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STERN SCHOOL  
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*MBA Casebook*  
2020-2021



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# Introduction

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We proudly present the NYU Stern Management Consulting Association's 2020 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

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## *Introduction to Casing*



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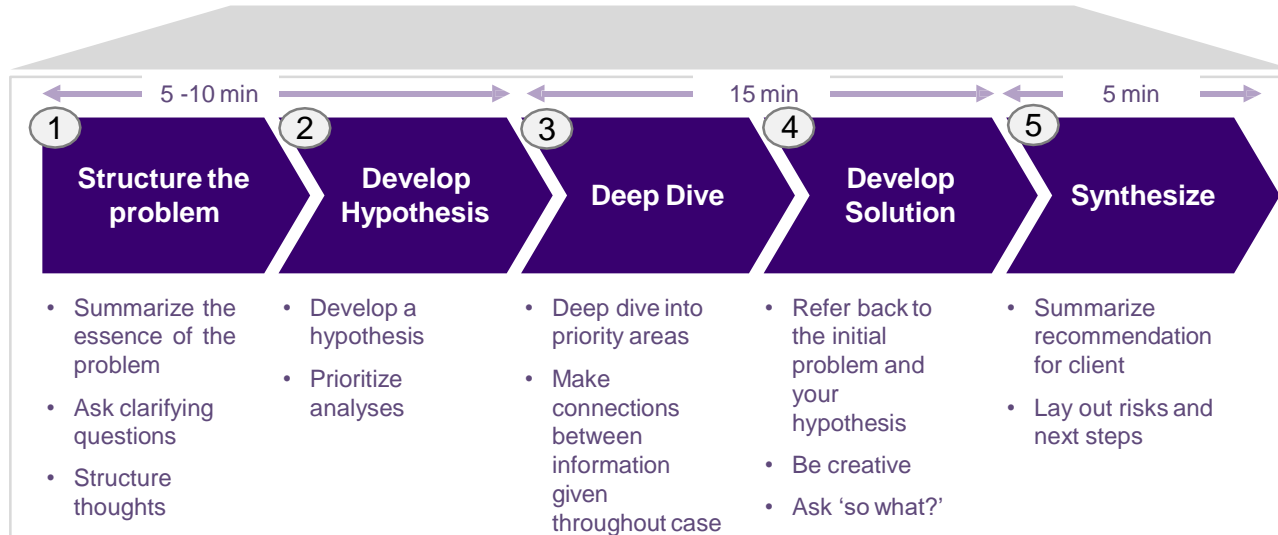
- **What is a case?**
  - A business issue/problem company is facing in a few sentences
  - Takes about 25 minutes; has limited data which is usually provided if asked for
  - Approach to solution is more important than the final solution
  
- **There are two common case interview methods:**
  - **“Go 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!**




- **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*



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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,  $g = 0$ ):

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

- Annuity:

$$NPV = c_0 + \frac{c_1}{1+r} + \frac{c_2}{(1+r)^2} + \frac{c_3}{(1+r)^3} + \dots$$

## 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

<i>GAAP</i>	<i>Non-GAAP</i>
Revenue	
- COGS	
= Gross Profit	
- SG&A	= EDBITDA
- 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	Cost
<i>Management Consulted</i>	<ul style="list-style-type: none"><li>• Additional case access</li><li>• Firm overviews, skill practice</li><li>• 1-on-1 casing practice (\$)</li></ul>	Most resources free through MCA subscription
<i>FastMath</i>	<ul style="list-style-type: none"><li>• Mental math tutorials and practice</li></ul>	\$49 (sign up with Stern email address)
<i>S&amp;P Industry Reports</i>	<ul style="list-style-type: none"><li>• Industry insights (e.g., margins, growth, drivers)</li></ul>	Free through Stern dashboard
<i>RocketBlocks</i>	<ul style="list-style-type: none"><li>• Framework drills</li><li>• Charts and data analysis skills work</li><li>• Mental math practice</li></ul>	\$35 / month or \$155 / year
<i>Case Interview Secrets</i>	<ul style="list-style-type: none"><li>• Various resources including fast math and framework practice to resume and cover letter coaching</li><li>• Look Over My Shoulder program is a collection of audio files of example live-cases, both good and bad</li></ul>	Most resources free through MCA

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





## *Industry Overviews*



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# Industry Overviews

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**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
- Fixed or Variable Fees (trading commissions, M&A fees, asset management fees, transaction fees, currency exchange)
- Premiums – credit card APRs
- Locker rent

## 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)

## Important Considerations / Trends:

- Use of AI / Blockchain to verify transactions
- Growth of mobile banking; disruption in the industry from Fintech and online banks
- Changing customer acquisition model – increased emphasis on relationship building with customers
- Regulations within the industry – e.g. Dodd-Frank increased capital requirements for banks
- Changes in customer demographics creating a larger market for retirement products

**Overview:** Industry consists of department stores, wholesale retailers, discount stores, speciality 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
- Total revenue = traffic \* conversion rate \* basket size \* avg. price per item

## 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
- Industry is very impacted by economic conditions
- 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
- More private label products (i.e. Walmart brand instead of manufacturer brand)
- Use of big data to tailor the shopping experience – added focus on customer experience

**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

## 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

## Important Considerations / Trends:

- Discounts and price promotions have lowered margins
- Cannibalization can be a concern when introducing new products, so firms regularly rationalize brands
- 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

**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 (mostly B2B)

Hardware

- Sales: price \* # of goods sold
- 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.x. Google Home, Amazon Echo)
- 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, SaaS, Intellectual Property (IP), Freemium

# 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
- Government re-imburement (~50% of spend)
- Inpatient & outpatient treatment costs (without insurance)

## Key Metrics:

- Bed capacity utilization
- # of deaths in surgery
- # of patients seen

## Cost Drivers:

- High upfront investment in hospital facilities and equipment
- Physicians (i.e. doctors & nurses)
- Medical suppliers
- Insurance (malpractice liability)
- SG&A
- Other labor

## Important Considerations / Trends:

- Shortage of physicians and nursing staff
- Frequency and cost of medical visits increase with age
- New technology advancements allow for more outpatient procedures (as opposed to inpatient)
- Rise in unemployment correlates with a decline in elective procedures
- Wearables (e.g., Apple Watch) are keeping people healthier
- More data allows for personalized care and faster recommendations
- Non-profits partner with for-profits to decrease costs
- Increase in telemedicine (at-home virtual doctor visits)

# 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. Five main types of plans exist:

- Fee for Service (FFS): insurance pays one-off providers and patients sees anyone they want
- Health Maintenance Organization (HMO): integrated payer and provider; cheaper but less selection
- Preferred Provider: mix of FFS and HMO
- High Deductible: lower premium; on patient to use services efficiently
- Pharmacy Benefits

## Revenue Drivers:

- Insurance premiums
- Government subsidies

### Key Metrics:

- # of doctor visits
- # of people employed
- Population age
- Total health expenditures

## 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
- Re-insurance
- Labor

## Important Considerations / Trends:

- Market is slowly consolidating (top 4 payers are 35%), with the rest fairly fragmented.
- 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



**Overview:** Industry encompasses originator drug producers, generic drug manufacturers and pure R&D firms. It can take years to get a new drug approved and on the market. Strict and cumbersome regulatory processes. Customers can be doctors / providers or patients.

## 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 → % with illness → % diagnosed → market share of drug → price of one dose \* # of doses per year

## Cost Drivers:

- High R&D
- 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.

## 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)

## Important Considerations / Trends:

- Major consolidation within industry due to high fixed costs
- Rise in third party booking websites (e.g., Booking.com, Expedia)
- 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
- 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

## 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

**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
- 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
- Net promoter score

## 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:

- 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, are majorly disrupting traditional industry
- Store layout and shelf placement are huge factors in customer sales

**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

## 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

**Overview:** Private Equity (PE) firms are a source of investment capital for companies. They purchase shares of private companies or acquire public companies to make them private. The goal of a PE firm is to obtain a positive return-on-investment (ROI) through internal growth or acquisitions with targets usually around 20%. Examples include Blackstone Group, Carlyle Group, KKR, etc.

