stop the decline

Interviewer Guide:

A Good Framework Will:

- Focus on revenue and its levers of price and quantity, staying away from costs
- Contain creative recommended options for brainstorming discussion to reverse the revenue decline trend
- Incorporate knowledge of existing marketing frameworks such as the 4P's

Necessary Information that should be given only when specifically asked for by interviewee:

- Exhibit 1
 - Provide when interviewee asks specifically for revenue / sales numbers segmented by beverage product category
- Exhibit 2
 - Provide after interviewee determines revenues are only declining in sodas and asks for further segmented information by brand

Drinks Gone Flat: Interviewer Guide to Exhibit 1

	Gallons (MM)*		Price / gallon (\$)*		Cost / gallon (\$)	
Category	2014	2015	2014	2015	2014	2015
Sodas	100	120	0.9	0.7	0.3	0.3
Waters	20	22	0.7	0.65	0.2	0.2
Others	11	10	4	4.5	3.9	3.9

Notes to Interviewer:

- Revenue calculations:
 - Sodas – 2014: $100 \times .9 = \$90$ 2015: $120 \times .7 = \$84$ Change = $-\$6M$
 - Waters – 2014: $20 \times .7 = \$14$ 2015: $22 \times .65 = \$14.3$ Change = $+\$0.3M$
 - Other – 2014: $11 \times 4 = \$44$ 2015: $10 \times 4.5 = \$45$ Change = $+\$1M$
- Interviewee should notice that decline in beverage revenue is only from decline in sodas. This should prompt the interviewee to drive the case to further segmenting soda revenues

Drinks Gone Flat: Interviewer Guide to Exhibit 2

	Gallons (MM)*		Revenue (\$M)*	
Category	2014	2015	2014	2015
Brand A	50	30	50	30
Brand B	25	30	25	30
Value Brand	25	60	15	24

Notes to Interviewer:

- Interviewee should notice the decline in revenue for Brand A immediately. Interviewee should also notice the decline in volume for Brand A and the large increase in volume for the Value Brand. This should prompt the interviewee to calculate the price change for each of the brands
 - Brand A – 2014 and 2015 price of \$1
 - Brand B – 2014 and 2015 price of \$1
 - Value Brand – 2014 Price: $15/25 = \$0.60$; 2015 Price : $24/60 = \$0.40$

Drinks Gone Flat: Brainstorming

Question #2:

The client would like to hear your recommendations for how to reverse the decline in revenue of the beverage segment.

Notes to Interviewer:

A great candidate will not need prompting of this question, and will drive the case forward remembering that recommendations for reversing the declining revenue were a part of the prompt

- Upon determining that the value brand is causing the overall decline in the beverage segment, a great candidate will move the case forward with recommendations

Objective for the interviewee would be to be able to provide a number of recommendations and stay structured while doing so

- Possible option would be to organize brainstorming recommendations around 4P's
 - Price
 - Promotion
 - Product
 - Placement

Drinks Gone Flat: Recommendation

Recommendation:

- Adjust price of Value Brand
- Improve differentiation from Brand A and Value Brand

Risks:

- Alienating value brand customers with price change
- Alienating suppliers of Brand A or B with any price changes of those brands

Next Steps:

- Explore pricing strategies for value brand
- Explore bundling opportunities to increase sales of other brands
- Explore marketing activities to differentiate value brand from brands A and B
- Explore shelf placement of value brand vs brands A and B

Bonus: Guide to an excellent case

- In an excellent case, the interviewee will efficiently drive the case, taking insights from each exhibit and moving the case forward with no prompting of the interviewer

Drinks Gone Flat: Exhibit 1

Revenues and Costs by Beverage Category

	Gallons (MM)*		Price / gallon (\$)*		Cost / gallon (\$)	
Category	2014	2015	2014	2015	2014	2015
Sodas	100	120	0.9	0.7	0.3	0.3
Waters	20	22	0.7	0.65	0.2	0.2
Others	11	10	4	4.5	3.9	3.9

* Average per store

Drinks Gone Flat: Exhibit 2

Sodas by Brand

	Gallons (MM)*		Revenue (\$M)*	
Category	2014	2015	2014	2015
Brand A	50	30	50	30
Brand B	25	30	25	30
Value Brand	25	60	15	24

* Average per store

Authors: Chelsea Dias & Briana Brickell (Stern '20)
[Interviewee-Led]

Quant: 7
Structure: 6

Case Prompt:

Bob is a master brewer and has been brewing beer for the past decade. Upon graduating from Stern, he opened a brewery on the Upper West Side called Something Witty that features Belgian Witbier styled brews. While he found early success, he has noticed an increase in customers asking for gluten-free alternatives, such as cider. Bob has hired us to help him analyze his options.

Case Overview:

Industry: Food & Beverage

Case Type: Market Entry

Concepts Tested:

- Operations
- Brainstorming
- Revenue

Overview Information for Interviewer:

- This is a math heavy case that requires the candidate to be very organized and accurate. If the candidate is organized, they should be able to solve Question 3 quickly.
- Question 2 (brainstorming) allows candidate to display creativity

Clarifying Information:

- Bob's goal is to continue to be profitable regardless of what expansion opportunity he explores
- Currently, Bob only sells bottled beer direct to consumers.

Interviewer Guide:

• A Good Framework Will Include:

- Alternatives
 - Other drinks- wine/cocktails/cider
 - Experiences - live music, themed nights
 - Food
- Costs
 - Renovations
 - Equipment
 - Licensing
 - Break-even point?
- Market
 - Size
 - Competitors
 - Customer Tastes / Preferences
 - Cannibalization
- Capabilities
 - Organic
 - Equipment
 - Training
 - Ingredients
 - Sufficient space
 - Outsource -> purchase from other manufacturer
 - Current capacity utilization

Question #1a:

- Bob has decided to explore expansion into cider. Based on his initial research, he has created the following Exhibit (Exhibit 1) detailing impacts to his current production if he were to undergo renovations to the brewery to accommodate cider production. What are your thoughts on these two options?

Notes to the Interviewer:

- Candidate should recognize that there are other ways (building a new factory, buying cider from an existing company and reselling etc.) to expand into the cider industry outside of renovating the factory.
- Current State:
 - Pros: specialization in one product (one clear consistent marketing message, specialized labor force)
 - Cons: not meeting demand for gluten free customers, not increasing revenue potential
- After Renovations:
 - Pros: New product offering, Cider has a higher selling price than beer
 - Cons: Beer production decreases by 6 cases/day, costs of renovation

Bottled Beverage Production

	Beer	Cider
<i>Current State</i>	30 cases / day	-
<i>After Renovations for Cider Production</i>	24 cases / day	12 cases / day
<i>Selling Price</i>	\$5.00 / bottle	\$6.00 / bottle

Question #1b:

- What will be the change in Bob's annual revenue if he begins to produce cider?

Math Solution:

- Revenues would increase by \$302,400 annually.
- Note: Student can also calculate difference in beer revenue in the future (6 less cases produced per day; decrease of 20%) and add this to cider production.

Current		
Item	Beer	Cider
Cases per Day	30	0
Days per Month	20	20
Months per Year	12	12
Bottles per Case	30	30
Revenue per Bottle	\$ 5.00	\$ 6.00
Revenue per Year	\$ 1,080,000	\$ -
Total Revenue	\$ 1,080,000	

Future		
Item	Beer	Cider
Cases per Day	24	12
Days per Month	20	20
Months per Year	12	12
Bottles per Case	30	30
Revenue per Bottle	\$ 5.00	\$ 6.00
Revenue per Year	\$ 864,000	\$ 518,400
Total Revenue	\$ 1,382,400	

Revenue = Cases per Day * Days per Month * Months per Year * Bottles per Case * Price per Bottle
Change in Revenue = Revenue in Future State - Revenue in Current State **\$ 302,400**

Math Information:

- Wait for candidate to ask for information below:
 - Bob only sells by the bottle. Cases are used as a unit for production.
 - 30 bottles per case
 - Production runs Monday- Friday (assume 20 days per month)

Question #2:

- Besides potential revenue, what other factors should Bob consider before expanding into the cider market?

Notes to Interviewer:

Candidate should quickly identify cost as a key factor, but let them brainstorm other ideas such as those listed below.

- Cost
 - Labor training
 - Equipment
 - Labeling
 - Marketing
 - Raw Materials (apples etc.)
- Market Size / Demand
 - Cider vs Beer
 - # of new customers
 - expected future demand
 - Growth rate of both markets
- Go to Market Strategy
- Impact to Core
 - Cannibalization
 - Brand Equity
- New Distribution Channels
 - Grocery
 - Liquor stores

Apple of My Eye: Question 3

Question #3:

- Bob has determined that he needs to capture at least 0.5% of the NYC take-home cider market annually in order to break-even. Will he be able to produce enough cider to capture the 0.5%?

Math Solution:

Candidate should be able to use math from previous question to realize that Bob produces 86,400 bottles per year. For the sake of time, interviewer can provide this number to candidate if needed.

- Bob will be able to produce enough bottles to capture the 0.5%

Total # Bottles of Cider in NYC	15,500,000
% Market Bob needs to Capture	0.50%
Bob Break-Even Bottles Sold = $0.005 \times 13\text{M}$	77,500
# Bottles Bob can Produce = Rev from Cider per Yr / Rev per Bottle	86,400

Math Information:

- When candidate asks provide following information:
 - 15.5 million bottles of cider are expected to be sold in New York City next year

Recommendation:

- Bob **should** make the investment to produce cider. He will see an increase in revenues of \$302,400 per year and should be able to breakeven based on his 0.05% calculation.

Risks:

- What is happening to the cider market going forward?→ Can Bob really meet the demand?
- Cannibalization of beer products
- Competition in the cider industry

Next Steps:

- Competitive analysis
- Pressure test Bob's assumptions about 0.05%
- Market research to determine if there is a specific price point, flavor and packaging that will sell best

Bonus: Guide to an excellent case

- An excellent caser will realize that demand for Bob's cider has not been considered. While he can produce enough to breakeven, can he actually sell that amount?
- A great caser will also realize that the calculations in Question 2 can be completed by calculating changes in revenue, simplifying overall calculation.

Authors: Emily Glaser, Morgan Miller, Kristen Whyte (Stern '21) **Firm Style & Round:** McKinsey Round 1
[Interviewer-Led]

Quant: 5
Structure: 8

Case Prompt:

Your client is a national burrito chain with 100 locations. There has been a widespread flu virus growing in the U.S. which has the potential to hurt their business. They need your help deciding how they should respond to the virus in NYC specifically, and what the implications will be for their brand.

Case Overview:

Industry: Restaurant

Case Type: Profitability

Concepts Tested:

- Profitability
- Brainstorming

Overview Information for Interviewer:

This case tests the candidate's ability to consider how a business should respond to external issues outside their control. They should recognize that there are multiple options for the restaurants to take and each has different consequences, both financial and reputational.

Key case steps:

- Identify options for the restaurants to take
- Evaluate profitability implications
- Brainstorm non-financial considerations

Clarifying Information:

- There are 10 locations in NYC
- The restaurants sell 3 types of burritos, along with guacamole, salsa, and other sides.
- All of their sales come from grab-and-go takeout orders. Tres Burritos does not currently offer delivery.
- Their main goal is maintaining a net positive profit. They're also concerned about how their actions in NY will affect the national brand.
- The virus is projected to last for 3 months
- We do not know how Tres Burritos is responding in other cities.

Question 1:

- **What should they consider in responding to the virus?**
 - Profitability
 - Revenue
 - Current - product mix, # of orders, avg check
 - New – lost sales impact, # stores closing
 - Costs
 - Fixed – rent, equipment, SG&A, marketing
 - Variable – labor, COGS
 - Options to Respond
 - Stay open
 - Close
 - Modify
 - Offer Delivery, Curbside Pickup, etc.
 - Partial closures
 - Change hours
 - Close only some stores
 - External considerations
 - The Virus: duration, rate of spread, location
 - What are competitors doing?
 - What is the population of NYC doing?
 - How is Tres Burritos responding in other cities?

Tres Burritos: Question 2 –

Brainstorm

Question 2:

- How would you evaluate the options for responding to the virus?

Potential Solution:

	Stay Open	Close the Restaurants	Modify Hours/Services
Pro	<ul style="list-style-type: none">• Continue sales• Serve community• Maintain customer loyalty	<ul style="list-style-type: none">• No variable costs• No risk of spreading virus	<ul style="list-style-type: none">• Continue some sales• Could have new revenue streams – delivery, apps, curbside pickup
Con	<ul style="list-style-type: none">• Bad reputation• Safety risk• Pay both fixed + variable costs	<ul style="list-style-type: none">• Still have fixed costs• No sales revenue• Possible lay offs• Bad reputation• Customers may go to competitors	<ul style="list-style-type: none">• Fixed costs + some variable costs• Safety risk• Unknown customer response to new services

Notes to Interviewer

- If the candidate does not have at least these three options, guide them to think beyond binary open vs. close.
- One possible way of structuring the analysis would be to form a pro and con matrix, but any structure to the analysis is acceptable.
- Candidate should conclude that they want to evaluate the profitability of chosen options. They should ask if we have any information on the profitability of each option.
 - *Note: Q3 will ask them to calculate profitability of only one option.*

Tres Burritos: Question 3 – Math

Math Question:

- Governor Andy Hamilton has decided that restaurants cannot stay open as usual – they can only offer delivery. What will the virus's impact be on Tres Burritos' profitability per location?

(Interviewer: Give Exhibit 1, 2 and 3 when asked for current revenue and costs – Exhibits 2 and 3 are extraneous information)

Math Solution

Category	Delta	Current	New	Calculations for Interviewer
Revenue	-10%	\$100,000	\$90,000	100K - 100K(0.1)
COGS	+10%	\$10,000	\$11,000	10K + 10K(0.1)
Delivery Cost			\$20,000	
Wages, SG&A and overhead		\$60,000	\$60,000	
Total Expenses		\$70,000	Month 1: \$91K Month 2,3: \$71K	M1: 60K + 11K + 20K M2,3: 60K + 11K
EBITDA		\$30,000	Month 1: (\$1K) Month 2,3: \$19K	M1: 90K - 91K M2,3: 90K - 71K
3 months EBITDA		\$90,000	\$37K = ~(60%)	M1,2,3: 2(19K) - 1K

Math Information:

- The candidate should ask for the current revenue and costs, and projected impact of the virus.
Read the following to the candidate once asked:
 - Revenue will drop by 10%**
 - COGS will increase by 10%**
 - Launching delivery will cost \$20,000 for one time to set up**
- Candidate should recall that the virus is projected to last for 3 months. Calculate EBITDA for each of 3 months for total profitability impact.
- Takeaway: while the EBITDA will decrease (and is negative in month 1), Tres Burritos will still have positive EBITDA over 3 months by offering delivery, which is a better outcome than closing stores altogether.

Tres Burritos: Question 4 – Brainstorm

Question #4:

- What are some possible ways to improve EBITDA if they choose to keep restaurants open and offer delivery?

Notes to Interviewer:

Some answers to improve profitability could include:

- Increase revenue
 - Groceries – offer to sell ingredients from their kitchen directly to customers
 - Partner with other local restaurants to drive traffic
 - Raise prices
 - Increase presence on 3rd party delivery apps to drive sales – Seamless, etc.
- Decrease costs
 - Reduce staff
 - Close some stores
 - Limit menu options
 - Reduce delivery cost of \$20k (launch with a service instead of doing on own – Seamless, Caviar, etc.)

Tres Burritos: Recommendation

Recommendation:

- Offer delivery for \$37,000 EBITDA over 3 months
- *Bonus Points:* \$370,000 total EBITDA for all 10 NYC stores, ~60% decline in EBITDA

Risks:

- Revenues decline more than projected
- Customers go to competitors for food and continue to do so after the virus
- Risk of spreading the disease through food / delivery people
- Damage the national brand if there is a problem with Delivery

Next Steps:

- Find delivery partner and plan logistics to launch
- Explore lowering costs
- Learn what Tres Burritos and competitors are doing in other cities

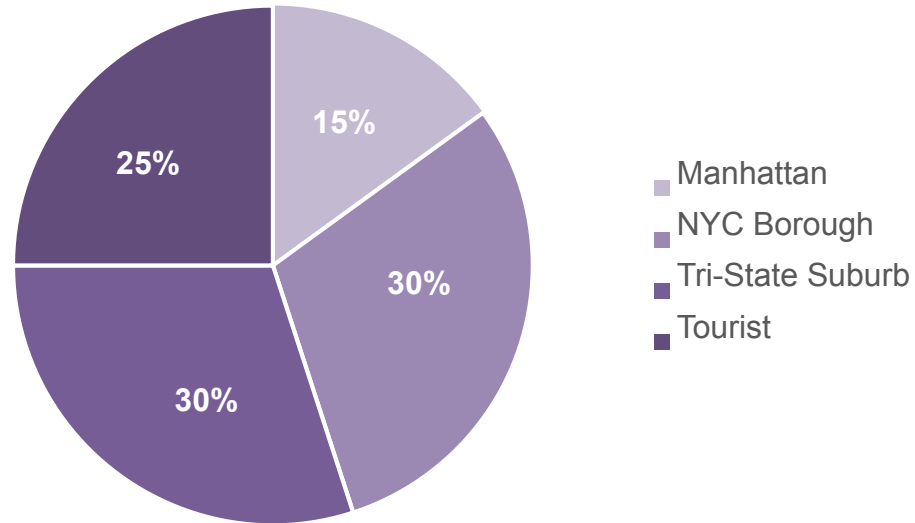
Bonus: Guide to an excellent case

- A great candidate will realize that the virus will last for 3 months so the profitability impact will change month-to-month
- Creative solutions to the virus could include selling raw ingredients to local families in need of food, working with 3rd party delivery partners (Seamless, Caviar, etc.) to cut down on costs, and offering discounts to drive traffic amidst low sales.

Tres Burritos: Exhibit 1

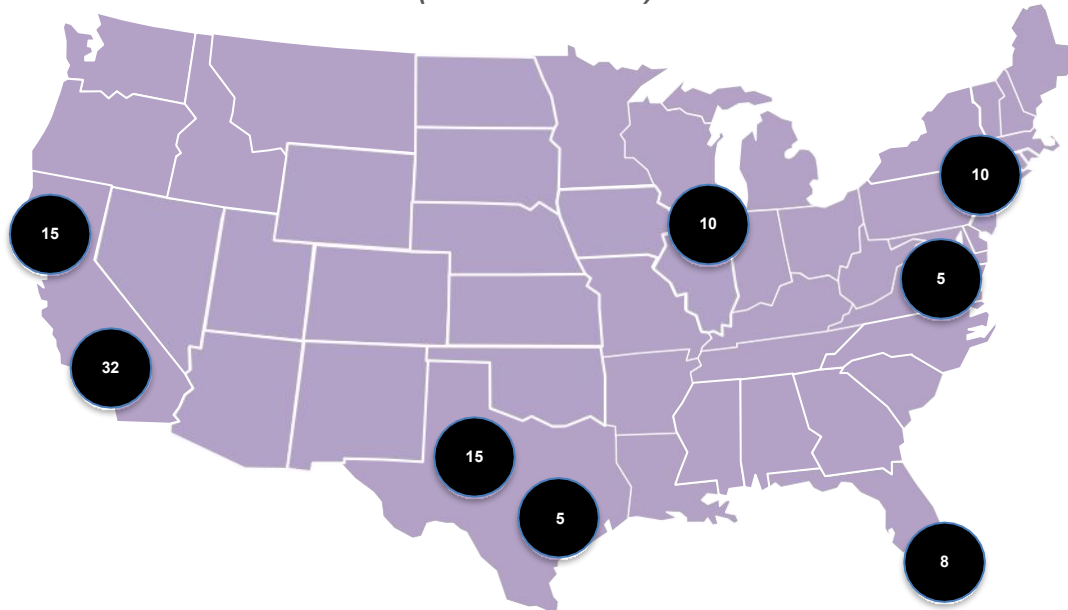
Income Statement <i>Monthly (per restaurant)</i>	
Revenue	\$100,000
Expenses	
COGS	\$10,000
Wages	\$35,000
SG&A	\$5,000
Fixed Overhead	\$20,000
EBITDA	\$30,000

**Tres Burritos NYC Customers'
Place of Residence**



Tres Burritos: Exhibit 3

Tres Burritos Restaurant Footprint (as of June 2020)



Men's Extra Comfortable Essentials



Authors: Peter Noorani & Anthony Russ (Stern '18)
[Interviewer-led]

Quant: 8
Structure: 6

Case Prompt:

Our client, **Men's Extra Comfortable Essentials**, is a US-based manufacturer of basic apparel including socks, tanks, tees, and underwear. They manufacture each apparel line then brand and package them for distribution. Revenues in 2016 were \$60M, and the CEO has promised shareholders 4x growth by 2020, at which point, she promised 10.5% profit margin. She has hired us to determine whether these are realistic revenue targets, and if so, how her firm could go about achieving them.

Case Overview:

Industry: Consumer Goods

Case Type: Growth Strategy

Concepts Tested:

- Market Sizing
- Brainstorming
- Growth Rates

Overview Information for Interviewer:

- Candidate must remain organized with math to translate given information into current market revenues, current market sizes, future market size, future revenues, current margins, and future margins
- Candidate will need to determine how to cut unprofitable product lines to improve margin
- Candidate must brainstorm effectively

Men's Extra Comfortable Essentials: Case guide

Clarifying Information:

- The firm purchases the fabrics through contracts with suppliers across the US
- Firm receives uncut fabrics, and must process them into each apparel line in-house
- Firm sells products through traditional channels
- The firm currently only produces products for men
- Current Product Mix:

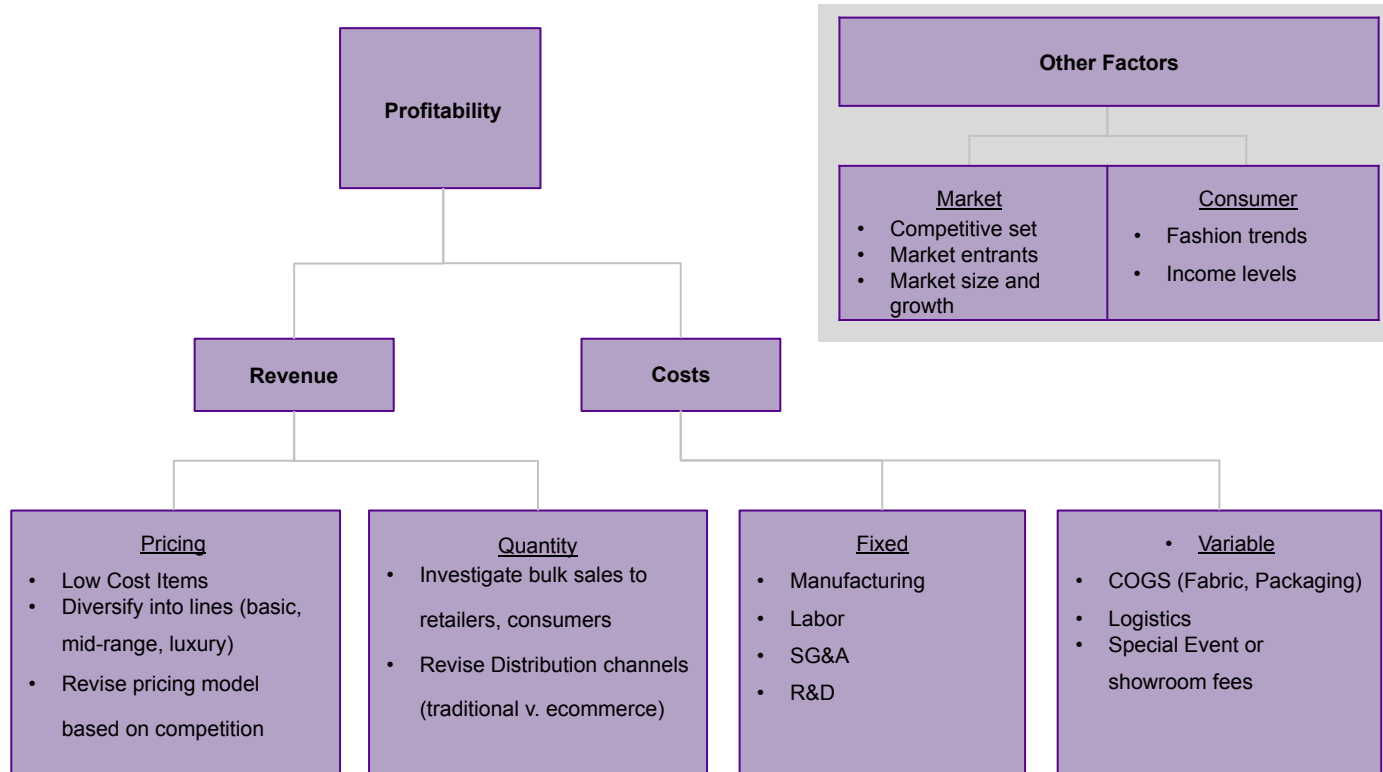
<u>Product</u>	<u>% of Revenue</u>
Socks	40%
Tanks	25%
Tees	15%
Underwear	20%

Interviewer Guide:

- **A Good Framework Will:**
 - Cover all major revenue and cost levers
 - Include all market size and growth dynamics included in the case calculations
 - Include potential external competitive factors
 - Be case specific
- **Necessary Information that should be given only when specifically asked for by interviewee:**

<u>Product</u>	<u>Market Share 2016</u>	<u>Estimated Market Share 2020</u>	<u>2016-2020: Market CAGR</u>
Socks	15%	15%	↑ 5%
Tanks	2.5%	10%	↑ 6%
Tees	5%	5%	↓ 3%
Underwear	1%	10%	↑ 20%

Men's Extra Comfortable Essentials: Framework



Men's Extra Comfortable Essentials: Question 1

Math Question:

- Given the data you have, what will be our client's 2020 revenue by product type?

Math Solution:

Current revenue by product

Socks: $40\% \text{ of revenue} * \$60M = \$24M$

Tanks: $25\% \text{ of revenue} * \$60M = \$15M$

Tees: $15\% \text{ of revenue} * \$60M = \$9M$

Underwear: $20\% \text{ of revenue} * \$60M = \$12M$

Current market size by product

Socks: $\frac{\$24M}{15\%} = \$160M$

Tanks: $\frac{\$15M}{2.5\%} = \$600M$

Tees: $\frac{\$9M}{5\%} = \$180M$

Underwear: $\frac{\$12M}{1\%} = \$1.2B$

2020 market size by product

Socks: $\$160M * 1.05^4 = \$194,481,000 \approx \$200M$

Tanks: $\$600M * 1.06^4 = \$757,486,176 \approx \$750M$

Tees: $\$180M * 0.97^4 = \$159,352,706 \approx \$150M$

Underwear: $\$1.2B * 1.20^4 = \$2,488,320,000 \approx \$2.5B$

Math Information:

- Current revenue by product:
 $\% \text{ of Revenue} * \text{Total Revenue}$

- Current market size by product:
 $\frac{\text{Product Revenue}}{\text{Market Share}}$

- 2020 market size by product:
 $\text{Current Market Size} * (1 + \text{CAGR})^{\# \text{ of years}}$

Note: It is unlikely the candidate can complete the 2020 market size within a reasonable time. If the candidate has demonstrated sufficiency in previous calculations, simply ask candidate to explain how he or she *would* calculate, then provide the rounded figures.

Men's Extra Comfortable Essentials: Question 1 (cont.)



Math Question:

- Given the data you have, can you calculate our client's revenue by 2020 by Product Type?

Math Solution:

Estimated 2020 revenue by product

Socks: $\$200M * 15\% = \$30M$

Tanks: $\$750M * 10\% = \$75M$

Tees: $\$150M * 5\% = \$7.5M$

Underwear: $\$2.5B * 10\% = \$250M$

TOTAL 2020 REVENUE = $\$362.5M$

Candidate should observe that $\$362.5M$ in revenue for 2020 far exceeds the $\$240M$ the CEO promised to shareholders.

Math Information:

- Estimated 2020 revenue by product:
 $2020 \text{ Market Size} * 2020 \text{ Market Share}$

Note: $\$240M$ target the CEO promised to shareholders comes from the case prompt, where the CEO promised 4X revenue growth on current revenues of $\$60M$

$$\$60M * 4 = \$240M$$

Men's Extra Comfortable Essentials: Question 2

Math Question:

- Given the following gross margin information what is the gross margin for the firm in 2020? [Exhibit 1]

Product	2016 Revenue	2016 Margins % ¹
Socks	\$24M	15%
Tanks	\$15M	-5%
Tees	\$9M	0%
Underwear	\$12M	10%

Notes to Interviewer:

- Candidate must notice the footnote indicating that gross margins are expected to remain constant through 2020

2020 Gross Margin by product

Socks: $\$30M * 15\% = \$4.5M$
Tanks: $\$75M * -5\% = (\$3.75M)$
Tees: $\$7.5M * 0\% = \0
Underwear: $\$250M * 10\% = \$25M$

- Gross Profit = $\$25.75M$
- Candidate should calculate that $\$25.75M$ in gross profit on $\$362.5M$ in revenue for 2020 yields a gross margin of $\frac{\$25.75M}{\$362.5M} = 7.10\%$
- Finally, candidate should point out that 7.1% is lower than the 10.5% the CEO promised to shareholders.

Men's Extra Comfortable Essentials: Question 3

Question:

- How can the firm reach the targets promised to shareholders?

Solution:

- This candidate should immediately recognize that there are two products in 2020 that are below the target gross margin and seek to eliminate them while being cognizant of the 2020 revenue target.
- Candidate should determine that terminating the Tanks product line would decrease revenue to **\$287.5M** (which is still above the \$240M target) and increase gross margin to **\$29.5M**. This would force the gross margin percentage up to **10.26%**
- Candidate should also determine that terminating the Tees product line would decrease revenue to **\$280M** (which is still above the \$240M target) and leave gross margin at \$29.5M. This would further increase the gross margin percentage above the 10.5% target (to **10.54%**)

Men's Extra Comfortable Essentials: Question 4

Question:

- The numbers make sense, but of the remaining two product lines, only socks market share can remain constant (at 15%). Underwear's market share must increase from 1% to 10%; what are some ways the firm can attempt to do this?

Solution:

Candidate should take some time to create a structured brainstorm

Customers

- Segmentation
 - Luxury Line (e.g., nicer material)
 - Legacy "Basics" line; Women's line of underwear
- Product Mix □ Boxers, Boxer briefs, Briefs, Athletic
- Marketing
 - Steal share from Hanes, etc.
 - Introduce new customer □ B2B customers, such as selling to other companies for branding
- Distribution □ New channels (Grocery stores? Pharmacies? Gas stations? Airports? Special vending machines?)
- E-commerce □ Add-on purchases at checkout with other brands (e.g., Checking out at Club Monaco website, buying pair of trousers: "Would you like to add *Men's Extra Comfortable* underwear to your order?")

Operations

- Re-tool production lines (focus on underwear products rather than tees or tanks)
- Renegotiate supplier contracts
- Potentially look for suppliers outside the US
- Logistics considerations (Adjust locations of warehouses, how products are packaged for transportation)
- Outsource the manufacturing of the apparel (increase profitability without market size)
- Marketing push on Underwear products

Men's Extra Comfortable Essentials: Recommendation



Recommendation:

- Drop the Tanks and Tees product lines in order to achieve the margin goal
- Embark on a campaign to increase market share of Underwear lines (via new products or a female product lines)

Risks:

- Potentially alienate loyal customers
- Cutting product lines could impact sales of other items, particularly if customer buys products together (e.g., underwear & socks)
- Taking market share for underwear could incite competitive response across in other categories

Next Steps:

- Determine messaging internally and externally about why the product line cut is made
- Determine target for underwear expansion
- Determine most efficient way to re-purpose equipment and labor from tanks and tees to socks and underwear

Bonus: Guide to an excellent case

- An good candidate will recognize the need to calculate 2020 market size and the need for CAGR
- An excellent candidate will utilized shortcuts for math to eliminate unnecessary steps and quickly identify that the 0% margin product can be cut to increase corporate margin
- The **BEST** candidate will recognize the firm name acronym is MECE

Men's Extra Comfortable Essentials: Exhibit 1

Gross Margin by Product

Product	2016 Revenue	2016 Margins % ¹
Socks	\$24M	15%
Tanks	\$15M	-5%
Tees	\$9M	0%
Underwear	\$12M	10%

¹ Firm expects 2016 margin % to remain constant through 2020

Authors: Alastair Butler, Nick Pate, & Henry Marsh (Stern '20) **Firm Style & Round:** McKinsey First Round
[Interviewer-Led]

Quant: 8
Structure: 5

Case Prompt:

Your client is Idaho Johnson, an archeologist/adventurer who specializes in rare artifact recovery. They have just learned about the possibility of an incredibly valuable 6,000 year old crown buried in the Siwa Oasis of Northwestern Egypt. You have been hired to determine whether Idaho should launch an expedition to recover this artifact.

Case Overview:

Industry: Archeology

Case Type: Investment Decision

Concepts Tested:

- Brainstorming
- Return on Investment
- Valuation

Overview Information for Interviewer:

- This case is good for testing the interviewees deductive reasoning skills in an incredibly unfamiliar industry
- There is no “correct” answer for this case. A good candidate will identify and weigh factors that are both for and against the investment and decide which decision makes more sense.

Clarifying Information:

- He must self finance the dig, but he finds a buyer ahead of time and strikes the deal pending the recovery
- He learned about the treasure when a colleague came to him with a map she's willing to sell to him
- He is currently located in Indiana
- The dig is estimated to take one year (**12 months**)
- He only wants to go on the expedition if he can make an expected **ROI of 85%**
- He believes he has a **20% chance of success** of retrieving the artifact
- He has some equipment but would need to buy more for this expedition

Interviewer Guide:

- **A Good Framework Will Consider:**
 - **Costs**
 - One time costs (travel, permits, equipment)
 - Recurring costs (wages for workers, housing)
 - Opportunity costs (teaching salary)
 - **Artifact Value**
 - One-time sale or recurring revenue (PV)
 - Demand for Artifacts / Market Conditions
 - Buyers/Customers
 - Who to sell to
 - Value based on buyer in particular city / country?
 - **Risks**
 - Chance of success
 - Competition finding artifact first
 - Danger associated with expedition
 - **Alternatives**
 - Other artifacts
 - Safer expeditions
 - Film franchise about your adventures

Adventure Capital: Question 1

Question #1:

What costs would be required to embark on this expedition?

Notes to Interviewer:

- Interviewee should brainstorm the costs associated with an expedition like this and bucket their answers into something like the below.

Upfront Costs

- Map
- Travel expenses
- Legal (permits, visa, vaccines)
- Equipment

Recurring Costs

- Labor
- Lodging
- Food

Opportunity Costs

- Teaching salary
- Other potential expeditions

Adventure Capital: Question 2

Question #2:

Calculate the total cost of this expedition.

Math Solution:

- Once the interviewee has brainstormed all the correct costs, give them Exhibit #1. They should be able to break down the math as follows:
- If asked, the interviewer can clarify that the food/lodging # is for the entire group

One time costs (Map/Equipment + Legal + Travel)

- $\$12K + \$10K + (6 \times \$1,500 \times 2) = 40K$

Recurring costs (Labor + Food/Lodging)

- $(\$4K \times 5 \times 12) + (\$10K \times 12) = 360K$

Opportunity Cost = \$100K

Total = \$40K + \$360K + \$100K = \$500K

Adventure Capital: Question 3

Question #3:

There are two buyers interested in purchasing the artifact once recovered: a private collector and the historic Beelong Zynna Museum. The private collector is willing to purchase the artifact for a one-time payment of \$4M. The museum has less cash up front, but is willing to pay you as a percent of exhibit ticket sales revenue. How would you practically calculate the value of the museum's offer, and which offer is better?

Math Solution:

How to Calculate

- Use comparable data from similar museum (urban, size, # visitors) after acquiring similar artifact
- Use numbers from comparable museum to calculate exhibit cash flows
- Calculate present value of all future cash flows

Provide the following information to interviewer:

- Museum Attendance = **900,000 people / year**
- % Attendees that Purchase Exhibit Ticket = **50%**
- Ticket Cost = **\$10**
- % Owed to Explorer = **10%**

If asked, provide the following information:

- Discount Rate = **15%**
- Growth Rate = **5%**

Exhibit Revenue: $900k * 50\% * \$10 = 4.5M$

Explorer Revenue: $\$4.5M * 10\% = \$450K$

Artifact Present Value: $\$450k / (15\% - 5\%) = \$4.5M$

The Museum is the Better Deal: $\$4.5M > \$4M$

Adventure Capital: Question 4

Question #4:

Our client has a mixed success rate of retrieving ancient treasures. Given the following information, what is the expected return on investment?

Math Solution:

How to Calculate

- Expected Value (or 'weighted average') of taking on adventure vs. Opportunity Cost (Salary)

Provide the following information to interviewer:

- Chance of Success = **20%**
- Chance of Failure = **80%**

Revenue from Success: \$4.5M

Loss from Failure (Cost): \$0

Expected Revenue Value: $(20\% * \$4.5M) + (80\% * 0) = \$900K$

Worth Pursuing? \$900k > \$100k (opportunity cost) but....

Profit Margin: $(900 - 500) / 500 = 400 / 500 < 85\%$ (our required ROI)

Profit Margin: $(900 - 500) / 500 = 400 / 500 = 80\%$

Adventure Capital: Recommendation

Support for Go:

- ROI (80%) is very close to required ROI (85%)
- Additional artifacts could be present (extra revenue)
- Success could lead to additional revenue through synergies (fame and fortune, e.g., future contracts, film franchise, biography, book tour, talk show appearances)
- Idaho lives for the sheer thrill of adventure
- It belongs in a museum

Support for No Go:

- $ROI (80\%) < \text{Required ROI } (85\%)$
- Chance of success is only 20%
- Self financed (great personal risk)
- Museum revenue projections could be incorrect
- Object could be cursed

Next Steps:

- Go
 - Plan expedition
 - Put together a crew
 - Gather supplies
 - Book a charter plane
- No Go
 - Identify other artifacts or revenue opportunities
 - Continue teaching
 - Look into buying and selling map for profit

Bonus: Guide to an excellent case

- Identifies up front that success rate is less than 100% and calculates that in to expected value
- Always keeps in mind the 85% return on investment
- Factors in the growth rate in the PV valuation of Museum deal
- Considers up front capital risk of self-financing dig

Exhibit #1: Expedition Costs

Cost Category	Amount
Labor (5 employees needed)	\$4,000/mo
Map/Equipment	\$12,000 total
Travel*	\$1,500/person
Legal	\$10,000 total
Food/Lodging	\$10,000/mo
Missed Salary	\$100,000/yr

*Travel Cost listed is only for one direction of travel

All Night Long



Authors: Justin Sable, Sam Knopf, Molly Joyce (Stern '20)
[Interviewee-Led]

Quant: 7
Structure: 4

Case Prompt:

Your client is CNB Movies, a national movie theater company with \$2 billion in annual revenue. In recent years, movie theaters have seen record high demand for Marvel and DC Comics movies, and CNB is considering ways to capitalize on this demand. One option is to offer 24-hour opening weekend screenings for these movies. The company has hired you to advise on the decision. Should they offer this experience?

Case Overview:

Industry: Entertainment/Media

Case Type: Cost-Benefit Analysis

Concepts Tested:

- Profitability
- Mental Math
- Brainstorming

Overview Information for Interviewer:

- This is a math heavy case that will test the candidate's ability to take a structured approach to making calculations, as well as his/her ability to demonstrate mental math skills.
- The candidate will also have to pay attention to details in the case (cost of tickets, # of days in weekend) while driving towards the profitability calculation.