## Revenue Drivers:

- Fees on committed capital (0-3%, average 2%) – usually needs to beat the hurdle rate\* of 6-12% per year
- 20% gross profit upon sale of company
- Revenue from acquired firm
- Other consulting/advisory services

### Key Metrics:

- EBITDA

\* Hurdle rate = annual return rate firm needs to achieve before fees are taken

## Cost Drivers:

- Deal Fees
- Salaries
- Overhead costs

## 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 include:
  - High potential companies (like a venture capital firm)
  - Company with value tangible or intangible assets





## *Feedback Form*



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# 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 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 creative solutions to client problems; structures brainstorming	
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)

Framework / Structure	Creativity/insights
Analytics / Data Interpretation	Driving the Case
Qualitative Analysis	Creativity/insights
Synthesizing	Conclusion

## Weaknesses (circle 2)

Framework / Structure	Creativity/insights
Analytics / Data Interpretation	Driving the Case
Qualitative Analysis	Creativity/insights
Synthesizing	Conclusion

Please provide any other specific feedback:



## *Practice Cases*





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# 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:**
  - Breakdown 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 2<sup>nd</sup> generation game
    - Expand to other platforms including mobile and console
    - Expand to geographies outside of US
    - Host E-sports tournaments



## 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 based 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%
<b>Total Addressable Market</b>		<b>3M</b>	<b>6M</b>	<b>~1M</b>

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

#### 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?

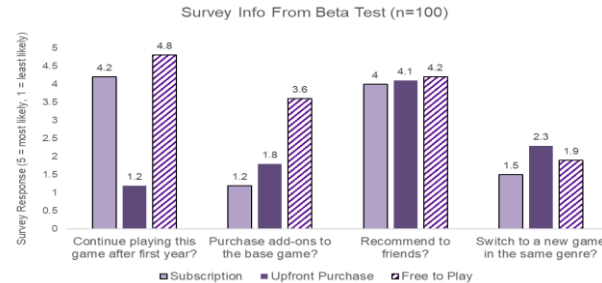
## Notes to Interviewer:

- *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 2<sup>nd</sup> 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?

## 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."

## 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

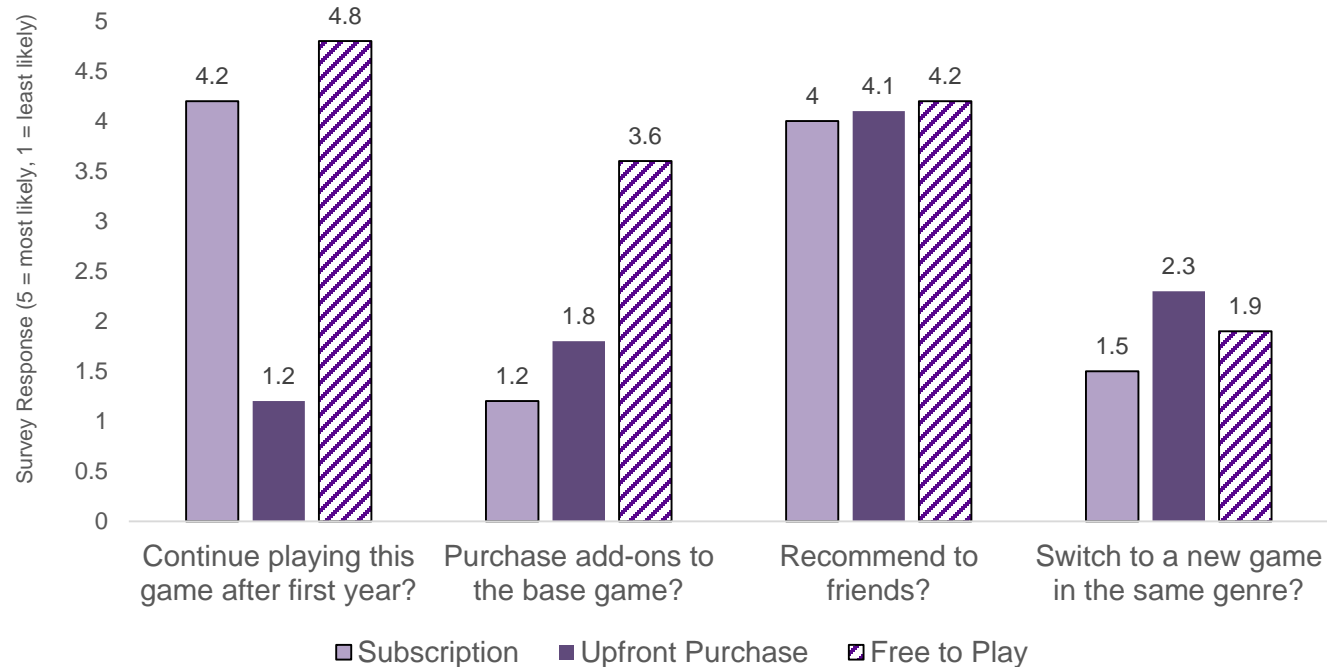
## Cost Structure

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





**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 Structure:** 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

## Clarifying Information:

### Competitors:

- Large international competitors for all products

### Market Growth:

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

### Product Benefits:

- New product very effective since fungi have not yet developed resistances (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 distributions 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 on 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 is 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 with 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 3<sup>rd</sup> 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 3<sup>rd</sup> batch is \$150K with same \$160K in revenue.

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.

Key Result:

Because scrubber still only has to operate twice, we improve marginal cost.

Formula X operations is currently now breaking even.

## 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.

$$150\text{kg} * 80\% * 80\% = 96\text{kg}$$

$$96\text{kg} * \$200 = \$19,200 \text{ per batch}$$

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

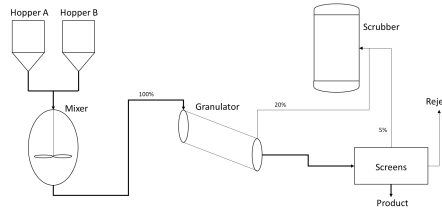
- Note that each reject pile also results in an additional 36kg of waste to the scrubber.
- The scrubber only has an additional 100kg of capacity at 3 batches/day and 2 cycles
- A third reject pile results in another scrubber cycle and net incremental loss of \$800
- Candidate may suggest partial reject pile for 3<sup>rd</sup> 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]:

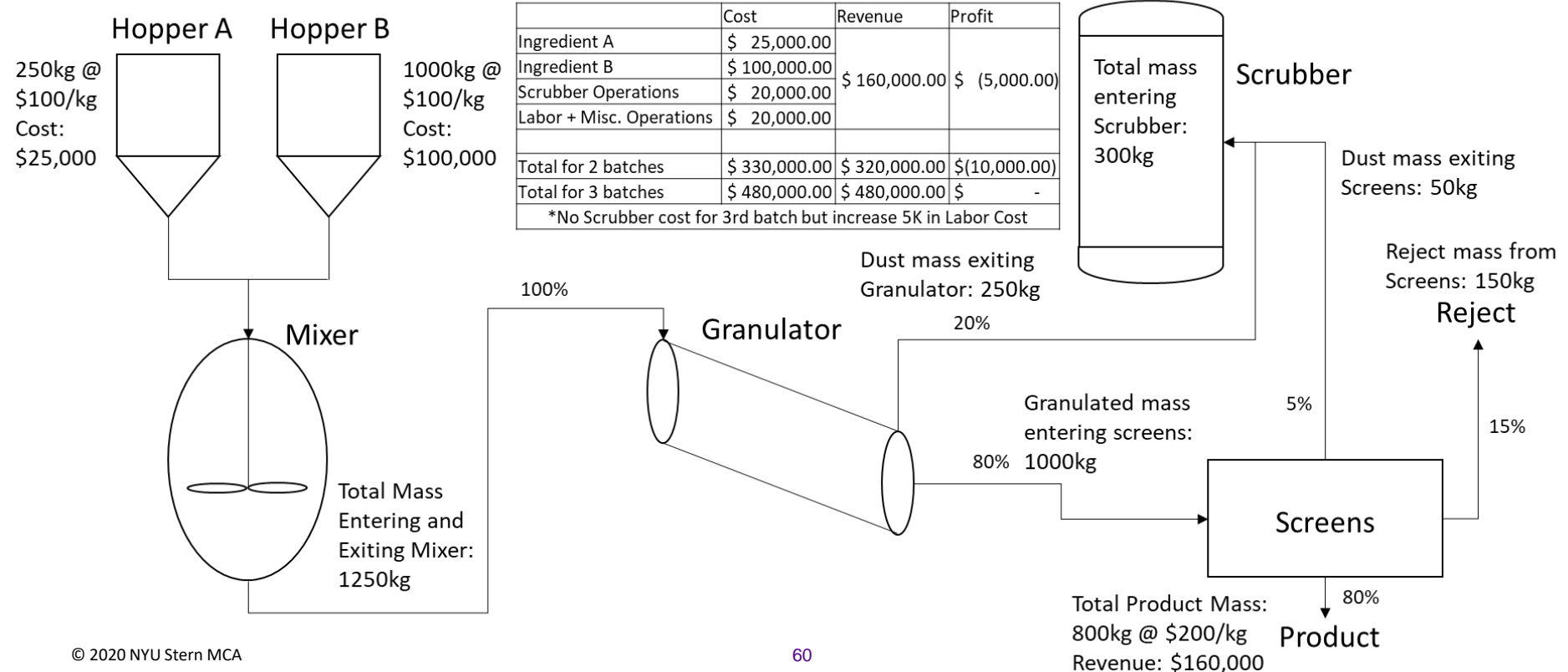
Formula X is created by mixing Ingredients A and B and then turning them into pellets and sizing them. Formula X is currently run in batches, with 2 batches a day (each an 8 hour shift). The site is not suitable for continuous operation and is currently at capacity. For technical people: mass is conserved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

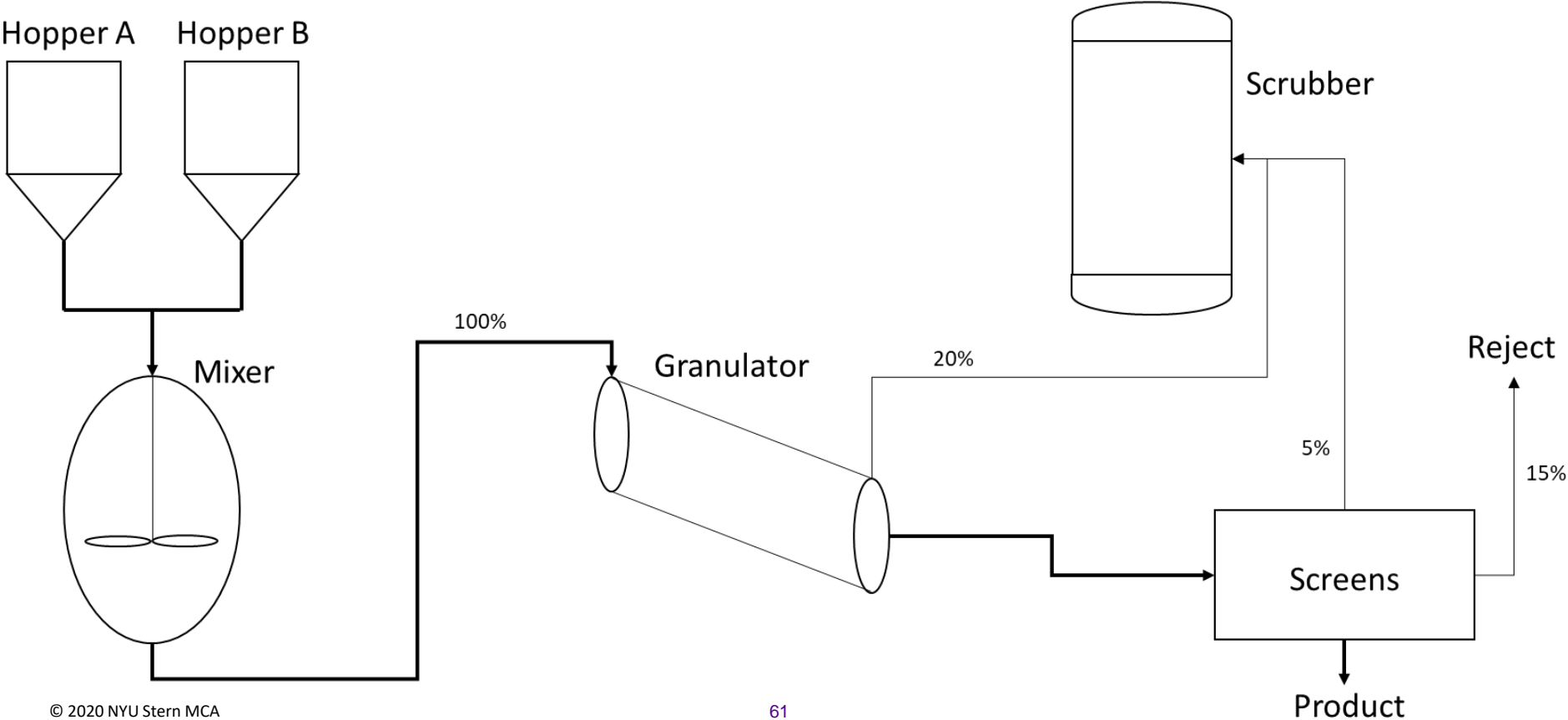
## PER BATCH

	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		
<b>Total for 2 batches</b>	<b>\$ 330,000.00</b>	<b>\$ 320,000.00</b>	<b>\$(10,000.00)</b>
<b>Total for 3 batches</b>	<b>\$ 480,000.00</b>	<b>\$ 480,000.00</b>	<b>\$ -</b>
*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 3<sup>rd</sup> 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

# 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

## 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:

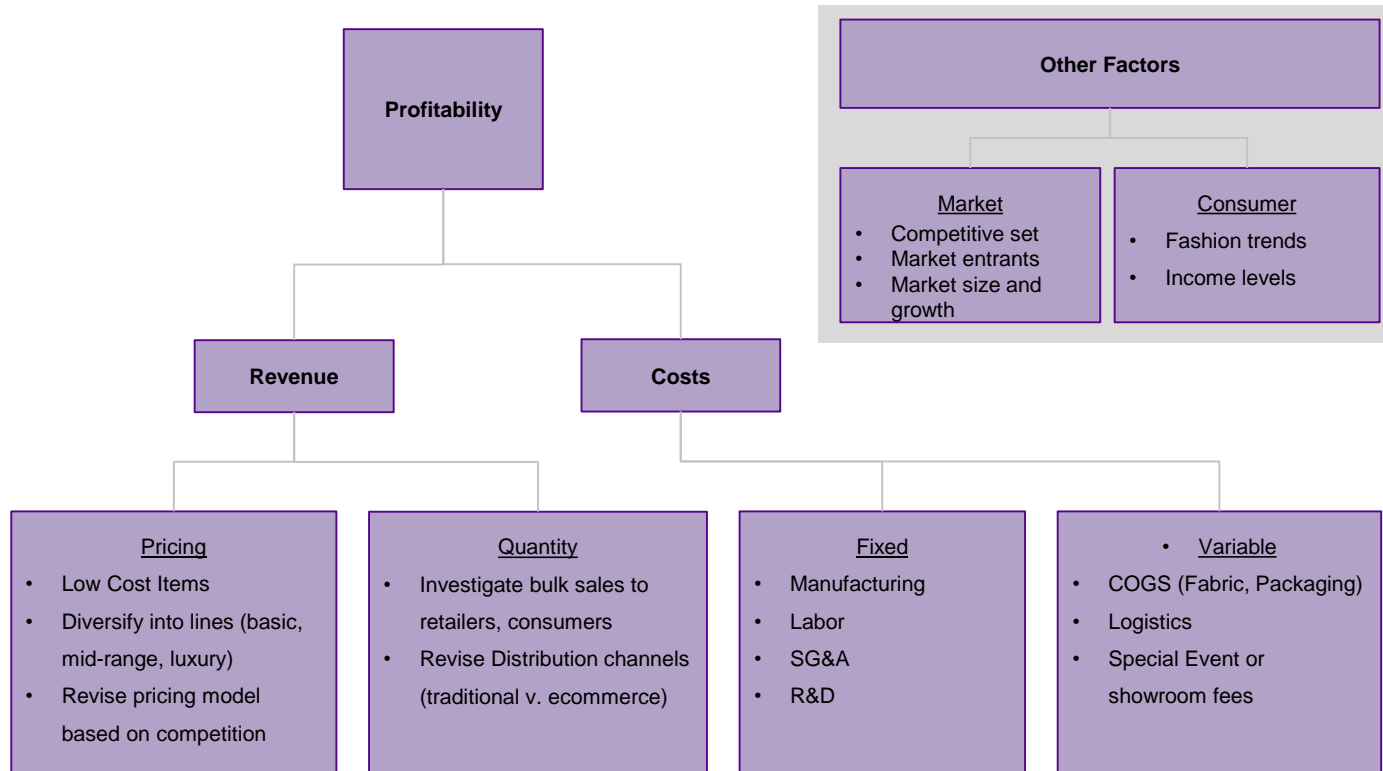
<u>Product</u>	<u>% of Revenue</u>
Socks	40%
Tanks	25%
Tees	15%
Underwear	20%

## 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: Exhibit 1



# Men's Extra Comfortable Essentials: Exhibit 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:	$\$160M * 1.05^4 = \$194,481,000 \approx \mathbf{\$200M}$
Tanks:	$\$600M * 1.06^4 = \$757,486,176 \approx \mathbf{\$750M}$
Tees:	$\$180M * 0.97^4 = \$159,352,706 \approx \mathbf{\$150M}$
Underwear:	$\$1.2B * 1.20^4 = \$2,488,320,000 \approx \mathbf{\$2.5B}$

## 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: Exhibit 1

## 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: Exhibit 1

## 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 % <sup>1</sup>
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: Exhibit 1

## 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: Exhibit 1

## 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

## 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 % <sup>1</sup>
Socks	\$24M	15%
Tanks	\$15M	-5%
Tees	\$9M	0%
Underwear	\$12M	10%

<sup>1</sup> Firm expects 2016 margin % to maintain constant through 2020

**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.



## 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 years
- 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 aircraft will be outfitted at the same time\*
- Ad revenues already baked in to 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

**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 Structure:** 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?



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

## 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)*

Category	Delta	Current	New	Calculations for Interviewer
<b>Revenue</b>	-10%	\$100,000	\$90,000	100K - 100K(0.1)
COGS	+10%	\$10,000	\$11,000	10K + 10K(0.1)
Delivery Cost			\$20,000	
<b>Total Expenses</b>		\$70,000	Month 1: \$91,000 Month 2,3: \$71,000	M1: 70K + 1K + 20K M2,3: 70K + 1K
<b>EBITDA</b>		\$30,000	Month 1: (\$1,000) Month 2,3: \$19,000	M1: 90K - 91K M2,3: 90K - 71K
<b>3 Month EBITDA Impact</b>		\$90,000	\$37,000 = ~(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.