Clarifying Information:

- CNB Movies wants to implement this immediately.
- Opening weekend starts Thursday night and ends Sunday at 11:59 PM.
- CNB wants to test one theater first. If successful, The company would roll out to all 400 theaters in the US.
- Ticket prices are \$15 adults / \$10 children/seniors.
- None of CNB's competitors currently offer this experience.
- CNB Movies is capable of financing this on its own.

Interviewer Guide:

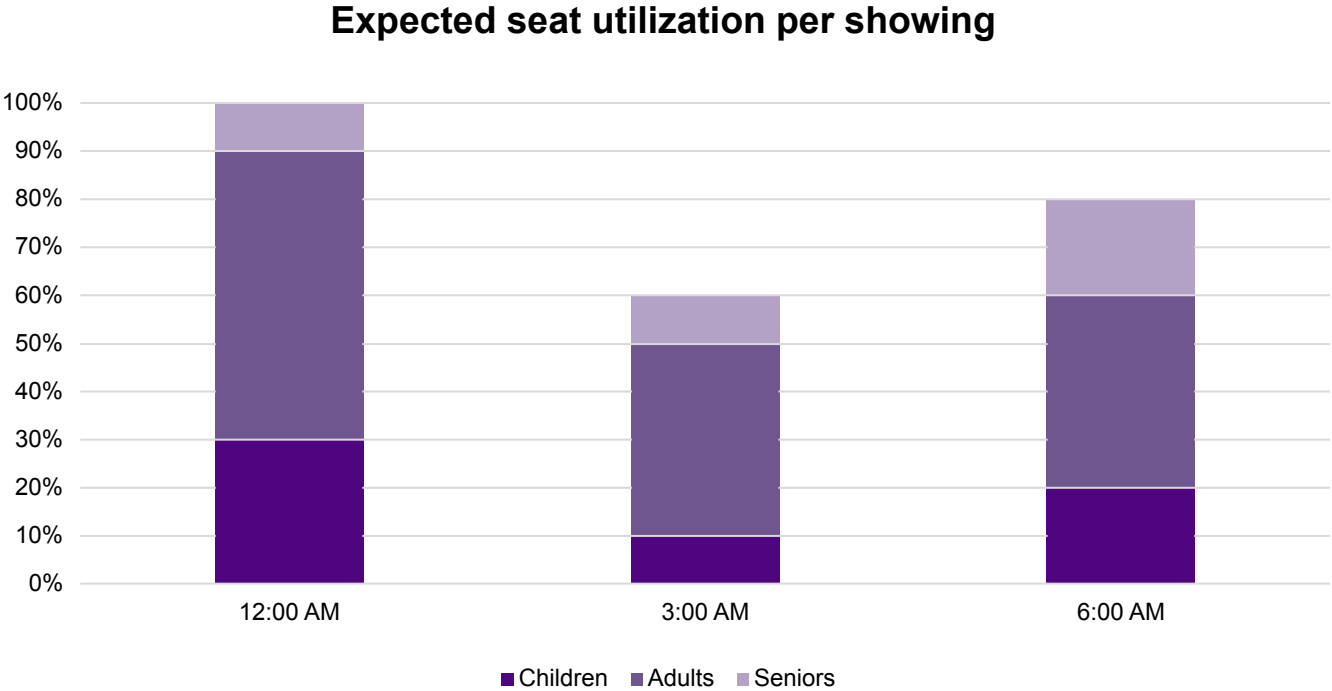
A Good Framework Will Include:

- Revenue
 - Ticket sales
 - Concessions
- Costs
 - Staff (cashiers, ticket checkers, cleaning, extra security)
 - Maintenance of projector, concession machines (popcorn, slushies)
 - Utilities
 - COGS

A Great Framework Will Mention:

- Financial risks of 24-hour model (can projector operate 24 hours? Will that increase capital maintenance?)
- Competitive response
- Potential to sell these tickets at a premium price
- Fluctuations in concession sales at these showtimes
- Alternative project options (opportunity cost)

All Night Long: Exhibit 1



Note: Each theater has 300 seats

All Night Long: Guide to Exhibit 1

Notes to Interviewer:

- This exhibit will test candidate's ability to structure math. The candidate should use the chart to calculate how many seats will be filled during each showtime, and at what ticket price. From there, he/she should solve for the total revenues from ticket sales PER NIGHT.
- Reminder: Tickets - \$15 Adults, \$10 Children/Seniors. Experience offered for 3 nights

One potential approach is below:

Ticket Rev. @ time = (# seats) * [(% children)*(\$ children) + (% adults)*(\$ adults) + (% seniors)*(\$ seniors)]

@ 12:00 AM = $300 * [(30\%)*(\$10) + (60\%)*(\$15) + (10\%)*(\$10)] = 300 * [\$3 + \$9 + \$1] = 300 * 13 = \$3,900$

@ 3:00 AM = $300 * [(10\%)*(\$10) + (40\%)*(\$15) + (10\%)*(\$10)] = 300 * [\$1 + \$6 + \$1] = 300 * 8 = \$2,400$

@ 6:00 AM = $300 * [(20\%)*(\$10) + (40\%)*(\$15) + (20\%)*(\$10)] = 300 * [\$2 + \$6 + \$2] = 300 * 10 = \$3,000$

Total Ticket Revenue = \$3,900 + \$2,400 + \$3,000 = \$9,300

A strong candidate will notice that this is only revenue from ticket sales, and that there will also be revenues from concessions. If asked, provide that average concession revenue is \$10 per person. If candidate does not raise this, ask them about other sources of revenue.

Concessions = \$10 * [(300)(100%) + (300)(60%) + (300)(80%)] = \$10 * (300 + 180 + 240) = \$7,200

Total Revenue under new model = Revenue per night * # of nights = (\$9,300 + \$7,200) * 3 = \$16,500 * 3 = \$49,500

Daily cost structure per theater

	Current Costs
Staff	\$2,600
Concessions	\$2,000
Concession Maintenance	\$400
Projector Maintenance	\$5,000

Note: Staff includes cashiers, ticket collectors, film operators, maintenance/cleaning, and security

All Night Long: Guide to Exhibit 2

After giving the candidate Exhibit 2, provide the following:

- Under this new model, CNB Movies projects that for the 24-hour weekends:
 - Staff costs will increase 50%
 - Concession costs will increase 50%
 - Concession maintenance costs will increase 25%
 - Projector maintenance costs will increase 10%

Solution:

	Current Costs	Expected Costs
Staff	2,600	$(2600) * (1.50) = 3,900$
Concession	2,000	$(2000) * (1.50) = 3,000$
Concession Maintenance	400	$(400) * (1.25) = 500$
Projector Maintenance	5,000	$(5000) * (1.10) = 5,500$
Total Costs/Day	10,000	12,900
Total Costs/Weekend		$(12,900) * (3) = 38,700$

Incremental profits of 24-hr. model = Total Revs – Total Costs = 49,500 – 38,700 =

10,800

All Night Long: Brainstorm Question

Note: The candidate should speculate about other potential costs and benefits of the model. If they don't and time permits, ask the below question.

Question:

- What are some additional factors that our client should consider before making their final decision?

Notes to Interviewer:

- This is a brainstorming exercise where the candidate will have to think big picture about this decision.
- The candidate should consider both internal and external factors, including but not limited to:
 - Potential to cannibalize our current customer base
 - Upfront marketing costs
 - Long-term marketing benefits (word of mouth, additional market share)
 - Whether CNB should roll out to all their theaters or a subset
 - Customer/demographic analysis by region
 - What movies should we offer this for – do further market analysis on blockbusters
 - How will competition react to this model? If CNB does not do this, do they lose customers to competition?

All Night Long: Recommendation

Recommendation:

- CNB Movies should implement this 24-hour experience. The expected incremental profits are \$10,800 ($10800/49500 = 22\%$ profit margin) for one theater.
- In addition, offering this experience gives CNB a competitive advantage for high-grossing movies.

Risks:

- CNB's demand and cost assumptions may need further analysis
- Projections may vary by theater and geography
- Movies could be a flop

Next Steps:

- Develop marketing strategy
- Sensitivity analysis on demand, as well as costs
- Look for optimal roll-out strategy across the US and develop criteria on which movies to select for this model as well as which markets to implement

Bonus: Guide to an excellent case

- Excellent candidates will drive this entire case themselves and not need course correction. Strong candidates will be creative in their brainstorming and consider a wide range of internal, external, short-term and long-term factors.

Authors: Adapted by Arati Venkatram (Stern '20) **Firm Style & Round:** BCG First Round
[Interviewee-Led]

Quant: 7
Structure: 7

Case Prompt:

Our client is a steel manufacturing company in the Netherlands. They are considering investing in an advanced analytics tool that will help them better predict inventory schedule. They are also looking at immediate methods to save costs and would like your help with the following:

- A) Steel coils are currently transported from the factory to customers via Railways, Trucks, Vessels and Barges. They would like us to analyze these four methods, and suggest any opportunities for cost saving
- B) Suggest any alternative techniques to save cost in the immediate future

Case Overview:

Industry: Industrial Goods

Case Type: Cost Saving

Concepts Tested:

- Capacity Optimization
- Operations

Overview Information for Interviewer:

- The case requires the candidate to focus on the logistics of transporting steel and explore the various options given. The goal is to derive potential cost saving

Clarifying Information:

- Operates internationally in 100+ countries (the candidate should realize this given use of vessels and barges)
- Customers are predominantly large B2B manufacturers who the company enjoys both short and long-term contracts with
- For this case, assume steel is only manufactured as coils
- Objective is to identify cost saving with no particular target

Interviewer Guide:

- **A Good Framework Will:**
 - Incorporate steel industry specifics
 - Cover profitability, but focus on costs as the prompt is very specific
 - Evaluate the question at hand on the four transport methods
 - Not forget part B) on alternate cost saving techniques

Steel Co.: Exhibit 1

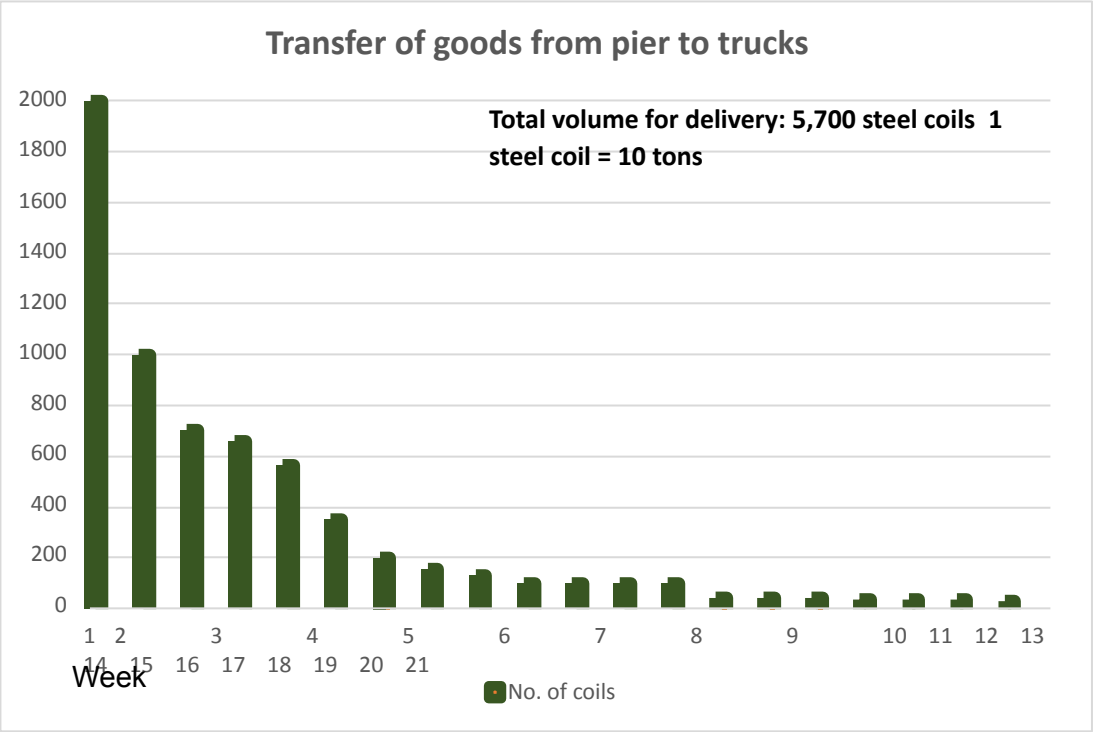
	RAIL	TRUCK	BARGE	VESSEL
Deliveries/Week	10	20	4	3
Volume/Delivery (ton)	40000	20000	50000	100000
Utilization %	67%	75%	80%	100%
Cost (\$/ton)	\$25	\$30	\$25	\$10
Frequency (days)	5	1	20	14

Steel Co.: Guide to Exhibit 1

		RAIL	TRUCK	BARGE	VESSEL
A	Deliveries/Week	10	20	4	3
B	Volume/Delivery (ton)	40000	20000	50000	100000
C	Volume/week (A*B) (ton)	400000	400000	200000	300000
D	Utilization %	67%	75%	80%	100%
E	Cost (\$/ton)	\$25	\$30	\$25	\$10
F	Cost/week (C*E)	\$10,000,000	\$12,000,000	\$5,000,000	\$3,000,000
G	Cost saving potential (F*(100%-D))	\$3,300,000	\$3,000,000	\$1,000,000	\$0

Notes to Interviewer:

- Total cost saving potential of \$7.3M through better optimization of capacity.
- Candidate should clarify the meaning of utilization, if unsure. Utilization refers to the % of vehicle capacity used for steel coils. The remaining space is empty.
- Candidate should be curious about why the usage of trucks is so high – leads to exhibit 2





Notes to Interviewer:

- Candidate should refer to exhibit 1, to notice that vessels are loaded every 14 days (2 weeks), while trucks leave for delivery daily. They should also refer to exhibit 1 to identify the cost of using vessels vs. trucks.
- The chart indicates that on Week 1 and 2 combined there are 3,000 coils remaining on the pier, that would need delivery by truck. Week 3 onwards should not be a problem with better inventory management, and cost savings by avoiding shifts to trucks would be as below:
• $(5700 - 3000) \times 10 \text{ tons} \times (\$30 - \$10) = \$540,000$
- An excellent candidate would also notice that this situation may be arising due to vessels going at 100% capacity utilization. KPIs currently require the vessel to be fully loaded. Changing KPIs to state 95%, could potentially reduce the number of coils left behind at the pier.

Recommendation:

- Drive cost savings of ~\$7.84M, with \$7.3M savings through better capacity utilization and \$540K from better inventory management for vessels
- Continue to work on the advanced analytics tool as that will help inventory management, which is an identified cost driver, going forward

Risks:

- Assumptions to derive average utilization may be wrong
- Truck drivers may be unionized/reducing number of trucks may require re-negotiation of contracts

Next Steps:

- Modify vessel labor KPIs to ensure 95% utilization as against 100%
- Gradually start to reduce # trucks being used to improve utilization
- Re-negotiate cost/ton if that is an option

Bonus: Guide to an excellent case

- An excellent case would be marked by a candidate who quickly understands the options to consider and drives the math to cost savings. An exceptional candidate should be able to co-relate exhibits and show operations knowledge with creative solutions to inventory management and capacity utilization.

Authors: Jenna Charles, David Sedgwick, Jonathan (Yoni) Farber (Stern '18)
[Interviewee-Led]

Quant: 6
Structure: 8

Case Prompt:

Our client, GGC Health, operates eight Ambulatory Surgical Centers (ASC) on the east coast. GGC Health has consistently been a profitable organization, but over the past two years, their ASCs' cumulative revenues have been flat at \$400 million/year. The CEO of GGC Health is concerned about this and has hired your firm to increase revenues by 15%.

Case Overview:

Industry: Healthcare

Case Type: Revenue growth

Concepts Tested:

- Brainstorming
- Revenue computation
- Growth strategy

Overview Information for Interviewer:

- Dismiss any questions about cost, keep the focus on revenue growth
- Pricing increases are not possible
- Candidate should drive towards increasing the number of patients through same site volume increases or opening new ASCs

Clarifying Information:

- ASCs are modern health care facilities focused on providing same-day surgical care, including diagnostic and preventive procedures.
- ASCs are seen as a more convenient alternative to hospital-based outpatient procedures.
- Physicians can perform surgeries at hospitals or ASCs.
- Physicians generally dictate where the surgery is performed.
- Timeline: ASAP
- Candidate should recognize that target revenue is \$60M ($15\% \times 400M$)
- Business Model: ASC revenue is equal to the number of procedures performed in the facility by the expected reimbursement per procedure.

Interviewer Framework Guide:

Increase revenue of existing ASCs (*see brainstorm for detailed tree*)

- Number of patients per doctor
- Number of doctors per facility
- Increase procedures per facility, either in volume or in type of surgery
- Types of patients (high reimbursement vs. low reimbursement patients)

Increase revenue by developing new ASCs

- Analyze the market
- Opportunities for partnership with existing physician groups/hospitals
- Patient demographics for common ASC surgeries (ortho, dermatological etc.)
- Analyze competitors
- Existence of competing ASCs
- Strength and reputation of hospitals/groups
- Regulatory/Technological
- Reimbursement criteria of health plans (fee for service vs. value based care)
- Technology/service expectations of ASC

Question #1 (when candidate asks about expansion):

- I'm glad you brought up external expansion. We have done research and targeted three cities GGC Health could enter: Charlotte, Indianapolis, and Nashville. The Charlotte ASC location would have 30 doctors, Indianapolis would have 25, and Nashville would have 16.
- Assuming GGC Health has management capacity to open only one new ASC immediately, can you provide a recommendation of which city to enter?

Solution:

- Multiply # of Doctors in each city by breakdown of specialty in each city

City	# of Doctors	% of Dr./ specialty	Ortho	Neuro	Gastro
Charlotte	30	Charlotte	80%	10%	10%
Indianapolis	25	Indy	40%	40%	20%
Nashville	16	Nashville	50%	25%	25%

# of Dr's per specialty per city	Ortho	Neuro	Gastro
Charlotte	$30 \times .8 = 24$	$30 \times .1 = 3$	$30 \times .1 = 3$
Indianapolis	$25 \times .4 = 10$	$25 \times .4 = 10$	$25 \times .20 = 5$
Nashville	$16 \times .5 = 8$	$25 \times .25 = 4$	$16 \times .25 = 4$

Information:

- Give the candidate Exhibit #1
- The candidate should create their own 3x3 chart and calculate the number of doctors per specialty per city
- An excellent candidate will recognize that Nashville can be immediately eliminated (Indianapolis has more doctors of every practice)

Question #2 (when candidate asks # of patients):

- Say the following: orthopedic brings in 15 patients per doctor per month, neurology is 10, gastroenterology is 12
- Candidate needs to ask about reimbursement rates, when they do give them Exhibit 2

Solution:

	# of Patients/yr.	Rate/patient	Revenue/Dr./Yr:
Ortho	$15 \times 12 = 180$	5K	900K
Neuro	$10 \times 12 = 120$	25K	3M
Gastro	$12 \times 12 = 144$	15K	2.16M

	Ortho	Neuro	Gastro	Total
Charlotte	$24 \times 900K = \$21.6 \text{ M}$	$3 \times 3M = 9M$	$3 \times 2.16M = 6.48M$	37.08M
Indianapolis	$10 \times 900K = \$9M$	$10 \times 3M = \$30M$	$5 \times 2.16M = 10.8 \text{ M}$	49.8M
Nashville	$8 \times 900K = \$7.2M$	$4 \times 3 \text{ M} = \$12M$	$4 \times 2.16 \text{ M} = 8.64M$	27.84M

Information:

- Calculate # of patients/year, then * by rate to calculate revenue/Dr./year.
- Then calculate revenue per city per specialty and then sum for total revenue.
- Candidate should identify that Indianapolis is the most attractive option, but alone, revenue falls short of the 15% target (\$60M)

Question #3:

- Probe the candidate until they identify that Indianapolis does not achieve the desired revenue growth. Once they realize this, ask them to brainstorm how GGC Health could increase revenues at their current 8 ASC locations?

Notes to Interviewer:

- This is a brainstorm opportunity for the candidate to see how to get the additional \$10M needed.
- Candidates should be structured and organized during this brainstorm exercise. Topics should include:
 - Increase the number of patients visiting the ASC
 - Increase the number of patients brought in per doctor
 - Make ASC preferred place for doctors, by offering more control over the environment, better scheduling, enhanced efficiency, and better patient outcomes
 - Prioritize high volume doctors
 - Provide doctors with a higher share of profits for hitting certain targets
 - Increase the number of doctors per ASC
 - New procedures (and new physicians doing those procedures)
 - Improved physician outreach (sales/marketing efforts)
 - Product mix
 - Prioritize high reimbursement surgeries (that bring in more money per patient)
 - Add new high reimbursement surgeries
 - Type of patient: Medicaid/Medicare accepted? Increase patients who get higher reimbursements

Question #4:

- Our team thinks there is an opportunity to increase the number of doctors per ASC. GGC Health's ASC sites do not currently offer urology, but we believe they can add 2 urology doctors to all current ASC sites. Can you calculate the additional revenue from this?
- Candidate will need to ask for the number of patients. Tell them that each doctor will bring in 8 patients per doctor per month.

Solution:

- Total number of urologists: $8 \text{ sites} * 2 \text{ urologist/site} = 16 \text{ urologists}$
- Total number of patients per year: $16 \text{ urologists} * (8 \text{ patients/doctor/month} * 12 \text{ months/year}) = 1,536 \text{ patients}$
 - After calculation tell candidate to round to 1,500
- Total revenue: $1,500 \text{ patients} * \$8,000/\text{surgery} = \mathbf{\$12M}$

Information:

- Candidates should still have Exhibit 2 and realize they have the reimbursement rate.
- Additional revenue is only applied to the current 8 ASC sites.
- Incremental same site revenue plus new Indianapolis ASC meets \$60M revenue target.

Recommendation:

- The candidate should articulate that to meet the revenue target our client should (1) open a new ASC in Indianapolis for \$49.8M and (2) increase revenue in current ASC facilities through adding urology surgeries for \$12M. Candidate can reference other existing site revenue growth opportunities identified during case.

Risks:

- No costs were considered in adding a new facility or procedure
- Indianapolis market entry is not on the east coast and unfamiliar to management
- ASC capacity to accommodate new surgeries
- Not being able to steal expected market share
- Physicians not bringing in expected number of patients

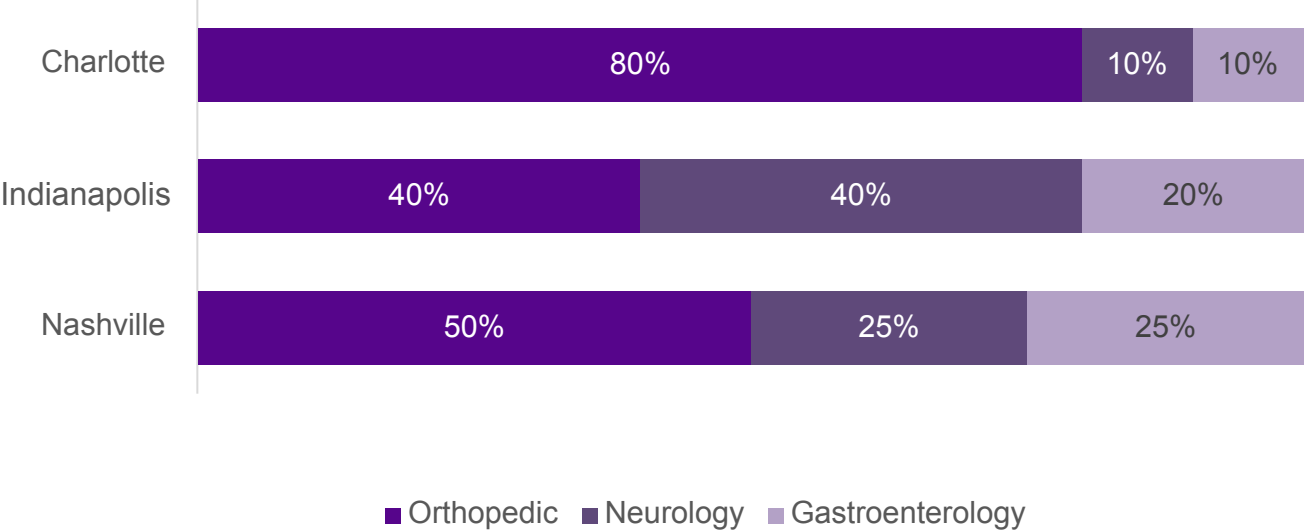
Next Steps:

- Cost/Benefit analysis for the Indianapolis location
- If still proves lucrative, begin construction on new ASC center in Midwest
- Add urology surgeries to current ASC's ASAP
- Consider other types of surgeries to add
- Consider expanding into more than one location in the future

Bonus: Guide to an excellent case

- Always keep in mind the goal of the case – to increase revenue by 15% (\$60M)
- Eliminate Nashville as an expansion opportunity quickly
- Recognize that opening up one location by itself will not meet the CEO's revenue targets and independently return to framework for alternative revenue ideas
- Brainstorm extensive solutions to increase revenue in current ASC's to demonstrate healthcare knowledge

Physician Group Membership by City



Average Reimbursement Rates Per Patient by Specialty

Physician Specialty	Reimbursement Rate per Patient
Dermatology	\$4,000
Gastroenterology	\$15,000
Neurology	\$25,000
Orthopedic	\$5,000
Pain Management	\$6,000
Urology	\$8,000

Author: Flora Lau, Bradley Wo, Grace Yan (Stern '24) **Firm Style & Round:** Bain Power Round
[Interviewee-Led]

Quant: 7
Structure: 5

Case Prompt:

Our client is a large U.S. retail chain that owns convenience stores located in gas stations across California. With the rise of just-walk-out (JWO) stores (e.g., "Amazon Go"), they are interested in piloting JWO technology in one of their existing gas station stores.

The client is ready to implement as soon as possible as they have the financial capabilities. They plan for the pilot to last for 3 years, however, they want assurance that the pilot will be profitable.

How should our client evaluate this opportunity?

Case Overview:

Industry: Retail & Tech

Case Structure: Opportunity Assessment

Concepts Tested:

- Weighted average and NPV
- Implementation strategy
- Mekko Chart

Overview Information for Interviewer:

Interviewee should be able to...

- Apply case specificity
- Clear multiple types of charts
- Generate creative brainstorm ideas

Key case steps:

- Outline key considerations for evaluating investment attractiveness
- Conduct financial analysis (profit, cost, NPV)
- Assess qualitative risks and challenges

Clarifying Information:

Competitors:

- The industry leader is Amazon. Among convenience stores, our client would be the first mover.

Product:

- Product mix includes tobacco, hot and packaged foods, beverages, medicine, toiletries.

Client Characteristics:

- Gas station locations are all fully owned by the client (not franchised).
- Client has not invested in digital projects previously but does have an engineering team.

Just-walk-out Stores:

- A just-walk-out store is a type of retail store that utilizes advanced technology such as overhead computer-vision cameras, weight sensors, etc. to allow customers to enter, shop for items, and exit without the need to interact with cashiers or check-out lines.

Interviewer Guide:

• A Good Framework will include the following:

- Financial considerations of pilot
 - Revenue: goods sold, add'l gas sold
 - Upfront costs: R&D/acquisition of technology, store renovations
 - Recurring costs: COGS, technology/technicians, maintenance, utility
 - Opportunity cost
 - Benchmark to equivalent store profits
- Implementation strategy of pilot
 - Technology: build, buy, partner
 - Potential barriers to entry: regulations, patents, etc.
 - Customer onboarding: payment method (e.g., app, QR code, Apple Pay, etc.), customer education
- Convenience store trends in California
 - Consumer shopping habits in California: potential of technology adoption
 - Competitors: other convenience store chains, tech companies launching own stores
 - Growth of just-walk-out stores

Question:

What region would be ideal for our pilot?

Show Exhibit 1

Clarifications:

- *Provide only if asked:* Our client's market share is proportional to the market size.
- Ideally, the Interviewee does not perform calculations, but quickly develops insights. It's fine if Interviewee does quick mental math for convenience store revenues.

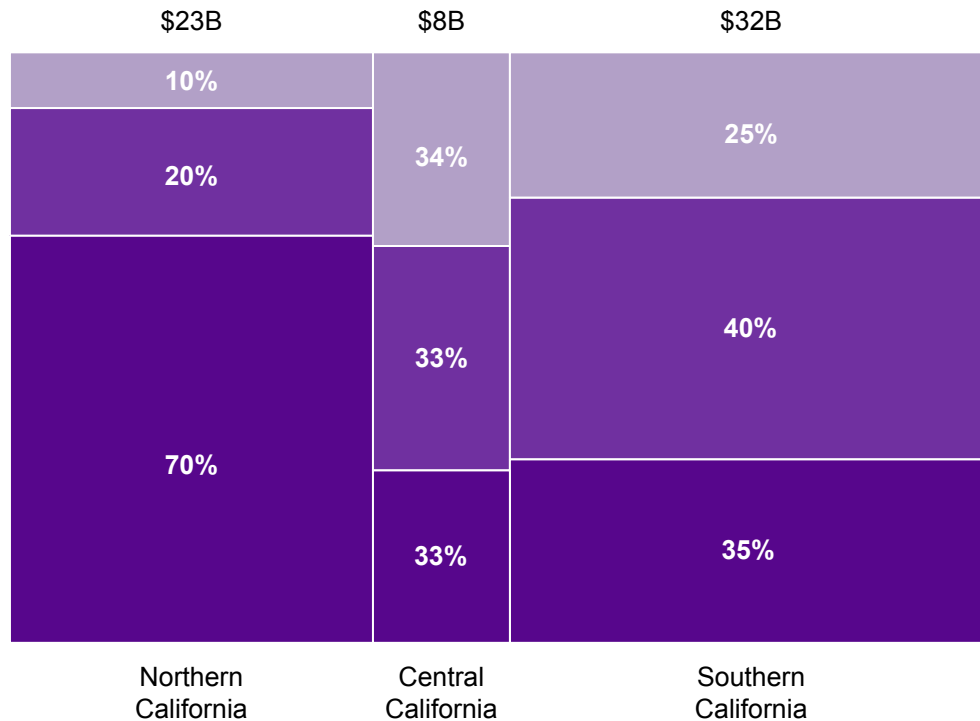
Key Insights Interviewer Should Look For:

- Central California can be eliminated right away. Its total annual revenue is very small compared to Northern and Southern California.
- Southern California's convenience store sales is 40% of its total revenue, which is double that of Northern California
- Total revenues from Southern California is also higher than that of Northern California.
- Conclude that Southern California is the best choice to test the pilot program.




- An exceptional Interviewee would ask about the client's market share in each of these 3 regions.

Gassy Convenience: Exhibit 1: Target Market

Annual Revenues of California Gas Stations, by Region



Model

-  Car wash / Auto services
-  Convenience Store
-  Gas

Gassy Convenience: Math Question 1

Math Question 1:

To assess the opportunity, we'd like to look at the financials. The team has projected how consumer spending will change in a just-walk-out store and would like you to estimate the annual profit from goods sold for the just-walk-out store.

Show Exhibit 2

Math Solution:

Profit = \$40/customer

Quantity = 54,000 customers/year

Annual Profit = **\$2,160,000**

- A great Interviewee should notice that there is only spending changes for food, beverages and tobacco, with no increase in spending on medication; total profit has also increased by 33.3%.

The Interviewee should then ask for information about any other profit sources or costs to fully understand the financial situation.

At this point, the Interviewer should inform them that due to cost savings from labor saved and profits from additional gas sales, annual profit for the entire store can be estimated at **\$2.5 million**.

Math Information:

Standard store: \$30

- Food: $\$30 * 50\% = \15
- Beverage: $\$30 * 20\% = \6
- Medicine: $\$30 * 15\% = \4.50
- Tobacco: $\$30 * 15\% = \4.50

Just-walk-out store: \$40

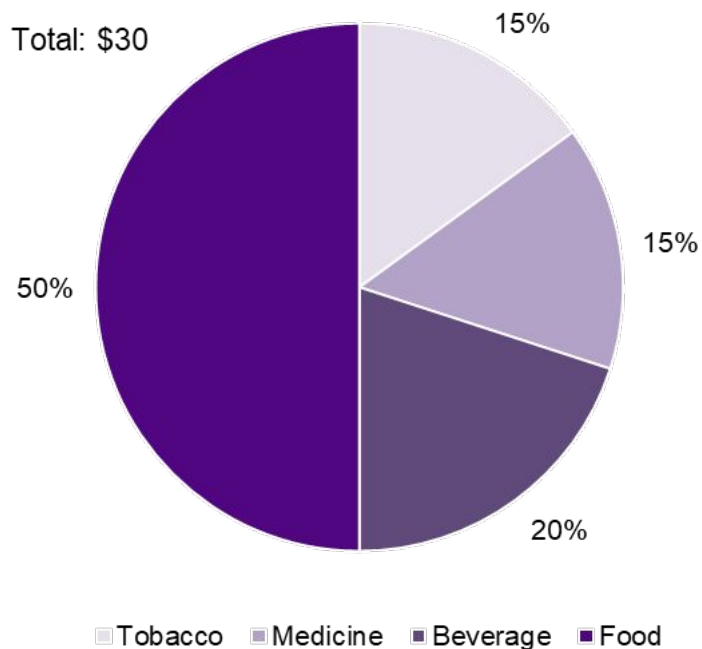
- Food: $\$15 * 1.5 = \22.50
- Beverage: $\$6 * 0.66 = \4
- Medicine: \$4.50
- Tobacco: $\$4.50 * 2 = \9

customers/day = 150

days/yr = 360

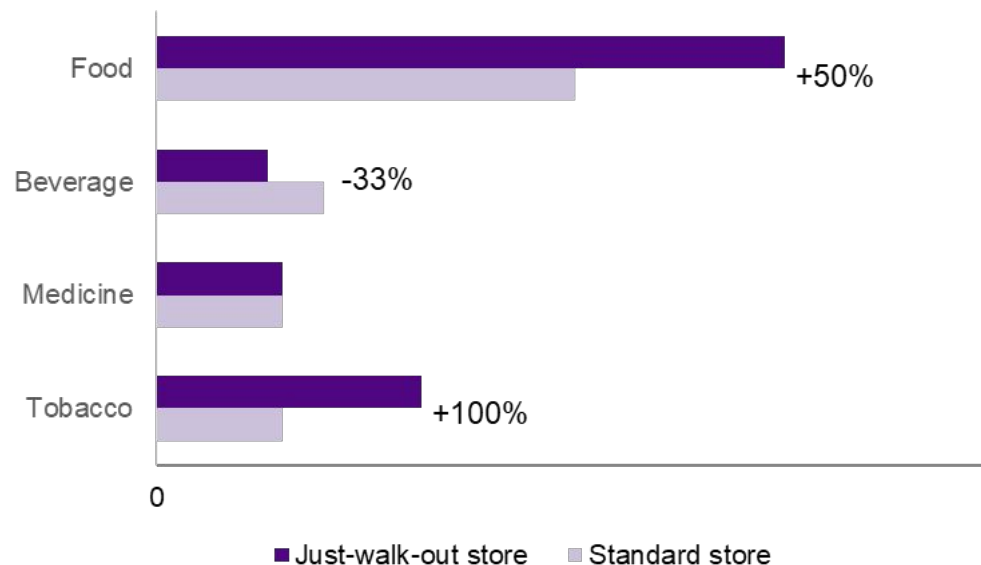
Gassy Convenience: Exhibit 2: Annual Profit

Profitability of Avg Basket Size*



*for standard stores in the client line

Change in Customer Spending



Gassy Convenience: Math Question 2

Math Question:

The client is considering two options for the technology needed for the just-walk-out store: either developing the technology in-house or partnering with a technology firm. Which type of costs would you consider?

Math Solution:

In-house:

Initial costs = R&D + Set-up = \$2.5M + \$2M = \$4.5M

Annual or recurring costs = Operational + Maintenance = \$250K + \$250K = \$500K

Partner:

Initial costs = \$3M

Annual or recurring costs = \$750K

- A great Interviewee will remember that the pilot is for 3 years. An exceptional Interviewee will ask if there is a relevant discount rate for this calculation (at this point, you can move on to the next question).
- Interviewee should recognize that there are initial costs and annual / recurring costs. Any recommendation should take this into account. Interviewee should use these costs to calculate the overall expected return of the pilot (move on to next question).

Math Information:

All information to be given as asked for:

In-house:

- R&D: \$2.5M
- Set-up: \$2M
- Annual operational costs: \$250K
- Annual maintenance costs: \$250K

Partner:

- Set-up: \$3M
- Annual partner fee: \$750K

Discount rate: 10%

Gassy Convenience: Math Question 3

Math Question:

Calculate whether or not the client would want to invest in the pilot.

**Interviewee should remember that the objective of the pilot is to not lose money, i.e., $NPV \geq 0$ **

Math Solution:

$$NPV = \sum \text{Total Profits} / (1 + r)^t$$

In-house option:

Initial costs = \$4.5M

Annual profit = Annual sales profits - annual costs = \$2.5M - \$500K = \$2M

$$\begin{aligned} \text{NPV of Pilot Investment} &= -\$4.5\text{M} + \$2\text{M} + \$2\text{M} / (1+0.1) + \$2\text{M} / (1+0.1)^2 \\ &= -\$4.5\text{M} + \$2\text{M} + \$1.82\text{M} + \$1.67\text{M} = \mathbf{\$1.0M \text{ (in-house)}} \end{aligned}$$

Partner option:

Initial costs = \$3M

Annual profit = Annual sales profits - annual costs = \$2.5M - \$750K = \$1.75M

$$\begin{aligned} \text{NPV of Pilot Investment} &= -\$3\text{M} + \$1.75\text{M} + \$1.75\text{M} / (1+0.1) + \$1.75\text{M} / (1+0.1)^2 \\ &= -\$3\text{M} + \$1.75\text{M} + \$1.6\text{M} + \$1.45\text{M} = \mathbf{\$1.80M \text{ (partner)}} \end{aligned}$$

- Interviewee should note that the pilot will make money and that this is in line with the client's objectives.

Math Information:

- Annual sales profit = \$2.5M
- In-house initial costs = \$4.5M
- In-house annual costs = \$500K
- Partner initial costs = \$3M
- Partner annual costs = \$750K
- Discount rate = 10%
- Allowable estimates: $1.1^2 = 1.2$
- *It's fine if Interviewee only calculates the NPV for one of the options.*
- *Once Interviewer has determined Interviewee's knowledge of the concept of NPVs and has showcased mental math skills, provide the other option's NPV.*

Question:

What are some possible risks for this pilot?

Solutions:

Answer Option 1:

- Customers
 - Learning curve for using technology
 - Privacy concerns
- Firm
 - Internal resistance to change
 - Security risks (theft)
 - Job displacement (jobs being replaced by technology or reduction in employee work hours)
- Industry
 - Immature technology and lack of awareness of the system
 - Decreasing number of gas stations due to EV
 - Regulatory changes

Answer Option 2:

- Financial
 - High upfront and maintenance cost
 - Uncertainty in revenue
- Market
 - Difficulty in changing customer shopping habits
 - Ease of competitor adoption if technology is outsourced from third party vendor
- Operational
 - Security risks (theft)
 - Technology malfunctions (lead to customer frustrations and negative PR)
 - User error
 - Inventory management

Recommendation:

- Client should go ahead with the pilot in Southern California since it is expected to be profitable.
- Calculation of profit and technology costs showed an upside of \$1.0M (in-house model) or \$1.8M (partner model) in the 3-year time frame.

Risks:

- With the rise of electric vehicles (EVs), the demand for gas stations will decrease
- Learning curve for employees and customers
- Lack of prior technology experience.

Next Steps:

- Conduct stress testing based on different scenarios (e.g., if gas prices rose drastically, if EVs increased, etc.), how client should respond
- Create store operations transition and training plan to begin educating employees and customers
- Research technology providers / partners

Bonus: Guide to an excellent case

- Interviewee leads with a reasonable hypothesis and maintains an answer-first mindset throughout the case.
- Interviewee will proactively drive the case forward after responding to each question while referring back to their initial hypothesis.
- Interviewee correctly identifies excess information, as well as questions that ask for quick takeaways rather than in-depth calculations.

Authors: Ben Wang (Stern '21), Zoe Ye (Stern '21) **Firm Style & Round:** Bain Round 1
[Interviewee-Led]

Quant: 8
Structure: 7

Case Prompt:

Your client Fun Ventures, an established PE firm, is looking to acquire Nook Co., a hospitality group that specializes in developing and transforming uninhabited islands into premium and private vacation destinations.

Nook Co. proposed an initial offer of \$1.5 Billion. Fun Ventures would like your advice on whether they should proceed with the acquisition. What would you like to consider?

Case Overview:

Industry: PE / Hospitality

Case Type: Private Equity

Concepts Tested:

- Market Sizing
- Profitability & ROI
- Business Risks

Overview Information for Interviewer:

Interviewee should quickly identify that this is a PE case that will require in depth valuation for the target company.

Key case steps:

- Identify the PE client might have a specific ROI target
- Understand market size and its relationship with Revenue
- Evaluate target company against client's ideal ROI
- Creative assessment of risks
- Confidence in recommendation

Clarifying Information:

Nook Co. Business Model:

- Nook Co. acquire ownerships of islands, construction resorts, and operate all on island activities and the transportation to and from the islands

Geography:

- Nook Co. operates 10 islands across East Asia, with 5 additional islands in the construction pipeline. But they serve customers internationally

Timeline:

- Fun Venture is looking to make the decision as soon as possible
- And is targeting a 15% ROI

Competitive Landscape:

- Four other global competitors, details to be given later

Interviewer Guide:

• **A Great Framework will include the following:**

- Island Development Market
- Market size & growth
 - Other competitors (market share etc.)
 - Trends (increasing customer, AI usage etc.)
- Nook Co.
 - Services (development / travel agency / hospitality)
 - Customers (B2B / B2C / demographics)
 - Capabilities / Assets (operations, distribution, human resources)
- Financial
 - Valuation & valuation methods
 - ROI
- Other considerations
 - Synergy within portfolio (travel agencies, constructions etc.)
 - Risks (lawsuits, regulations, conflict of interests)

- **A great candidate will focus on market as first step. Otherwise, guide the candidate towards market size calculation.**

Question 1:

- What is the potential market size for premium island vacations?

Notes to Interviewer:

Market Data to provide to help interviewee (when asked for):

- World population is 8 Billion
- Top 0.05% of world population has annual income of 100K+
- Assume target customers visit once every 2 years
- 2 Guests/Room
- Room rate is estimated to be \$10,000 per night, all inclusive (food, service, outdoor activities, etc.)

Criteria	Assumption
World Population	8 Billion
Potential Customers	0.01%
% likelihood to visit	10%
Visit Frequency	Once every 2 years
People/ room	2 People/room
Average Stay	5 nights
Room rate/night	\$10,000
Revenue/year	\$1B

Question 2:

- What is the profit of Nook Co. in 2019?

Notes to Interviewer:

Provide Exhibit 2, 3 when interviewee asks for market/pricing/competitors information. Provide Exhibit 4 when interviewee asks for cost information.

Interviewee should provide insights of the graphs. Identify that Campfire Company is constantly the leading player in the market, with highest market share and profit margin. But Nook Co. is growing very fast in terms of its market share. Interviewee should calculate the 2019 revenue instantly based on market value and market share %, then push for more information on Nook Co's pricing and costs.

Excellent interviewee should

1. Think about the reasons behind its rapid growth, maybe Nook co is superior to the others, or it offers higher value at lower price, etc.
2. Identify that Nook Co. has high administrative cost. This cost may be managed if the company is taken over..
3. Keep in mind about competitor's margin %. After calculating Nook Co.'s profitability, compare it to the competitors, then conclude that Nook Co. has low profit margin %, because it sacrificed its profit to penetrate the market.

Nook Co.: Profit Calculation

- Calculate Profitability of Nook Co.
- Refer to Exhibit A for competitive landscape.
- Refer to Exhibit B for Revenue and Cost for Nook Co. and close competitor.

Math Solution:

- **Nook Co. Revenue** = $28\% * 1B = 280M/year$
- **Annual # of Stays** = $280M / (\$10,000 * 5 \text{ nights}) = 5,600 \text{ stays/year}$
- **Nook Co. Cost** = 196M
 - Variable Costs:
 - Labor:
 - Service Staffs: $2K/month * 12 \text{ month} * 1K = 24M/year$
 - Kitchen Staffs: $3K/month * 12 \text{ month} * 500 = 18M/year$
 - Food and Supplies: $5K/stay * 5,600 \text{ stays} = 28M/year$
 - Transport and Activities: $10K/stay * 5,600 \text{ stays} = 56M/year$
 - Fixed Costs
 - Maintenance and Utilities: 25M/year
 - Insurance: 15M/year
 - Marketing and Ads: 30M/year
- **Profit** = $280M - 196M = 84M/year$
- **Profit Margin** = 30 %

Additional Information:

Provide when asked for, if candidate do not ask, guide candidates to the information

- Nook Co.'s price per stay: \$10,000/night, avg stay is 5 nights
- Across all islands, Nook Co. hires 1,000 service staffs, and 500 kitchen staffs

Question 3:

- Guide the candidate to calculate the ROI on this acquisition. A great candidate will proceed to calculate ROI following Question 2.

Math Solution:

- **NPV of Investment** = $84\text{M}/0.05 = 1.68\text{B}$
- **ROI** = $(1.68\text{B} - 1.5\text{B})/1.68\text{B} = 12\%$
- A good candidate will identify that this is slightly lower than the 15% ROI target.
- An excellent candidate may calculate that if the PE firm can cut the administrative cost by 5M, the ROI will be greater than 15%.

Additional Information:

Discount rate = 5%

Assume Fun Ventures will hold Nook Co. forever, ideally.

Question #4:

- What other potential risks would you like to consider in the acquisition of Nook Co.?

Notes to Interviewer:

Candidate can provide any reasonable answers that establishes logical analysis of the business model and situation. This is a chance to showcase creativity and business acumen on the topic.

Some potential reasons include:

- Internal to Nook Co.
 - Unsustainable high growth rate
 - Customer churn after raising price level to normal
 - Generic service model has no competitive advantage
 - Manipulated financial statements from Nook Co. management
- External to Nook Co.
 - Global warming and rising sea levels submerges owned islands
 - Conflict of interest with portfolio companies (travel agencies etc.)
 - Shift in consumer selection of vacation destinations
 - Safety and legal regulations from government organization

Once candidate is done analyzing risks, push for a recommendation.

Recommendation:

- The recommendation can be either Yes or No, candidate need a direct recommendation with supporting evidence and confidence.
- **Yes Acquisition**
 - ROI close to 15% target, further improvement through PE management
 - High growth rate, limited # of competitors
- **No Acquisition**
 - Does not meet the 15% ROI target
 - Growth through promotion is unsustainable in the long run
 - Slightly low margins vs. competitors

Risks:

- Candidate should include some risks that they brainstormed in Question 4

Next Steps:

- Any logical next steps shall be credited
- Sample Next Steps:
 - Form a taskforce to conduct further due diligence of Nook Co.'s balance sheet
 - Market research current customer base to forecast market growth/pitfall

Bonus: Guide to an excellent case

- A great candidate will take the additional step to sell more work:
 - Help client save on costs and improve ROI
 - Help redesign pricing strategy to retain client while expand market share

Exhibit 1: Nook Co. Resort Example (SE Asia Island)



Exhibit 2: Island Resort Market Share

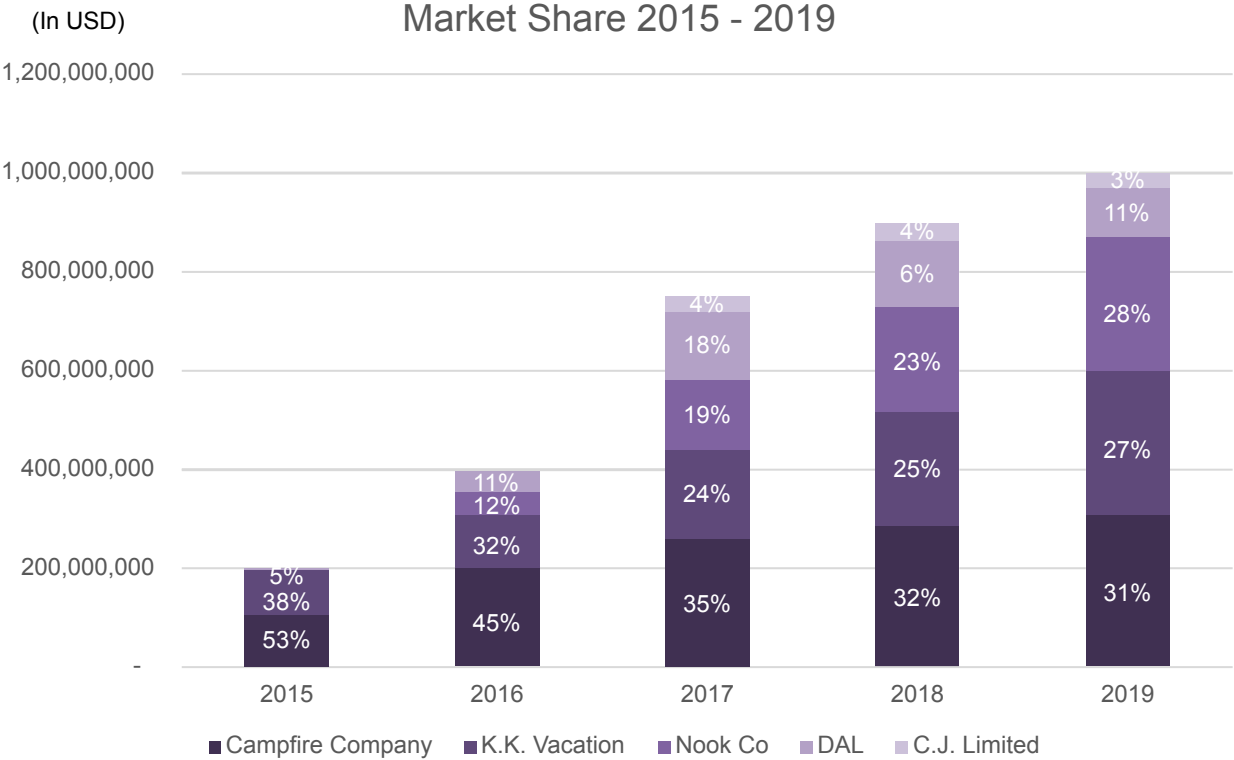


Exhibit 3: Competitors' Price and Gross Profit %

(In USD)

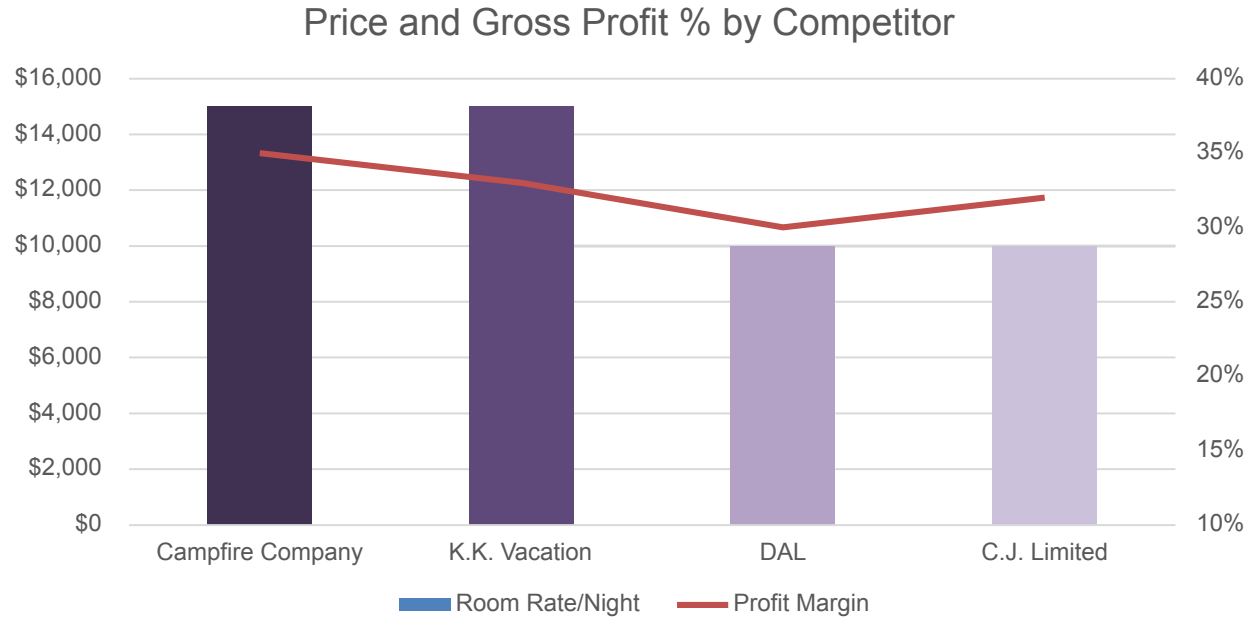


Exhibit 4: Nook Co. Cost Structure

COGS & Salary (Variable Cost)	
Service Staff	\$2,000/month
Kitchen Staff	\$3,000/month
Food & Supplies	\$5,000/stay
Transport	\$10,000/stay

SG&A (Fixed Cost)	
Maintenance, Insurance & Utilities	\$25 M/year
Marketing and Sales	\$15M/year
Administrative	\$30M/year

Authors: John Malfetano, Andrea Monzón, Hart Zeitler (Stern '20) **Firm Style & Round:** Deloitte Round 1
[Interviewee-led]

Quant: 7
Structure: 8

Case Prompt:

Apartment Co is a residential real estate company that owns and operates 10 buildings throughout three different boroughs within New York. The buildings were built between 1975 and 1990 and have been under Apartment Co.'s management since that time. Apartment Co. prides itself on offering affordable, quality apartments for everyday New Yorkers. The only permanent staff in Apartment Co.'s buildings are the doormen. The company operates leasing from their central location in Manhattan, and has contracted with a maintenance service, which will be up for renegotiation soon.

Over the last three years, Apartment Co has decided to invest \$5M in its infrastructure with the hope of commanding higher apartment rent prices. The company has upgraded many of its apartment unit amenities, including kitchen appliances, bathroom fixtures, and flooring. These improvements have yielded high renter demand as well as increased rent prices. Recently, half of Apartment Co.'s buildings added washers and dryers in the basement; the remaining buildings have no laundry facilities. Even in light of these changes, however, management has not seen the increase in profitability it was hoping for. Apartment Co has asked your team to assess ways to achieve higher long-term profitability.

Case Overview:

Industry: Real Estate

Case Type: Profitability

Concepts Tested:

- Sustainability
- Investment Decision
- Cost reduction

Overview Information for Interviewer:

- This case prompt is modeled after a Deloitte case, and is meant to put the candidate out of their comfort zone.
- This case will test the candidate's ability to quickly process a large volume of information while paying little attention to superfluous details
- The case will test three concepts:
 - Profitability
 - Ability to effectively brainstorm
 - Investment Decisions

Clarifying Information:

- The company's sole revenue source is tenant rent (other sources like vending machines and laundry machines are negligible)
- 50 Units per building
- 5 Buildings are in Manhattan, 3 in Brooklyn, and 2 in Queens
- All buildings under management are fully owned (e.g. no outstanding loans)
- The company contracts a staff of 30 to maintain the apartment complexes
- There have been no recent additions to their real estate portfolio.
- Tenants are mostly young working professionals

Interviewer Guide:

- **A Good Framework Will:**
 - Discuss all aspects of profitability:
 - *Revenue:* Occupancy rates, rent prices, yearly rent increase rates
 - *Costs:*
 - VC: Utilities (electricity, gas, water), amenities, hourly labor, maintenance,
 - FC: management team, insurance, property tax
 - *External Factors:* Competing prices in the market, is profitability declining in the market as a whole
- **Necessary Information that should be given only when specifically asked for by interviewee:**
 - The focus is on long-term profitability (not necessarily immediate profitability turn-around)
 - Expenditures in the short-term must equate to long-term profitability increase

NOTE: After profitability framework, candidate should ask for financial data - provide with Exhibit 1 to 5

Question #1:

Transition to Brainstorm once candidate begins questioning utility costs:

Reveal to candidate that beginning in 2017, management decided to pay for utilities as part of the rental lease agreement in order to be competitive in the marketplace.

QUESTION: What are some ways that Apartment Co. can reduce their utilities expense?

Notes to Interviewer:

- Brainstorm should be simple but bucketed into logical categories. Examples include:
 - **Demand vs Supply Side:**
 - DS: Encourage turning AC off; Turn lights off
 - SS: Building upgrades, solar paneling, automatic on/off, more efficient lighting
 - **Water, Gas and Electricity** reduction strategies

Once candidate identifies **either efficient lighting and/or solar paneling** as potential options, proceed with investment scenarios for each (Next Slide). If candidate does not suggest either of these options, prompt them until they do.

Great brainstorm goes above and beyond basic solutions. Gives creative solutions to the above (i.e. rewards for people with least energy consumption)

Apartment Co: Math Question #1

Next Question (read to candidate): After further review, we have determined that the two most attractive electricity reduction strategies are installing more energy efficient lighting and installing solar paneling. Evaluate these two options.

Candidate should request information necessary to determine which option is best.

Investment Decision 1: Energy Efficient Lighting

Math Solution:

Annual Energy Savings:

- Killowatt Hours Saved/Bulb: 100
- Killowatt Hours Saved Total (100 x 50,000 bulbs): 5,000,000
- \$/Killowatt Hour Saved (From exhibit 2): \$0.15

Total Annual Savings: 5,000,000 kWh x \$0.15/kWh: \$750,000

Installation Cost:

- Cost to Install: \$30/bulb
- # of Bulbs (5,000 bulbs/bldg x 10 bldgs): 50,000 bulbs

Total Cost: \$30/bulb x 50,000 bulbs: \$1,500,000

Note, the candidate should quickly realize the breakeven point for this investment is two years, with annual savings of \$750K for 8 years (assuming 10 year bulb lifespan)

Math Information

(Provide Verbally):

Installation Cost: \$30/bulb

of Bulbs/Bldg: 5,000

Killowatt Hours (kWh) saved/bulb:
100

Savings Calculation (offer if candidate struggling):

\$/kwh (per exhibit 2) x # of kWh saved

Avg. LED bulb lifespan:
10 years

Investment Decision 2: Solar Panels

If running out of time, ask candidate to present formula to calculate the solar panels payback and then provide answer.

Math Solution:

Annual Energy Savings:

- Kilowatt Hours Saved/per square foot of solar panel = 400
- Kilowatt Hours Saved Total (400 x 16,000 square feet): 6,400,000
- \$/Kilowatt Hour Saved (From exhibit 2): \$0.15

Total Annual Savings: 6,400,000 kWh x \$0.15/kWh: \$960,000

Installation Cost:

- Installation Cost: \$200 X \$1,600 X 10 buildings

Total Cost: \$3,200,000

Note, the candidate should quickly realize the breakeven point for this investment is about three years, with annual savings of \$960K for 17 years (assuming 20 year life span)

Math Information:

(Provide Verbally)

Installation Cost: \$200/per square foot (all-in maintenance and labor cost)

Usable Area of Roofs = 40 ft W X 40 ft L = 1,600 Sq ft

Kilowatt Hours (kWh) saved/sq foot of panel: 400

Avg. Solar Panel lifespan: 20 years

Recommendation:

- There are many possible recommendations, the candidate should pick one and support it with data from the case. Options include:
- Install solar panels (greatest savings per year, more savings overall, tax benefits)
- Install light bulbs (quick payback, lower cost)
- Do both (candidate notes strong cash financial condition allows for both)
- Do nothing (candidate shows total savings are not high enough to justify risk)

Risks:

- Volatile energy prices
- High upfront costs
- Fickle consumer tastes
- Opportunity costs: where else can the building make an investment with this money?
- Tenants pilfering bulbs given high cost

Next Steps:

- Research solar panel providers, light-bulb providers
- Secure subcontractor partners to install paneling and/or lighting installation
- Pilot in one building to ensure savings calculations are as expected

Bonus: Guide to an excellent case

- A great candidate will be able to focus on the important information given and be able to quickly identify that utilities are main cause for cost reduction (depreciation is due to recent amenities investment).
- A great candidate will be able to creatively think about the risks and benefits associated with both investments:
 - Solar panels: state/federal subsidies, government regulation
 - Lighting: residents breaking/replacing bulbs

Exhibit #1: Apartment Co. Financials

In '000s	2016	2017	2018
Revenues:			
Tenant Rent	17,000	20,000	20,500
Costs:			
Property Management	5,000	5,300	5,400
Repair and Maintenance	2,000	2,000	2,100
Property Taxes	800	800	800
Occupancy (Utilities, Insurance)	1,200	1,900	2,000
Depreciation	300	1,000	1,000
Total Costs:	9,300	11,100	11,600

Exhibit #2: Apartment Co.

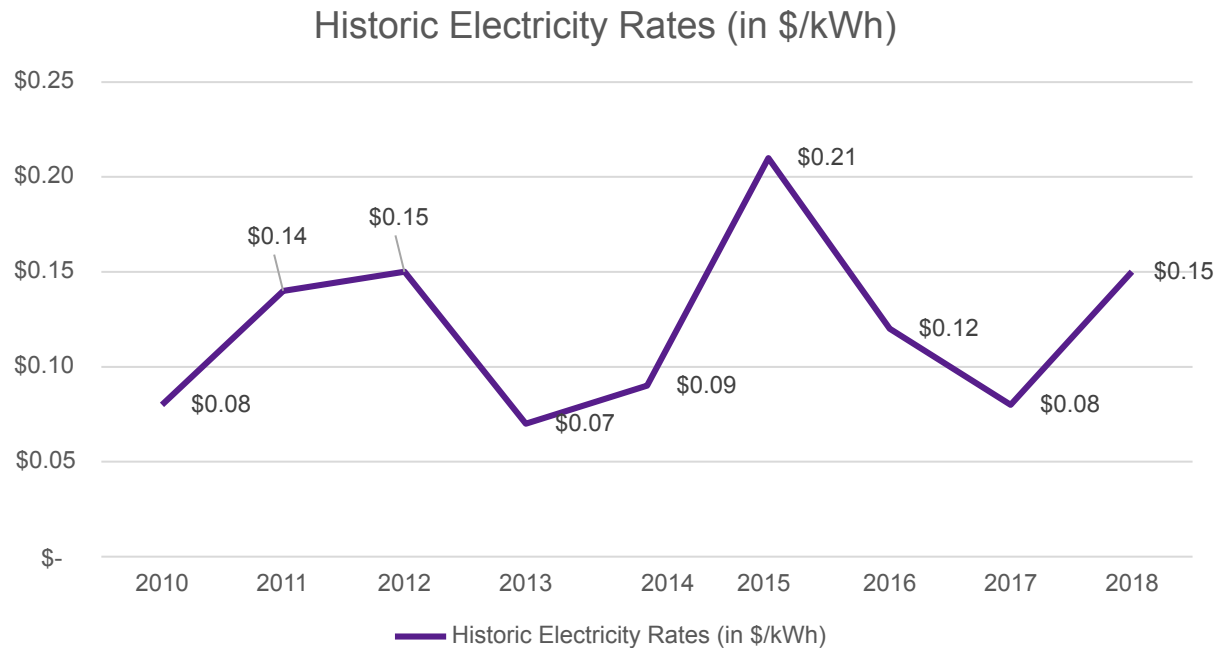


Exhibit #3: Apartment Co.

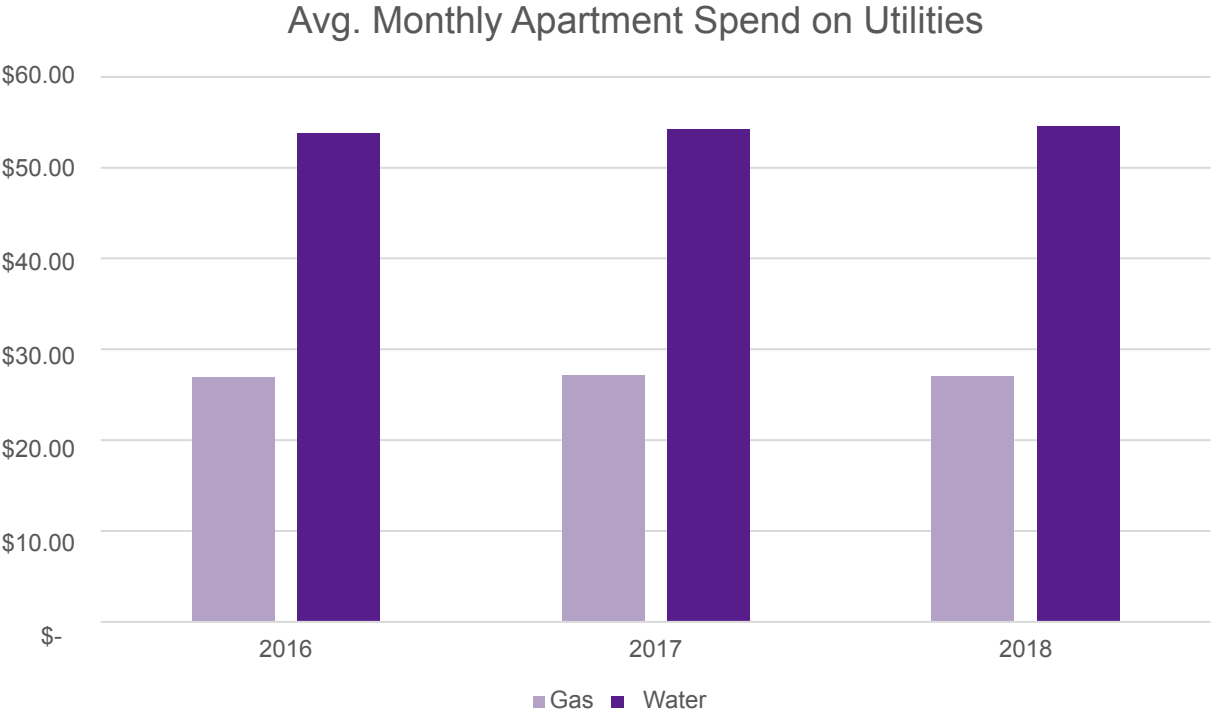


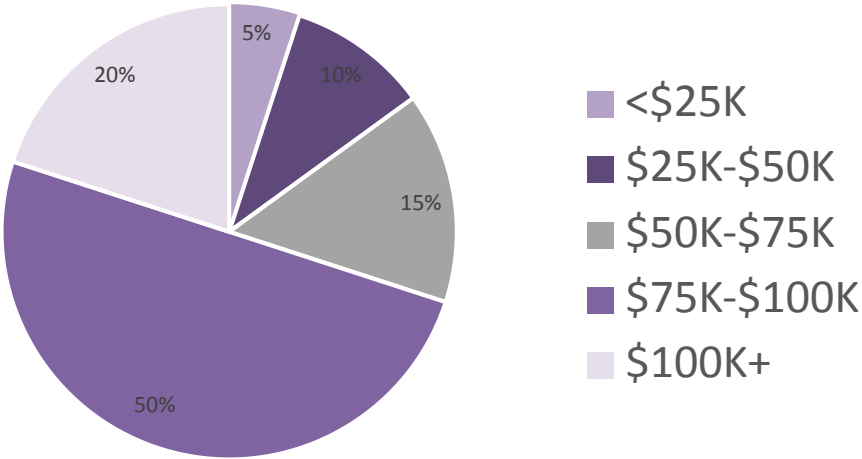
Exhibit #4: Apartment Co.



Note: The average salary for Apartment Co Management is \$67K/year

Exhibit #5: Apartment Co.

Income level of residents



Author: Jeremy Russell '21 **Firm Style & Round:** L.E.K. Consulting (Round 1 and Final)
Interviewer-led

Quant: 8
Structure: 6

Case Prompt:

Hamilton & Hamilton (H&H), a multinational pharmaceutical company, is considering acquiring Sternofi, a biotechnology company with a promising drug candidate in phase 2 clinical trials called Deanraghutumab. Should H&H go through with this acquisition?

Case Overview:

Industry: Pharmaceutical

Case Type: M&A

Concepts Tested:

- Algebra
- Market sizing

Overview Information for Interviewer:

- This case is intended to emulate the quantitative cases in both rounds of LEK recruiting. It is essentially a math puzzle that, once they find the right place to start, should unravel fairly seamlessly. The key is for the interviewee to think in a structured manner by recording data in tabular form, which will make the path towards solving the question clear.
- The decision to acquire or not acquire is necessarily ambiguous, so the candidate can choose either option, so long as it is logically supported.

Clarifying Information:

- The drug candidate treats pancreatic cancer.
- Sternofi has several other drugs in its pipeline, but they are in earlier stages of development and it is too hard to predict how successful they will be at this point.
- Clinical trial data suggests Deanraghutumab may be more efficacious than the current standard of care, though, like many cancer drugs, it cannot treat 100% of cases.
- Focus only on the US market.
- H&H has few oncology products and is looking to expand into that therapeutic area.

Interviewer Guide:

All frameworks should attempt to understand the **market size and composition**, if it does not, re-direct the interviewee to focus on this. An **acceptable framework** will seek to understand:

- How good the drug is; and
- Sternofi's potential profits and return on investment.

An **ideal framework** will consider:

- The target company's position within the acquirer's portfolio;
- Consider potential synergies; and
- Highlight key risks.

Necessary information that should be given only when specifically asked for by interviewee:

- > Approximately 65,000 people are diagnosed with pancreatic cancer in the US per year (this information will be given in Question 1).
- > The pancreatic cancer market is \$1.5B per year in the US (this information will be given in Question 1).
- > Deanraghutumab has 12 more years of patent protection from today (necessary for Question 3). The financials calculated in Question 1 are based on the period of exclusivity.
- > H&H wants to break-even within 8 years of acquisition.

- **Understanding the market / drug indication**

- Product: Comparison vs. existing care
- Patients: who are they
- Costs: price relative to existing care

- **Understanding the company / understanding benefits to acquisition**

- Synergies – sales, drug development, post-market safety, manufacturing
- Access to a new therapeutic area (oncology)
- Access to new geographical markets

- **Economics of the deal**

- Expected profits, revenues, and costs
- Price and/or ROI
- Method of financing

- **Risks**

- Drug approval risk (FDA)
- Merger approval (DoJ)
- Patents protection period
- Ability to market overseas
- Insurance reimbursement
- Competitor response – development of new drugs

Question 1 (interviewer is to read the whole prompt):

Sternofi has conducted research and developed the following annual projections once Deanraghutumab is approved. It is based on annual revenues and annual pancreatic cancer diagnoses. Assume that the price charged to each patient diagnosed in a given year is the expected present value of the course of treatment.

- There are four major companies in this space: Sternofi and competitors A, B, and C, and several other smaller companies that capture the balance of the market.
- Competitor A has 50% greater market share by patients than Competitor B. Competitor C has two thirds less market share by patient than Competitor A. We expect that Sternofi will capture twice Competitor B's market share by patient. The other companies capture the balance, which is 15,000 patients per year. Overall, approximately 65,000 people are diagnosed with pancreatic cancer each year.
- From a revenue perspective, "other" companies capture one fifth of the \$1.5B annual market.
- Competitor C is priced the same as the average of the "other" contingent. Competitor B charges 25% more than that, and Competitor A charges \$10,000 per treatment less than C.
- What are the expected revenues and unit prices for Sternofi?

Sternofi: Question 1 (cont.)

Company	Market Share (000s, relative)	Market share (000s, absolute)	Price per patient (000s)	Revenues (millions)
Sternofi	2X	20	35	700
A	1.5X	15	10	150
B	X	10	25	250
C	0.5X	5	20	100
Other	15	15	20	300
Total	65	65		1500

Note: information shaded in orange is provided in the prompt, and information shaded in green is to be calculated by the candidate.

Notes to the interviewer:

- Notes
 - Candidates are welcome to ask to repeat any information given – this is an opportunity to assess their poise in willingness to ask for help. However, note that all necessary information is provided to the candidate in the prompt, and no clarification should be necessary.
 - Focus on annual new revenues (i.e., 65,000 patients is the market size by patient each year).
 - The “other” companies should be considered as one entity.
- After calculating the required information, an **astute candidate will contextualize the data** and may mention some of the following:
 - Sternofi will reach the largest position in the market by revenue (approximately half of the market by revenue).
 - Sternofi will be the market leader by patients (approximately 30% of patients).
 - If the candidate asks why Sternofi cannot capture the entire market, mention that patients respond differently to treatments.

Question 2:

- It sounds like Deanraghutumab is going to be a major player in this market. What are some of the risks facing Sternofi if H&H acquires it? *If the candidate does not offer ways to mitigate these risks, ask about how to avoid them.*

Notes to Interviewer:

Some example risks (copied from the illustrative framework):

- Drug approval risk (FDA)
- Merger approval (Department of Justice)
- Patents protection period
- Ability to market overseas
- Insurance reimbursement
- Competitor response – development of new drugs

Question 3:

It sounds like Deanraghutumab shows a lot of promise, and Sternofi is willing to be acquired for \$2.3b in cash. Should H&H purchase it?

Math Solution:

Years 1 to 4 net income = \$0 revenue - \$50m costs = -\$50m

Years 5 to 8 net income = \$700m revenue - \$20m fixed costs - 20k x \$4k variable costs = \$600m net income

Cumulative net income by end of year 8 = 4 x -\$50m + 4 x \$600m = \$2,200m

Given break even target of 8 years, \$2,300 price > \$2,200 revenue, thus it does not meet the break-even criterion.

Alternatively: Break even time = (\$2,300m price + [4 x \$50m] development costs) / \$600m net income = 4.17 years

Adding in the four years of development (with zero revenues), the figure becomes 8.17 years

Since it is very close to the break even target, go and no-go are both valid responses if adequately supported.

- **Reasons to acquire** – (1) the break-even figure is very close; (2) there may be revenue and cost synergies to make net profit higher; (3) Sternofi can look to commercialize the product abroad; (4) the other drugs in development might be worth \$100m.
- **Reasons not to acquire** – (1) break-even period is slightly longer than required, (2) risks outlined in question 2 could prove insurmountable.

Math Information:

- H&H's intended **break-even time**: 8 years
- **Annual revenue**: \$700m
- **Annual fixed costs**: \$20m
- **Variable costs** per treatment: \$4,000
- **Number of treatments**: 20,000 (from question 1)
- **Development costs** per year: \$50m
- **Development time** remaining: 4 years
- **Revenue growth**: 0%
- **Notes:**
 - H&H **does** have the financial resources to acquire Sternofi
 - A good candidate will mention something about present value of cashflows – **assume all values are present values** but valid for the candidate to mention this as a potential reason for a “do not acquire” recommendation

Author: Kamini Khanjee (Stern '20) & Connie Meltzer (Stern '20) **[Interviewer-Led]**

Quant: 8*
Structure: 7*

Case Prompt:

Your client is Proctor & Gamble, which owns Tampax and Always, leading menstrual product brands in the US. With the rise in sustainability focused products, P&G's in-house R&D team has developed a hypoallergenic and eco-friendly high-grade silicone material for use in upcoming products launches. They are interested in using the material to make menstrual cups to add to their line of consumer care products. Should they sell the silicone menstrual cups?

Case Overview:

Industry: Consumer Packaged Goods

Case Type: Product Launch,
Profitability

Concepts Tested:

- Market Sizing
- Profitability
- Pricing

Overview Information for Interviewer:

Interviewee should be able to...

- Assess the market size for such a product
- Read charts and provide insight and analysis based on that information

Key case steps:

- Conduct market size to assess menstrual cups and evaluate market attractiveness
- Evaluate customer willingness to switch products
- Calculate price to offset cannibalization of current product offerings
- Assess qualitative risks and challenges

Clarifying Information:

Success:

- P&G will manufacture and sell the product if at least 10% of customers willing to purchase menstrual cups are willing to pay for it, and the inherent cannibalization doesn't negatively impact sales

Competitors:

- Stand alone brands such as Diva Cup, Softcup, Blossom, Saalt, and Lena

Product Information:

- Environmentally friendly with an average 5 year lifespan before recycling
- R&D investment costs of \$12M
- Compound discount rate for a 5 year period is 10%

Client Characteristics:

- P&G is a large CPG company that owns other menstrual product brands like Tampax (tampons) and Always (pads).

Interviewer Guide:

A Good Framework Will:

- **Consider pricing and volume factors:** including market size, consumer WTP, competitor prices, cannibalization of other product sales
- **Marketing factors** - sustainability, price comparison to other products, long term cost savings for customers, target segments, portability
- **Competition** - new entrants, market saturation
- **Risks** - product cannibalization, R&D costs, manufacturing costs

Question 1: Market Sizing

Calculate the US market size for such a product.

Notes to Interviewer:

- The interviewee should do a top down approach to this market size. They are allowed to round and give the following information if asked for.

Market Data to provide to help interviewee if asked for:

- Population of U.S.: 330 Million
- Female Population: 165 Million
- Assume even distribution of population from 0-80
- Assume menstruation starts at 10 and ends at 50
- Assume a 10% willingness to use such a product
- Comparable product price: \$40
- Market capture: aggressive 10% in first year, 5%

Possible Math for Market size:

- Population of U.S.: 330M
- Female Population (50%) 165M
- Even distribution of pop from 0-80 ($/8$): 20.625M
- Menstruation Ages 10 to 50 ($\times 4$): 82.5M
- Estimate 10% of addressable market is willing to use such a product ($\times .10$): 8.25M
- Comparable product price ($\times \$40$): \$330M
- Market capture in first year: Aggressive 10%: \$33M
Conservative 5%: \$16.5M

Question 2: Survey Analysis

Proctor and Gamble conducted a survey sent to all US women aged 18-50 to determine their willingness to switch from their current menstrual products to a menstrual cup. This exhibit (**Exhibit A**) shows the answers from that survey. Based on this information, what adjustments would you make to your market size?

Notes to Interviewer:

Additional information:

- Survey was sent to approximately 64M women
- Total survey respondents: 3.2M
- P&G believes this survey accurately represents the population's interest in this product
- P&G believes they could switch a quarter of the undecided 40% to use the product with 10% market capture in Year 1

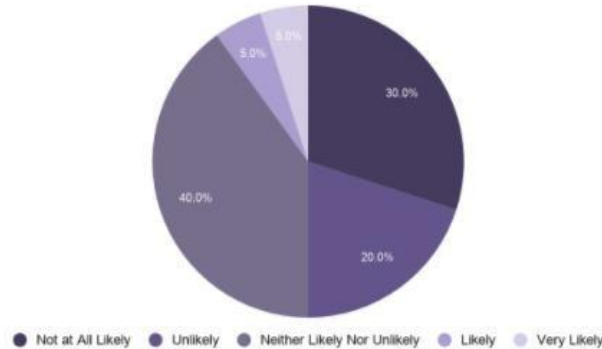
Possible answers are:

- My market size looks right. I would just double the market size based on the additional 10% of consumers (¼ of 40%) P&G believes they could achieve.
- I'll add this willingness to use component to my market size (20% after all menstruating females) and calculate potential revenue with any sales data available.