## 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 3<sup>rd</sup> 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.)

## 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:

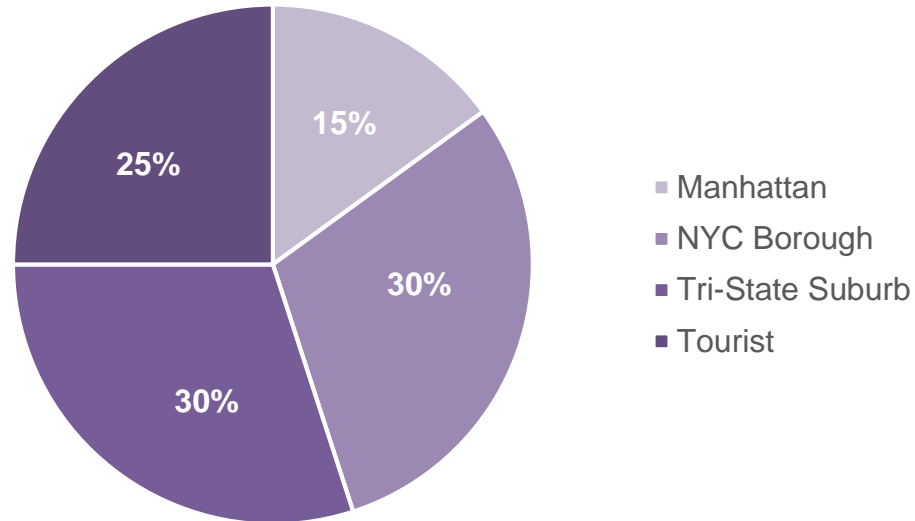
- Find delivery partner and plan logistics to launch
- Explore lowering costs
- Learn what Tres Burritos and competitors are doing in other cities

## Bonus: Guide to an excellent case

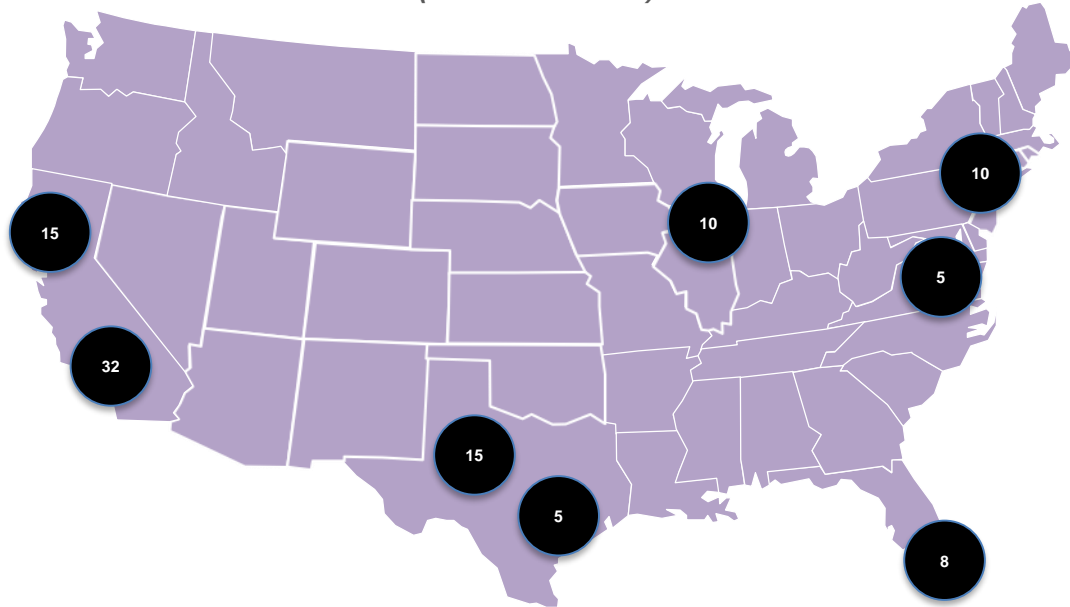
- A great candidate will realize that the virus will last for 3 months so the profitability impact will change month-to-month
- Creative solutions to the virus could include selling raw ingredients to local families in need of food, working with 3rd party delivery partners (Seamless, Caviar, etc.) to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

<b>Income Statement</b> <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 Restaurant Footprint (as of June 2020)



**Author:** Rodrigo Vargas (Stern '17)  
**[Interviewer-led]**

**Quant: 9**  
**Structure: 7**

## Case Prompt:

Your client is FlashPro Inc., a San Francisco based technology company that develops and sells wearable and mountable action cameras. FlashPro's CEO believes that the company's growth has stagnated and has hired your firm to remedy that issue.

## Case Overview:

**Industry:** Technology

**Case Type:** Growth

### Concepts Tested:

- Math
- New Market Assessment

## Overview Information for Interviewer:

- This case test the interviewee's ability to deal with large sets of data and focus on the key components of profitability.
- It also tests the interviewee's creativity in figuring out ways to grow revenues and profit.



## Clarifying Information:

- The company is public. It sells its products in the US and internationally.
- Their main product is CamPro; a mounted camera mainly used when playing action sports. It has also recently started being used in other recreational activities.
- FlashPro does not manufacture its products, it contracts with manufacturers in China.
- FlashPro sells its products through 3 channels: Distributors, Retail, and FlashPro's Website
- The industry is highly competitive and customers are very loyal to each brand

## Interviewer Guide:

- **A Good Framework will include:**
  - Market Analysis: Competitors, Customers, Substitutes, Suppliers, etc.
  - Profitability tree indicating components of revenue and costs.
  - Costs should include COGS, R&D, G&A and Sales & Marketing.
- **Necessary Information that should be given only when specifically asked for by interviewee:**
  - The Camera Price is \$250
  - Gross margin has remained steady at 50%
- Over the last 5 years, 60% of camera sales have come from the U.S. The split is expected to be similar in 2018.

# FlashPro: Question 1

## Question #1:

[Hand out Exhibits 1-3]

What is FlashPro's expected Gross Profit for 2018?

## Math Solution:

### Revenues:

U.S. Camera Sales =  $16,000 * 85% * 30% * \$250 = \$1,020,000$   
Addressable Market \* Penetration \* FlashPro Market Share \* Price

International Camera Sales =  $1,020,000 * (0.40 / 0.60) = 680,000$   
U.S. Sales \* (% International Sales / % U.S. Sales)

**Total Revenue** =  $(1,020,000 + 680,000) = \$1,700,000$

### COGS

$\$1,700,000 * 50\% = \$850,000$   
Total Sales \* COGS % of Sales = COGS

### Gross Profit

$\$1,700,000 - \$850,000 = \$850,000$  (in thousands = **\$850m**)  
Total Sales – COGS = Gross Profit

## Math Information:

Camera Price = \$250

### Camera Sales Distribution:

U.S. = 60%  
International = 40%

COGS = 50% of Sales

These trends are expected to continue in 2018.

All amounts are in thousands.

## Question #2:

FlashPro wants to understand what are their revenue growth prospects at this moment (keeping everything constant) and analyze other alternatives that could help boost their top line.

## Notes to Interviewer:

- The purpose of this question is to test the candidate's creativity and ability to come up with different ways to grow top line.
- A good candidate should mention important insights from Exhibits 1, 2 and 3; limited market growth in the US and fierce competition that hinders gain of market share.
- The candidate will start listing different ways FlashPro can increase sales. An excellent candidate will provide a organized framework that includes the following:
  - Marketing Mix (4Ps): Product Attributes, Sales Channels, Price, Advertising, etc.
  - New Markets (Product Line Expansion, New Geographies, etc.)
    - Organic (Developed in house)
    - Inorganic (M&A)
- If necessary, point candidate into considering new geographies and hand out Exhibit 4.

## Question #3:

[Hand out Exhibit 4]

From an economic perspective what is the most attractive country to enter and what things should FlashPro consider before entering?

## Notes to Interviewer:

A good candidate would calculate the expected revenue on Year 3 and determine which of the alternatives is the best option.

An excellent candidate will consider the sales channel distribution and would assume margins are higher on FlashPro's website since there is no intermediary, and lower on the distributor and retail channels.

The best alternative is Argentina because it provides the highest revenue at the third year and the sales channels seem to provide higher margins:

Year 3 Revenue: Argentina \$1,165, Japan \$1,013, Australia \$932, and Sweden \$951

### Things to consider before entering:

The candidate should provide a few structured examples of considerations before entering: customer habits, local competition, regulation, country's economic and geo-politic situation, logistics, etc.