Possible Adjusted Math Based on Market Size:

20% willingness to use such a product (x .20): 16.5M
Comparable product price(x\$40):
\$660M
Market capture in first year:
Aggressive 10%: \$66M
Conservative 5%: \$33M

Customer willingness to change to a menstrual cup



Survey response rate: 5%

Key Insights Interviewer Should Look For:

- 40% of population is unsure about whether they would switch to this product. Marketing will be key to the product's success.
- Interviewee should ask if P&G thinks they can break into that subset of the market.
- If the interviewee did not think about customer willingness to use this product in their market size, this will give them the 10% to adjust.

Question 3: Case Math

Given the information in **Exhibit B** and **Exhibit C**, how should P&G price the menstrual cup in order to offset cannibalization of current menstrual care product sales?

Math Solution:

Annual Sales per Customer = Average Price x Annual Frequency of Purchase =
\$90 using **Exhibit B** [Rounded]

- Tampons = $\$7 \times 10 = \70
- Pads = $\$7 \times 2 = \14
- Liners = $\$6 \times 1 = \6

Affected Annual Sales of Existing Care Products = Addressable Market x Sales per Customer = \$148.5M

- Addressable Market from market size adjusted for Market Capture = 16.5M customers x 10% market capture in Year 1 = 1.65M customers
- Annual Sales per Customer = \$90/year
 - 1.65M customers x \$90/year = \$148.5M

Potential Cannibalized Revenue = Annual Sales x 5-year product lifespan = \$742.5M

[Interviewer to provide when Interviewee discusses discount rate]

Approximate PV @ 10% Discount Rate = $\$742.5M / (1 + 10\%) = \$675M$

Math Information:

- Use 10% market capture from 'Clarifying Information' section to calculate cannibalized annual sales of existing care products
- Redirect interviewees to use 16.5M as addressable market, as needed
- Gross up sales for 5-year cup lifespan
- Provide \$675M PV after Interviewee acknowledges 10% discount rate
- Assume that the calculation is based on a woman buying all of the products listed

Question 3: Case Math

Given the information in **Exhibit B** and **Exhibit C**, how should P&G price the menstrual cup in order to avoid negative cannibalization of current menstrual care product sales?

Math Solution:

Calculate Estimated Annual Sales per Customer for Complimentary Products

=Average Price x Annual Frequency of Purchase = \$85 using **Exhibit C** [Rounded]

- Discs = \$15 x 2 = \$30
- Wash = \$7 x 4 = \$28
- Wipes = \$6.75 x 4 = \$27

Estimated Annual Sales for Complimentary Products = Addressable Market x Sales per Customer = \$140.25M

- Addressable Market from market size adjusted for Market Capture = 16.5M customers x 10% market capture in Year 1 = 1.65M customers
- Annual Sales per Customer = \$85/year
 - 1.65M customers x \$85/year = \$140.25M

Potential Complimentary Revenue = Annual Sales \$140.25M x 5-year product lifespan = \$701.25M

[Interviewer to provide when Interviewee discusses discount rate]

Approximate PV @ 10% Discount Rate = $\$701.25M / (1 + 10\%)^5 = 435.42M$

Math Information:

- Use 10% market capture from 'Clarifying Information' section to calculate cannibalized annual sales of existing care products
- Gross up sales for 5-year cup lifespan
- Provide \$637.5M PV after Interviewee acknowledges 5% discount rate

Question 3: Case Math

Given the information in **Exhibit B** and **Exhibit C**, how should P&G price the menstrual cup in order to avoid negative cannibalization of current menstrual care product sales?

Math Solution:

Breakeven Unit Price = (Cannibalized Revenue + R&D Costs - Estimated Complimentary Revenue)/Captured User Market

- Cannibalized Revenue = \$675M
- R&D Costs = \$12M
- Estimated Complementary Revenue = \$637.5
 - $\$675\text{M} + \$12\text{M} - \$637.5\text{M} = \49.5M
 - Breakeven Unit Price = $\$49.5\text{M}/1.65\text{M} = \$30/\text{cup}$

Math Information:

- Interviewee should approximate break-even price per unit between \$25-30

Question 4: Product Launch Feasibility

Given the information in **Exhibit D** and the break-even unit sales price calculated in Question 3,

Math Solution:

Interviewees should add all respondents in each category from 21+
10% of survey respondents: $1,620 \cdot .10 = 162(K)$

$$NLU: 260 + 156 + 104 = 520 \cdot .25 = 130K$$

$$L: 40 + 24 + 16 = 80$$

$$VL: 40 + 32 + 16 = 88$$

$$NLU + L + VL = 298K$$

$298K > 162K$ thus they should launch the product.

Information:

- All respondents for a certain price category will purchase at any price in that category
- Remind Interviewee that at least 10% of customers interested in menstrual cup are willing to pay the break-even unit sales price
- Remind Interviewee that P&G estimates that they can convert 25% or a quarter of respondents in the “Neither Likely or Unlikely” category to purchasers of the menstrual cup

Question 5: Marketing Brainstorm

P&G has noticed consumers increased interest in sustainability. What suggestions would you have for the marketing team to promote the menstrual cup? How can P&G lean into this consume interest in their other menstrual products?

Notes to Interviewer:

Pro Cup

4Ps

Product - ease of use, new material

Pricing - according to customer WTP and previous calculations

Place - pharmacies, DTC channels

Promotion - ease of use, sustainability factors, lifetime savings vs. tampons & pads, influencer marketing options

Non-Cup

4Ps

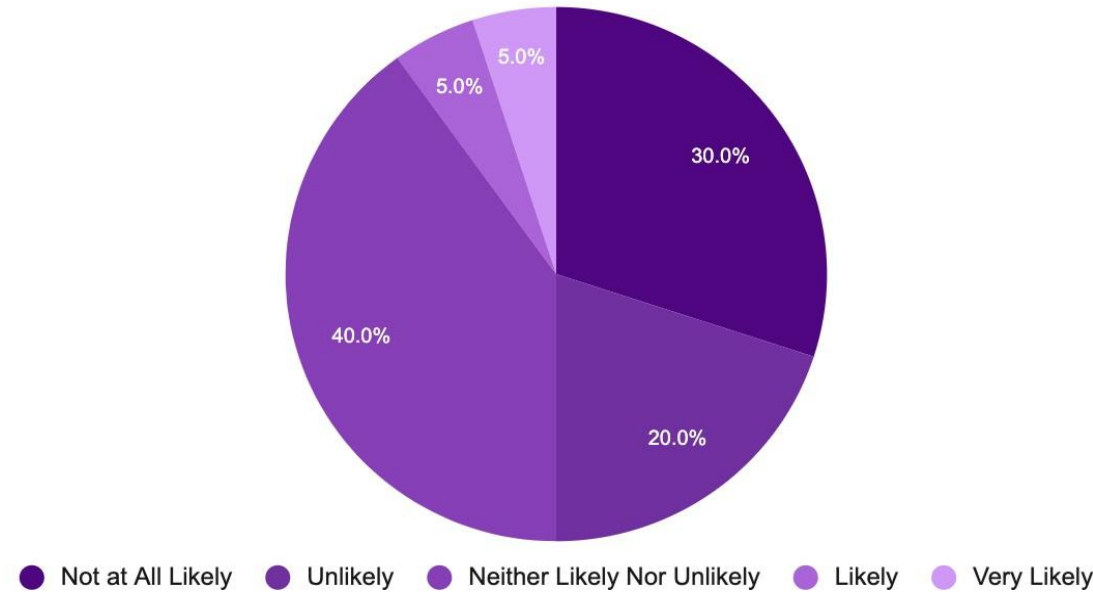
Product - changing to fully biodegradable materials, less packaging, transparency on product ingredients, organic products

Pricing - same quality product at the price you know

Place - pharmacies, online retailers, grocery stores

Promotion - sustainability focused ad campaign based on new products.

Customer willingness to change to a menstrual cup



Survey response rate: 5%

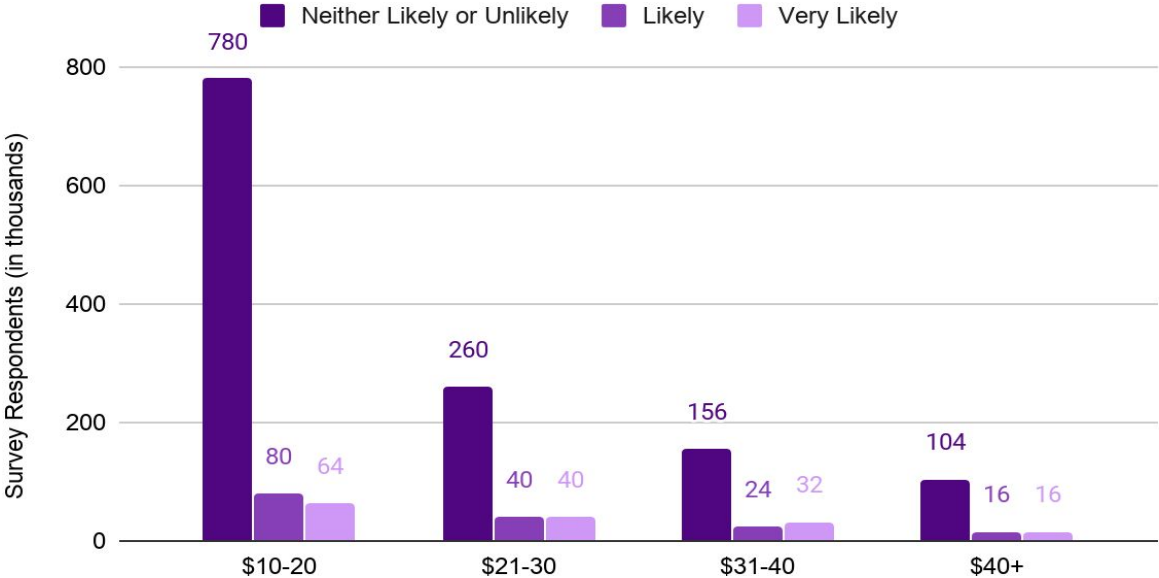
Current sales information for P&G's menstrual care product line

	Average Price	Units	Price/Unit	Annual Frequency of Purchase
Tampons	\$6.99	28	\$0.25	10
Pads	\$6.99	46	\$0.15	2
Liners	\$5.99	100	\$0.06	1

Estimated sales information for new complementary products for the menstrual cup

	Average Price	Units	Price/Unit	Annual Frequency of Purchase
Single-use Discs	\$14.99	12	\$1.25	2
Wash	\$6.99	1	\$6.99	4
Wipes	\$6.75	10	\$0.68	4

Customer Willingness to Pay for Menstrual Cup



Survey response rate: 5%
Total survey respondents : 1,620

Recommendation:

- The interviewee should have a clear position on whether P&G should produce and sell this product based on their calculations and whether it reaches the threshold for the client.
- An excellent interviewee will include the market size and what price they would sell the product at if producing and why

Risks:

- Excessive product cannibalization
- Incorrect estimated revenue and purchasing frequency
- Lower market capture/ customer adoption
- More profitable products to be made out of the new material

Next Steps:

- Begin production of menstrual cups
- Develop comprehensive marketing plan and contact current retailers for promotions and shelf options
- Consider expanding product sales for additional markets
- 1:1 donations to developing markets

Bonus: Guide to an excellent case

- This case builds on itself. An excellent interviewer will remember each aspect of the previous section and bring it into the next one.
- There's a lot of math in this case. An excellent interviewer will have neatly organized math that makes it easy for them to calculate and keep track of their data.
- An excellent interviewee will have out of the box marketing ideas and note that P&G is focused on sustainability.

Author: Yuting Mao (Stern '21)
[Interviewer Led]

Quant: 7
Structure: 9

Case Prompt:

Funguy Corporation is a small producer and wholesaler of agricultural fungicides. After a yearly financial review, they find one of their proprietary products, Formula X, is likely to be operating at a loss.

They ask you to quantify the exact loss and find options on how to return Formula X to profitability.

Case Overview:

Industry: Industrial Products

Case Type: Profitability and Operations

Concepts Tested:

- Conceptual Understanding
- Operations

Overview Information for Interviewer:

The Interviewer is recommended to thoroughly review the case beforehand to understand all the nuances. This case primarily tests an interviewee's ability to quickly understand and utilize new concepts and information. The fungicide industry was chosen due to its niche field. The first two questions will keep the case in standard interview timing. The third and fourth questions are meant to critically test key understanding.

Key case steps:

1. Framework
2. Operations and Profitability (Quant) Analysis
3. Brainstorming
4. Recommendation

*Quant indicates how much math is involved and Structure represents the level of difficulty around developing frameworks. **1 = Easiest, 10 = Hardest**

Clarifying Information:

Competitors:

- Large international competitors for all products

Market Growth:

- Market is mature and growing at the inflation rate
- Demand for Formula X is at a greater rate

Product Benefits:

- New product very effective since fungi have not yet developed resistance (primarily used on soybeans and other legumes)
- Patented, with 10 years left on patent

Client Characteristics:

- Primarily producer and wholesaler
- Owns a production plant and several distribution centers
- Business is conducted with several-year long contracts with both suppliers and buyers

Interviewer Guide:

• A Good Framework Will consider factors affecting profitability:

- Revenues
 - Price x Vol
 - Price of Formula X
 - Volume of sales
 - Licensing: Funguy Corp selling their design for \$
- Costs
 - Fixed Costs: Infrastructure, CapEx, Insurance
 - Variable Costs: Labor, COGS, Misc Operating Costs
- Other considerations
 - Legal, Patent, and Compliance Considerations
 - Competition
 - Market growth and agricultural trends
 - Geography of operations and sales
 - Cannibalization of sales from other products

○ **Interviewer can end the case for whatever reason they deem appropriate (ex. timing, candidate is stuck, etc.) and ask for a recommendation**

Question 1:

Quantify our current profitability loss

Notes to Interviewer:

Candidate's framework should ask about components of profitability and ultimately touch upon operations.

Review and utilize interviewer copies of Exhibit A to present information to candidate. [Interviewer Copy A] outlines the general process of the facility. Interviewer may provide candidate with Exhibit A or simply read out the information and allow interviewee to develop structure (far more difficult).

[Interviewer Copy B] provides a visual guide to the quantitative analysis for profitability. For ease, ask the candidate to solve in daily or per-batch quantities.

The purpose is to test their understanding of the information. Another key skill is being able to structure all information in an accessible format. Interviewer should nudge the candidate in the right direction for minor math errors.

Key Result:

Formula X operations is currently losing \$5000 per batch or \$10000 per day.

Question 2:

Brainstorm ways to increase profitability

Notes to Interviewer:

Candidate should go back to their original framework in conjunction with their new operations information/data to come up with solid ideas on profitability improvement. Below is an example where costs and revenues are specified as supplier and buyer.

Supplier

1. Renegotiate Pricing
2. Find cheaper supplier
3. Buy in bulk for discount
4. Ingredients with lower unusable content

Operations

1. Run three batches [1]
2. Reuse rejects from screens [2]
3. Increase operational efficiency
 - a) Lower misc/labor cost
 - b) Lower scrubber cost

Buyer

1. Renegotiate Pricing
2. Sell to retail
3. Adjust target market
4. Advertise

After brainstorming, help candidate narrow down their choices by noting that supplier and buyers are currently locked in 5-year contracts. Lead them to [1]. State that [2] would currently require significant capital investments, which they don't have.

Question 3:

What is the effect of running three batches on operating profit?

Notes to Interviewer:

Question candidate on what assumptions we are making:

1. Suppliers have enough ingredients
2. Demand from buyers can support increase in product
3. Operations can support running 24 hours

Question candidate on how cost and revenue structure would change:

1. Labor cost increase: Labor/Misc. costs increase \$20K → \$25K for 3rd batch
2. Important note: scrubber still only needs to operate twice.
 - a) 600kg/day → 900kg/day waste, which is still less than 1000kg cleaned for two cycles of operation
3. Total Cost for 3rd batch is \$150K with same \$160K in revenue.

Key Result If we use scrubber still only has to operate twice, we improve marginal cost. Formula X operations is currently now breaking even.

If candidate mentioned [2] from Question 2, move to next question. If not, probe on alternate ways to improve operations further to move into the positive.

Question 4:

What is the effect of recycling the reject pile on long term operating profit?

Notes to Interviewer:

Note that client wants long term operating margin and is currently ignoring the capital costs of installing equipment necessary for recycle operations. Assume new infrastructure increases capacity just enough to run the total mass of the reject pile *per batch* (150kg).

Question on where you could place the re-injection of reject pile. Correct answer is anywhere before the granulator (best answer is Mixer). Note that Formula X turns from slurry to solid in granulator. Therefore, re-injecting anywhere from granulator and downstream would keep the reject pellets at the same reject size. They need to be placed somewhere where the process is still liquid.

Key understanding that injecting at mixer would still result in losing 20% at granulator *and* screens.
 $150\text{kg} * 80\% * 80\% = 96\text{kg}$
 $96\text{kg} * \$200 = \$19,200$ per batch

Question how many batches of reject piles you could do per day.

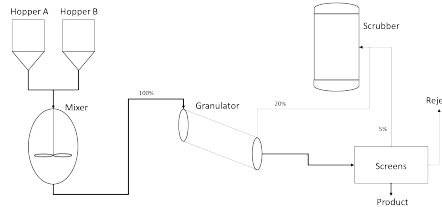
- Note that each reject pile also results in an additional 36kg of waste to the scrubber.
- The scrubber only has an additional 100kg of capacity at 3 batches/day and 2 cycles
- A third reject pile results in another scrubber cycle and net incremental loss of \$800
- Candidate may suggest partial reject pile for 3rd batch. For ease, assume reject pile is all or nothing.

Key Result:

Reject recycle can be operated twice and must be inserted somewhere before the granulator.

Formula X operations is currently now netting \$19,200/batch or \$38,400/day.

Fungicide – Exhibit A – INTERVIEWER COPY A



Guide to Formula X Process [Read to candidate]:

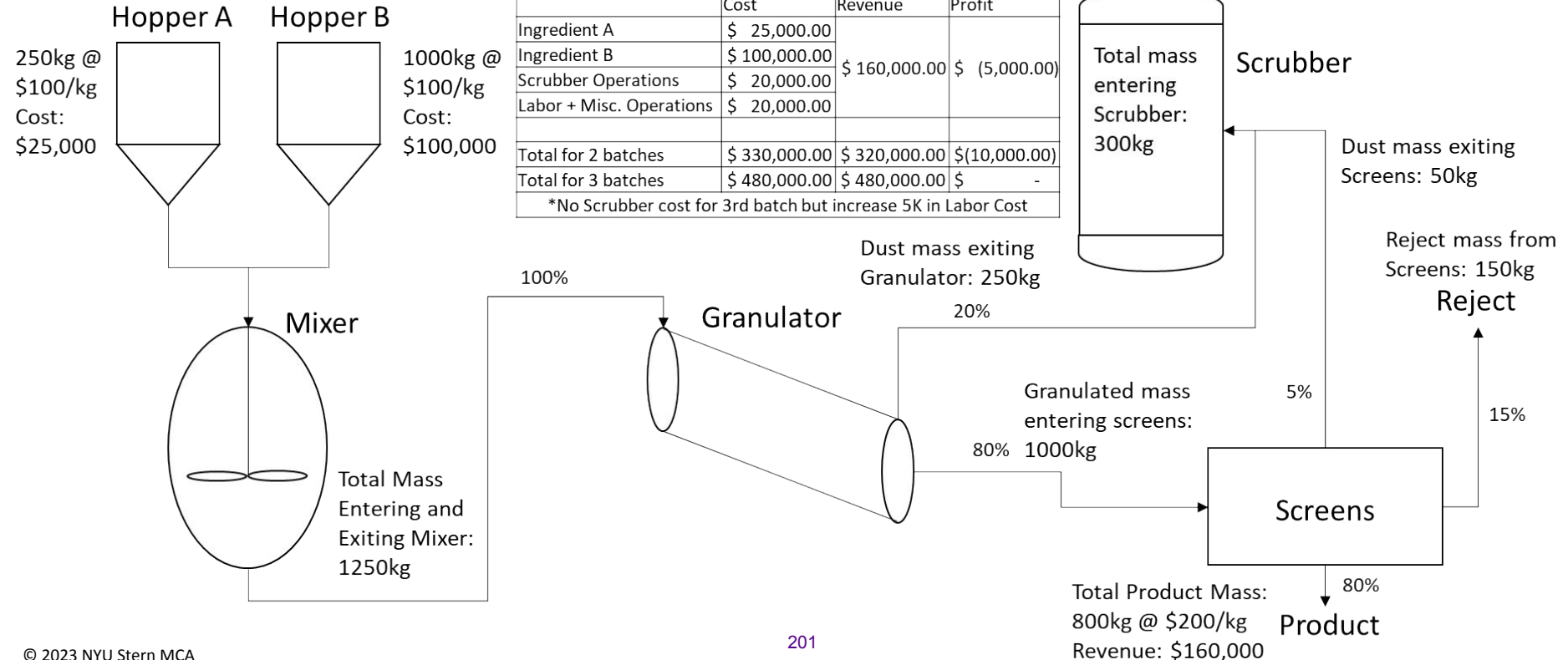
Formula X is created by mixing Ingredients A and B and then turning them into pellets and sizing them. Formula X is currently run in batches, with 2 batches a day (each an 8 hour shift). The site is not suitable for continuous operation and is currently at capacity. For technical people: mass is conserved throughout this process (all physical reactions). Below information is all per-batch.

1. [Hoppers] are metal bins that hold ingredients A and B. Each batch uses 250kg of A @ \$100/kg and 1000kg of B @ \$100/kg. Ingredients A and B enter the hopper as a slurry.
2. [Mixer] is a large tank that mixes the ingredients together in a liquid slurry.
3. [Granulator] is a drum which dries the mixture and forms them into pellets. 20% of the mass entering the granulator goes off to a scrubber as unusable dust and water vapor.
4. [Screens] allow the correct pellet sizes to collect as final product, which is sold @ \$200/kg. 5% of mass entering screens goes off to scrubber as unusables. 15% are rejected based on size, but are otherwise identical to final product.
5. [Scrubber] collects and cleans dust and water vapor. It only needs to operate once 500kg has accumulated and costs \$20,000 to operate once. However, it must end a 24 hour period, completely clean. (ex. 500kg -> scrubber only needs to run once. 501kg -> needs to run twice)
6. [MISC] costs include mainly labor and all other operational costs, totaling \$20,000 per batch.

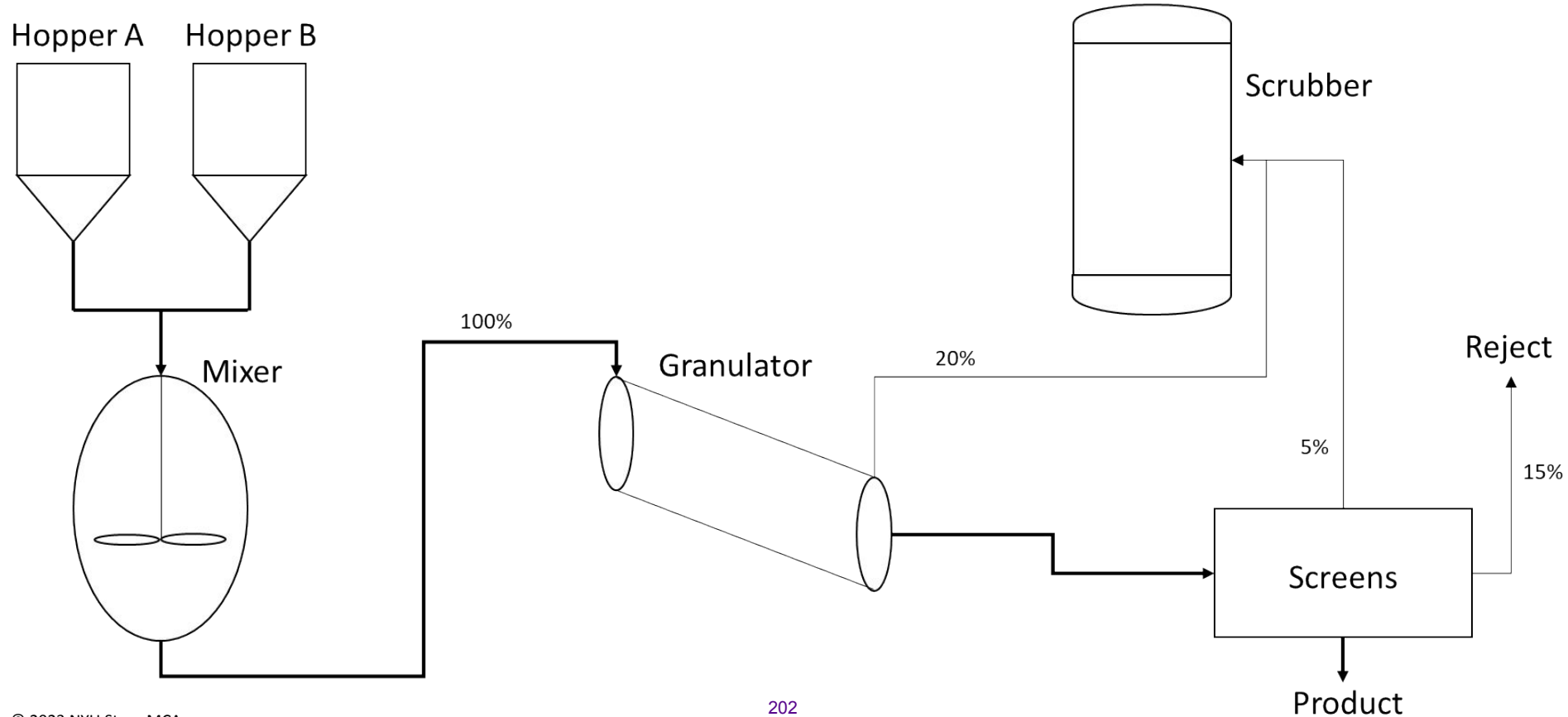
Fungicide: Exhibit A – INTERVIEWER COPY B

PER BATCH

	Cost	Revenue	Profit
Ingredient A	\$ 25,000.00	\$ 160,000.00	\$ (5,000.00)
Ingredient B	\$ 100,000.00		
Scrubber Operations	\$ 20,000.00		
Labor + Misc. Operations	\$ 20,000.00		
Total for 2 batches	\$ 330,000.00	\$ 320,000.00	\$(10,000.00)
Total for 3 batches	\$ 480,000.00	\$ 480,000.00	\$ -
*No Scrubber cost for 3rd batch but increase 5K in Labor Cost			



Fungicide – Exhibit A



Recommendation:

- Recommendations will depend on how far candidate has gone.
 - Suggested recommendations from the case below:
1. Run three batches per day
 2. Introduce recycling of size-rejected pellets

Risks:

- Supplier negotiation power
- Buyer negotiation power
- 24 hour operation gives no time for necessary maintenance shutdowns
- Patent expires in 10 years
- Fungi developing resistances

Next Steps:

- Look for tactical next steps from candidate depending on their recommendations
 - Examples below:
1. Hire additional personnel to run 3rd batch
 2. Contact buyers and suppliers to ensure adequate purchase and sale
 3. Request quotes for retrofitting plant for reject recycling

Bonus: Guide to an excellent case

Overall, a strong candidate should deviate from 'textbook answers' and be able to provide distinctive analyses and recommendation:

- Truly understands the nuances of the process and is able to capitalize on inefficiencies
- Understands the significant limitations of Funguy (supplier and buyer) and provides innovative ways to disrupt the status quo
- Structures their analysis and recommendations in the context of reaction from competitors and international market

Hybrid Work Model



Author: Tom Galante (Stern '22) **Firm Style & Round:** Deloitte Round 1
Interviewee-Led

Quant: 8*
Structure: 8*

Case Prompt:

You've been called into the headquarters of Galloway Entertainment, a small television production company in New York. The company carefully managed employee interactions during the pandemic, and as a result was able to get through without making significant operational changes. However, the CEO has been reading up on the new 'hybrid work model' and is excited by the opportunity to consolidate her real estate footprint and generate what she expects will be significant near-term operational efficiencies. Her team has pulled together an initial estimate of what it will take to enable a hybrid workplace, and she has asked you to evaluate whether she should pull the trigger.

Case Overview:

Industry: Entertainment

Case Type: Cost Savings / Change Management

Concepts Tested:

- Chart Clearing
- Investment / Breakeven
- Non-Quantitative Benefits

Overview Information for Interviewer:

Interviewee should be able to:

- Calculate savings from move
- Identify missing data
- Identify qualitative benefits to moving
- Push back against the CEO's beliefs of short-term savings

Key case steps:

- Develop understanding of current operational footprint
- Calculate annual savings and investment required to move to remote work
- Brainstorm qualitative benefits to remote work
- Interpret graphs and incorporate qualitative implications for recommendation

Clarifying Information:

Background

- A hybrid work model describes an environment in which employees spend some, but not all of their time, in the office

Business Model

- Galloway Entertainment produces scripted television and is exploring getting into documentary filmmaking
- Galloway makes money by licensing its content to cable television companies and online streaming platforms

Geography:

- Galloway films in multiple locations across the US
- Operations are currently in New York City, NY, in an office a few blocks away from the CEO's apartment

Objectives / Decision-Making Timeline:

- The CEO's primary focus is making decisions that are cash-neutral or better over a two-year timeframe

Real Estate Timeline:

- The company's lease is up in three years. If they want to move, they need to break the lease

Interviewer Guide:

• A Good Framework Will:

- Start by developing an understanding of the current operational footprint and plan presented to the CEO
- Consider annual savings and operational changes required to support them, and account for one-time costs required to implement changes
- Explore market trends in hybrid work models
- Consider qualitative upside and/or downside to implementing a hybrid work strategy

• Necessary information that should be given only when specifically asked for by interviewee:

- **Lease Breakage Cost:** 50% of remaining lease value
- At each stage, the interviewee should drive towards the case completion, and request subsequent information

• This case is intended to test an interviewee's willingness to push back against a CEO's beliefs, and make a recommendation after incorporating qualitative benefits.

- There is not necessarily one correct answer – but interviewee should be able to identify that the CEO's cost-savings belief is misguided

Hybrid Work Model: Question 1

Question:

- How does shifting to a hybrid work model impact the company's current operational footprint, and how does space utilization change? What does this tell you?

Notes to Interviewer:

- Ideally, interviewees should drive to this on their own, as they were told the company has an existing plan. If the interviewee doesn't ask for details from the existing plan, provide Exhibit 1.
- There are two things for candidates to calculate with Exhibit 1 – the reduction in space requirement based on current employee utilization, and the current cost of rent (see calculations below). If the candidate doesn't identify these calculations, prompt them.
- If the candidate asks if the current space is optimal, the answer is yes.

Employee Type	# of Employees	Time in Office		Effective Employees In Office		
		Current	Future	Current	Future	Reduction
Field Crew	50	0%	0%	0	0	-
Production	20	100%	70%	20	14	-30%
Post-Production	20	100%	55%	20	11	-45%
Administration	10	100%	50%	10	5	-50%
Total	100	50%	30%	50	30	-40%

Current Lease Details		Effective employees in office	
Space Type	Square Feet	Current	SQFT / Current effective employees
Communal Areas & Conference	5,000	50	100
Office and Desk Space	10,000	50	200
Server Room	1,000	50	20*
Total SQFT	16,000		
Cost per SQFT per month	\$8.33		
Total annual lease cost	\$1,600,000		

* this number doesn't make sense. The candidate should consider server volume to be fixed

- Strong candidates will also calculate the square footage needed per employee by space type
- Excellent candidates will note that employee utilization does not impact the size of the server room required. If asked, provide this guidance.

Once this math is complete, candidates should then consider the alternative, and ask if the company has any new spaces they are considering.

Hybrid Work Model: Question 2

Question:

- The real estate team found a new space and need to move on the opportunity quickly due to multiple competing bids. Under the new location's lease, how much can they save on an annual basis?

Notes to Interviewer:

- Provide Exhibit 2 when asked about alternatives / the new location and lease (or prompt the candidate if they don't raise the topic). Ideally, candidates should drive to this on their own, as the new location's lease is referenced in the question.
- Candidates may immediately calculate the cost of the new lease and identify the annual savings.
- Excellent candidates will identify that the square footage per employee has changed, and question if the new space really meets the company's needs. **The interviewer should not give guidance on this – data will come later.**
- **Strong interviewees will note that the space does not have a server room. If candidates don't note this, prompt them by asking how they know the space meets all requirements.**
- **Provide the following information only when asked:** The company plans to move their server room offsite, and has found a 1,000 sf location in New Jersey that costs \$5 per square foot per month.

Once this math is complete, candidate should then consider the costs and benefits of making this change. If they do not start on their own, the interviewer should prompt them to brainstorm some costs that may be incurred in order to make this move.

Exhibit 2: Calculation Guide (INTERVIEWER ONLY)

	Square Footage				
	Current Lease	Future Lease 1	Future Lease 2	Total Future	Variance (Fut. V Curr)
Communal Areas & Conference Rooms	5,000	2,500		2,500	-2,500
(+) Office and Desk Space	10,000	7,500		7,500	-2,500
(+) Server Room	1,000		1,000	1,000	0
(=) Total SF	16,000	10,000	1,000	11,000	-5,000
(x) Cost PSF Per Month	\$8.33	\$6.67	5	\$6.52	(\$1.82)
(=) Total Cost	\$1,600,000	\$800,000	\$60,000	\$860,000	(\$740,000)

Candidate must ask for this information – otherwise they may calculate \$800k of savings

	Square Footage Per Effective Employee					
	Current			Future		
	SF	Effective Emp.	SF / Eff Emp.	SF	Effective Emp.	SF / Eff Emp.
Communal Areas & Conference Rooms	5,000	50	100	2,500	30	83.3
Office and Desk Space	10000	50	200	7,500	30	250.0
Total Employee Used Space	15,000	50	300	10,000	30	333.3

Hybrid Work Model: Question 3

Question:

- What costs and benefits do you think there are for Galloway Entertainment to make this move?

Notes to Interviewer:

- Interviewee should provide a structured brainstorm. Possible brainstorms incur direct vs indirect costs, upside / downside, quantitative / qualitative.
- They should identify that there are one-time change management costs that will be incurred to accomplish this move. Excellent candidates will identify extra technology costs to support the new working style.

Once they have generated sufficient ideas, provide them with the following information

- Moving Costs (One Time): \$250,000
- Lease breakage costs: \$250,000
- New technology enabling remote work: \$500,000 implementation cost plus \$250,000 annual license
- Once this information is provided to interviewees, they should calculate the adjusted annual savings and the two-year cumulative savings, and call out that this does not meet the CEO's requirements for a two-year breakeven.
- Calculations can be done on a nominal basis (no PV calculations required).**

Moving Costs / Savings		
	Annual Savings	\$740,000
(+)	Incremental Software	(\$250,000)
(=)	Annual Savings / (Costs)	\$490,000
(x)	Years	2
(=)	2-Year Savings	\$980,000
(+)	One Time Technology Implementation	(\$500,000.0)
(+)	Lease Breakage Costs	(\$250,000.0)
(+)	One Time Move Costs	(\$250,000.0)
(=)	Total Savings / (Expenses)	(\$20,000)

Hybrid Work Model: Question 4

Question:

- We found some data on filmmaking hubs and hybrid / remote work trends. What does this tell you?

Notes to Interviewer:

- Provide the candidate with Exhibit 3.
- This is intended to test the candidate's ability to incorporate data for a qualitative recommendation. Potential takeaways from the data include opportunity to access new talent for their growing documentary efforts, and competitiveness for hiring by having a more flexible remote work policy.

Once the candidate has spent sufficient time with the data, ask for the final recommendation

Final recommendations should note the following:

- Total change is slightly cash negative over a two year time frame
- The risk that the new space doesn't meet the company's needs (**bonus** – note that employees may not like the move to a different part of town)
- The potential benefit of enabling remote work given market trends

Excellent final recommendations will

- Identify that the CEO's belief about near term cost savings opportunity is mistaken, but that there may be other qualitative benefits to the move
- Question the CEO's two-year breakeven as potentially being too short for effectively evaluating a strategic move like this

Exhibit 1: Current Operational & Employee Footprint

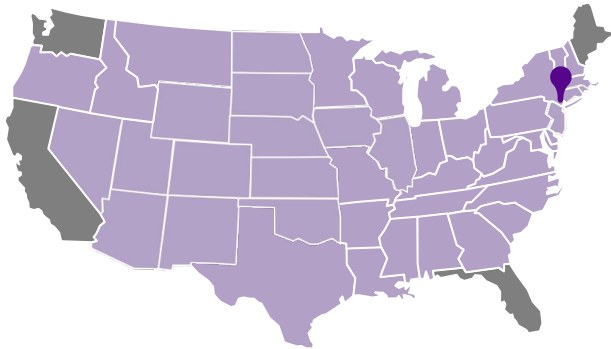


Space Utilization By Employee Type			
Type	# of Employees	Current Utilization	Est. Future Utilization
Field Crew	50	0%	0%
Production	20	100%	70%
Post-Production	20	100%	50%
Administration	10	100%	30%

Current Lease Details	
Space Type	Square Feet
Communal Areas & Conference Rooms	5,000
Office and Desk Space	10,000
Server Room	1,000
Other	

- Current space is a 4th floor walkup on Union Square
- Lease cost is \$8.33 per square foot per month

Area of Operations



- Field Crew
- Production / Post-Production Location

Exhibit 2: Proposed New Lease

Proposed Lease Detail

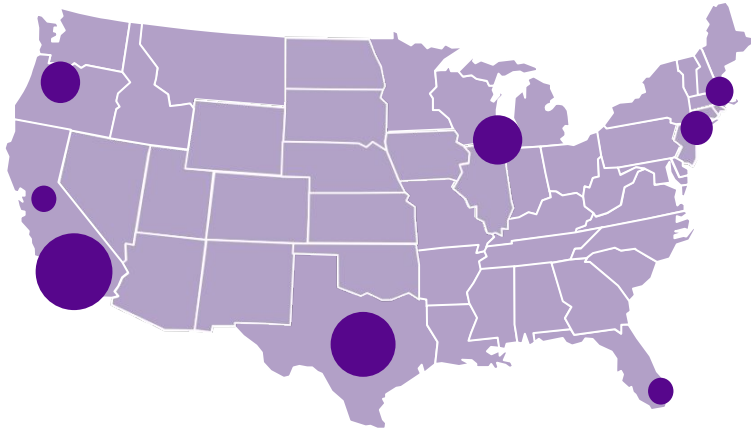
- Description: Soho Office Sublease

Space Type	Square Feet
Communal Areas & Conference Rooms	2,500
Office and Desk Space	7,500

- Monthly Rental Cost: \$6.67 per square foot per month

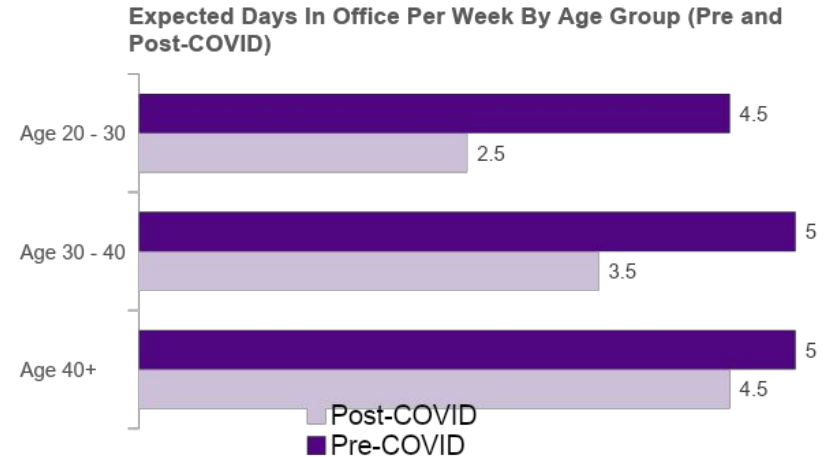
Exhibit 3: Hybrid Work Trends & Filmmaking Hubs

Filmmaking Hubs



Bubbles indicate volume of students listing 'film production' or something similar as their area of concentration for studies.

Remote Work Expectations



Authors: Justin Nuckles, Louie Guan & David Wilmerding (Stern '21) **Firm Style & Round:** BCG Round 1
Interviewer-Led

Quant: 7*
Structure: 8*

Case Prompt:

Our client, the Toto Foundation, is a new non-profit arm of a well-known drone manufacturing and logistics company that is exploring aid projects in Africa. Our client is seeking your expertise to determine where and how to deploy their technology to have the maximum impact.

Case Overview:

Industry: Non-Profit

Case Type: Opportunity assessment

Concepts Tested:

- Market Entry
- Profitability
- Math

Overview Information for Interviewer:

Interviewee should be able to...

- Draw insights from multiple data sources
- Consider the needs of a non-profit compared to a for-profit business

Key case steps:

- Conduct comparative analysis to determine product attractiveness
- Assess quantitative and qualitative market challenges
- Calculate impact

Clarifying Information:

Client Characteristics:

- Parent company manufacture/sells drones
- Extensive commercial experience in the US

Commercial Product Uses:

- Transportation of light packages
- Limited military and defense

Foundation Grant:

- \$4 million upfront
- \$1 million per year thereafter

Project Goals and Constraints:

- Maximize impact on human lives while staying within budget
- Safety is primary concern
- No additional sources of funding
- Grant can only apply to projects in Africa
- Success of this phase will prompt future investment

Framework Example

Toto Foundation Considerations

Existing Capabilities

- Drone capabilities
- Deployment expertise, previous experience
- Funding

Priorities

- Lives impacted
- Budget limitations, up-front and ongoing

Personnel/Firm

- Existing partnerships we can leverage

Target Market

Needs: Food, medicine, agriculture, security, etc.

Trends

- Instability and political changes
- What needs are already being met by others

Other Considerations

- Infrastructure available to deploy such a technology
- Regulatory approval and constraints
- Safety and flight risks

Interviewer Note: Challenge the interviewer on the specificity of their framework, and maintaining non-profit priorities (human lives) in view rather than typical cost/profit

Question 1:

Based on your analysis, the client has developed a list of potential projects. Determine which project is the most attractive for the foundation to pursue. [Provide Exhibit 1]

Notes to Interviewer:

The interviewee should leverage the expertise, need, impact scores, along with upfront costs to narrow down product options.

Elimination Steps:

- Upfront costs for blood & plasma delivery and insulin delivery exceed the grant's upfront funding and therefore should be eliminated
- Poacher and crop monitoring have low expertise and therefore would likely encounter operational challenges
- The remaining two are dry food delivery and vaccine & general medicinal delivery. The interviewee should recognize that both have similar expertise scores and upfront deployment costs. General medicinal delivery is the more attractive option because it also has top need and impact scores
- A good interviewee will identify the best product based on the information given
- A great interviewee will draw additional insights related to product and market fit: vaccines are light and easy to transport via drone, simple to administer, and fulfills a need in developing countries. The candidate may also disclose risks associated with vaccine delivery: fragile, temperature-controlled, supply shortages, etc.

Exhibit 1: Project Proposals

Project	Expertise (Score of 1-5) ⁽¹⁾	Need (Score of 1-5) ⁽¹⁾	Impact (Score of 1-5) ⁽²⁾	Upfront Deployment Cost
Blood & Plasma Delivery	3	4	4	\$11.5 million
Crop Monitoring	1	3	4	\$1.0 million
Vaccine & General Medicinal Delivery	4	5	5	\$3.8 million
Dry Food Delivery	4	3	2	\$3.7 million
Poacher Monitoring	1	3	5	\$1.0 million
Insulin Delivery	4	5	5	\$6.5 million

Note 1: Scored from 1 (lowest) to 5 (highest)

Note 2: Scored from 1 (lowest) to 5 (highest) based on impact relative to existing solutions

Toto Foundation: Question 2

Question 2:

The client has identified 5 potential countries to launch the vaccines & general medicinal delivery service, but hopes to narrow this down to two to analyze. What factors should they consider when choosing a country? [Provide Exhibit 2 only after brainstorm] Which countries should they select?

Notes to Interviewer:

Prior to giving the exhibit, have the candidate brainstorm the types of data required to inform this decision:

- A good candidate will list relevant criteria: size of country, demographics, etc.
- A great candidate will categorize data types and connect how data would be utilized to make a decision:

Category	Measure	Importance/Impact
Population	Density # of people Demographics	<ul style="list-style-type: none">• Drones add value in relatively low-density areas• Population large enough to support investment• Certain populations are more susceptible to disease
Health/Medical	% vaccinated Deaths from preventable diseases	<ul style="list-style-type: none">• Most benefit in low-vaccinated areas• Maximize vaccine impact=more lives saved
Safety/Other	Crime Rate Ease of doing business	<ul style="list-style-type: none">• Ensure safety of volunteer• Key determinant for likelihood of success

Toto Foundation: Question 2

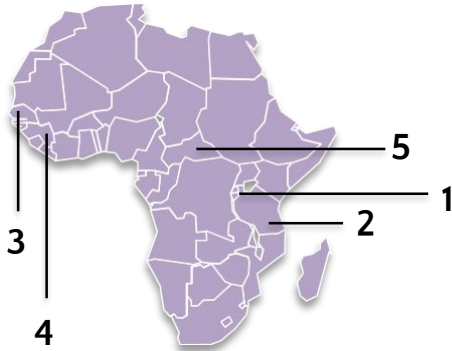
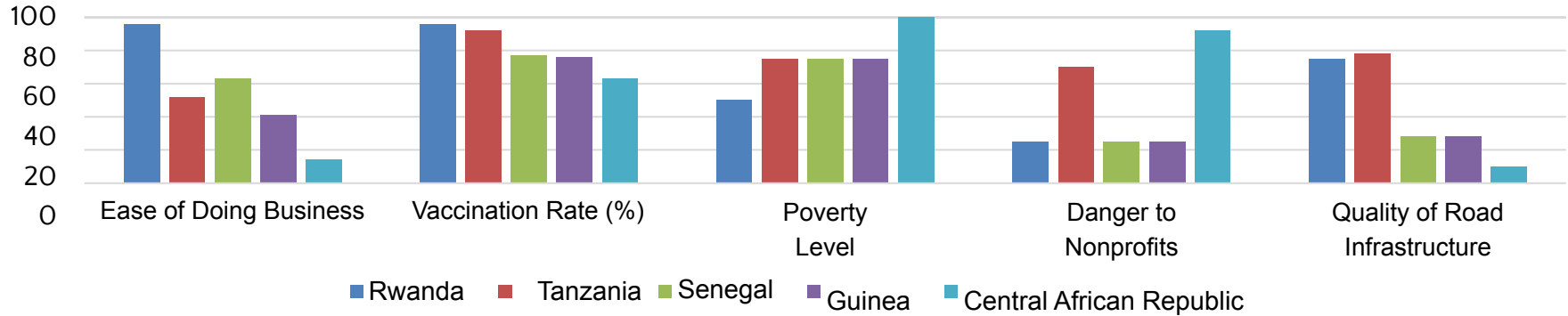
Notes to Interviewer (continued):

Country	Explanation
1. Rwanda	Relatively high vaccination rates and road quality paired with lower poverty rates
2. Tanzania	Relatively high vaccination rates and road quality paired with high danger to non-profit workers
3. Senegal	ANSWER: Lower vaccination rates, poverty rates and road quality paired with low danger to workers
4. Guinea	ANSWER: Lower vaccination rates, poverty rates and road quality paired with low danger to workers
5. Central African Republic	High levels of need, but significant risks from high danger to non-profits and low ease of doing business

Interviewer Notes:

- A thorough analysis should connect each country's need with the ease of meeting that need. Geography, population size, and density should also be considered as factors contributing to impact maximization.
- An excellent interviewer should also realize the limitations of information provided and seek for country specific cost and rollout data.
- It is OK for the caser to select different markets, but the interviewer should challenge assumptions and lead back to the answers.

Exhibit 2: Target Country



Country	Population (in millions)	Density (pop/km)	Country Size (sq. mi.)
1. Rwanda	20	500	10,000
2. Tanzania	50	60	400,000
3. Senegal	20	90	150,000
4. Guinea	10	50	100,000
5. Central African Republic	5	10	250,000

Toto Foundation: Question 3

Math Question:

Calculate annual costs and impact for both target countries. [Provide Exhibit 3]

Math Solution:

- A good interviewee should see that both countries have annual costs of \$1 million per year
- These costs match the annual grant money meaning both projects are within the constraints
- A great interviewee will see the lower variable cost in Senegal allows for easier scalability
- A great interviewee will then calculate impact to differentiate the locations
- Interviewee should realize that for the same annual costs, the non-profit can deliver more than double the medicine per year in Senegal because of the distance / number of flights

	<u>Senegal</u> <u>Guinea</u>	
Miles / Flight	250	500
Cost / Mile	\$ 0.8	\$ 1.0
Fuel & Maintenance Cost / Flight	\$ (200)	\$ (500)
Total Flights / Day	10	5
Total Costs / Day	\$ (2,000)	\$ (2,500)
Total Flight Costs / Year	\$ (600,000)	\$ (750,000)
Ground & Regulatory Costs / Year	\$ (400,000)	\$ (250,000)
Total Cost / Year (300 Days)	\$ (1,000,000)	\$ (1,000,000)
Vials / Flight	100	80
Total Flights / Day	10	5
Total Vials / Day	1,000	400
Total Vials / Year (300 Days)	300,000	120,000

Exhibit 3: Annual Cost Calculation

Additional Information:

- 1) The cost of the drones are already included in the upfront development costs for the program
- 2) A biotech firm is donating the vaccines & other medication (no buying or selling of the actual products)

	Senegal	Guinea
Vials / Flight	100	80
Miles / Delivery (Roundtrip)	250	500
Fuel & Maintenance Cost / Mile	\$0.8	\$1.0
Days of Flying / Year	300	300
Total Flights / Day	10	5
Annual Regulatory & Ground Facility Costs	\$400,000	\$250,000

Recommendation:

- Launch vaccination delivery service in Senegal
- A good recommendation will also incorporate findings on # of vials delivered vs. estimated cost

Possible Risks:

- First international project of this type
- Untested vaccine partnership and program costs
- Changing regulatory environment
- Instability and shifting political environment could lead to rapid changes in needs
- Uncertainty about infrastructure for administering vaccines upon delivery

(A good recommendation will have risks addressed later by the next steps)

Possible Next Steps:

- Launch a pilot program to confirm costs are in line with estimates
- Explore what projects can be done to build up drone delivery infrastructure (acknowledging this is outside the scope of the budget)
- Begin to obtain regulatory approval and expand partnership network
- Establish a timeline for rollout

Bonus: Guide to an excellent case

- The interviewee will maintain focus on lives impacted throughout the case. The client is a non-profit and will not necessarily operate like a for-profit business.
- The interviewee will keep in mind the non-profits constraints throughout the case.

Author: Jasmine Dyba (Stern '18)
[Interviewer-led]

Quant: 9
Structure: 7

Case Prompt:

Your firm has won an RFP to help a domestic airline carrier examine their in-flight connectivity (IFC) strategy. With 80% of US-based aircraft already outfitted with IFC technology and competitive pressures rising, offering WiFi service is becoming table-stakes. Your client has yet to enter the game, but they know it's something they need to consider to stay competitive. What are some of the key things the client should think about when assessing their go-to-market strategy for IFC?

Case Overview:

Industry: Airline

Case Type: Market Entry

Concepts Tested:

- New Product Launch
- Breakeven

Overview Information for Interviewer:

- Candidates are likely to spend the bulk of their time on break-even analysis
- The difficulty in the case lies in recognizing the implications of different business models, and thinking creatively about how to triangulate data to uncover critical information
- Candidates should not get caught up on the specifics of WiFi technology or how it works, but rather consider high-level implications of investing in nascent technology

Clarifying Info:

- The airline flies primarily domestic routes within the continental US, as well as select flights to Canada, Mexico, and the Caribbean
- IFC includes only WiFi connectivity. In-flight entertainment (IFE) is delivered via an on-board server through a separate system, but the two can be integrated into one user experience
- The airline's main objective is to stay competitive
- RFP = request for proposal
- Airline has 90 planes and services ~30K flights per year

Interviewer Guide:

- **A good framework will consider:**
 - **ROI and/or profitability**
 - Price and pricing model (free, ad-supported, pay per data usage, pay per time, pay by speed tier, subscription service, etc.)
 - Market demand (take rate, market segments)
 - Costs (upfront investment, ongoing costs)
 - **Vendor contract structure** (revenue/business model, split of investment costs and OpEx, branding, contract length, technology)
 - **Product/user experience** (built-in screens v. BYO-screen, white-label v. vendor-branding, speeds available, interoperability with in-flight entertainment, add-on services like calling or texting)
 - **Technology** (speed, bandwidth, latency, availability when flying over water)
 - **GTM** (rollout timing, marketing, crew training, ad sales)
- **Necessary Information that should be given only when specifically asked for by interviewee:**
 - IFC is typically installed and managed by an outside vendor, either through a branded service (e.g., GoGoAir) or a wholesale, white label solution (e.g., Row44). Contracts are typically 10+ years long.
 - Different vendors use different technologies, which vary in quality
 - Total bandwidth is shared across passengers, so the more passengers buy a session, the slower the service (some carriers intentionally charge high prices to limit usage and ensure better service)

Question #1:

There is a wide range of potential business models and your client wants to better understand them before making a vendor decision. Your analyst pulled these benchmarks on what two competitors are doing today. What are your thoughts on these two models? [Give **Exhibit 1**]

Notes to Interviewer:

- Candidate should recognize that these are not the only two possible models, and good candidates will consider other possible structures. Further, candidates should not limit themselves to discussing only the elements listed in the exhibit - strong candidates will consider other critical features of the model (see examples below)
- A simple way to assess these models is to discuss the pros and cons of each:
 - **Competitor 1's Model**
 - Pros: less operational burden on airline, potential for customer experience continuity (e.g., allow subscriptions across airline carriers), limited costs
 - Cons: limited control over pricing (high price could drive low take rates and anger customers), brand fit considerations
 - **Competitor 2's Model**
 - Pros: control over pricing, control over user experience, potential for better ROI, easier to integrate with airline's other products (e.g., in-flight entertainment system)
 - Cons: more operational burden on airline, higher costs
 - **Other considerations:** who will pay for the initial investment, what is the ongoing cost structure, potential to adopt more than one model across the fleet, technology limitations (vendors don't come equal)

WiFi in the Sky: Interviewer Guide to Exhibit 1

	Competitor 1	Competitor 2
Airline description	Major domestic and international carrier with 65% fleet IFC coverage	Domestic discount carrier with 90% fleet IFC coverage
Branding	Vendor-branded	Airline-branded
Pricing (for customers)	Determined by vendor, average \$25/session	Determined by airline, Free
Revenue model	Revenue share	Wholesale

Notes to Interviewer:

- Clarifications (if candidate asks):
 - Assume 1 session buys a passenger WiFi connectivity for the duration of the flight
- The Exhibit is intentionally missing critical information (e.g., cost structure, technology, product features, interoperability with in-flight entertainment system). If candidate limits discussion to the elements in the table, **ask the candidate if they think there are any other important considerations.**

WiFi in the Sky: Question 2

Question #2 (Math Question):

After some initial analysis, the client has decided to partner with a white-label IFC vendor to outfit all 90 of its planes. The airline and vendor will share the initial investment, and then the airline will pay the vendor a per-session fee to cover operating expenses. The airline wants you to figure out what percentage of their passengers need to purchase a session for the airline to break even in 2 years. They have provided you with some useful data. [Give Exhibit 2]

Math Solution:

- To calculate the initial investment:
 - Airline share of investment = $\$250K \times 40\% = \$100K$ per plane
 - Total investment = $\$9M$ (solution below):
 - Wide body = $10 \text{ planes} \times \$100K/\text{plane} = \$1M$
 - Narrow body = $80 \text{ planes} \times \$100K/\text{plane} = \$8M$
 - Total = $\$1M + \$8M = \$9M$
- To determine total passengers in 2 years:
 - Wide body = $300 \text{ seats} \times 2,500 \text{ flights/yr} \times 2 \text{ yrs} = 1.5M$ passengers
 - Narrow body = $100 \text{ seats} \times 27,500 \text{ flights/yr} \times 2 \text{ yrs} = 5.5M$ passengers
 - Total = $1.5M + 5.5M = 7M$ passengers in 2 yrs
- To determine % take rate needed:
 - Set up the following equation and solve for [take rate]:
 - $7M \text{ passengers} \times [\text{take rate}] \times \$10/\text{session} = \$9M$
 - [Take rate] = 12.9% (*A strong candidate will express a reaction to this outcome and offer implications*)

Math Information:

Wait for the candidate to ask for these data-points:

- Capex = $\$250K$ per plane (airline will cover 40% of it)
- Margins = $\$10$ per session

Assumptions:

- Seat occupancy rate* = 100%
- All aircrafts will be outfitted at the same time*
- Ad revenues already baked in the margin figures
- 1 WiFi session covers entire flight

**Advanced candidates will bring these up on their own*

WiFi in the Sky: Interviewer Guide to Exhibit 2

	Wide body	Narrow body
Fleet Size	10	80
Seats per Aircraft	300	100
Flights per Year	2,500	27,500

Notes to Interviewer:

- Wide body = aircraft large enough to accommodate two passenger aisles
- Narrow body = a single-aisle aircraft

Question #3:

Market research tells us that take rates are only between 5 and 10% today for paid connectivity, so your client is concerned about being able to hit the break-even targets. What do you think are the key drivers of IFC take rate?

Notes to Interviewer:

- This is a correlation question, not a causation question. So the case is essentially asking: what variables might be correlated with higher take rates?
- **Sample take rate drivers:**
 - *Flight characteristics: flight length, flight time (red-eye vs daytime), other entertainment systems*
 - *Product characteristics: price, speeds available, quality of service, number of connected devices*
 - *Passenger characteristics: age, gender, income, cabin class, business/leisure*
- *Push the candidate to brainstorm as many drivers as they can and to hypothesize which way the variable would have to swing to drive higher take rate*

WiFi in the Sky: Recommendation

Recommendation:

- The airline should partner with a wholesale, white-label vendor to retain control over pricing and the user experience
- Roll-out across aircraft should be gradual, with a potential pilot program to optimize pricing, user experience, etc.
- Roll-out should prioritize newer planes that cover routes with high expected take rates

Risks:

- Due to large upfront investment, contract is likely to be 10+ years long, so smart vendor selection is very critical
- Difficult to strike balance between maximizing revenue and maintaining sufficiently low take rate to ensure higher speeds
- Technology is still nascent, potential for poor user experience

Next Steps:

- Vendor selection and contract negotiation
- Aircraft prioritization
- Pilot launch

Bonus: Guide to an excellent case

- Recognize the tradeoffs around vendor selection (e.g., the vendor who agrees to your business model may have inferior WiFi technology)
- Consider user experience, technological limitations, implications of long contract renewal cycles, and operational complexity of rolling out IFC
- Incorporate knowledge of the airline industry such as load factor
- Complete the break-even exercise quickly enough to get through all 4 case questions

Competitive Benchmarking

	Competitor 1	Competitor 2
Airline description	Major domestic and international carrier with 65% fleet IFC coverage	Domestic discount carrier with 90% fleet IFC coverage
IFC Branding	Vendor-branded	Airline-branded
Pricing (for customers)	Determined by vendor, average \$25/session	Determined by airline, Free
Revenue model	Revenue share	Wholesale

Air Fleet Statistics

	Wide body	Narrow body
Fleet Size	10	80
Seats per Aircraft	300	100
Flights per Year	2,500	27,500

Take Your Pills!



Author: Kai Fei (Stern '22) **Firm Style & Round:** Bain Round 1
[Interviewee-Led]

Quant: [9]*
Structure: [7]*

Case Prompt:

Your client is Foci Pharmaceuticals - a leading rare disease pharmaceutical company - has seen US sales growth slow down over the past year. Your firm has been hired to determine the cause of this slow down and recommend ways to reverse the trend.

Case Overview:

Industry: Pharmaceutical

Case Type: Revenue growth

Concepts Tested:

- Profitability
- Brainstorming
- Creativity

Overview Information for Interviewer:

Interviewee should be able to...

- Be structured, but creative with brainstorming
- Be case specific
- Push the case forward while keeping the objectives in mind

Key case steps:

- Ask the right clarifying questions to understand context
- Break down revenue into its components
- Stay organized and have a structured approach to the math portions

Clarifying Information:

Competitors:

- No direct competitors

Market:

- The client is the market

Client's Product:

- 100% of revenues come from just one drug, Nalparcin, which treats a rare type of muscular dystrophy (MD)
- Nalparcin was launched in 2017 and is classified as an orphan drug (meaning it treats a disease that afflict fewer than 200,000 people in the US)
- Nalparcin's period of exclusivity (the period during which FDA will not approve a generic version of the same drug) will last through the end of 2024

Additional Information:

- Only 30,000 patients in the US are eligible to receive Nalparcin
- The annual price of Nalparcin treatment is \$500,000/patient
- Nalparcin has to be taken daily
- **RARELY ASKED:** Nalparcin is a small molecule drug
 - A drug that can enter cells easily because it has a low molecular weight. Once inside the cells, it can affect other molecules, such as proteins, and may cause cancer cells to die. This is different from drugs that have a large molecular weight, which keeps them from getting inside cells easily

Interviewer Guide:

• A Good Framework Will:

- Recognize that this is a monopolistic market
- Do a deep dive on revenue and its levers
- Be case specific and incorporate concepts like market penetration and patient adherence

• Necessary information that should be given only when specifically asked for by interviewee:

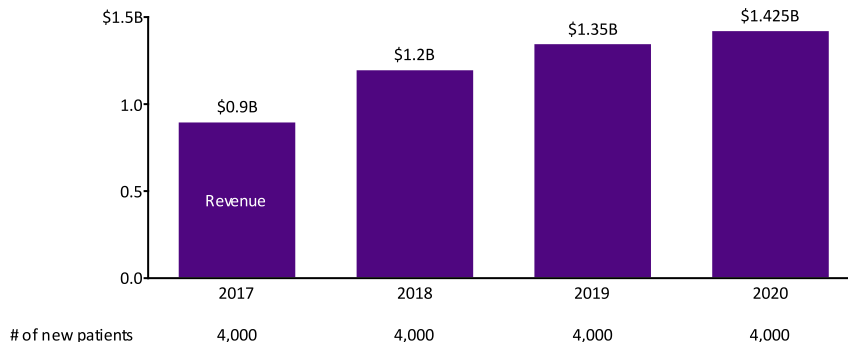
- Exhibit 1:
 - > Provide when interviewee asks specifically for revenue/financial numbers
- Exhibit 2:
 - > Provide when interviewee mentions patient adherence and persistence

• Additional Guidance

- Only **give clarifying information when the interviewee asks** for the information.

Take Your Pills: Exhibit 1

Foci Pharma's annual revenue in \$ billions



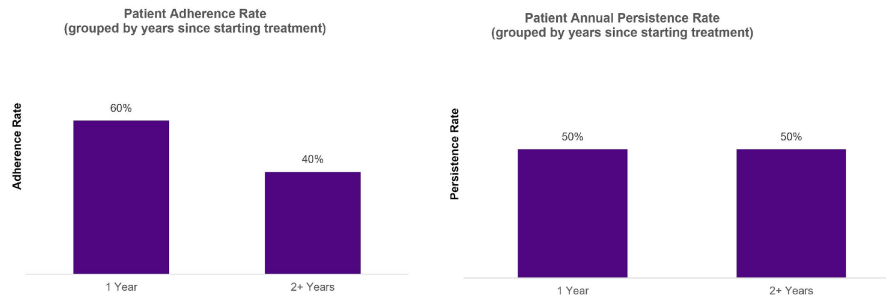
Notes to Interviewer:

- Provide exhibit 1 (see back-up slide for clean exhibits) when the interviewee asks to see revenue/financial data

Key observations that the interviewee should pick up on:

- Revenue **growth is slowing** even though the company is acquiring the same number of new patients every year
- This means revenue per patient is going down
- If interviewee asks, confirm that **prices have not changed** at all – it's \$500,000 for a full year of treatment
- A good interviewee will incorporate clarifying information – the pills are taken daily. Which means each pill missed results in a revenue loss of >\$1,000
- A great interviewee will recognize that **patient persistence** may be an issue – patients are stopping treatment and thus stop being a “customer”
- A great interviewee will be case specific and hypothesize that this might have something to do with **patient adherence** – if patient forgets or refuses to take a pill, then the patient will buy one fewer pill, thus Foci loses that revenue
- If the interviewee doesn't mention patient adherence or persistence, ask the interviewee how much revenue each daily pill generates.

Take Your Pills: Exhibit 2



Notes to Interviewer:

- Provide exhibit 2 (see back-up slide for clean exhibits) when the interviewee **mentions patient adherence and persistence** (see prior slide for definitions)

Key observations that the interviewee should pick up on:

- Both **adherence and persistence are pretty low**. Meaning a significant portion of patients aren't taking their pills daily, and half of patients drop out each year
- A good interviewee will note that these low rates means that Foci Pharma must continuously acquire more and more new customers in order to sustain growth
- A good interviewee will push forward and start to hypothesize why this is the case

Brainstorm:

- Ask the interviewee what might be causing low patient adherence and low patient persistence
- A good candidate will directly go to this step without being prompted.

Notes to Interviewer:

Objective for the interviewee is to provide a good structure around the brainstorm. An example might be:

Patient related

- Behavioral characteristics
- Demographics
- Social-economic indicators

Condition Related

- Patient condition, strength of disease
- Experience with disease so far

Health-system related

- Insurance coverage
- Provider characteristics

Drug related

- Side effects
- Number of concurrent medications

A great candidate will not only come up with potential causes, but also push forward and start to brainstorm ideas that can improve either adherence or persistence.

Take Your Pills: Math Question (1/2)

Math Question:

The Chief Patient Officer of Foci Pharma has proposed an informational sales & marketing campaign targeting both patients and their doctors that seeks to improve patient adherence and persistence and wants you to figure out whether it's worth implementing.

Math Solution: Tell candidate to calculate projected revenues in 2021:

Without this initiative:

Existing patients by 2021:

- Patient count at Beginning of Year (BoY): 3750 (*provided to candidate*)
- Patient count at End of Year (EoY): $3750 * 50\% \text{ persistence} = 1875$ (*due to patients' lack of persistence*)
- By taking the average, you can arrive at # of patients during the year: $(3750+1875)/2 = 2812.5 \approx 2800$ (*encourage candidate to round down*)
- Revenue generated: $2800 * 40\% \text{ adherence} * \$500,000/\text{annual treatment cost} = \560M

New patients in 2021:

- Patient count: BoY: 4000 (*provided to candidate*); EoY: $4000 * 50\% \text{ persistence} = 2000$;
AVG: during year: $(4000+2000)/2 = 3000$
- Revenue generated: $3000 * 60\% \text{ adherence} * \$500,000/\text{annual treatment cost} = \900M

Total revenue in 2021 without initiative: $\$560\text{M} + \$900\text{M} = \$1.46\text{B}$

Continued on next page...

Math Information:

Provide the following immediately:

- **Projected Adherence Increase:** Raise rate by 5% across the board (i.e., from 40% to 45%)
- **Projected Persistence Increase:** Raise rate by 10% across the board (i.e., from 50% to 60%)
- **Total cost of campaign:** \$300M

Provide the following only if asked:

- **# of new patients acquired in 2021:** 4K, for math simplicity, assume all patients are acquired immediately at the beginning of 2021
- **# of existing patients from 2020:** 3,750
- **Product Margins:** 80%

Take Your Pills: Math Question (2/2)

Math Question:

The Chief Patient Officer of Foci Pharma has proposed an informational sales & marketing campaign targeting both patients and their doctors that seeks to improve patient adherence and persistence and wants you to figure out whether it's worth implementing.

Math Solution: Tell candidate to calculate projected revenues in 2021: ...Continuation

With this initiative:

Existing patients by 2021:

- Patient count: BoY: 3750; EoY: $3750 * 60\% \text{ persistence} = 2250$; AVG: during year: $(3750+2250)/2 = 3000$
- Revenue generated: $3000 * 45\% \text{ adherence} * \$500,000/\text{annual treatment cost} = \675M

New patients in 2021:

- Patient count: BoY: 4000; EoY: $4000 * 60\% \text{ persistence} = 2400$; AVG: during year: $(4000+2400)/2 = 3.2\text{K}$
- Revenue generated: $3200 * 65\% \text{ adherence} * \$500,000/\text{annual treatment cost} = \1.04B

Total 2021 revenue with initiative: $\$675\text{M} + \$1.04\text{B} = \$1.715\text{B}$

Total Benefit: $(\$1.715\text{B} - \$1.46\text{B}) * 80\% \text{ margin} = \204M – this will drive up revenue by nearly 20% $(\$1.715\text{B} - \$1.46\text{B}) = \$255\text{M} \square \$255\text{M}/\$1.46\text{B} = \sim 20\%$

A great candidate will notice that while this doesn't break even on the cost of the campaign, there may be other benefits from increasing patient adherence and persistence over time.

240

Math Information:

Provide the following immediately:

- **Projected Adherence Increase:** Raise rate by 5% across the board (e.g., from 40% to 45%)
- **Projected Persistence Increase:** Raise rate by 10% across the board (e.g., from 50% to 60%)
- **Total cost of campaign:** \$300M

Provide the following only if asked:

- **# of new patients acquired in 2021:** 4K, for math simplicity, assume all patients are acquired immediately at the beginning of 2021
- **# of existing patients from 2020:** 3,750
- **Product Margins:** 80%

© 2021 NYU Stern MCA

Take Your Pills: Recommendation

Recommendation:

- Candidate needs to mention the cause of growth slowdown: patient adherence and persistence
- **Recommendation** can go either way depending on the numbers:
 - **Yes**, do campaign (better adherence = healthier patients, may help increase patient acquisition, etc.)
 - **No**, don't do this campaign (cost too high, etc.)

Risks:

- Projected benefits have uncertainty
- Expensive upfront investment
- Don't have data on the potential causes of low patient adherence or persistence, so no idea what information to put into this campaign...

Next Steps:

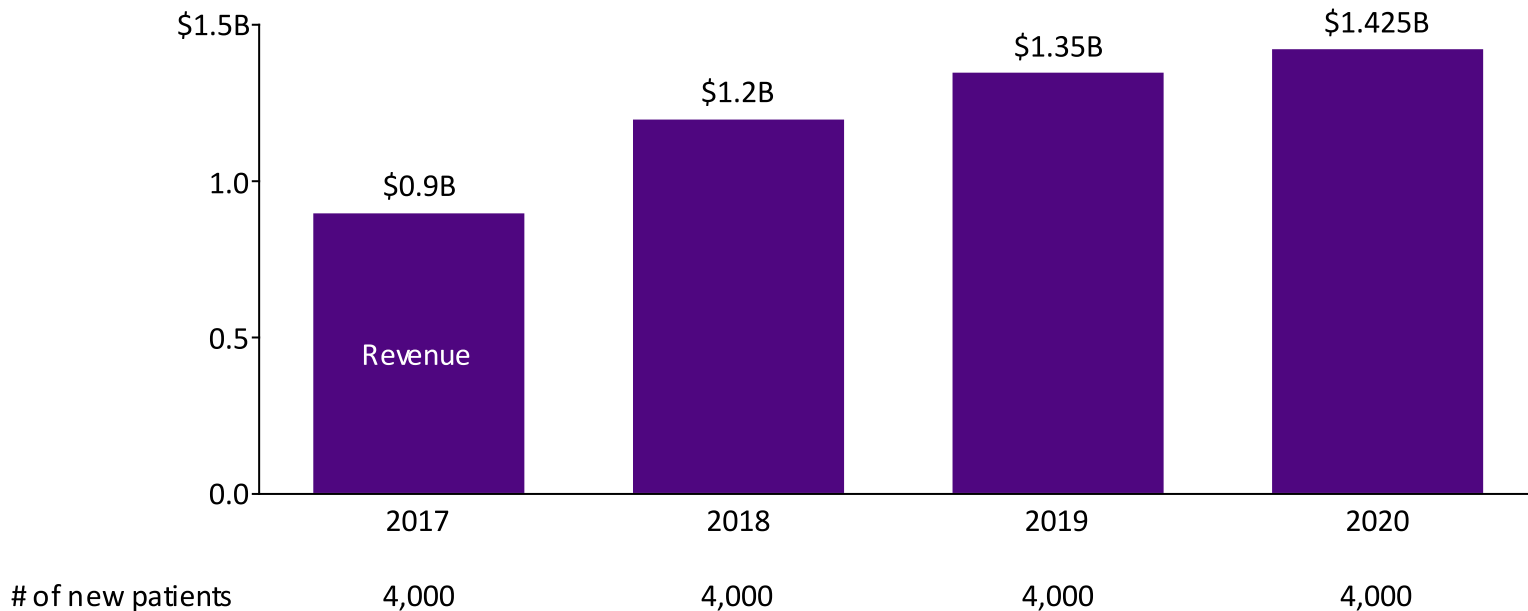
- Validate that projected benefits are accurate
- Explore alternative solutions in more detail
- Explore if the money could be better spent elsewhere (pursuing additional indications, newer drugs, etc.)
- Establish a plan for rollout of campaign

Bonus: Guide to an excellent case

- The interviewee will not lose track of the 2 main objectives of the case – find cause, recommend solution – and will continuously push the case forward without the interviewer prompting questions.
- For the math portion, a lot of numbers are needed. The interviewee needs to stay organized and have a structured approach.

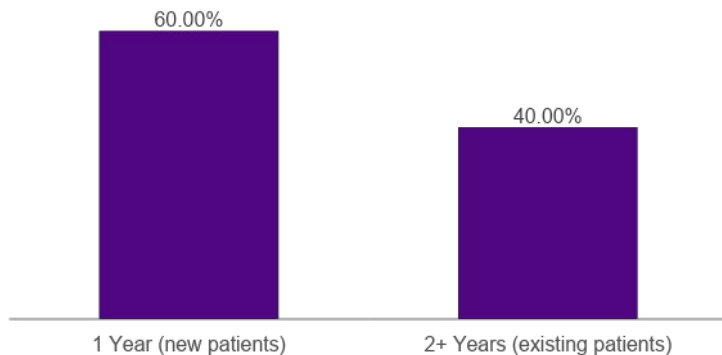
Take Your Pills: Exhibit 1

Foci Pharma's annual revenue in \$ billions

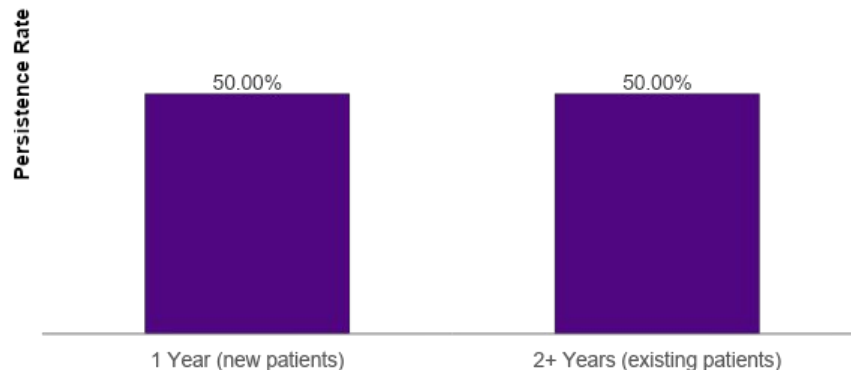


Take Your Pills: Exhibit 2

Patient Adherence Rate
(grouped by years since starting treatment)



Patient Annual Persistence Rate
(grouped by years since starting treatment)



Authors: N/A **Firm Round & Case Style:** McKinsey Round 2
[Interviewer-led]

Quant: 8
Structure: 9

Case Prompt:

Let's assume our client is Great Burger (GB) a fast food chain that competes head-to-head with McDonald's, Wendy's, Burger King, KFC, etc. GB is the fourth largest fast food chain worldwide, measured by the number of stores in operation. As most of its competitors do, GB offers food and "combos" for the three largest meal occasions: breakfast, lunch and dinner. Even though GB owns some of its stores, it operates under the franchising business model with 85% of its stores owned by franchisees (individuals own & manage stores and pay a franchise fee to GB, but major business decisions e.g. menu, look of store, are controlled by GB).

As part of its growth strategy GB has analyzed some potential acquisition targets including Heavenly Donuts (HD), a growing doughnut producer with both a US and international store presence. HD operates under the franchising business model too, though a little bit differently than GB. While GB franchises restaurants, HD franchises areas or regions in which the franchisee is required to open a certain number of stores.

GB's CEO has hired McKinsey to advise him on whether they should acquire HD or not.

Case Overview:

Industry: Fast Food

Case Type: M&A

Concepts Tested:

- Profitability

Overview Information for Interviewer:

- N/A

Great Burger: Question 1

Question #1:

What areas would you want to explore to determine whether GB should acquire HD?

Notes to Interviewer:

Stand Alone Value of HD

- Growth in market for doughnuts
- HD's past and projected future sales growth (break down into growth in number of stores, and growth in same store sales)
- Competition – are there any other major national chains that are doing better than HD in terms of growth/profit. What does this imply for future growth?
- Profitability/profit margin
- Capital required to fund growth (capital investment to open new stores, working capital)

Management Team/Cultural Fit

- Capabilities/skills of top, middle management
- Cultural fit, if very different, what % of key management would likely be able to adjust

Question #1:

What areas would you want to explore to determine whether GB should acquire HD?

Notes to Interviewer:

Synergies/Strategic Fit

- Brand quality similar? Would they enhance or detract from each other if marketed side by side?
- How much overlap of customer base? (very little overlap might cause concern that brands are not compatible, too much might imply little room to expand sales by cross-marketing)
- Synergies (*Note to interviewer: do not let candidate dive deep on this, as it will be covered later*)
- GB experience with mergers in past/experience in integrating companies
- Franchise structure differences. Detail “dive” into franchising structures. Would these different structures affect the deal? Can we manage two different franchising structures at the same time?

Great Burger: Question 2

Question #2:

The team started thinking about potential synergies that could be achieved by acquiring HD. Here are some key facts on GB and HD. (*Note to interviewer: show candidate Exhibit #1*)

What potential synergies can you think of between GB and HD?