## Recommendation:

- Given the competitive landscape, FlashPro should pursue a geographic expansion strategy to achieve growth
- Argentina is the most attractive option with a higher expected market share, higher overall revenue, and a larger share of the higher margin website channel

## Risks:

- Did not consider costs related to entry into markets or competitive responses
- The Year 1 market share assumptions may be a bit aggressive, FlashPro may have trouble getting achieving those assumptions

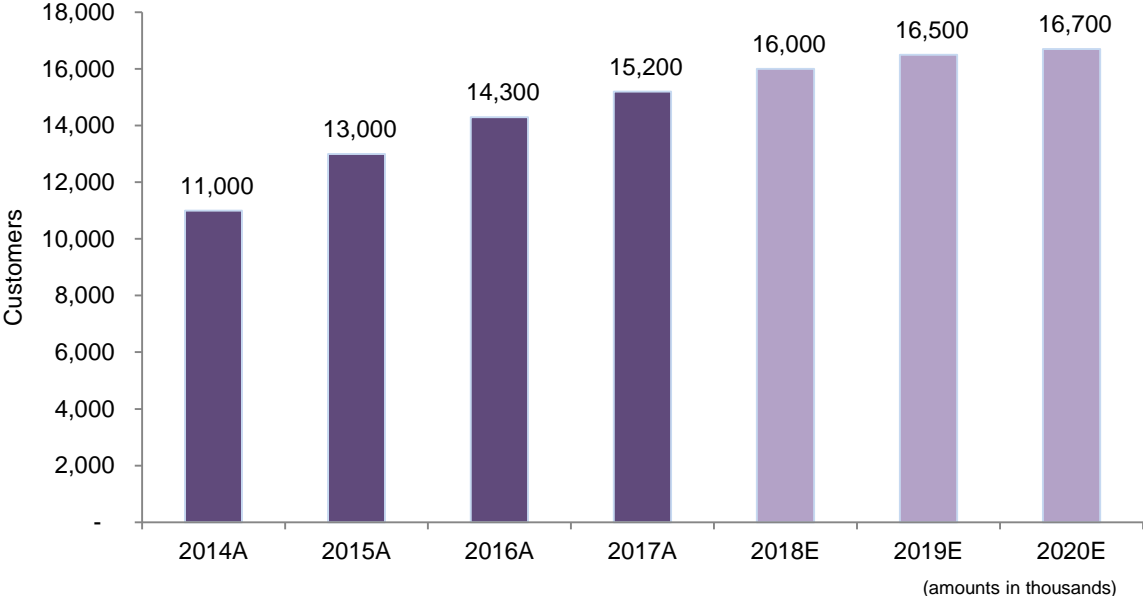
## Next Steps:

- Continue doing research into expansion into the Argentinian market
- Assess necessary internal capabilities needed to implement expansion strategy
- Plan a marketing campaign that includes advertising, sales channels, promotion and pricing

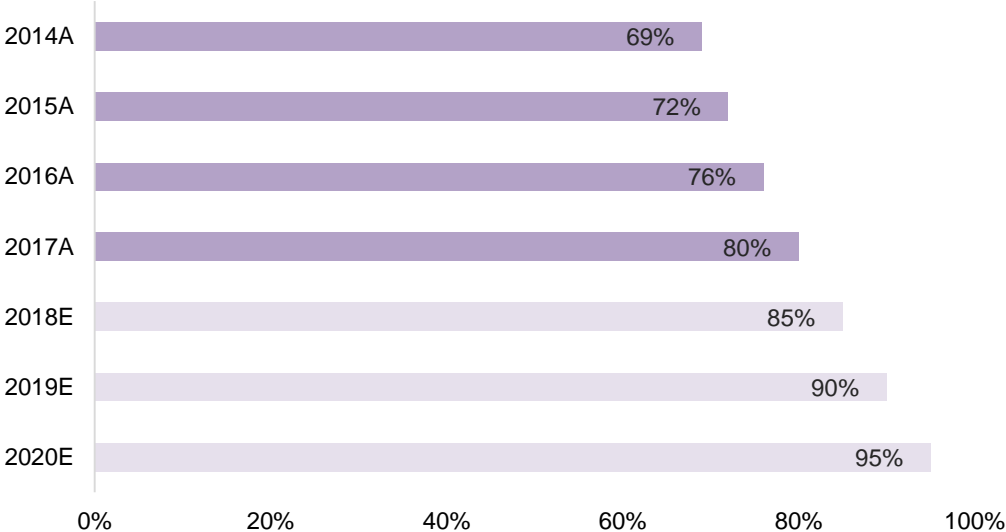
## Bonus: Guide to an excellent case

- A good candidate will have a complete brainstorm and consider multiple expansion options.
- An excellent candidate will recognize that the analysis is incomplete and that there are other costs to be factored in.

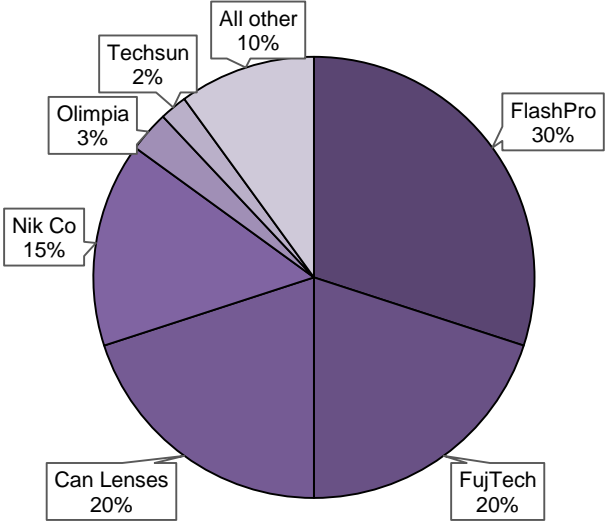
### Action Camera Potential Market in the US



### Action Camera Market Penetration in the U.S.



## 2016 Action Camera Market Share Distribution



Market Share distribution is the same in the US and worldwide and has remained steady for the last 5 years. FlashPro is the only company offering wearables



# FlashPro: Exhibit 4

	Argentina	Japan	Australia	Sweden
Current Camera Market Size (Total Revenues)	\$ 2,500	\$ 3,500	\$ 3,500	\$ 2,500
Flash Pro's Expected Market Share at Year 1	35%	25%	20%	25%
Expected Annual Growth Over the next 3 years	10%	5%	10%	15%
<b>Sale Channel Distribution:</b>				
Distributors	20%	40%	20%	40%
Retail	30%	50%	30%	50%
FlashPro's Website	50%	10%	50%	10%

*After Year 3, the expected market annual growth for all countries is 5%*

*(dollar amounts in thousands)*

**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., founded in 1969 by Jack Kanof, is an established aerospace company looking to penetrate the luxury space travel market. It is looking for 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 Structure:** 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 breakeven 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 is 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)

## Question:

- How much of the market do you think Uranus can penetrate? (provide Exhibit 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 penetrate 20% of the market.

## Question:

Uranus Co. would like to penetrate at least 20% of the market each year and breakeven within two years. (provide Exhibit 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 breakeven 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!**

## 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

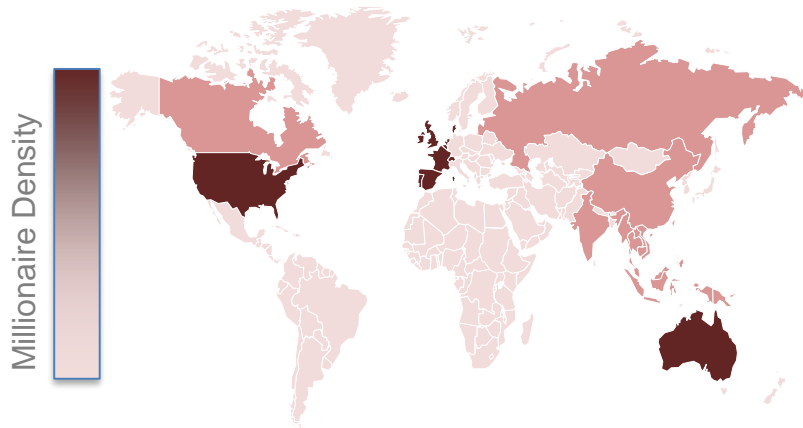
## Bonus: Guide to an excellent case

- 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
- Enjoys all the puns along the way

# 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

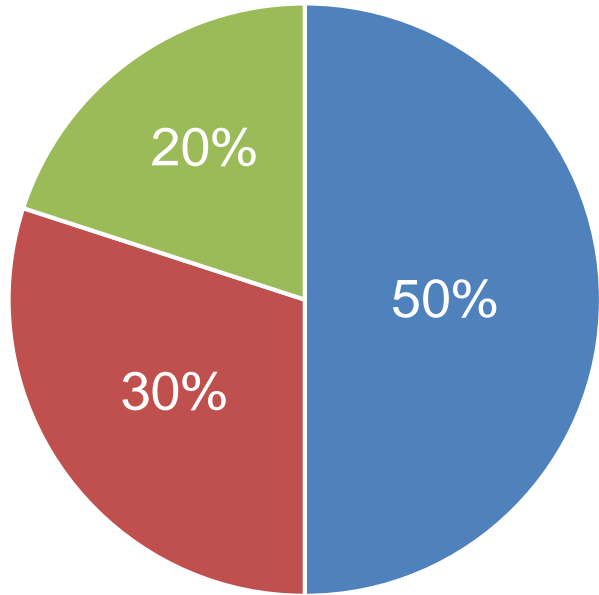
Questions	Responses	
Would you want to travel to space for leisure?	Yes	90
	No	80
	Maybe	30
If so, how many tickets would you buy each year?	Average: 2.3	
Do you suffer from any heart conditions?	Yes	75
	No	125
Do you suffer from asthma?	Yes	50
	No	150

\*The only requirement for travel is that travelers must not have any heart conditions



# Exhibit 2: Competitive Landscape

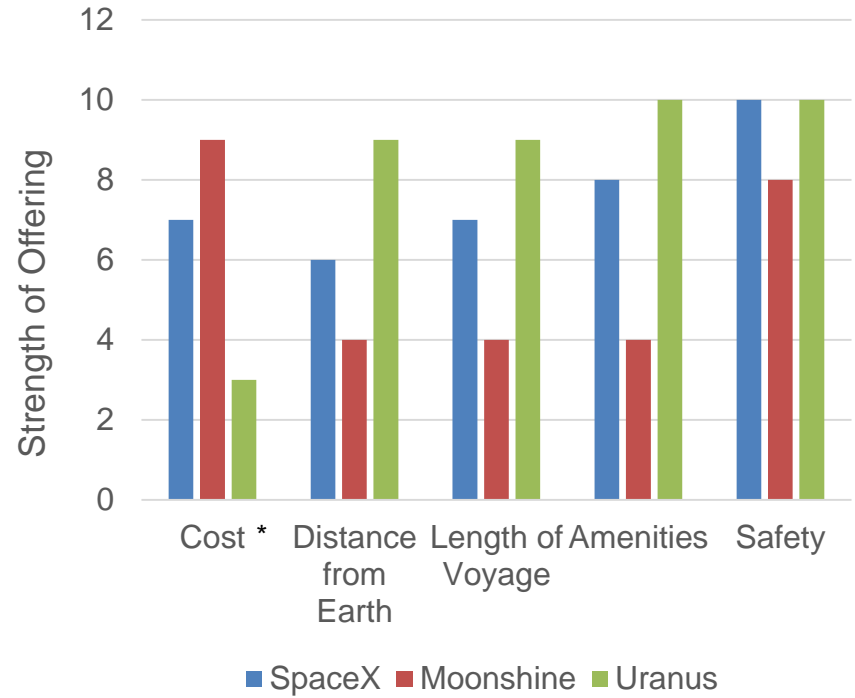
## Market Share (# of Tickets)



■ SpaceX ■ MoonShine ■ Rest of Market\*

\*no other company has more than 6% market share

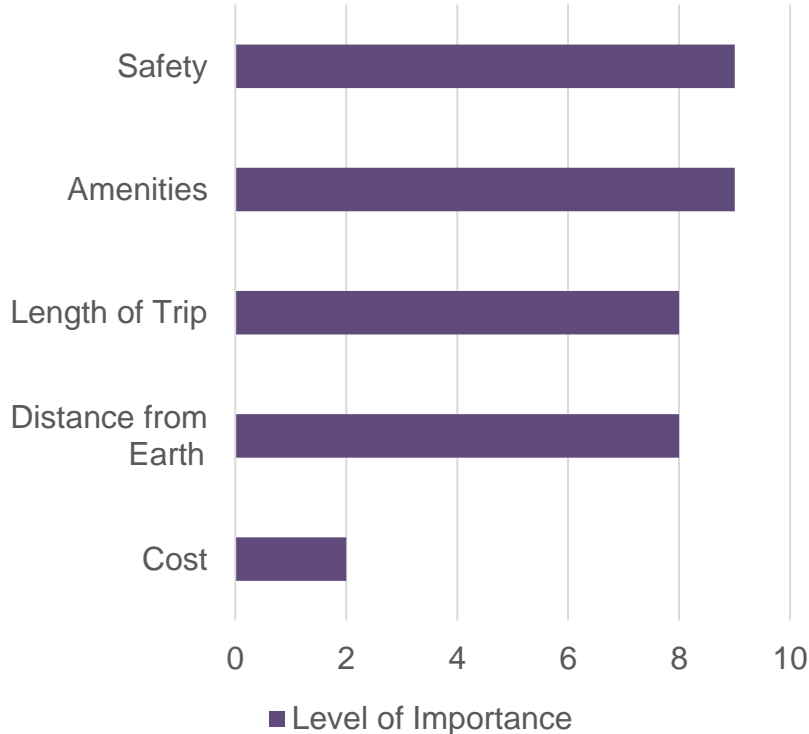
## Comparison of Offerings



\*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
Price of ticket	\$400,000
Other revenue per customer	\$100,000

Fixed Cost Information	Amount
Cost to build each ship	\$1,500,000,000
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

**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 Structure:** 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

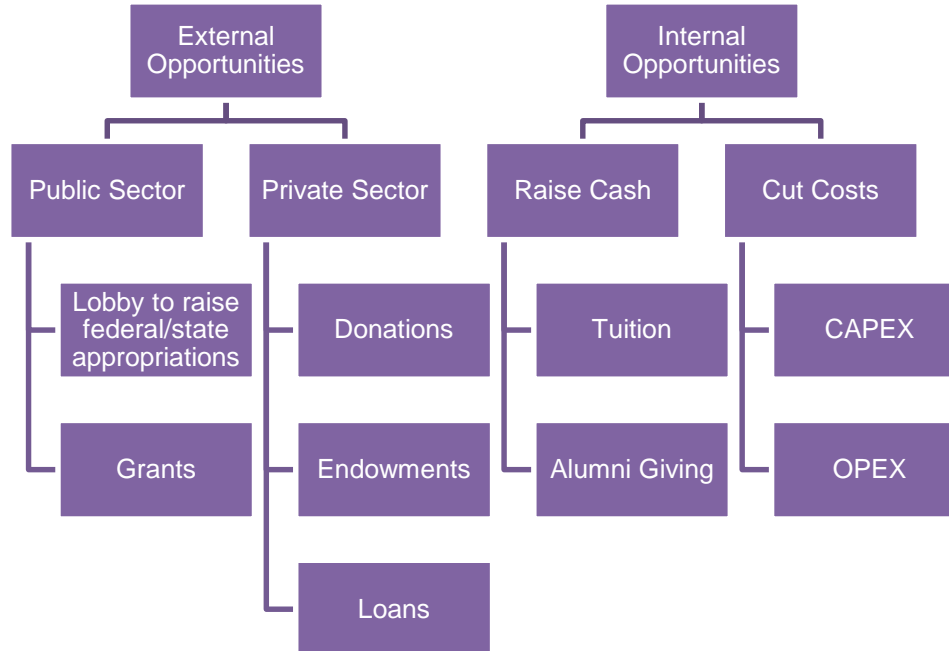
## Clarifying Information:

- **Timeframe**
  - Currently it is 2020 H1
  - 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

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 (Foot Note 1).
- All expenses are a proportion of Tuition & Fees (Foot Note 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
<b>Total</b>		<b>49</b>		<b>31</b>	<b>18</b>	<b>\$910,000</b>

The school will be short of its \$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

## 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

## 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)

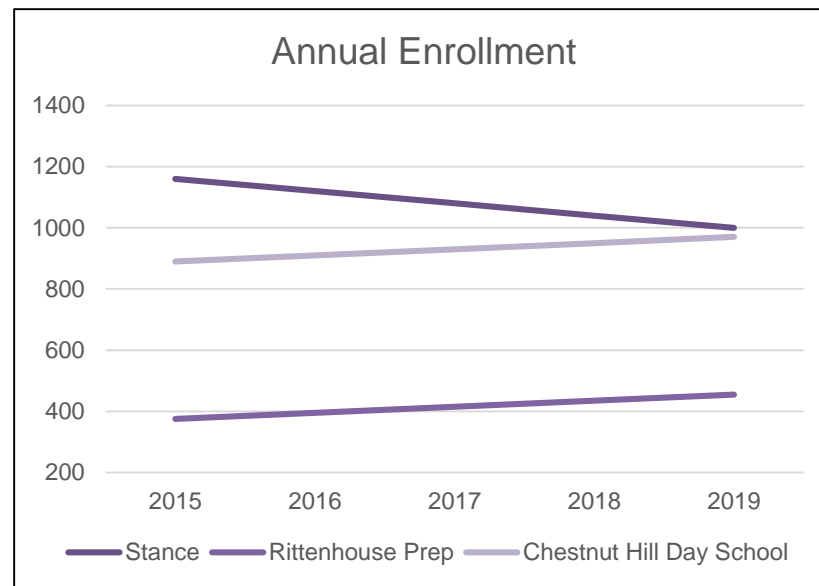
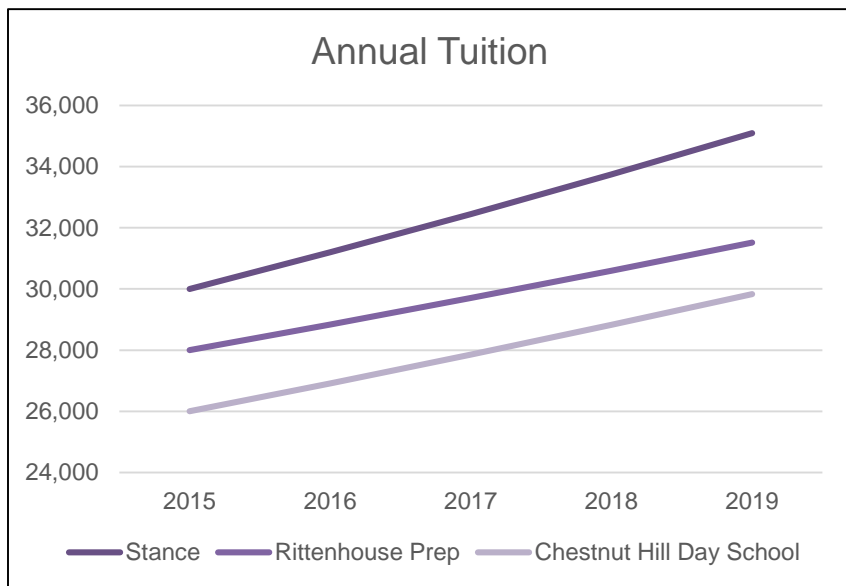
<b>\$ thousands</b>	<b>The Stance School</b>	<b>Rittenhouse Prep</b>	<b>Chestnut Hill Day School</b>
Tuition & Fees	\$35,000	\$14,500	\$29,000
Grant Revenues	5,250	2,175	4,350
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Maintenance Expense	\$7,000	\$2,900	\$7,250