Notes to Interviewer:

Lower Costs

- Biggest opportunity likely in corporate SG&A by integrating corporate management
- May be some opportunity to lower food costs with larger purchasing volume on similar food items (e.g., beverages, deep frying oil), however overlaps may be low as ingredients are very different
- GB appears to have an advantage in property and equipment costs which might be leverage-able to HD (e.g., superior skills in lease negotiation)

Increase Revenues

- Sell doughnuts in GB stores, or some selected GB products in HD stores
- GB has much greater international presence thus likely has knowledge/skills to enable HD to expand outside of North America
- GB may have superior skills in identifying attractive locations for stores as its sales/store are higher than industry average, where as HD's is lower than industry average – might be able to leverage this when opening new HD stores to increase HD average sales/store
- Expand HD faster than it could do on own – GB as a larger company with lower debt may have better access to capital

Great Burger: Question 3

Question #3:

The team thinks that with synergies, it should be possible to double HD's US market share in the next 5 years, and that GB's access to capital will allow it to expand number HD of stores by 2.5 times. What sales/store will HD require in 5 years in order for GB to achieve these goals? You should assume:

- Doughnut consumption/capita in the US is \$10/year today, and is projected to grow to \$20/year in 5 years
- For ease of calculation, assume US population is 300 M
- Use any data from Exhibit #1 you need

Notes to Interviewer:

Variable	Source (given in case unless stated)	Value
HD sales	Exhibit 1	\$700M
US market	(Consumption per capita) x (population)	\$3B
HD market share	(HD sales) / (US market)	23%
Note to interviewer: At this stage, tell the candidate to round to 25% for the sake of simplicity		
US market in 5 years	(Projected consumption per capita) x (population)	\$6B
HD sales in 5 years if double market share	(Current share, calculated as 25%) x (double) x (US market in 5 years)	\$3B
# of stores in 5 years	(Current # stores from Exhibit 1) x (2.5)	2,500
Sales/store in 5 years	(HD sales in 5 years) / (new number of stores)	\$1.2M

Note to interviewer - an optional probing question is to ask:

- Does this seem reasonable?

A good response would be:

- Yes, given it implies less than double same store sales growth and per capita consumption is predicted to double

Question #4:

One of the synergies that the team thinks might have a big potential is the idea of increasing the businesses' overall profitability by selling doughnuts in GB stores. How would you assess the profitability impact of this synergy?

Notes to Interviewer:

Basic Profitability Analysis

- Calculate incremental revenues by selling doughnuts in GB stores (calculate how many doughnuts per store, times price per doughnut, times number of GB stores)
- Calculate incremental costs by selling doughnuts in GB stores (costs of production, incremental number of employees, employee training, software changes, incremental marketing and advertising, incremental cost of distribution if we can not produce doughnuts in house, etc.)
- Calculate incremental investments. Do we need more space in each store if we think we are going to attract new customers? Do we need to invest in store layout to have in house doughnut production?
- Other reasonable answers are acceptable

Great Burger: Question 4

Question #4:

One of the synergies that the team thinks might have a big potential is the idea of increasing the businesses' overall profitability by selling doughnuts in GB stores. How would you assess the profitability impact of this synergy?

Notes to Interviewer:

Cannibalization

- If the candidate dives deep in the incremental revenue piece by taking into account cannibalization, what would be the rate of cannibalization with GB offerings? Doughnut cannibalization will be higher with breakfast products than lunch and dinner products, etc.
- One way to calculate this cannibalization is to look at historic cannibalization rates with new product/offering launchings within GB stores
- Might also cannibalize other HD stores if they are nearby GB stores – could estimate this impact by seeing historical change in HD's sales when competitor doughnut store opens near by
- Other reasonable approaches to calculating cannibalization are acceptable

Great Burger: Question 5

Question #5:

What would be the incremental profit per store if we think we are going to sell 50 thousand doughnuts per store at a price of \$2 per doughnut at a 60% margin with a cannibalization rate of 10% of GB's sales?

Show candidate Exhibit #2. Also, if necessary, explain the "Cannibalization Rate" to the candidate.

Notes to Interviewer:

- Only do this question if you feel you did not get a good read with the first quantitative question, or if you have ample time left for the case. If you skip this question, tell the candidate the following: The team has calculated that the incremental profit per GB store from selling HD doughnuts would be \$15K.
- Incremental Profit =
 - = contribution from HD sales less contribution lost due to cannibalized GB sales
 - = 50K units x \$2/unit x 60% margin – 300K units x 10% cannibalization x \$3/unit x 50% margin
 - = \$60K – 45K
 - = 5K incremental profit/store

Great Burger: Question 6

Question #6 (synthesis):

You run into the CEO of GB in the hall. He asks you to summarize McKinsey's perspective so far on whether GB should acquire HD. Pretend I am the CEO - What would you say?

Notes to Interviewer:

This is an example response. Good answers may vary, depending on answers candidate gave in questions 1-4, and whether or not they completed all previous questions.

Early findings lead us to believe acquiring HD would create significant value for GB, and that GB should acquire HD

- We believe it is possible to add \$15k in profit/GB store by selling HD in GB stores. This could mean \$50 million in incremental profit for North American stores (where immediate synergies are most likely given HD has little brand presence in rest of world.
- We also believe there are other potential revenue and cost synergies that the team still needs to quantify

Once the team has quantified the incremental revenues, cost savings, and investments, we will make a recommendation on the price you should be willing to pay

We will also give you recommendations on what it will take to integrate the two companies in order to capture the potential revenue and cost savings, and also to manage the different franchise structures and potentially different cultures of GB and HD

Great Burger: Exhibit 1

Stores	GB	HD
Total	5,000	1,020
- North America	3,500	1,000
- Europe	1,000	20
- Asia	400	0
- Other	100	0
Annual Growth in Stores	10%	15%

Financials	GB	HD
Total store sales	\$5,500M	\$700M
Parent company revenues	\$1,900M	\$200M
Key expenses (% sales)		
– Cost of sales *	51%	40%
– Restaurant operating costs	24%	26%
– Restaurant property & equipment costs	4.6%	8.5%
– Corporate general & administrative costs	8%	15%
Profit as % of sales	6.3%	4.9%
Sales/store	\$1.1M	\$0.7M
Industry average	\$0.9M	\$0.8M

* Variable costs, mostly food costs

Great Burger: Exhibit 2

Sales and Profitability per store	
Units of GB sold per store	300,000
Sales price per unit	\$3
Margin	50%
Units of HD sold in GB stores	50,000
Sales price per unit	\$2
Margin	60%
Cannibalization Rate of HD products to GB products	10%

Authors: Krithik Tirupapuliur, Avik Banerjee, Steve Mendoza (Stern '21) **Firm Style & Round:** BCG Round 1
[Interviewee-Led]

Quant: 9
Structure: 7

Case Prompt:

Uranus Co. is an established aerospace company looking to enter the luxury space travel market. It is seeking advice on the global launch of its new travel service, which will be a 2-week cruise experience on a spaceship orbiting earth. Uranus is trying to determine whether they should enter the market and if they can be profitable. How would you advise Uranus Co.?

Case Overview:

Industry: Travel/Hospitality

Case Type: Market Entry

Concepts Tested:

- Market Sizing
- Market Penetration
- Capacity
- Breakeven Time

Overview Information for Interviewer:

1. Provide case specific framework for evaluating launching the travel service
2. Estimate market size of tickets from market research data
3. Assess competitive landscape and customer preferences to project Uranus Co.'s market share
4. Use revenue, cost, and operations data to determine if they can capture projected market share and determine breakeven time

Clarifying Information:

Business Model: Uranus works with both governments and other private companies to provide aerospace equipment and assets

Competitors:

Space X and MoonShine are Uranus's biggest competitors

Objective

Uranus Co. wants to assess whether the space travel market is lucrative and large enough to enter. They also want to break even in 2 years

Timeline: ASAP

Geography:

Uranus Co. operates globally and is headquartered in Bangkok

Product/Service:

Similar to cruise ship experience

Interviewer Guide:

Framework could include the following

Revenues:

- Tickets
- Food, Drinks, Merchandise
- Onboard Activities
- Broadcasting (Live Stream)

Costs:

- Fixed
 - Spaceships
 - Marketing
 - Insurance
 - Launch Pad Permit/Lease
- Variable
 - Fuel
 - Maintenance
 - Food/Drink and Activities
 - Wages

Internal

- IP
- Capabilities (Operational, Financial)
- Brand Image

Market

- Competition
 - Strengths/Weakness
 - Market shares
- Customers
 - Demographics
 - Preferences for features for the trip
- Regulatory

Product

- Price
- Length of trip
- Safety
- Experiences onboard

Go-to-Market

- Organic
- Partnership
- M&A

Question:

- What factors would you consider in estimating the market size for this service? **[wait for list of factors]**
- Due to the high price of the tickets, we will only be able to sell them to millionaires around the globe. Could you please estimate the total market size of space travel tickets based on what our market research team has put together? **(provide Exhibit 1)**

Notes to Interviewer:

Factors:

- Global Population
- % that are wealthy (millionaires)
- Meet health and age requirements for space travel
- How many tickets they would buy each year (family Size if they bring families with them)
- Willing to travel to space

Math:

$8 \text{ B} \times 0.1\% \times 5/8 = 5 \text{ M}$ are eligible

$5 \text{ M} \times 60\% = 3 \text{ M}$ would want to

travel $3 \text{ M} \times 2.3 = \mathbf{6.9 \text{ M tickets}}$

[Asthma, age, and live in city are red herrings]

[Yes and Maybe is part of market, guide candidate if they ask about this]

- Great candidate notes that survey responses could be skewed (only looking at opinions of American millionaires, they could lie about health)

Uranus Co: Customers and Competitors

Question:

- How much of the market do you think Uranus can capture? (provide Exhibits 2 and 3)

Notes to Interviewer:

Key Insights:

- Market is fragmented outside of the top two players
- Uranus is industry leading in all metrics except for cost
- Cost is not a major factor and should not detract from Uranus' offering

A good candidate should be able to provide a market share estimate with reasonable defense. They should notice that Uranus is in a strong position to capture share from the fragmented 20%, while also siphoning market share from its top two competitors due to its superior offering.

A great candidate should note that market share capture will be gradual, and that Uranus will need some time to prove itself as an established player before capturing share from SpaceX and MoonShine.

Allow interviewer to choose their own market share estimate before informing them that Uranus believes it can capture 20% of the market.

Question:

Uranus Co. would like to capture at least 20% of the market each year and break even within two years. (provide Exhibits 4 & 5)

- Does Uranus Co. have the operational capacity to meet this 20% target?
- If it runs at capacity, will Uranus Co. be able to break even within two years?

Notes to Interviewer:

Market Penetration:

- # of trips/ship/month (2) x # of months (12) x # of ships (150) = 3,600 trips/year
- # of tickets/trip (400) x 3,600 trips/year = 1.44M tickets/year
- **Candidate should recognize that Uranus Co. will have the capacity to satisfy over 20% of the market each year (1.44M / 6.9M = 20.87%)**

Start-up cost to build each ship:

- \$1.5B/ship x 150 ships = \$225B (this is an UPFRONT COST)

Annual fixed costs:

- Fuel: gallons/trip (500k) x # of trips/year (3,600) x price/gallon (\$5) = \$9B
- Maintenance: cost/trip (\$100,000) x # of trips/year (3,600) = \$360M

- Launch pads: # of launch pads (10) x annual lease (\$10M) = \$100M
- Other fixed costs: insurance (\$450M) + payroll (\$40M) + marketing (\$50M) = \$540M
- Total annual fixed costs: \$9B + \$360M + \$100M + \$540M = \$10B

Contribution margin:

- Revenue per customer: ticket price (\$400k) + other revenue (\$100k) = \$500k
- Variable cost per customer: \$400k
- Contribution margin: \$500k - \$400k = \$100k

Breakeven calculation

- Start-up cost = [(contribution margin x tickets/year) - annual fixed costs] x number of years
- \$225B = [(\$100k x 1.44M) - \$10B] x number of years
- **Number of years = 1.68**
- **Candidate should recognize that Uranus Co. will break even in less than two years!**

Uranus Co: Recommendation

Recommendation:

- The interviewee should recommend that Uranus Co enter the luxury space travel market
- Interviewee should acknowledge that the size of the market along with Uranus' competitive advantages make this a profitable long-term venture
- Other recommendations are fine if they are justified

Risks:

- Regulatory risks could change in short notice
- Safety and liability concerns are an important consideration
- Current data has a small sample size and may not be fully representative of greater population
- Setup time and complexity as well as competitor actions during that timeframe

Next Steps:

- Uranus Co should conduct additional market surveys to better understand the demand for this service
- Uranus should consider hiring pilots, flight attendants, maintenance, and construction personnel to put together a workforce and begin building these ships
- Begin marketing blitz and start taking pre-orders in preparation for maiden voyage

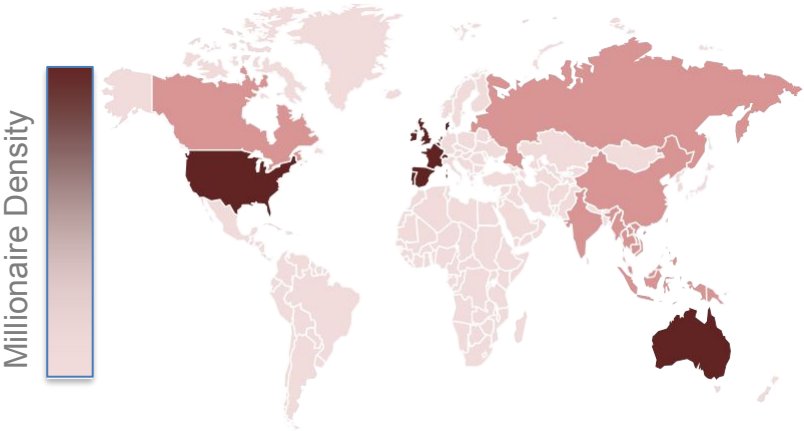
Bonus: Guide to an excellent case

- Works through math with minimal guidance
- Stays structured throughout the case
- Recognizes that only a few of the market sizing metrics are relevant and ignores red herrings
- Creates an exhaustive framework

Exhibit 1: Market Research

Researched Metrics

Metric	Value
Global Population	8 Billion
Millionaires Globally (%)	0.1%
Millionaires above the age of 50	40%
Millionaires living in major cities	65%



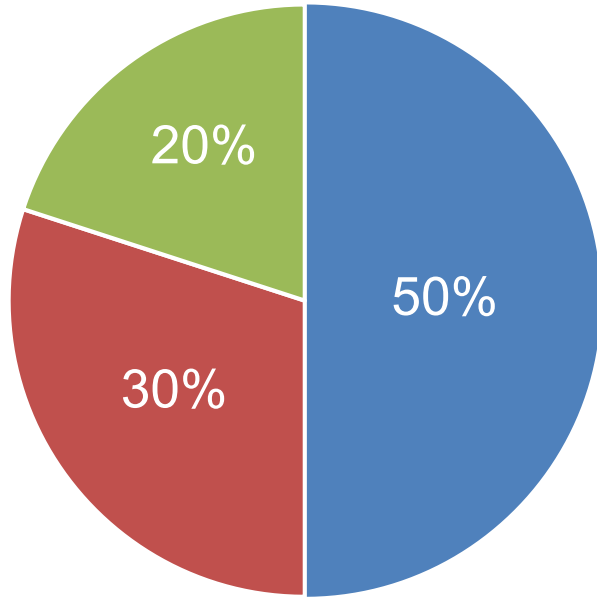
Survey of 200 American Millionaires

Questions	Responses	
Would you want to travel to space for leisure?	Yes	90
	No	80
	Maybe	30
If so, how many tickets would you buy each year?	Average: 2.3	
Do you suffer from any heart conditions?	Yes	75
	No	125
Do you suffer from asthma?	Yes	50
	No	150

*The only requirement for travel is that travelers must not have any heart conditions

Exhibit 2: Competitive Landscape

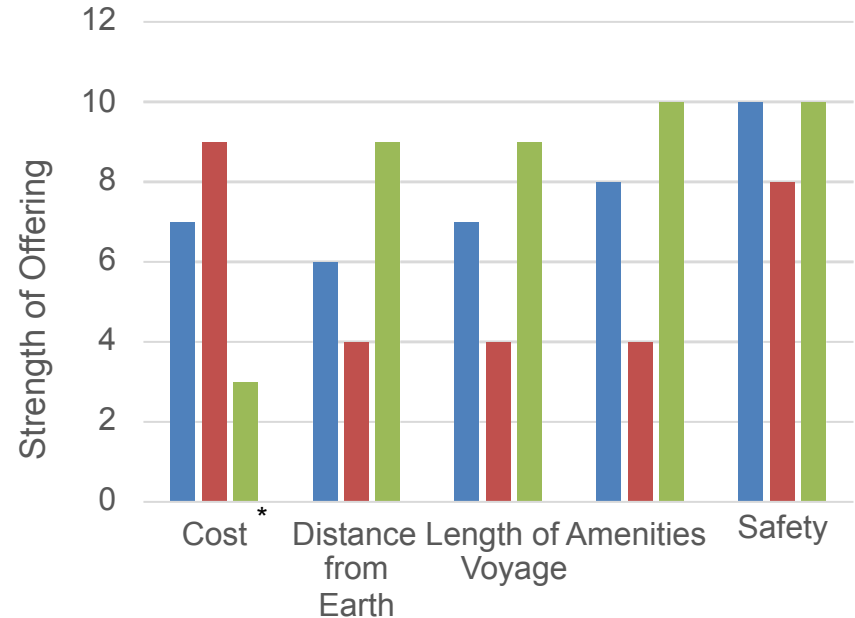
Market Share (# of Tickets)



■ SpaceX ■ MoonShine ■ Rest of Market*

*no other company has more than 6% market share

Comparison of Offerings

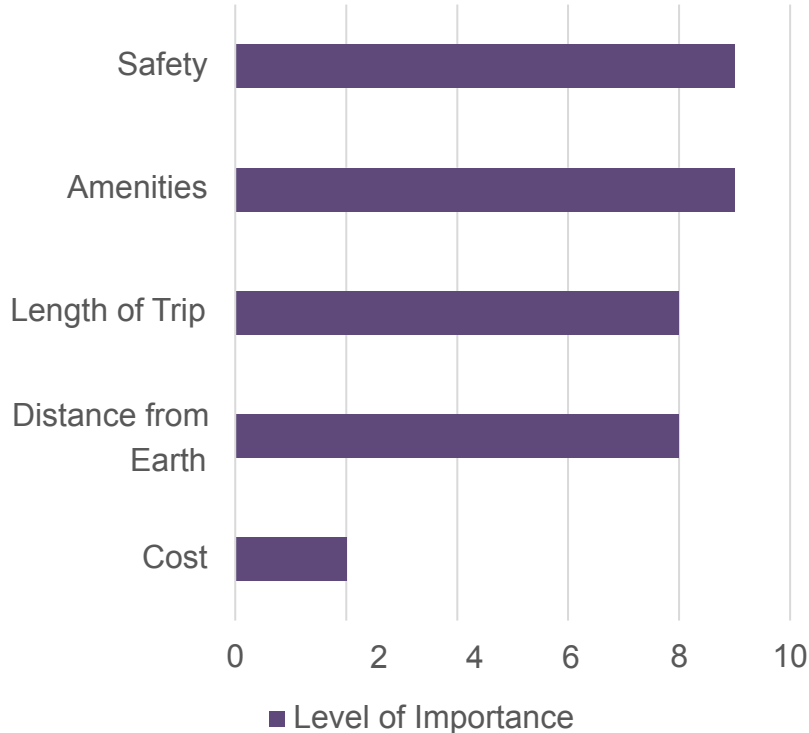


■ SpaceX ■ MoonShine ■ Uranus

*shorter bar indicates **higher cost**

Exhibit 3: Customer Surveys

Customer Insights



Customer Quotes

"I'm paying a lot of money for this trip. I want the voyage to be longer so I can get relax and get my money's worth"

"The higher we are, the better the view. If I'm paying this much, we should be as high as possible to ensure we're getting a full planet view."

"Cost does not matter to me. I'll pay extra for the best experience."

Exhibit 4: Operations Information

Information Pertaining to Operations	Amount
Spaceship capacity	400
Number of spaceships in fleet	150
Number of trips/month (for each ship)	2
Number of launch pads (globally)	10
Gallons of fuel per trip	500,000

Exhibit 5: Revenue and Cost Data

Revenue Information	Amount	Fixed Cost Information	Amount
Price of ticket	\$400,000	Cost to build each ship	\$1,500,000,000
Other revenue per customer	\$100,000	Fuel (price per gallon)	\$5.00
		Maintenance cost per trip	\$100,000
		Annual payroll	\$40,000,000
		Annual launch pad lease (per pad)	\$10,000,000
		Annual insurance cost	\$450,000,000
		Annual marketing expenses	\$50,000,000
		Variable Cost Information	Amount
		Cost per customer	\$400,000

Author: Matthew Givner (Stern '22) **Firm Style & Round:** BCG Round 1
[Interviewee-Led]

Quant: [9]*
Structure: [8]*

Case Prompt:

Your client is Green Dreamz, a vertically-integrated cannabis company based in Colorado, USA. Founded in 2011 as a medical cannabis business, Green Dreamz expanded into the recreational market following state-wide legalization in 2014. Green Dreamz has since become one of the largest players by store count in Colorado, where it competes with companies ranging from mom-and-pop shops to multi-state operators. Green Dreamz operates a cultivation facility in Denver and 12 dispensary locations (3 of which serve medical cannabis only, 4 of which serve recreational cannabis only, and 5 of which serve both). The 12 dispensary locations are spread across the state: 5 in Denver (all of which serve both medical and recreational cannabis), 3 in Colorado Springs (which only allows medical cannabis), 2 in Fort Collins, 1 in Trinidad, and 1 in Cortez (refer to **Exhibit D** for a map). Five of its 12 locations were acquired in 4 separate transactions between 2014 and 2018.

As the cannabis industry has matured the market in Colorado has become saturated, and Green Dreamz's organic growth has slowed accordingly. Although Green Dreamz and other companies have invested more in brand-building, consumer preference is still driven primarily by price. Green Dreamz's CEO has hired your firm to help them find new opportunities for profitable growth.

Case Overview:

Industry: Cannabis Retail

Case Type: Growth Strategy

Concepts Tested:

- Chart reading
- Profit computation
- Brainstorming
- Valuation

Overview Information for Interviewer:

Candidate should ask clarifying questions to better understand this relatively new industry. The case includes equal parts calculation and brainstorming. The case begins with profit calculations, but then shifts to ideas for revenue growth. Quantitative and qualitative structuring will be key to success. Depending on candidate speed, interviewer may move to the final recommendation at any point after Question 3.

Key case steps:

- Extrapolate trends from a sales chart
- Calculate revenue and profit
- Devise creative and relevant options for revenue growth
- Evaluate a potential acquisition

Clarifying Information:

Regulations

- Cannabis companies are heavily regulated, with rules governing everything from zoning and operating hours to packaging and advertising
- Up to 2 ounces of medical cannabis flower (or its equivalent in infused products) can be legally sold to registered Colorado patients aged 18+ per day
- Up to 1 ounce of recreational cannabis flower (or its equivalent in infused products) can be legally sold to adults aged 21+ per day
- Medical infused products can legally have higher potency (100mg+ THC) than recreational products
- Federal regulations prohibit cannabis companies from using credit cards. Banks and financial institutions are generally unwilling to provide credit or financing
- Cannabis products cannot be advertised, shipped, or sold across state lines

Operations

- Green Dreamz retails all the cannabis flower it grows in-house, and purchases additional flower on wholesale markets to meet demand (especially for its recreational dispensaries)
- Green Dreamz does not produce infused products (products that are infused with THC oil e.g., edibles, lotions, and vape cartridges), but sells those produced by 3rd party manufacturers
- Green Dreamz sells “trim” (parts of the cannabis plant that cannot be sold to consumers as flower) to 3rd party manufacturers who extract THC oil for use in the production of infused products

Interviewer Guide:

A Good Framework Will Include:

• Cannabis Market

- Colorado vs other states
- Market size and growth
- Competitive analysis (market share, etc.)
- Major trends (supply / demand, consumer preferences, brand building, criminal market, product/package innovation, industry consolidation, online ordering / delivery options, home-growers, etc.)
- Regulations / legal restrictions

• Green Dreamz Profit Structure

- Revenue: B2C and B2B sales, differences between medical and recreational products / prices / customers / avg. spend / visits, etc.
- Costs: fixed vs variable; real estate, utilities, labor, COGS, R&D

• Compliance / legal, SG&A, taxes, etc.

• General Growth Ideas (nothing too detailed, as this will be asked later)

- Organic growth: build new cultivation facilities / dispensaries / infused products division; sell accessories and branded merchandise; introduce a loyalty program, etc.
- Inorganic growth: acquire cultivation facilities / dispensaries / infused products companies, etc.
- Out-of-state expansion
- Consulting services

Green Dreamz: Question 1

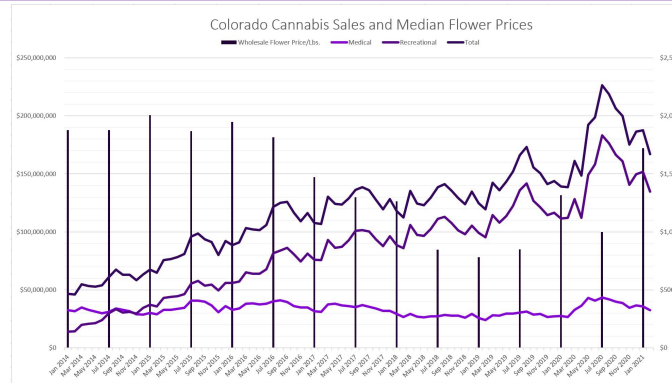
Question 1:

- What can you infer about the cannabis market in Colorado when looking at **Exhibit A**?

Notes to Interviewer:

- This is a somewhat difficult chart to read. Candidate should take their time and ask questions to enable their understanding
- The bars indicate median price per pound of wholesale cannabis flower, with prices on the right axis
- Flower prices are for recreational cannabis (not medical)
- The bottom line indicates medical sales, the middle line indicates recreational sales, the top line indicates total sales, with sales on the left axis

Green Dreamz: Exhibit A



Key Insights Interviewer Should Look For:

- Fast growth in recreational sales from 2014-2017 following legalization
- Growth moderates from 2017-2019
- Some seasonality is evident in recreational sales, with annual spikes in July / September
- A large spike in growth occurs in 2020 (likely caused by pandemic-induced panic buying, as consumers expected cannabis shops to be shut down. **Interviewer should ask candidate** if they believe this to be an aberration or indicative of future growth trends)
- Medical sales were flat from 2014-2017, then declined somewhat from 2017-2019, reflecting a ceiling on the potential market and/or competition from recreational sales. Medical sales increased slightly in mid-2020, also likely pandemic-induced
- Wholesale flower prices saw a sharp decrease from 2017-2020 (coincident with the moderation in recreational sales growth) and have yet to fully recover
- **If the candidate doesn't offer explanations** for the trend(s) they identify, interviewer should ask their opinion
- Potential causes for trends: market saturation □ fewer new customers; decline in cannabis tourism; flower price declines from oversupply; increasing cost of regulation / compliance; potential resurgence of criminal market

Green Dreamz: Question 2

Math Question:

- Calculate the profitability of Green Dreamz – refer to **Exhibit B** for initial data

Math Solution:

- Candidate should quickly recognize they don't have enough information. When they ask for price information, present them with **Exhibit C** (Please note this is pre-tax pricing)
- Candidate can use these 2 exhibits to calculate avg. medical and recreational spend (recommended), and/or they may ask for customer visits, in which case provide the visits information on the right
- After calculating revenue, candidate should ask for cost information. Provide the information on the right (**interviewer is encouraged** to ask candidate to brainstorm what costs should be considered)
- If candidate asks, inform them when they may round their numbers, as indicated below

Recommended Calculations:

- Avg. Medical Spend = $[(\$120 \times .5) + (\$45 \times .2) + (\$35 \times .15) + (\$40 \times .1) + (\$25 \times .05)] = \79.50 **round to \$80**
- Avg. Recreational Spend = $[(\$75 \times .6) + (\$20 \times .1) + (\$20 \times .1) + (\$30 \times .15) + (\$20 \times .05)] = \54.50 **round to \$55**
- Avg. Monthly Revenue = $(\$80 \times 1,500 \text{ visits} \times 3 \text{ Med stores}) + (\$55 \times 9,500 \text{ visits} \times 4 \text{ Rec stores}) + [(0.9 \times 5,000 \text{ visits} \times \$55) + (0.1 \times 5,000 \text{ visits} \times \$80) \times 5 \text{ Dual stores}] = \$3,887,500$ **round to \$4 million**
- Avg. Annual Revenue = $\$4,000,000 \times 12 = \$48,000,000$
- Avg. Annual Trim Revenue = $\$2,000,000$ (candidate will likely fail to include this, so ask if there are any other revenue streams they should consider before moving on to cost calculations)
- Total Revenue = $\$50,000,000$
- Total Costs = $\$10\text{m} + \$12\text{m} + \$1\text{m} + \$6\text{m} + \$12\text{m} + \$1\text{m} = \$42,000,000$
- Pre-Tax Total Profit = $\$50,000,000 - \$42,000,000 = \$8,000,000$
- A great candidate will calculate a pre-tax profit margin (**16%**) and opine on whether they think it's high or low
- ("Pre-tax" is emphasized here because cannabis companies face unusually high federal tax burdens due to selling a Schedule 1 federally-regulated substance)

Math Information:

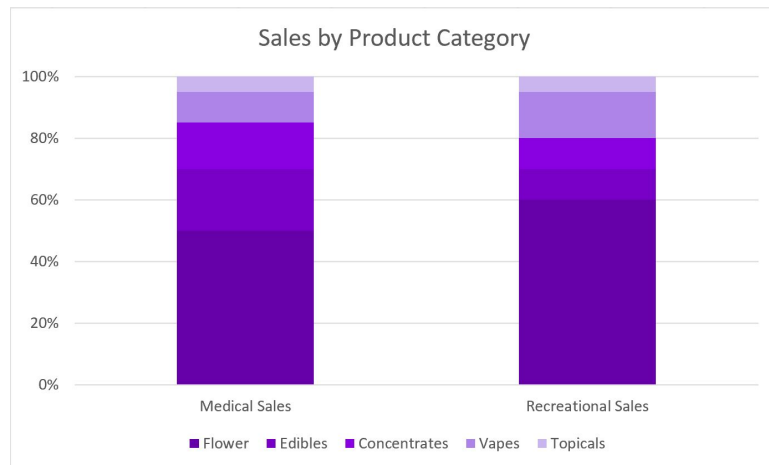
Avg. Monthly Visits per Store

- Medical: 1,500
- Recreational: 9,500
- Dual Med / Rec: 5,000 (90% of which are Recreational)

Annual Costs:

- Rent/Utilities: \$10 million
- Labor: \$12 million
- R&D: \$1 million
- SG&A: \$6 million
- COGS: 24% of revenue
- Legal: \$1 million

Green Dreamz: Exhibit B



Key Insights Interviewer Should Look For:

- [The chart is difficult to read. Interviewer should give candidate the exact numbers if their eyeball guess is in the ballpark]
- The left bar represents the breakdown of medical sales by product category
- The right bar represents the breakdown of recreational sales by product category
- Medical: 50% Flower, 20% Edibles, 15% Concentrates, 10% Vapes, 5% Topicals
- Recreational: 60% Flower, 10% Edibles, 10% Concentrates, 15% Vapes, 5% Topicals
- This information, alone, is not enough to calculate revenue. Candidate should quickly ask for price information

Green Dreamz: Exhibit C

Category	Avg. Medical Price	Avg. Recreational Price
Flower	\$120	\$75
Edibles	\$45	\$20
Concentrates	\$35	\$20
Vapes	\$40	\$30
Topicals	\$25	\$20

Key Insights Interviewer Should Look For:

- Average medical prices are higher than average recreational prices (Interviewer should ask candidate why they think this is. In general, this is largely due to supply constraints in the medical market. In addition, medical products generally contain more THC/unit. Candidate can also infer lower demand for medical products as a potential cause based on Exhibit A)
- This information combined with Exhibit B will enable the candidate to calculate the average spend for medical and recreational consumers
- Interviewer may encourage the candidate to do this calculation first before calculating average monthly revenue

Question 3:

- What are some ways Green Dreamz can grow its overall revenue?

Notes to Interviewer:

- The purpose of this question is to test the candidate's creativity and ability to devise different, relevant ways to grow the company while keeping in mind the unique constraints faced by the cannabis industry
- Cost mitigation should not be a major focus for this question
- A good candidate will construct buckets to organize their brainstorm, e.g., organic vs inorganic, medical vs recreational, volume vs value, low-risk vs high-risk, near-term vs long term
- A great candidate will construct a 2x2 matrix comparing "existing vs new customers" with "existing vs new products"

Possible answers include:

- Existing customers & products: loyalty program, new pack sizes for flower, price changes / promotions (e.g., happy hours), bundles, etc.
- Existing customers & new products: branded merchandise, accessories, new 3rd party products, in-house infused products, new flower strains, tours of cultivation facility, cannabis cooking classes, etc.
- New customers & existing products: enhanced marketing (earned / owned / paid media), co-op marketing with 3rd party partners, celebrity endorsements, product placement opportunities, organic expansion to new geographies, online pre-ordering system, partner with event/tourism companies, etc.
- New customers & products: celebrity partnerships, acquisition of infused product companies / dispensaries / cultivation facilities, launch CBD-only products, acquire packaging / distribution company, brand licensing, franchising, consulting services, etc.

Question 4:

- Green Dreamz is considering acquiring one of its smaller competitors, Treetops. Treetops operates a cultivation facility in Pueblo that produces recreational cannabis exclusively for its infused products division (which sells Treetops-brand concentrates and edibles at its own recreational dispensaries). It buys flower and other infused products from wholesalers to sell at its 4 dispensaries (1 medical-only in Colorado Springs, 1 recreational-only in Pueblo, and 2 dual med/rec in Denver). How would you evaluate this opportunity?

Notes to Interviewer:

- The purpose of this question is to test the candidate's knowledge of M&A considerations, including revenue and cost synergies, strategic goals, financial / operational concerns, potential risks, opportunity costs, and valuation concepts
- A good candidate will mention one or more of the areas above, without going into much detail
- A great candidate will treat this as a mini-framework exercise and construct buckets to organize their thoughts, (e.g., into the categories listed above) and provide 1-2 examples for each

Possible answers include:

- Revenue synergies: geographic expansion, price power from increased market share, new customer acquisition, cross-sell opportunities, better product / strain innovation from combined R&D, better customer experiences from best practices adoption, improved value proposition from wider product assortment, higher margins with in-house infused products, potential B2B sales of in-house infused products, higher marketing ROI, etc.
- Cost synergies: improved bargaining power with 3rd party suppliers, more efficient distribution, lower cost from best practices adoption, consolidated back-end IT and administrative resources, shorter distance between Pueblo cultivation center and southern stores, etc.
- Potential risks: regulatory fallout, competitor responses, brand damage, cannibalization in Denver & Colorado Springs, culture clash, Green Dreamz capabilities (this would be its largest acquisition to date), buying a medical dispensary despite low growth prospects, need to buy even more wholesale flower to meet demand from new dispensaries, etc.

Green Dreamz: Question 5

Math Question:

- What price should Green Dreamz bid for Treetops?

Math Solution:

- Candidate should ask for financial information from Treetops in order to calculate the company's Net Present Value. If so, provide the financial information on the right
- An excellent candidate will note Treetops has a higher profit margin than Green Dreamz. Interviewer may ask their thoughts (e.g., likely driven by the in-house infused products division)
- After calculating the profit, candidate should ask for a discount rate and growth rate. If so, provide a **discount rate of 15%** and a **growth rate of 6%**
- (If the candidate seems curious about these rates, ask for their thoughts. In general, cannabis companies face a higher cost of capital than other businesses due to the unwillingness of banks to make loans to the industry and the continued perceived riskiness of such ventures. A 6% growth rate is low relative to previous growth rates achieved in the years immediately following legalization, during which growth reached a CAGR of 58% from 2013-2016)
- After calculating the NPV, the candidate should offer a bid price around \$30m

Recommended Calculations:

- Total Annual Revenue = $\$50m \times 0.3 = \$15m$
- Total Annual Profit = $\$15m \times 0.18 = \$2.7m$
- NPV = $\$2.7m / (0.15 - 0.06) = \$30m$

Math Information:

Treetops Financials

- Estimated Total Revenue: 30% of Green Dreamz
- Estimated Profit Margin: 18%

Green Dreamz: Recommendation

Recommendation:

- Acquire: positive revenue synergy opportunities, improve performance with best practices transfer, exposure to new customers, infused products division provides new revenue opportunities, etc.
- Don't Acquire: acquiring additional medical dispensaries is unhelpful, cannibalization issues, will need to buy more wholesale flower to supply new dispensaries, no experience operating infused products division, potential integration problems given size of acquisition, etc.
- If "Don't Acquire," candidate should propose alternative growth ideas from their previous brainstorm

Risks:

- Acquire: revenue synergies fail to materialize, increased costs from integration and additional wholesale purchases, problems integrating the culture and brand, cannibalization, etc.
- Don't Acquire: missed opportunity, a competitor acquires Treetops, further declines in growth from lack of expansion, etc.