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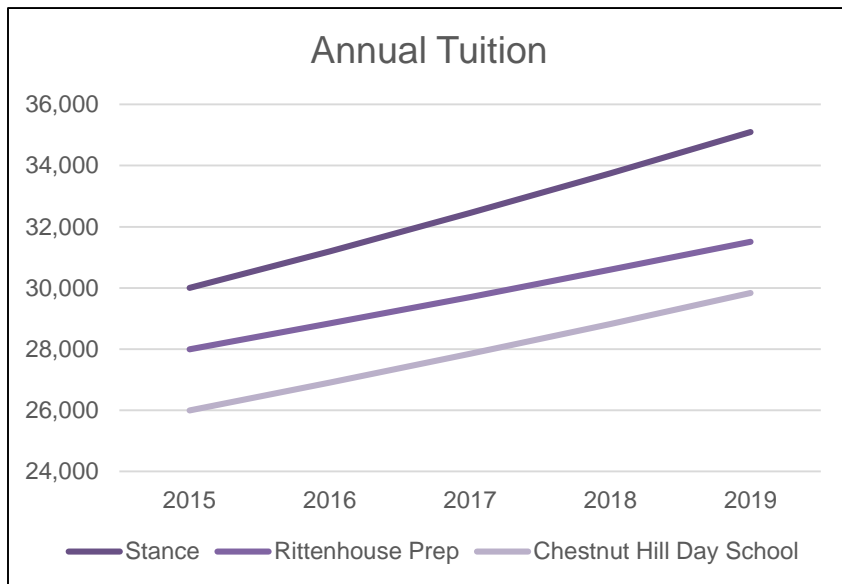
\*Grants are not allocated to school expenses

# Stance at a Distance: Exhibit 2

## Stance Tuition and Enrollment Information, with Benchmarks to Competitor Schools

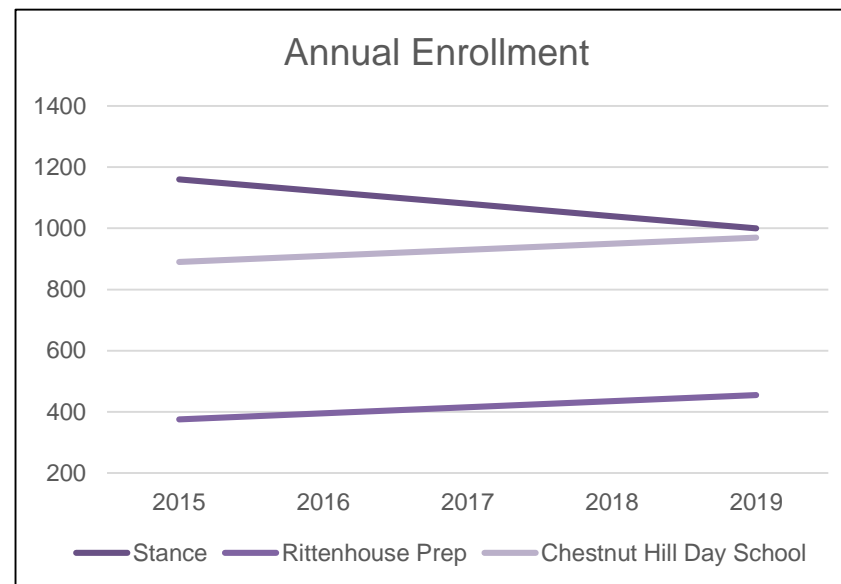


## Stance Tuition and Enrollment Information, with Benchmarks to Competitor Schools



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

**Author:** Wayne Atwell (Stern '15)  
**[Interviewee-Led]**

**Quant: 6**  
**Structure: 6**

## Case Prompt:

Our client is an online dating startup named Grad-U-Date, which specializes in matching graduate students with other graduate students. Grad-U-Date has finished building their app and are now looking for your assistance in deciding on a monetization strategy.

What is Grad-U-Date's best method of monetization? How profitable will the company be?

## Case Overview:

**Industry:** Online Dating

**Case Type:** Pricing

## Concepts Tested:

- Brainstorming
- Critical thinking
- Math

## Overview Information for Interviewer:

The interviewer should facilitate a conversation by prompting the candidate. Complete brainstorming exercises before starting profit calculations.

Share Exhibit #2 with candidate. After profit calculations are complete, share Exhibit #3.

Candidate should identify the following major tasks:

- Market size
- Competitive landscape / market share
- Profitability for each monetization model

## Clarifying Information:

- Gender ratio of users will be 50/50
- MBA, law and medical students are considered professional students
- The app has already been built, and is considered a sunk cost
- Grad-U-Date will only operate within the United States
- There are 4 major competitors and hundreds of small competitors
- There has been a significant increase in the number of free dating apps starting in late 2012
- There are currently no other online dating services that focus only on graduate students
- Only one revenue model can be used

## Interviewer Guide:

### **Brainstorming and Market Size:**

Questions 1-2 are qualitative and should be conversational. Candidate should remain structured while creatively brainstorming.

Question 3 is a simple market size using Exhibit 1.

### **Revenue Model Question:**

Provide the candidate Exhibit #2.

Calculate the profit of each revenue model. Fixed costs are \$10,000,000 a year and variable operating cost is \$1 per member per year. Which revenue model would you recommend?

### **Additional Questions** (Ask as many as time permits)

After candidate finishes calculations, provide Exhibit #3.

- Does this information change your recommendation for which revenue model?
- Why do you think that the percentage of users paying monthly fees dropped so quickly starting in 2013?
- Given your recommended revenue model, what other strategies can Grad-U-Date use to increase profit?

## Monetization:

- What types of monetization models could Grad-U-Date use?
- What are the advantages and disadvantages of each model?

## Target Market:

- Grad-U-Date is considering limiting the site to only MBA students what issues might there be with an MBA only dating website?

## Market Sizing:

- What is the potential market size for Grad-U-Date?
- [Share Exhibit #1 with candidate]

## Notes to Interviewer:

- Monthly Fee
- Advertising
- Pay for Premium Account
- Profile Consulting Services
- Micro-Transactions
  - Pay per Message
  - Pay for bump in profile traffic
- Push candidate for at least 3 monetization models
- Candidate should remain structured with advantages and disadvantages

## Notes to Interviewer:

- There are more men than women at most MBA programs, there will be a significant gender skew
- It would unnecessarily limit the size of the market and the app platform
- Most MBA students tend to be older than other students, so many are already married or in a committed relationship

## Notes to Interviewer:

- Medical =  $450 \times 4 = 1,800$
- MBA =  $300 \times 2 = 600$
- Law =  $200 \times 3 = 600$
- Non-Professional =  $1,000 \times 3 = 3,000$
- Grad Students per University =  $1,800 + 600 + 600 + 3,000 = 6,000$
- Market Size =  $6,000 \times 1,000 = \mathbf{6,000,000}$  students

# Grad-U-Date: Question 4

## Question #4:

Calculate the profit of each revenue model. Fixed costs are \$10,000,000 a year and variable operating cost is \$1 per member per year. Which revenue model would you recommend?