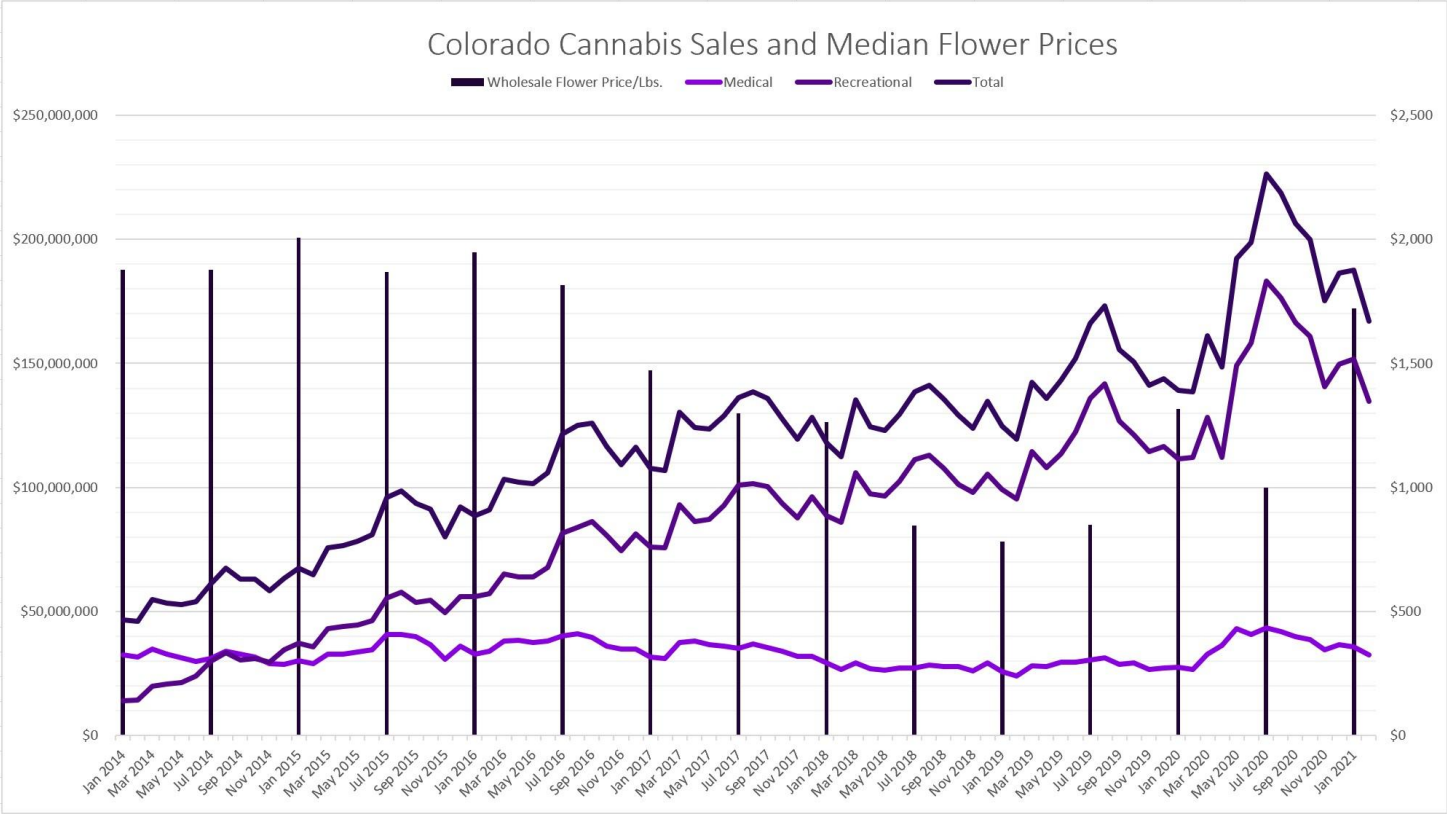
Next Steps:

- Next steps should relate directly to the risks the candidate identifies, e.g., if a risk is "problems with integration" a next step would be to review past acquisitions for potential pitfalls and assess likelihood of those occurring with Treetops integration

Bonus: Guide to an excellent case

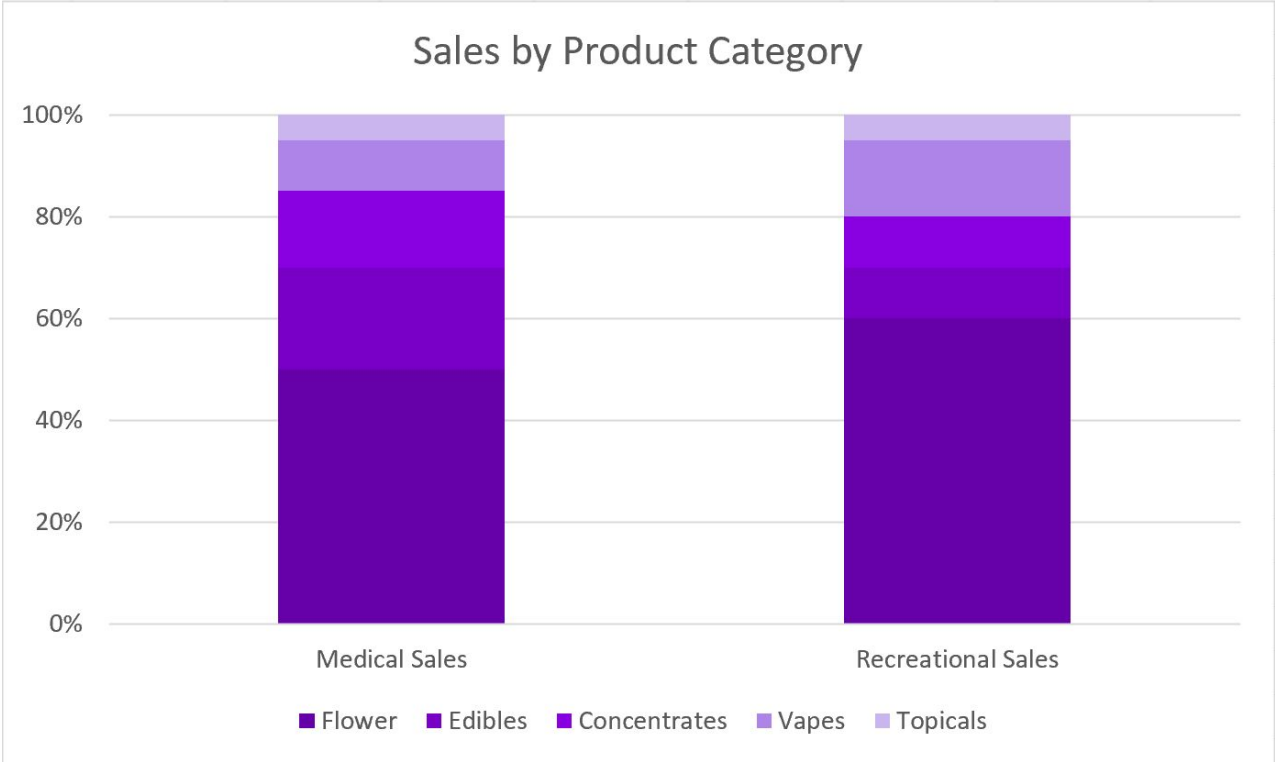
- There is no correct answer to this case. A great candidate will acknowledge the pros and cons but ultimately come down strongly either in favor or against, with their answer corresponding to the insights they derived throughout the case (especially during questions 3 and 4)
- A great candidate will be very case specific, recognizing the nuances that distinguish the cannabis industry from traditional business

Green Dreamz: Exhibit A



Source: Colorado Department of Revenue

Green Dreamz: Exhibit B



Source: Green Dreamz

Average Prices by Product Category

Category	Avg. Medical Price	Avg. Recreational Price
Flower	\$120	\$75
Edibles	\$45	\$20
Concentrates	\$35	\$20
Vapes	\$40	\$30
Topicals	\$25	\$20

Source: Green Dreamz



Jimmy's Dilemma



Authors: Paul Bentley & Ryan Pennock (Stern '20) **Firm Style & Round:** Deloitte Round 2
[Interviewee-led]

Quant: 9
Structure: 9

Case Prompt:

It is early October, and Jimmy Smith, an MBA2 at NYU Stern, has a decision to make. After a summer interning at **Firm A**, Jimmy received an offer to return full-time next year. However, Jimmy also decided to re-recruit and received a competing offer from **Firm B**. Jimmy now needs to decide which offer he should accept, and has looked to you, his best friend, for help.

Case Overview:

Industry: Recruiting

Case Type: Investment Decision

Concepts Tested:

- Valuation (DCF)
- Structured Math
- Brainstorming

Overview Information for Interviewer:

- This case tests the candidate's ability to weigh the financial implications associated with two offers of employment.
- At a minimum, the candidate should identify that the timing of the cashflows matter: they will need to discount all cashflows to the present day in order to properly compare the two offers.
- A good candidate should think beyond the immediate financial incentives and note that exit opportunities may be important to Jimmy (note: exit opportunities are important here).

Clarifying Information:

- Jimmy only cares about money, and is seeking to maximize financial value
- Jimmy is not considering any other opportunities
- If asked: Jimmy's intention is to work at either firm for 3 years
- Firms A and B are competitors in the same industry
- Firm A is considered second tier, but increasingly competes with top-tier firms for talent
- Firm B is the more prestigious and is considered top-tier in its industry

Interviewer Guide:

- **A Good Framework Will:**
 - Identify the potential sources of value/compensation at the competing firms
 - Annual salary
 - Growth/raises
 - Signing bonus/annual bonus
 - Relevant methods to assess value of each offer of employment
 - Valuation Method (DCF)
 - Growth
 - Brainstorm Additional Considerations
 - Exit opportunities
 - Training
 - Firm focus
 - Firm financial performance

Jimmy's Dilemma: Exhibit #1 & #2 Guide

Exhibit #1 & 2:

- The caser should move forward by asking for the compensation packages for each firm. If they don't, prompt them in that direction. **Give Exhibit 1 & 2.** *The following exhibits have the actual offers Jimmy has received and some independent research Jimmy has conducted. Which offer is best?*

Notes to Interviewer:

- When prompted, provide a Discount Rate of 10%
- The candidate should recognize the need to value each offer.
- The timing of cashflows is important: a good caser will immediately create a cash flow diagram to stay organized.
- The candidate should demonstrate an understanding of Discounted Cashflow valuation and be able to undertake a simplified compounding approach to calculate present values. The standard formula is:
 - $PV = FV / (1 + r)^n$
- **NOTE ON CASH FLOW DISCOUNT:** The candidate will need to use simplified compounding to undertake approximate DCF calculations. For instance, the denominator for year 2 cashflows can be approximated to 1.2 (i.e. $1 + 0.1 + 0.1$) rather than $(1.1)^2$, and for year 3, it can be approximated to 1.3 rather than $(1.1)^3$. If the candidate does not use this method, the interviewer should suggest it.
- **CONCLUSION:** Based on given information, Firm A's offer is better, as its NPV is \$10k higher.

Jimmy's Dilemma: Exhibit #1 & #2 Solution

Solution:

Firm A - NPV					Firm B - NPV				
Year	0	1	2	3	Year	0	1	2	3
Salary	0	91	114	126	Salary	0	97	121	147
Signing Bonus	30	0	0	0	Signing Bonus	40	0	0	0
Annual Bonus	0	30	30	30	Annual Bonus	0	35	35	35
Tuition Reimbursement	0	0	0	78	Tuition Reimbursement	0	0	0	0
TOTAL	30	121	144	234	TOTAL	40	132	156	182
Simplified DCF	30	110	120	180	Simplified DCF	40	120	130	140
NPV of Firm A Offer	440				NPV of Firm B Offer	430			

Jimmy's Dilemma: Brainstorm Guide

Brainstorm:

- After calculating the NPV for each firm's offer, prompt caser to brainstorm other things Jimmy should consider before accepting. Push caser to reach 4 ideas (beyond what they may have included in their initial framework). *What other things should Jimmy consider before making a decision? As Jimmy's friend, you should include additional financial considerations, but also introduce him to some non-financial factors he needs to think about.*

Sample Brainstorm:

Financial	Non-financial
Exit opportunities	Focus of firm's business
Firm's performance / financial security	Location
	Travel time
	Corporate culture

Jimmy's Dilemma: Exhibit #3 Guide

Exhibit #3:

- After brainstorm, lead the conversation towards Exit Opportunities. If caser did not list this, present the idea to him/her. **Give Exhibit 3.** *What do you make of the following data Jimmy was able to collect on the potential opportunities he could receive when leaving the firm after 3 years?*

Notes to Interviewer:

Step 1

Caser should recognize the need to determine an expected value, this can be done either by:

- Calculating the mean using the given data [Firm A = \$185k; Firm B = \$220k]
- Using the median based on the chart, so long as the interviewer explains his/her choice (ie. each distribution may be skewed by tail) [Firm A = \$175k; Firm B = \$225k]

Firm A			Firm B		
Salary (\$'000s)	x Probability =	Weighted Value	Salary (\$'000s)	x Probability =	Weighted Value
\$150	20%	\$30.00	\$150	0%	\$0.00
\$175	40%	\$70.00	\$175	10%	\$17.50
\$200	25%	\$50.00	\$200	20%	\$40.00
\$225	10%	\$22.50	\$225	50%	\$112.50
\$250	5%	\$12.50	\$250	20%	\$50.00
Expected Value =		\$185.00	Expected Value =		\$220.00

cont'd.

Notes to Interviewer:

Step 2

- Candidate should realize that the difference in year 4 earnings is either \$35k (mean) or \$50k (median), depending on their method of calculation in Step 1.
- Candidate should then quickly calculate the NPV of that differential in order to see that the exit opportunities result in Firm B becoming the better option during the fourth year. Note also that the 5% growth rate is a red herring (i.e. it does not change the outcome) and will only further this disparity.

$$\begin{array}{lll} \text{PV} = \text{FV} / (1 + r)^n & & \\ = 35 / (1.4) & \text{or} & = 50 / (1.4) \\ = 25 & & = 35.7 \end{array}$$

- **CONCLUSION:** we can see that the PV of the expected value of the exit opportunities exceeds the \$10k difference previously established between the two offers. Thus, Firm B becomes the better option.
- **NOTE:** an excellent candidate may attempt to undertake a more complex NPV calculation—for example, by treating the exit opportunities as a perpetuity. While this is very thorough, it is unnecessary because the outcome should be clear without it.

Jimmy's Dilemma: Recommendation

Recommendation:

- Jimmy should choose Firm B
- The relative value of the exit opportunities at Firm B more than compensate for the higher 3-year value of Firm A

Risks:

- Firm B encounters financial challenges and lays off staff
- Jimmy underperforms at Firm B and does not realize the benefits associated with its better exit opportunities
- Firm B is a poor cultural fit for Jimmy and he leaves before his three years are up

Next Steps:

- Leverage offer at Firm A to negotiate a better deal at Firm B.
- Conduct further due diligence of each firm (including cultural fit, type of work, etc.)
- Make the most of each firm's "sell days" and hold off on signing until the last minute
-

Bonus: Guide to an excellent case

- A good candidate will recognize that the three-year economics of the two firms do not tell the whole story, and that the long-term economics are crucial, as is the case with many investment opportunities.
- A good candidate will identify the need for DCF and NPV calculations, and will remain structured throughout
- An excellent candidate may introduce additional macro-economic factors to the discussion, presenting potential risks and assessing the impact these could have on the given projections

Exhibit #1: Jimmy's Dilemma

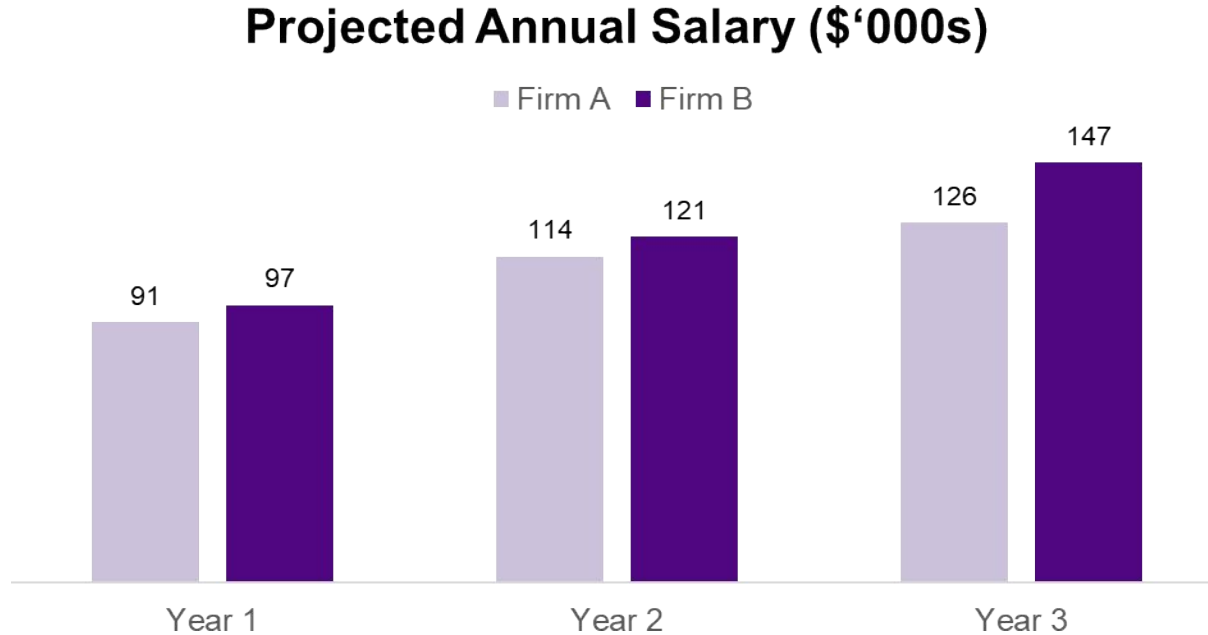
Compensation Package by Firm

	Firm A	Firm B
Starting Salary	\$91k	\$97k
Signing Bonus [†]	\$30k	\$40k
Expected Annual Bonus	\$30k	\$35k
Tuition Reimbursement*	\$78k	\$0

[†]to be distributed before start of employment

*to be distributed at the end of year 3

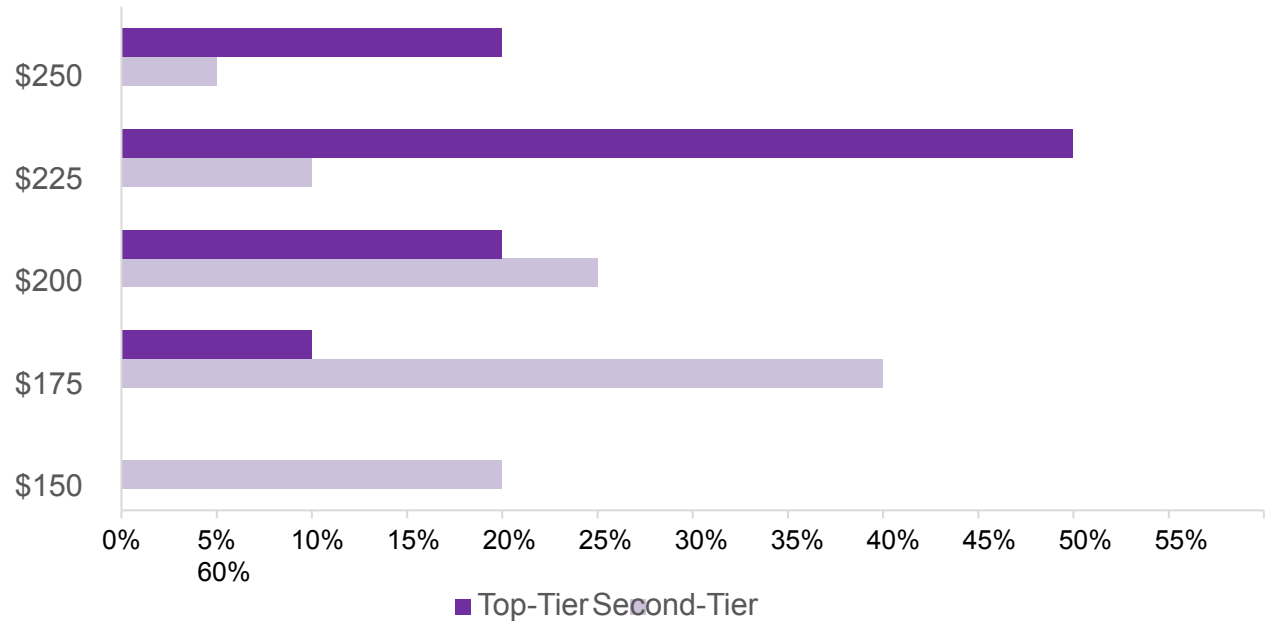
Exhibit #2: Jimmy's Dilemma



Note: Annual bonus expected to remain constant

Exhibit #3: Jimmy's Dilemma

Distribution of Expected Starting Salaries for Exit Opportunities



Note: Assume salary will grow at 5% per year indefinitely

Author: Liz Mardeusz and Max Soifer (Stern '24)
Firm Style & Round: McKinsey - Round 1
[Interviewer-Led]

Quant: [8]*
Structure: [7]*

Case Prompt:

Dr. Stern's Botanicals is a U.S.-based cosmetic and skincare startup and a Gen-Z favorite for "clean beauty." Last year, the company's sales dropped 8% after customers took to TikTok to complain that they had found mold inside concealers less than six months old. In the wake of the incident, Dr. Stern issued a press release explaining that the product's formulation, free from harsh chemicals and preservatives, is meant to last six months if stored properly. The typical shelf life of a concealer is 12 months. Dr. Stern is on the hunt for a strategic buyer within two years and needs to improve profitability in order to position itself as an attractive acquisition target. The company is considering two strategies: upgrading the climate control technology in its manufacturing facility to ensure ingredient freshness, or investing in a new type of airtight concealer packaging to minimize spoilage. Which option should it pursue?

Case Overview:

Industry: Consumer Packaged Goods

Case Type: Comparison (Cost/Benefit)

Concepts Tested:

- Profitability (Revenue/Cost)
- Investment Decision
- Cosmetics industry knowledge

Overview Information for Interviewer:

This case can be given McKinsey-style (interviewer-driven) or in a more candidate-driven style. Instructions for both methods are included.

Key case steps:

- Identify key metrics to assess each strategy
- Calculate value generated [in the form of cost savings]
- Assess cost/benefit of different strategies in the context of client's specific goals

Clarifying Information:

- Dr. Stern does not operate its own brick-and-mortars and has no DTC e-commerce presence. It generates revenue by selling its products wholesale to upscale department stores and retailers like Sephora and Ulta
- Given past issues with product integrity, the company is not overly focused on driving sales to increase profitability
- “Clean beauty” is a largely unregulated marketing term, used by skincare and cosmetic brands to refer to: the use of natural and/or responsibly sourced ingredients, cruelty-free status (not tested on animals), sustainable packaging, and/or being free from ingredients like synthetic preservatives, which some regard as toxic

Interviewer Guide:

- **A Good Framework Will Consider:**
 - **Financial implications of each strategy**
 - o Planned capex
 - o Expected value creation:
 - Cost savings
 - Ongoing expenses
 - Forecasted revenue impact
 - o Timeline - which option achieves positive financial results sooner?
 - **Strategic considerations of each strategy**
 - o PR opportunities and brand image/reputation
 - A packaging change could result in improved CX and address concerns aired on social media, but could also draw attention to problem
 - Updated cooling system flies more under radar from consumer perspective
 - o Spoilage mitigation (determine which option more effectively improves spoilage rate)
 - o Supply chain impacts (if new ingredients or formulations are required as a result of either strategy)
 - o Regulatory compliance (is new packaging FDA compliant?)
 - **Alternative strategies**
 - o Investment in marketing (particularly influencer and TikTok marketing to target Gen-Z consumer base) to drive sales
 - o Introduction of preservatives to reduce spoilage (note implications for company's identity as “clean beauty” brand)
 - o Introduce DTC option to improve margins and expand available channels, boosting sales [*note that beauty is typically a high-margin industry and retail partners purchase wholesale for up to 65% discount on MSRP*]

Dr. Stern's Botanicals: Question 1 - Brainstorm

Question 1:

Ideally, candidate will ask to see financial data for each strategy. Prior to sharing exhibits, ask candidate: what implications does product spoilage have for Dr. Stern's Botanicals?

Notes to Interviewer:

- This is a brainstorming exercise meant to test the caser's structured thinking ability. A suggested, but by no means exhaustive, brainstorm is shown below. Candidates should segment their brainstorm into logical categories
- Once the caser has thoroughly explored factors and indicated an understanding that spoilage has financial, operational, and reputational effects for Dr. Stern, present Exhibit 1. Upon viewing the exhibit, the candidate should drive towards finding the cost savings achievable via the climate control strategy

Internal Implications

- Increased costs (wasted product, labor costs for quality control and spoiled product disposal, etc., PR damage control)
- Increased operational complexity (necessity of a product integrity testing step, potential bottleneck to distribution schedule)
- Employee morale

External Implications

- Eroded consumer trust
- Dissatisfaction from wholesale buyers
- Degradation of industry reputation and negative implications for "clean beauty" concept industry-wide
- Regulatory compliance challenges
- Issues with one product (concealers) could also impact sales of other items in product line

Dr. Stern's Botanicals: Question 2 - Math

Math Question:

Does it make economic sense to invest in the new climate control technology? Can you estimate the value that the cooling system can generate for the company? *[For a more interviewee-led style, simply show the candidate the first exhibit and ask them to evaluate the upgrade. Candidate should drive towards quantifying the strategy's value-add.]*

Please share with the candidate the following information:

- Exhibit 1
- For the sake of this exercise, assume a 0% discount rate
- The climate control technology improves spoilage rates for all products, not just concealers

Please provide this additional information only upon request:

- Initial investment cost for the climate control technology is \$2M
- Quality control employees work 2,000 hours per year

Math Solution:

Annual labor cost savings: $100 \text{ FTEs} \times 2,000 \text{ hours/year} \times \$17/\text{hour} \times 20\% = \680K

Annual waste elimination: $\$5\text{M in raw materials} \times 5\% \text{ in eliminated waste} = \250K

Annual fixed cost savings: $\$1\text{M} \times 15\% = \150K in energy cost savings - $\$100\text{K}$ in increased maintenance costs = $\$50\text{K}$

Total annual savings: $\$680\text{K} + \$250\text{K} + \$50\text{K} = \980K

Over two-year time horizon: $\$980\text{K} \times 2 = \1.96M

- A great interviewee should calculate that the cooling system generates \$1.96M in savings over the next two years, when Dr. Stern intends to find an acquirer. However, given the up-front cost of \$2M, it would take the company *more* than two years to recoup its investment. Outstanding candidates might also mention PR implications of employee layoffs

Math Question:

What value is generated by adopting the new airtight packaging? *[For a more interviewee-led style, wait for the candidate to request financials or information on the alternative strategy in order to conduct a comparison.]* After calculating cost savings and evaluating the strategy, the candidate should offer a path forward (i.e., which option seems best.)

Please share with the candidate the following information:

- Exhibit 2 [**Interviewer:** if caser does not identify 2023 production volume as 1.2M units or close to it, provide that figure]
- The new packaging will increase total manufacturing cost per unit by \$0.10
- Typically, Dr. Stern loses 10% of its concealer stock to spoilage before it distributes product to retailers. The airtight packaging will eliminate this issue altogether

Please provide this additional information only upon request:

- Current manufacturing cost per unit is \$4.00

Math Solution:

Caser is meant to use Exhibit 2 to find units produced for 2023 for concealer [1.2M]. Data on other product lines is irrelevant

Before new packaging adoption:

1.2M units sold x \$4.00 unit cost = \$4.8M annual production cost x 10% waste = \$480,000

After new packaging adoption:

1.2M units sold x \$4.10 unit cost = \$4.92M annual production cost [0% waste]

Total annual savings: \$4.8M + \$0.48M - \$4.92M = \$0.36M → \$360K annual savings

- A great interviewee should calculate that switching to the airtight concealer packaging will generate \$720,000 in savings over the next two years. Cost savings from eliminating the spoilage issue exceeds the incremental cost per unit of upgrading the packaging. Savings are realized immediately. Candidate might mention that this solution doesn't address freshness of other products [although it is unknown if spoilage is an issue for other products]

Recommendation:

- Dr. Stern's Botanicals should adopt the new airtight packaging for its concealers. The company will see cost savings of \$360K annually
- While upgrading its climate control system in its manufacturing facility can generate significant savings long-term, this strategy doesn't position Dr. Stern well to seek a strategic buyer in two years, as it will have yet to recoup its investment
- The packaging switch has PR benefits as it shows the company is responsive to consumer feedback

Risks:

- There could be costs associated with discontinuing use of old concealer packaging (*i.e.*, little to no salvage value)
- New packaging shape could have implications for storage and shipping, further driving up costs
- This solution doesn't address spoilage risk for other products and could be seen as a "quick fix" to address specific gripes about concealer; climate control strategy offers comprehensive solution with more long-term benefit if the company can postpone an acquisition

Next Steps:

- Pilot test new packaging with consumers for ease of use
- Negotiate with new packaging supplier to achieve further cost savings (*i.e.*, volume discounts by purchasing packaging for multiple years' worth of production)

Bonus: Guide to an excellent case

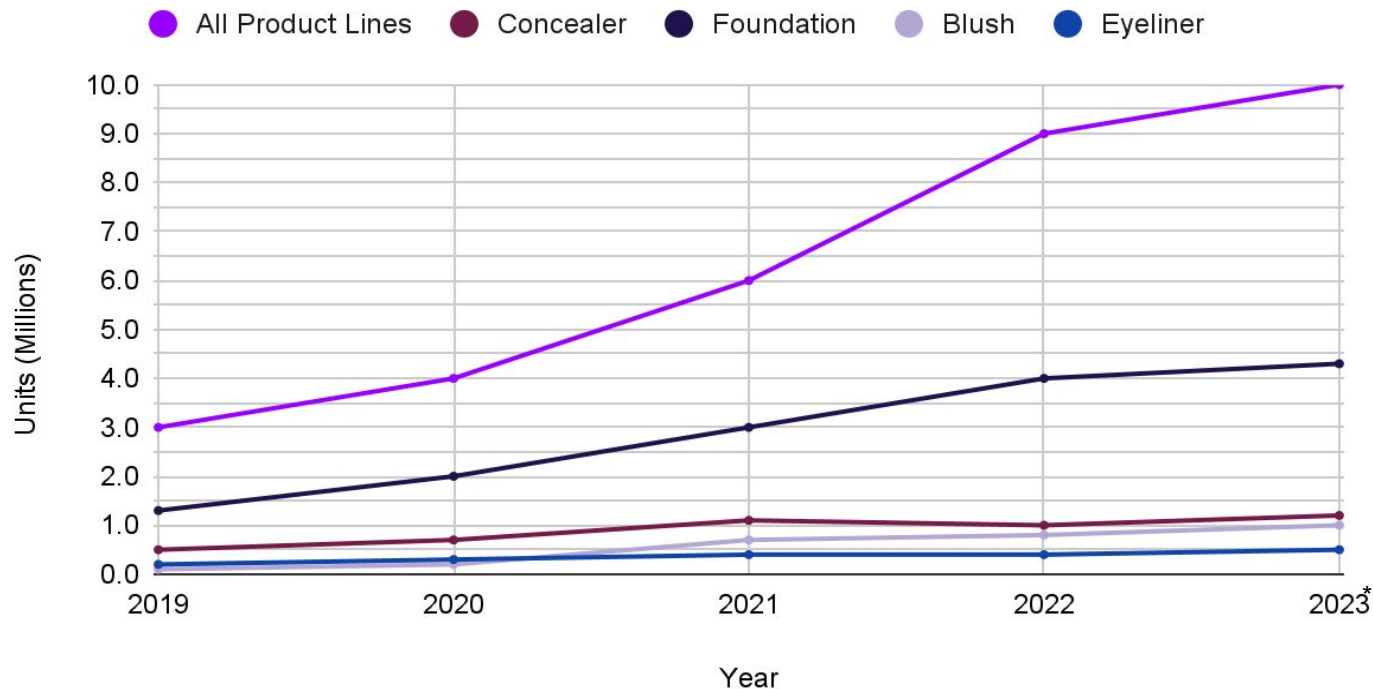
- An excellent recommendation notes that not only does a packaging upgrade generate cost savings for Dr. Stern, those savings are realized immediately because elimination of spoilage more than covers the increased unit cost of the packaging material
- Caser can suggest that Dr. Stern reevaluate its time horizon for seeking a strategic buyer, and instead implement the climate control upgrades, which arguably position the company better long term, particularly because the company has nearly recouped its investment by the end of year 2 anyways
- Excellent casers will incorporate knowledge of the cosmetics space, particularly "clean beauty" and its surge in popularity in recent years. They might draw parallels to the situation presented here with a [PR issue faced in 2023 by cosmetics brand Kosas](#)

Exhibit 1: Current Cost Structure and Cost Implications of Climate Control Technology

		Conventional Production Process	Production Process With New Climate Control Technology
<i>Variable Costs</i>	Labor	-	-
	# of Quality Control Employees on Production Floor	100	Partial automation of facility temperature leads to 20% decrease in employee headcount
	Average Hourly Wage	\$17	Same
	Raw Materials	\$5M	Same
	% Waste (e.g., due to ingredient spoilage)	15%	Reduction in waste by 5 percentage points
<i>Annual Fixed Costs</i>	Maintenance	\$1M	\$1.1M
	Electricity Costs	\$1M	More energy-efficient, saving 15% on energy bills

Exhibit 2: Dr. Stern's Botanicals - Manufacturing Demand

Product Units Produced, Select Product Lines



*Projected

Author: Hans Zhang and Isabelle van de Walle **Firm Style & Round:** Strategy & (Final Round)
[Interviewer-Led]

Quant: [7]*
Structure: [8]*

Case Prompt:

Mord Motor Company, an international automotive company, has seen meteoric sales and market share growth over the last 10 years in the US. However, in recent years it has seen its profitability stagnate during the Covid-19 pandemic. However, the company is optimistic that it can capitalize on the tailwinds of permanent remote work policies and workers migrating out of urban areas and into suburbs where vehicles are more necessary. The CEO, Lenry Mord, has come to your consulting firm to figure out how to bring the company back on track.

Case Overview:

Industry: Automotive (Electric Vehicles)

Case Structure: Market Entry / Product Mix

Concepts Tested:

- Market Sizing
- Chart Reading
- Profitability/Breakeven Analysis
- Brainstorming

Overview Information for Interviewer:

This case is fairly open-ended and will involve a fair amount of brainstorming on the part of the interviewee.

The interviewee should start off with a market analysis but always keep in mind ways to increase revenue. Past sales and revenue are not important. Costs for the most part are irrelevant for the first part of the analysis.

Good interviewees will begin with the suggestion for expansion into a new market (such as hybrid or EV) but don't let them get stuck on that discussion.

Key sections of this case will be:

1. Market analysis / Sizing (Interviewer has this information)
2. Chart Reading (identify Price Points and Predicted Sales)
3. Profitability of two new products (Luxury car and Economy class car)

Mord Motor Co: Case Guide

Clarifying Information:

Competitors:

- International mid-level automotive company.
- Market cap of \$25B
- Competes across all vehicle segments - the industry is very fragmented, and Mord Motors has a comparable domestic market share

Market Growth:

- Internal Combustion Engine Market is stagnating
- EV Market is growing at 10% CAGR with only a few major players

Product Mix:

- Mord Motors currently has a couple promising EV models in development

Client Characteristics:

- Mord Motor company owns its entire supply chain
- Mord Motor are headquartered in Detroit, US
- Assume that Mord Motors directly sells all their cars through its own dealerships

Interviewer Guide:

• A Good Framework Will Mention :

- Automobile Market Factors
 - Size/Growth of the Automobile Industry
 - Competitive landscape
 - Consumer preference
- Mord Financials Implications (Current Revenue Streams)
- Increase Revenues
 - Increase in Price of car models
 - Increase in Volume
 - Expand internationally/regionally
 - Rebrand / Increase Marketing
- Reduce Costs
 - Automation and optimization of supply chain
 - Inventory management improvements
 - Factory/Equipment switchover costs
- External Factors
 - Regulatory Hurdles
 - Geopolitical challenges

• A Great Framework will mention

- Product Mix (Growth Opportunities)
 - New models (+if EV is mentioned)
 - Predicted sales and competitive pricing
 - Factory/Equipment Switching Costs

• Unnecessary Paths:

- We are not considering secondary markets of sale
- We are not considering licensee costs when introducing a new model

Mord Motor Co: Market Sizing

Question #1:

Mord Motors sees a lot of potential in the Electric Vehicle space. The CEO has asked that you calculate the size of the retail EV Market in the US?

Notes to Interviewer:

Bottom-Up Approach:

- # of households
- % of households that will buy a new car this year
- % of households who prefer to buy EVs over Internal Combustion Engines
- # of cars x Price per EV

Great Market sizing:

- % of households who prefer luxury vs economic EVs
- Suggestion for price points and break calculation into two parts (eg: \$100,000 x % + \$40,000 x %)

Example Answer:

- 100 million households
- 20% will buy a new car this year (Average replacement of car: 5 Years) $100M / 5 = 20M$ cars
- 20M Cars per Year.
- 20% of households will buy EVs over ICE: 4M EVs
- 75% prefer economic 25% prefer luxury: $3M * \$40K + 1M * \$100K = \$120B + \$100B = \$220B$

After seeing this large potential market, interviewee should drive the case towards how much Mord Motor expects to capture of this total market and if they have any EVs in development.

Secondary Approach:

- US population
- Lux vs Economy Preference
- # households
- % buy a car this year
- % buy EV

US Population = 320 M	Luxury	Economy
Lux vs Economy Preference	80M	240M
# households (2.5 people in household)	32M	96M
Buy a car this year	6.4M	19.2M
Buy EV	1.2M	3.8M
Total amounts	120B	\$150B~
Total	\$270B	

Question #2:

Mord Motors has two promising EV models in development but because of its recent downturn, the business is strapped for cash and worried about the risks of entering this new industry. What factors would you consider before entering the Electric Vehicle space?

Notes to Interviewer (Brainstorm Ideas):

Possible Alternative Frameworks: (4 C's: Customer, Competition, Customers, Company), (Financial/Non-Financial)

1. Financials (Loans, lack of liquidity)
 - Fixed Cost / Variable Cost (Factory/Equipment overhaul; New Employee Training)
 - Revenue (units sold, price point)
 - Resale Value?
2. Market
 - Competitive Landscape (crowded segment vs untapped market)
 - Product Differentiation / Value Proposition (Autonomous Capabilities?)
3. Consumer Preference
 - ESG Considerations
 - Price sensitivity
 - Geography (Charging Station Accessibility)
4. External Factors
 - Governance/Regulatory approvals
 - Safety standard compliance



The electric vehicle (EV) market in the United States broke records in 2021, estimated at just under 607,600 light electric vehicle sales. This was approximately 83 percent more than in 2018—the year which marked the beginning of a strong demand for Tesla's Model 3.

Mord Motor Co: Math Question

Math Question:

- Mord Motor has decided to enter the EV market, but only has the capital to move forward with one of its two existing models. Given the following exhibits of the two models, Mord Motors would like you to decide which model to move forward with production?

Math Solution:

Interviewee should ask or be able to tell which costs are on a unit basis and which are on a one-time basis.

Great candidates will immediately think about conducting a breakeven calculation when provided with an initial cost and yearly profit numbers.

Interviewee should first find the unit profit for each model, and then add fixed costs to find out yearly profit of each model.

Bonus: Recognize that R&D for the model not chosen will be a sunk cost and should be included in the breakeven calculation (see notes to interviewer)



The Electric Car market is estimated to grow at a CAGR of 19% from 2022 – 2028

- Vantage Market Research

Math Information:

Provide only if asked:

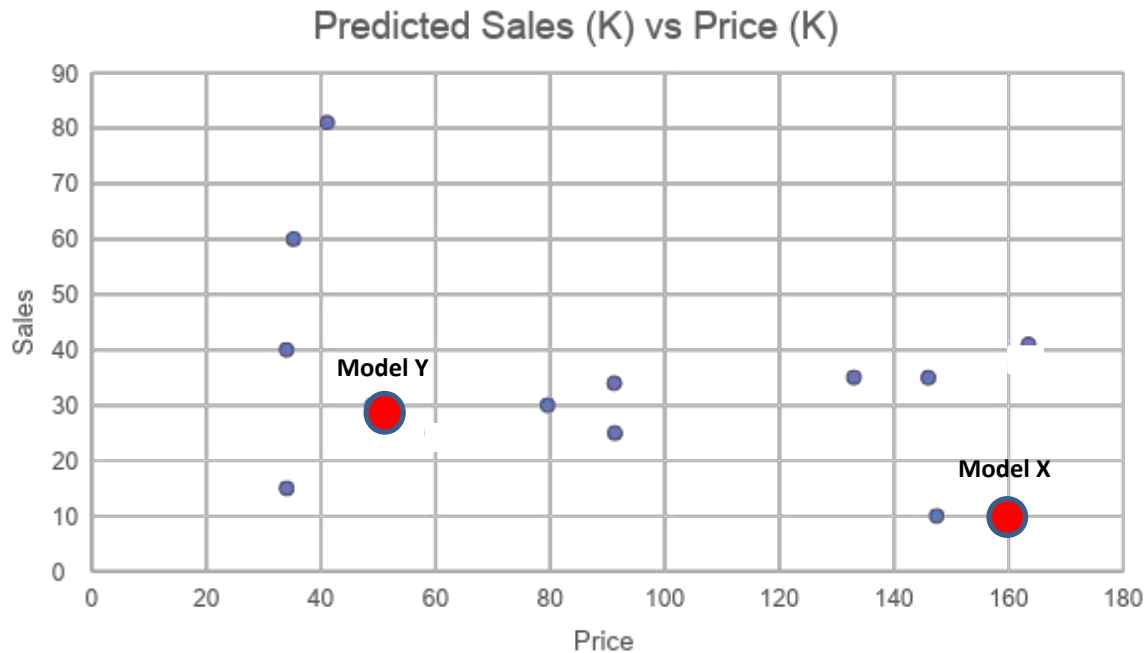
- Raw Materials, and Labour & Assembly are on a unit-basis
- Other costs (except R&D) are incurred on a yearly basis
- R&D is a one-time cost and both model's R&D costs have already been incurred
- Mord Motor wants to break even as early as possible

Mord Motor Co: Exhibit 1 - Costs

Costs

Cost	Model X	Model Y
Raw Materials	\$115K	\$30K
Labour & Assembly	\$10K	\$10K
Distribution	\$50M	\$40M
Marketing	\$40M	\$30M
SG&A	\$10M	\$10M
R&D	\$250M	\$50M

Mord Motor Co: Exhibit 2 - Predicted Sales and Prices



Mord Motor Co: Bubble Chart

Notes to Interviewer (Math):

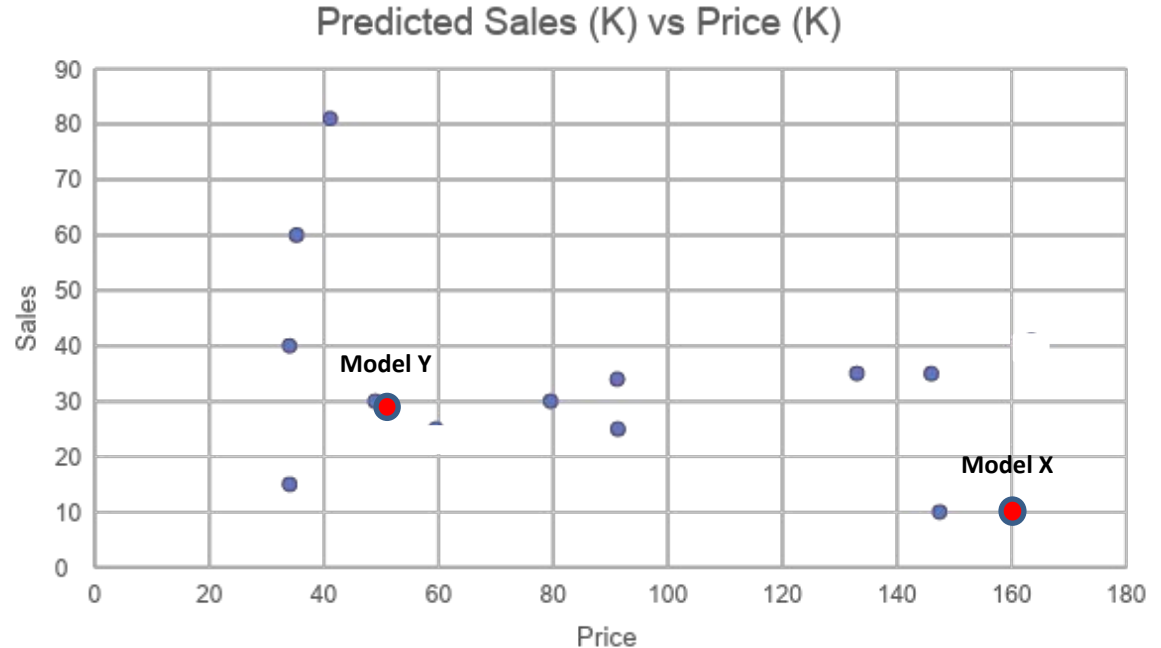
Chart Reading Insights:

Financials:

- Model Y Price: \$30K
- Model Y Sales: 50K
- Model X Price: \$160K
- Model X Sales: 10K

Qualitative Insights:

- Model X seems to be priced too high and could be a risky move for a new vehicle launch
- Model Y seems to be in its own segment but could steal market share from \$80 - \$100K segment
- Strong sales numbers from vehicles in \$30 - \$40K range – high demand for economy cars
- Model Y seems to be a safer business decision with higher upside



Mord Motor Co: Exhibit 1 - Costs

Notes to Interviewer (Math):

Cost		Model X	Model Y			Model X	Model Y
Raw Materials		\$115K	\$30K				
Labour & Assembly		\$10K	\$10K	Unit Price		\$160K	\$50K
Distribution		\$50M	\$60M	Unit Cost		\$125K	\$40K
Marketing		\$40M	\$30M	Unit Profit		\$35K	\$10K
SG&A		\$10M	\$10M	Revenue		\$350M	\$300M
R&D		\$250M	\$50M				
X Units		10,000	Y Units	30,000	Fixed Cost	\$100M	\$100M
X Price:		\$160K	Y Price:	\$50K	Yearly Profit:	\$250M	\$200M
						(+ Model Y R&D)	(+ Model X R&D)
				R&D Costs	\$250M	\$300M	\$50M
							\$300M
				Breakeven:	1 Year	1.2 Years	0.50 Years
							1.50 Years

Model X has a shorter breakeven duration when factoring both R&D costs.

Model Y will have the shorter breakeven duration without factoring both R&D costs.

Question #3:

- You are on the tennis court wrapping a game when you see Lenry Mord speed walking towards you. Before challenging you to the next match he asks you where you are in assessing his company's future outlook.

Notes to Interviewer:

1. Recommendation

Invest in Model X

- New and profitable vehicle segment to enter
- Diversifying a stagnant business
- Shorter breakeven duration
- Improve brand equity with a luxury model

Invest in Model Y

- Less risky business decision and has a proven sales numbers from competitors
- Higher upside for predicted sales
- Diversifying a stagnant business

2. Risks

- Highly competitive field, concentrated market with only a few players
- Mord Motors may not have the expertise or capabilities to produce EVs

3. Next steps

- Immediate: Consumer preference survey for Model X and Y versus comparable competitor models
- Immediate: Pressure test forecasted sales assumptions
- Long-Term: Optimize costs of production through economies of scale



Passenger EV sales are predicted to rise from 3.1 Million from 2020 to 14 Million in 2025.

This will represent around 16% of passenger vehicles sales in 2025.

- BloombergNEF

An Excellent candidate would cite the numbers from the case such as the years to break even duration and EV Market Size

Curling and Careers



Authors: Monique St. Jarre & Kennedy Salveter (Stern '23) **Firm Style & Round:** McKinsey Final Round
[Interviewer Led]

Quant: 8*
Structure: 7*

Case Prompt:

Your client is Curling & Careers (C&C), the New York City chapter of a national non-profit organization. The non-profit aims to provide disadvantaged high school age students with leadership training and career development through an increasingly popular sport, curling. Curling is a sport in which players slide stones on a sheet of ice toward a target area which is segmented into four concentric circles. C&C rents out ice hockey rinks around the city to host weekly curling practices and games. Students are also able to opt-in to leadership skills workshops, professional development sessions, and one-on-one mentoring. High school students apply to join C&C as an extracurricular after school program. The program is provided free of charge due to the generous support of large institutional donors. C&C's main costs include facility rental, curling equipment, transportation, staff salaries, and administrative overhead.

C&C has been growing quickly since 2021 when students returned to the classroom full-time and are unable to meet demand for all their programming. How can they increase their impact?

Case Overview:

Industry: Non-Profit

Case Structure: Operations

Concepts Tested:

- Chart Reading
- Brainstorming
- Algebraic Math

Overview Information for Interviewer:

This case can also be given in an interviewer-led style, following the exhibit, brainstorming, and math question order. However, in an interviewee-led case, it will likely flow this way naturally.

Key case steps:

- Identify financial and non-financial elements affecting organizational capacity
- Assess exhibits and identify bottleneck
- Brainstorm creative solutions to constraint
- Calculate impact potential if administrative bottleneck is removed

Curling and Careers: Case Guide

Clarifying Information:

Organization:

- Local chapters operate mostly independently
- National organization provides some funding and administrative support. Marketing of program results is done at national level

Program:

- Currently 1,000 students in program. Ages 14 – 18, coming from all of NYC
- Students can opt-in to any of the offered sessions
- Students are transported from school to the curling center. The weekly schedule varies, but always includes both curling and educational events
- To qualify for the program, students' families must be under a certain income criteria
- Staff on payroll include: coaches, mentors, administrative personnel, and program coordinators

Impact:

- The goal is to try to serve more students and meet demand. No clear target

Framework Example:

• **Demand Assessment:**

- Existing capacity/demand mismatch
- Growth rate over next 5 years
- Beneficiary Feedback on positive/negative aspects of program
- Geographic differences

• **Financial Constraints:**

- FC cost increases (facility rent, transport vans, labor, SG&A)
- VS cost increased (fuel, curling equipment, water, snacks, app fees)
- Decreases in donation cash flow

• **Non-Financial Constraints:**

- Number of staff and labor allocation
- Facility or transport capacity limitations
- Program cycle/scheduling
- COVID regulations
- Administrative backlogs (applications, onboarding etc.)

- **Interviewer Note:** An exceptional interviewee will be specific and maintain non-profit priorities (youth empowerment) rather than just providing typical cost analysis

Question 1:

- Provide Exhibit 1
- C&C has done an analysis of the different aspects of their program. Based on the organization's findings in Exhibit 1, what are your thoughts on where C&C can focus their efforts to serve more students?

Notes to Interviewer:

Main Takeaway:

- **1 on 1 mentoring is where C&C has the most unmet demand and is rated the second most impactful programming, thus it represents the biggest opportunity to increase impact**
- **Interviewee should push interviewee to identify this before moving on to the next brainstorm question**

Other possible points are:

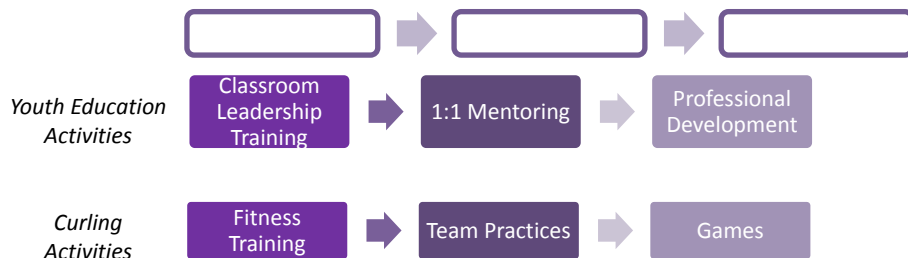
- Unmet demand in games. This can be ignored because the New York area curling facilities have limited arena availability and therefore C&C cannot increase capacity in that area
- They could reallocate excess team practice and social activity capacity to 1 on 1 mentorship. This is a good point but explain to the interviewee that the people providing the mentorship are not the same as the individuals leading practice and social activities

Clarifications:

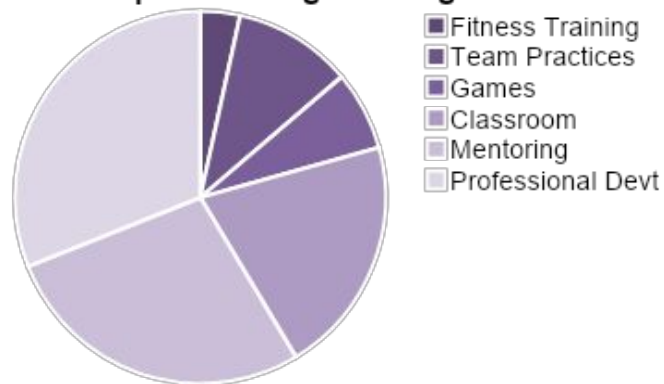
- On the bar chart, the data labels represent the % of the total 1000 students that C&C has the ability to serve (capacity) vs. those demanding (demand) that particular program offering

Curling and Careers: Exhibit 1

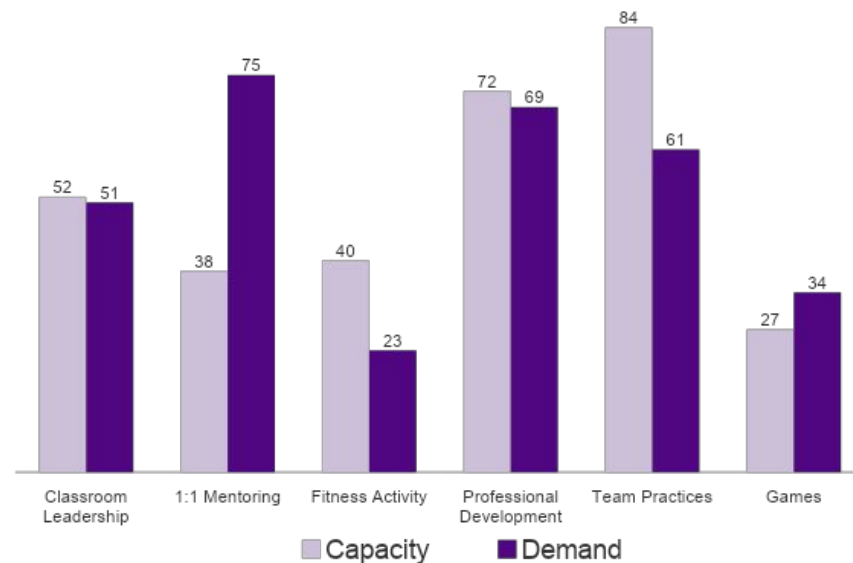
Illustrative Weekly Program



Survey: Most Impactful Programming



Programming Capacity vs Demand



Question 2:

- C&C agrees that the mentor programming is not serving enough students based on demand. They would like our help looking into this.
- What are some ideas for how they might go about increasing mentorship capacity?

Notes to Interviewer:

There are many directions candidate could take. The goal of this question is to see how creative and specific they can be while remaining structured in their thinking. Examples include:

Staffing

- Hire more mentors or bring in volunteers
- Free up more hours for existing mentors
- Offer incentives for increasing efficiency/overtime hours

Schedule

- Offer mentoring on more days of week
- Replace lower ranked sessions (classrooms or fitness training) w/ mentoring opportunities
- Have 2:1 sessions to improve coverage

External Support

- Donor letter campaign to raise funds for more mentorship
- Have more senior students mentor younger students
- Utilize mentors from other chapters to provide Zoom mentorship
- Partner with nearby universities to provide mentor capacity

**Note: Once interviewee gives brainstorm, interviewer should prompt them for 1 or 2 additional ideas*

Curling and Careers: Math Question



Question 3:

- C&C has determined the issue is the amount of time mentors are spending on administrative tasks. They want to find out how many more students they can serve per week if they remove the weekly report to HQ.
- Provide Exhibit 2

Math Solution:

Step 1: Calculate # of students per mentor

- Number of students per mentor = $378/14 = 27$

Step 2: Calculate hours being used for weekly report

- Total hours in week = 40
- 1:1 mentor time per student = $20 \times 27 = 540$ minutes or 9 hours
- Lesson planning = $6 \times 1.25 = 7.5$ hours per week
- Classroom instruction = $30 \times 27 = 810$ minutes or 13.5 hours per week
- Weekly report to HQ = 40 hours – $(9 + 7.5 + 13.5) = 10$ hours per week

Step 3: Calculate additional students served w/o weekly report

- Number of additional 1:1 sessions per 10 hour savings per mentor = 10 hrs * 3 students per hour) = 30 students
- Total new student capacity across all mentors = $30 \times 14 = 420$

Math Notes:

- The data presented is on a per mentor basis aside from “Total students per week”.
- To solve the classroom instruction the interviewee should observe the asterisk specifying a 40-hour work week.
- If the interviewee requests to round any of the calcs, point out that the numbers should be easy enough to work with and they should therefore refrain from rounding

Mentoring Data

Number of mentors	14
Total students per week	378
1:1 mentor time per student	20 minutes
Lesson planning	6 lessons - 1.25 hours each
Weekly report to HQ	Remainder of their time
Classroom instruction	30 minutes per student

* Mentors work 40 hours per week

Curling and Careers: Recommendation

Recommendation:

- C&C should increase their impact by improving the capacity of the mentorship program. This should be done by eliminating the administrative burden for mentors
- An additional 420 students can be served per week with 1:1 mentoring, more than covering the current unmet demand with little sacrifice of other org functions

Risks:

- Reducing administrative burden on mentors will require adjustments elsewhere. Could result in cost increases
- The organization may still not be meeting demand in other programmatic areas, which could limit their impact even after the mentorship issue is resolved

Next Steps:

- Develop an action plan for reassigning administrative tasks to other staff. Decide if new hires need to be brought on
- Touch base with national HQ to try to streamline requirements
- Examine other potential bottlenecks and compare against projected demand going forward

Bonus: Guide to an excellent case

- A great interviewee will convert minutes into hours as the numbers are easier to work with and will streamline their calculations
- A great interviewee will tie back the 420 increase in 1:1 mentoring to the bar chart on exhibit 1 and note that by adding that many more slots, C&C will more than cover the 370 student unmet capacity $((75-38)*10)$
- They will structure their brainstorm into logical buckets and think outside the box for tailored, non-profit focused solutions
- A great interviewee will also contextualize the mentorship solution within the broader non-profit strategy and recognize that this will only be a part of the long-term solution

Author: Jane Kennedy (Stern '23) **Firm Style & Round:** McKinsey Round 1
[Interviewer-Led]

Quant: [8]*
Structure: [5]*

Case Prompt:

You've been approached by a producing team who have a hold on a major Broadway theater for 10 weeks next summer. Theater is a very expensive industry, and they're trying to determine the best show to run during this window. They've narrowed down to three options: a revival of *Beauty and the Beast*, the Pulitzer-Prize winning play *To Kill a Mockingbird*, and a one-man show starring Steve Martin called "Steve Live." The team has less than two weeks to make a decision in order to start rehearsals on time. You've been hired to assess which show is the best one for the producing team to mount, and how they should price tickets to maximize profit margins.

Case Overview:

Industry: Theater/Producing

Case Structure: Market Entry

Concepts Tested:

- Fast Math
- Creative Brainstorming
- Profitability
- Algebra

Overview Information for Interviewer:

Interviewee should be able to...

- Do quick mental math
- Calculate profit margins, and do so with variables to work backwards
- Brainstorm creative ways to make money in unusual industry and identify risks

Key case steps:

- Brainstorm costs/revenues in non-traditional industry
- Calculate costs, revenues, and profit margins
- Assess qualitative risks and challenges

Clarifying Information:

Competitors:

- There are 41 active Broadway theaters in NYC. Currently 22 host musicals, 18 host plays, and 1 hosts a one-person show.

Market Growth:

- Because Broadway theaters are limited in the number of seats available, revenue growth is found primarily in ticket prices.
- Over the past year, tickets have steadily increased in price by 10%
- Typical prices are \$150/ticket

Client Characteristics:

- Their goal is to achieve highest profit margin possible
- This producing team is very successful – they have launched all three types of shows before, on and off Broadway (but have never produced one of these three particular shows before)

Costs/show

- The theater's maintenance fee is \$1000/show
- They will do 8 shows/week
- More details on costs in Exhibit 1
- Ideally shooting for 20%+ profit margins
- The producing company can sell things (i.e. concessions, t-shirts) within the theater

“Steve Live” is a brand-new production

Interviewer Guide:

This case requires the interviewee to organize their notes in a way that allows them to go back and re-use math to get things done in a quicker way. It also calls back to exhibit 1. Allow the interviewee to make those connections, but if they ask or are struggling, you can prompt back to previous exhibits.

Center Stage: Question 1

Question 1:

- How should the team determine which show the producing team should mount for the summer season?

Notes to Interviewer:

This is the framework. Buckets can and should include:

Financials

- Cost to mount each show (paying talent, managing unions, theater maintenance, marketing, staff, ushers, rights to use the work)
- Projected revenues (how many tickets, how many performances, % tickets sold, discounts)

Market

- How are comparable shows doing, especially in the summer months
- What are their costs/revenues

Producing Team

- What are their strengths
- Potential synergies between existing shows
- Do they have relationships to lean into?

The Show

- Award eligibility?
- Is it well-regarded, popular, and desirable to see?

Risks

- What are the risks of mounting a Broadway show for only 10 weeks?
- How likely are ticket sales projections? Can they be off?
- What if another pandemic hits?

Question # 2: Brainstorm

If not identified in the framework:

What are some potential costs/revenue sources for the producing company?

Notes to Interviewer:

Costs

- Theater Maintenance
- Theater Rental
- Talent (actors, musicians, dressers, stagehands)
- Unions
- Rights to materials (music, scripts)
- Costumes
- Marketing
- Casting

Revenues

- Ticket sales
- Concessions
- Backstage Tours
- Merchandise

Center Stage: Question 3

Math Question:

Using the information in exhibit 1, determine which show has the highest projected profit margin per performance.

Math Solution:

Profit Margin Equation: (Revenues – Costs) / Revenues

Beauty and the Beast:

$$60000 - 45000 / 60000 = 15000 / 60000 = \frac{1}{4} = 25\%$$

To Kill a Mockingbird:

$$30000 - 24000 / 30000 = 6000 / 30000 = \frac{1}{5} = 20\%$$

Steve Live:

$$35000 - 30000 / 35000 = 5000 / 35000 = \frac{1}{7} = 14\%$$

Insight:

On a per-performance basis, Beauty and the Beast has the highest profit margin and would be the best show to mount.

Math Notes:

The interviewee may try to calculate profitability for 8 shows/week for 10 weeks. Encourage them to only do the math per performance.

Center Stage: Question 4

Question # 4:

- The producing team agrees to move ahead with Beauty and the Beast. They're now focused on figuring out how to price tickets. Your team has conducted a survey among theater goers and has produced the following chart (Exhibit 2). How much should tickets be priced to maximize the producing team's revenues?

Notes to Interviewer:

Refer to Exhibit 2.

Missing Data: All unsold tickets will be sold for \$50 at the box office starting 2 hours before the show

If full price ticket is \$100:

$(500) * (.8) = 400$ tickets @ \$100 = 40000

$(500) * (.2) = 100$ tickets @ \$50 = 5000

- Total Revenue: \$45000**

If full price ticket is \$150:

$(500) * (.6) = 300$ tickets @ \$150 = 45000

$(500) * (.4) = 200$ tickets @ \$50 = 10000

- Total Revenue: \$55000**

If full price ticket is \$200:

$(500) * (.4) = 200$ tickets @ \$200 = 40000

$(500) * (.6) = 300$ tickets @ \$50 = 15000

- Total Revenue: \$55000**

Insight: The \$150 and \$200 options yield the same expected revenue. Therefore, we should consider other ways to differentiate between the two ticket prices.

Center Stage: Question 5

Question # 5

- The producing team wants to increase willingness to pay \$200 from 40% to 50%. They have a variety of marketing means available to do just that. If they want to maintain a profit margin of 25%, and all non-ticket revenues are equal to \$5000, what is the maximum amount of money they can spend on marketing per performance?

(Assume that these marketing activities will effectively increase the WTP \$200/ticket to 50%)

Notes to Interviewer:

Refer back to Exhibit 1 to see that projected costs for Beauty and the Beast are currently \$45,000 and revenues are \$60,000.

To maintain 25% profit margin, the equation is:

$$\frac{(\text{revenues} - \text{costs})}{\text{revenues}} = \text{profit margin}$$

New Projected Ticket Revenue @ 50% WTP:

$$(\$200) * (.5 \times 500) + (\$50) * (.5 \times 500) = \text{\$62500}$$

New Revenue (including non-ticket revenues)

$$62500 + 5000 = \text{\$67500}$$

Equation:

$$(\text{New Revenue} - \text{Costs}) / \text{New Revenue} = .25$$

$$(67500 - X) / 67500 = .25$$

$$67500 - X = 16875$$

$$X = 50625 = \text{New Total Costs/Performance}$$

$$\text{New Costs} - \text{Old Costs} = 50625 - 45000 = \text{\$5625}$$

The maximum the producing team can increase spend on marketing each performance is \$5625.

Question # 6: Brainstorm

- How should the producing team spend this additional money to increase willingness to pay to \$200/ticket through marketing?

Notes to Interviewer:

1. Production Enhancements

- Bring in celebrities to do appearances in certain roles and to promote to their fan base
- Revamp big dance numbers to create buzz
- Modernize certain aspects to surprise and delight
- Angle to win awards (although it's only a 10 week run, which might make it tricky!)

2. Media Marketing

- Book appearances on morning shows to drive interest
- Film "behind the scenes" blogs for YouTube, TikTok, and Instagram
- Market to tourist groups and secure partnerships with major hotels
- Host an exclusive review night for major critics

3. Perks and Awards

- Offer limited edition merchandise to people who purchase select shows
- Raffle for backstage tours among people who pay for \$200 tickets

Center Stage: Recommendation

Recommendation:

- The producing team should produce Beauty and the Beast this summer.
- They should sell tickets for \$200.
- Right now, willingness to pay \$200 is only 40% of the audience, but we found a way for the team to spend additional money on marketing to increase this to 50%.
- There are many ways to spend this investment, including production enhancements, media marketing, and offering perks.

Risks:

- The numbers we worked with are projected – the reality of the costs/revenues won't be available until the show is mounted
- Broadway is volatile – there could be another major musical also brought back this summer (competition) or another pandemic
- Increasing marketing might not work, therefore that investment is a risk

Next Steps:

- Cast the show
- Obtain the material (if necessary)
- Begin marketing outreach, especially considering increased budget now in this area
- Determine any synergies between existing shows
- As the show goes on, consider extending the run longer than 10 weeks.

Bonus: Guide to an excellent case

- Creative problem solving
- Speedy math and pulling out insights throughout the case
- Notes risks each step of the way
- Offers insights along the way: why is one more expensive? Are ticket prices realistic?

Projected Costs and Revenues / Performance

Show	Projected Costs	Projected Revenue (Tickets + Concessions/Merchandise)
Beauty and the Beast	\$45,000	\$60,000
To Kill a Mockingbird	\$24,000	\$30,000
Steve Live	\$30,000	\$35,000

Willingness to Pay Based on Ticket Prices

Full Price Cost	% of Tickets Sold at Full Price
\$100	80%
\$150	60%
\$200	40%

Author: Arnab Chatterjee and Spencer Lee (Stern '24) **Firm Style & Round:** Bain Final Round (40 min)
[Interviewee-Led]

Quant: 7
Structure: 9

Case Prompt:

Situation: Your client, Hoffmann, is a Swiss pharmaceutical holding company. It produces most of its drugs in-house, but licenses many of its most profitable drugs from a smaller pharmaceutical company called Technologene. Hoffmann has maintained a 26% ownership stake in Technologene to ensure it receives exclusive rights to sell Technologene's products.

Complication: In a surprise overnight deal, one of Hoffmann's primary competitors has purchased 20% of Technologene's shares, and Hoffmann is deeply concerned about losing control of the company.

Task: Hoffmann has determined that sharing minority stakes in Technologene with their competitor is too risky and has hired your firm to determine if they have the resources available to take control of the company. How do you proceed?

Case Overview:

Industry: Pharmaceutical

Case Structure: M&A

Concepts Tested:

- Valuation (NPV)
- Corporate Governance
- Critical Thinking
- Brainstorming

Overview Information for Interviewer:

This case tests the candidate's understanding of valuation, basic corporate governance, and critical thinking skills.

The first portion requires the candidate to perform an NPV calculation on the target company and calculate how much additional capital would need to be invested to acquire control of the company (51% of shares), while the remainder of the case requires candidates to evaluate different options to acquire those shares.

This case is inspired by the 2008 acquisition of Genentech, Inc. by Roche AG.

Clarifying Information:

- **Timing:** It's 9AM on a Tuesday, and Hoffmann needs a recommendation by 4PM this afternoon.
- **Goal:** Success looks like "taking control" of the company. When the candidate asks what that means at any point during the case, push back and ask them what they think it means. Acceptable answers are acquiring 100% of the company, acquiring 51% of the company, or buying out their competitor's 20% share entirely. ***If they provide any of these answers, explain that any party owning at least 51% of the company has effectively "taken control," and furthermore that any group owning minority stakes can be denied decision making authority. Hoffmann would see this as success.***
- **Competitor:** Hoffmann's competitor is another European pharmaceutical holding company and can be assumed to be like Hoffmann in every respect (size, markets served, licensing structure, etc.), though they work with different partner companies.
- **Budget:** Hoffmann estimates that they can comfortably raise \$24B in capital to acquire shares in Technogene.
- **Regulations:** There are no regulatory constraints from either a pharmaceutical or share purchasing standpoint.
- **Revenue:** Nearly 20% of Hoffmann's revenue comes from Technogene products.

Interviewer Guide:

Several frameworks are appropriate; possible bucket sets include:

1. Technogene (revenue, costs, strategy & objectives, stakeholders, etc.)
2. Hoffmann (revenue with/without Technogene, strategy, etc.)
3. Synergies (costs that can be shared, removable redundancies, etc.)

OR

4. Technogene Valuation (revenue, costs, EBITDA, WACC/Growth)
5. Acquisition Execution Strategies (friendly offer, tender offer, proxy fight)
6. Contingency Plans if Acquisition Fails (alternate investments, etc.)

A good framework must include to some extent:

1. A financial analysis of Technogene
2. Mention of resources required for an acquisition

A great framework will include:

1. A suggestion to value Technogene
2. Different potential acquisition strategies

Ask the candidate where they would like to begin and guide them towards a financial analysis of Technogene.

Question 1:

- Based on the following data (Exhibit 1), is it feasible for Hoffmann to take control of Technologene?

Notes to Interviewer:

Correct approach: Candidate should recognize that to answer the question, a valuation for Technologene must be conducted and compared against the \$24B in available capital (do not provide this figure until they ask if they haven't already in the clarifying questions).

Initial Information: Candidate should calculate that total revenues = \$9B and total costs = \$4.5B, leading to a **gross margin (EBITDA) of \$4.5B**.

From here, candidate should suggest a valuation and ask for the following numbers:

- WACC: 10%
- Growth rate: 5%

Valuation: Inform the candidate that Hoffmann plans to hold Technologene indefinitely (i.e., a perpetuity calculation is appropriate). From here, the candidate should calculate the value of the company as follows:

- $NPV = EBITDA / (WACC - \text{Growth rate}) = \$4.5B / (10\% - 5\%) = \$4.5B / (5\%) = \text{\$90B Valuation}$

Final Answer: The candidate should ask for the available capital if they have not asked in their clarifying questions, at which point you should inform them of the \$24B. If they indicate that the acquisition is not possible because they do not have \$90B, remind them to check the objective (taking control, not acquiring 100% of shares), and ask how much money they need. The candidate should realize that because the objective is acquiring 51% of the company, and Hoffmann already owns 26%, they only need to purchase 25% more of the company. This additional 25% would cost them:

- Capital required = $NPV * (\% \text{ of company shares needed}) = \$90B * 25\% = \text{\$22.5B Required}$

Given the \$24B available, the correct conclusion is that **it is feasible for Hoffmann to take control of Technologene**.

Question 2:

- Hoffmann agrees with your valuation and would like to extend an offer to Technogene to acquire the additional shares needed. How much should Hoffmann offer per share?

Notes to Interviewer:

Correct approach: Candidate should recognize that the per-share price is simply the overall NPV (Valuation) divided by the number of shares.

Information: When asked, inform the candidate that there are 1B shares outstanding. Therefore, the per-share offering should be calculated as:

Per Share offer = $\text{NPV} / (\text{total \# of shares}) = \$90\text{B} / 1\text{B} = \$90/\text{Share}$

Segue to Next Question: After they calculate this number, inform them that they are correct, and that Hoffmann has taken this offer to Technogene. Technogene has stated that they are willing to sell for the right price, but reject the offer on the premises that Hoffmann has undervalued the company, in particular its scientists, engineers, and other skilled human capital.

Pharmageddon: Question 3 (Brainstorm)

Question 3 Brainstorm:

Technogene currently has 3 key groups of shareholders other than Hoffmann.

1. Technogene Insiders: Current employees and management of Technogene, whose primary interest is being valued/compensated fairly
2. Passive Investors: Mutual funds and retail investors who have no interest in control and will readily sell at current market prices
3. Competitor: Hoffmann's competitor, whose primary interest is being able to have some control over Technogene

How would you evaluate which group to buy the remaining 25% of shares from?

Notes to Interviewer:

Answer: there are many possible appropriate answers, but good candidates will:

1. Clearly structure their approach
2. Address all 3 groups of shareholders
3. Provide pros and cons for each group

Once the candidate has provided sufficient content, present them with Exhibit 2 and Question 4.

Pharmageddon: Question 4

Question 4:

- Based on the information provided in Exhibit 2, how can Hoffmann acquire Technologene?

Notes to Interviewer:

Correct approach: Candidate should realize that they need to calculate the capital required of acquiring 25% of shares through Technologene insiders first. This can be calculated as:

- Capital required to purchase from insiders = (per share Price) * (total # of shares) * 25% = $\$110 * 1B * 25\% = \$27.5B$

The candidate should recognize that Hoffmann cannot afford to purchase shares at this price (over \$24B budget) and should evaluate another option. If they suggest buying entirely from passive investors or entirely from the competitor, before they do any math, ask them if they could achieve their objective that way (they can't, as each group owns under 25% of Technologene shares). When the candidate recognizes this, inform them that they can purchase from multiple groups at the prices given. From here, the candidate can take one of two approaches:

1. Buy majority from passive investors. This is the safe, logical option, as passive investors will sell without issue. We expect most candidates will choose this option.

- 24% from Passive Investors + 1% from Insiders = $(\$95/\text{share} * 1B \text{ shares} * 24\%) + (\$110/\text{share} * 1B \text{ shares} * 1\%) = \$23.9B \text{ (In Budget)}$ ☐ **tell the candidate that including our fees, this will take up the entirety of the \$24B budget**

2. Buy majority from the competitor. If the candidate suggests doing this **ask them if they think the competitor will sell their stake, and unless they reach the following conclusion, send them back to approach one and continue to Q5.** While intuition might suggest the competitor should not sell, in reality it is in the competitor's best interest to sell because if Hoffmann purchases 51% of the shares, the competitor is denied any influence in the company, and because Hoffmann can reach 51% with or without the competitor, they should sell rather than be left holding 20% of a company they cannot influence.

- 20% from Competitor + 5% from Passive Investors = $(\$90/\text{share} * 1B \text{ shares} * 20\%) + (\$95/\text{share} * 1B \text{ shares} * 5\%) = \$22.75B \text{ (In Budget)}$

We expect very few candidates to reach this conclusion but give them kudos after the case if they do and explain it to them if they don't!

Pharmageddon: Question 5 (Brainstorm)

Question 5:

Ask the candidate to quickly decide whether they'd like to try and find additional money to buy from the Insiders, or if they want to stay at/under budget and buy from a mix of investors (make it clear you're not asking for a rec yet). Depending on the candidate's answer, ask them:

1. If they suggest buying the shares over budget from Technogene insiders: "How would you raise the additional required capital?"
2. If they suggest buying at or under budget from a mix of investors: "How would you mitigate the risk of losing key talent at Technogene?"

Notes to Interviewer:

Answers to brainstorm questions:

Question 1: There are many correct answers, but good candidates will:

- A. Present answers in a structured manner
- B. Mention raising fresh debt and fresh equity

Excellent candidates may:

- C. Suggest something else that makes sense (reallocating funds from within Hoffmann, make another counteroffer, renegotiate terms of existing debt, etc.)

Question 2: There are many correct answers, but good candidates will:

- A. Present answers in a structured manner
- B. Suggest both financial and non-financial solutions

Excellent candidates will:

- C. suggest specifically using the funds saved by coming in under budget to implement programs such as retention bonuses, etc.

Pharmageddon: Recommendation

Recommendation:

Candidate should pick one purchase option:

High Price from Insiders for 25%

OR

Mix of Sellers:

- Passive Investor 24% + Insiders 1%
- Competitor 20% + Passive Investor 5%

Risks:

- If acquisition through Insiders at \$110/share price, then additional financial stress on Hoffmann
- If acquisition goes through mix of non-insider sellers, a potential loss of Technogene talent

Next Steps:

- If bought through Insiders: Develop capital fundraising plan for acquisition
- If bought through mix of sellers: Develop incentive plan for talent retention using balance of remaining budget
- Begin M&A integration process and due diligence

Bonus: Guide to an excellent case

- If they found the competitor angle to come in under budget, they've not only mastered casing, but they've shown excellent logic and business acumen.

Pharmageddon: Exhibit 1

Technogene Product Portfolio

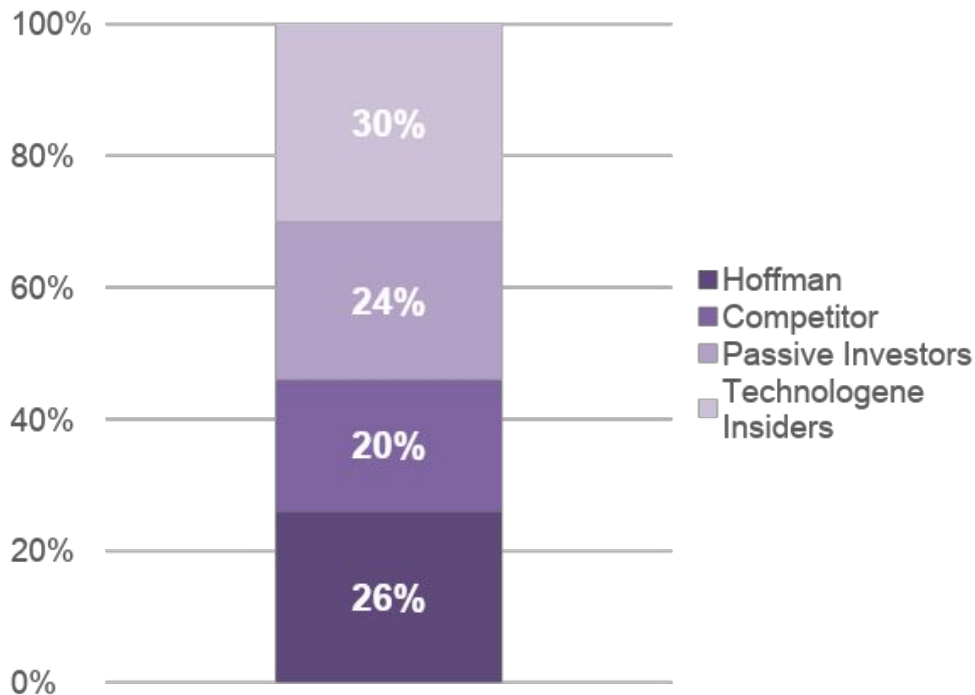
Portfolio	Drug	Type of Drug	Revenue (in \$ Millions)
Anticancer Portfolio	Barricin	Anticancer	2,500
	Lymphomab	Anticancer	2,500
	Titulin	Anticancer	1,300
	Creasab	Anticancer	500
Other Portfolio	Lumanab	Macular degeneration	700
	Pneumanin	Asthma	500
	Augmentin	HGH deficiency	300
	Thrombolytics	Anti-clotting	200
	Thrombolytics	Cystic fibrosis	300
	Cyfizyme	Psoriasis	200

Technogene Costs

Line Item	Cost (in \$ Million)
COGS	\$3,300
SG&A	\$400
Distribution	\$800

Pharmageddon: Exhibit 2

Shareholder Distribution



Structure	Price	Justification
Technogene Insiders	\$110/Share	"Hoffmann has undervalued our human capital, and many will consider leaving unless <u>the entire deal</u> is completed at \$110 per share."
Passive Investors	\$95/Share	"Share prices are inflated at \$95, boosted by the news of the competitor's overnight acquisition."
Competitor	\$90/Share	"In the overnight acquisition, we paid \$90 per share."



STERN SCHOOL
OF BUSINESS



MANAGEMENT CONSULTING
ASSOCIATION

NYU STERN SCHOOL OF BUSINESS

© 2023 NYU Stern MCA