[Provide Exhibit 2]

## Math Solution:

### Monthly Fee:

Customers:  $6,000,000 \times 5\% = 300,000$  users  
Revenue:  $300,000 \times \$10 \times 12 = \$36,000,000$   
Profit:  $\$36,000,000 - \$10,000,000 - 300,000 \times \$1 = \mathbf{\$25,700,000}$

### Premium Account:

Customers:  $6,000,000 \times 30\% = 1,800,000$  total users (only some will purchase premium account)  
Revenue:  $1,800,000 \times (50\% \times 40\% + 50\% \times 20\%) \times \$5 \times 12 = \$32,400,000$   
Profit:  $\$32,400,000 - \$10,000,000 - 1,800,000 \times \$1 = \mathbf{\$20,600,000}$

### Advertising:

Customers:  $6,000,000 \times 40\% = 2,400,000$  users  
Revenue:  $2,400,000 \times (50\% \times \$0.75 + 50\% \times \$1.25) \times 12 = \$28,800,000$  (assumes 50/50 split of professional and non-professional students observed in market sizing)  
Profit:  $\$28,800,000 - \$10,000,000 - 2,400,000 \times \$1 = \mathbf{\$16,400,000}$

## Question #5:

- Does this information change your recommendation for which revenue model?
- [Provide Exhibit 3]

## Question #6:

- Why do you think that the percentage of users paying monthly fees dropped so quickly starting in 2013?

## Question #7:

- Given your recommended revenue model, what other strategies can Grad-U-Date use to increase profit?

## Notes to Interviewer:

- Candidate should switch recommendation from monthly fee to premium account
- The portion of customers willing to pay a fee and the average fee paid have been rapidly decreasing since 2008
- It is unlikely that current profitability will be maintained in the future

## Notes to Interviewer:

- Increased competition in online dating market
- Quality free dating apps released that are more convenient
- Tinder app launched in late 2012

## Notes to Interviewer:

### Reduce Costs:

- Outsource servers
- Only provide email support and no phone number

### Increase Revenue:

- Create app to attract more customers
- Profile consulting services
- Profile photo editing
- Offer deals with popular date locations
- Expand to recent graduate school alumni
- Add micro-transactions

## Recommendation:

- Grad-U-Date should adopt the premium account revenue model
- Monthly fee revenue model should not be selected because this segment is rapidly disappearing and it limits the users on the platform
- The premium account model is expected to bring in \$20,600,000 in annual profit

## Risks:

- Premium account could be seeing a similar decrease in share as fee
- Smaller % of users will purchase a premium account than predicted
- Ad supported model could be growing faster than premium account
- Graduate students may not be able to afford to buy premium accounts
- Number of people going to graduate school could decrease
- Grad students may not want to limit their dating pool to grad students

## Next Steps:

- Look into market trends for ad and premium account revenue models
- Expand into new markets such as undergraduates or other countries
- Offer additional services: profile consulting services and date deals
- Add micro-transactions such as increasing the traffic to your profile
- Incorporate social media
- Can premium account and ads work together?

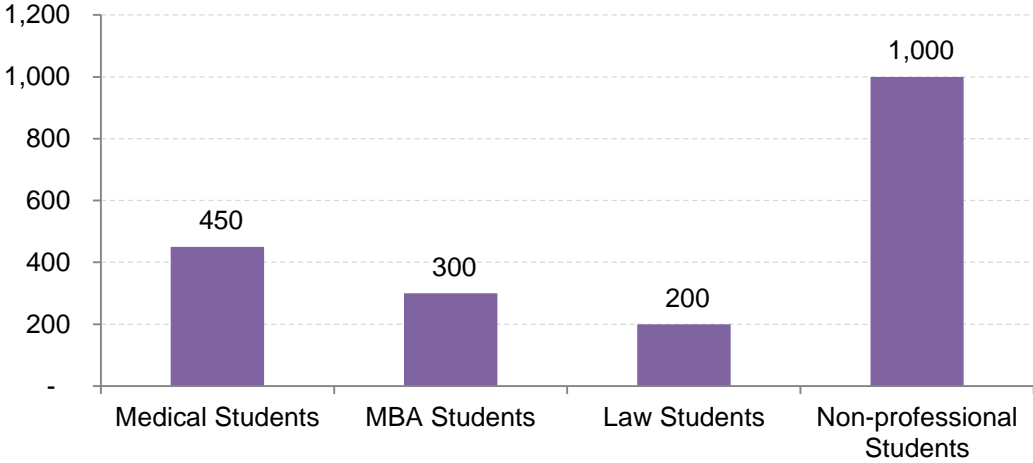
## Bonus: Guide to an excellent case

- A strong candidate will brainstorm 5+ monetization models and identify several reasons not to limit the app to MBAs
- Better candidates will finish the math fast enough to do 2 or 3 of the additional questions
- When brainstorming, excellent candidates will structure their answers into buckets, such as strategies to reduce costs vs increase revenue when coming up with ways to improve profitability



## Student Enrolment Information

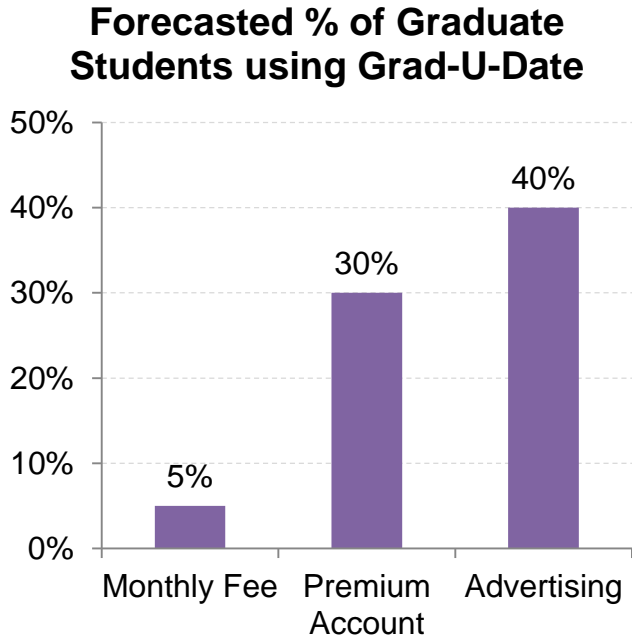
**New Graduate Students  
(per University per Year)**



Years for Degree:                      4                      2                      3                      3

Note: There are currently 1,000 Universities in the United States.

## Product Usage



### Monthly Fee Model

Monthly membership fee would be \$10

### Premium Account Model

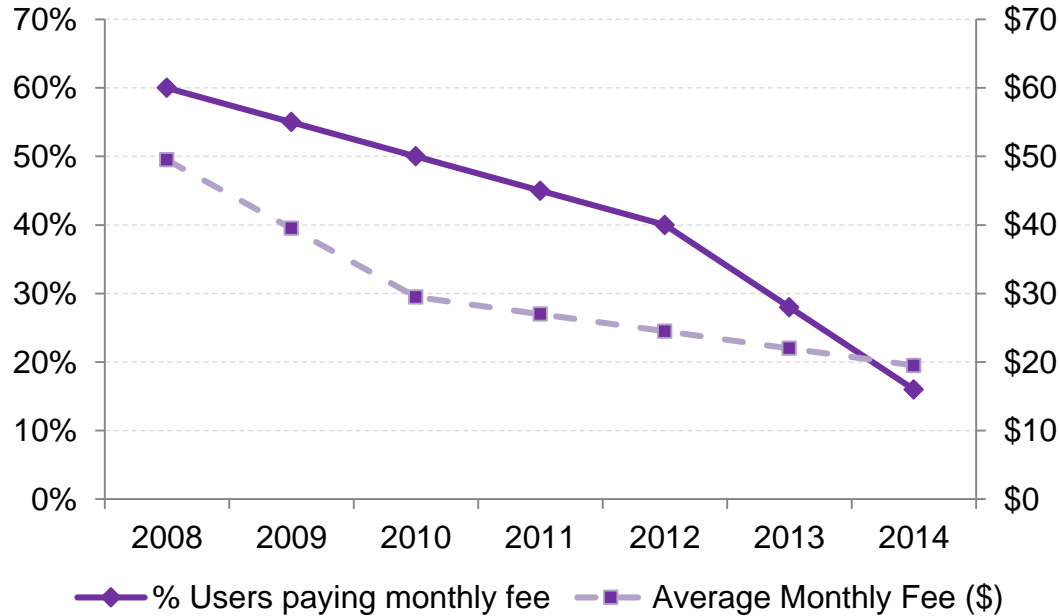
Premium accounts costs \$5 per month; 40% of men and 20% of women purchase premium accounts

### Advertising Model

Non-professional students bring in \$0.75 per month and professional students bring in \$1.25 per month in ad revenue

## Online Dating Market Info

### Online Dating Market Trends



**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% \* 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	$30 \cdot .8 = 24$	$30 \cdot .1 = 3$	$30 \cdot .1 = 3$
Indianapolis	$25 \cdot .4 = 10$	$25 \cdot .4 = 10$	$25 \cdot .20 = 5$
Nashville	$16 \cdot .5 = 8$	$25 \cdot .25 = 4$	$16 \cdot .25 = 4$

## 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	$15 * 12 = 180$	5K	900K
Neuro	$10 * 12 = 120$	25K	3M
Gastro	$12 * 12 = 144$	15K	2.16M

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

### 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 (\$40M)

## 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

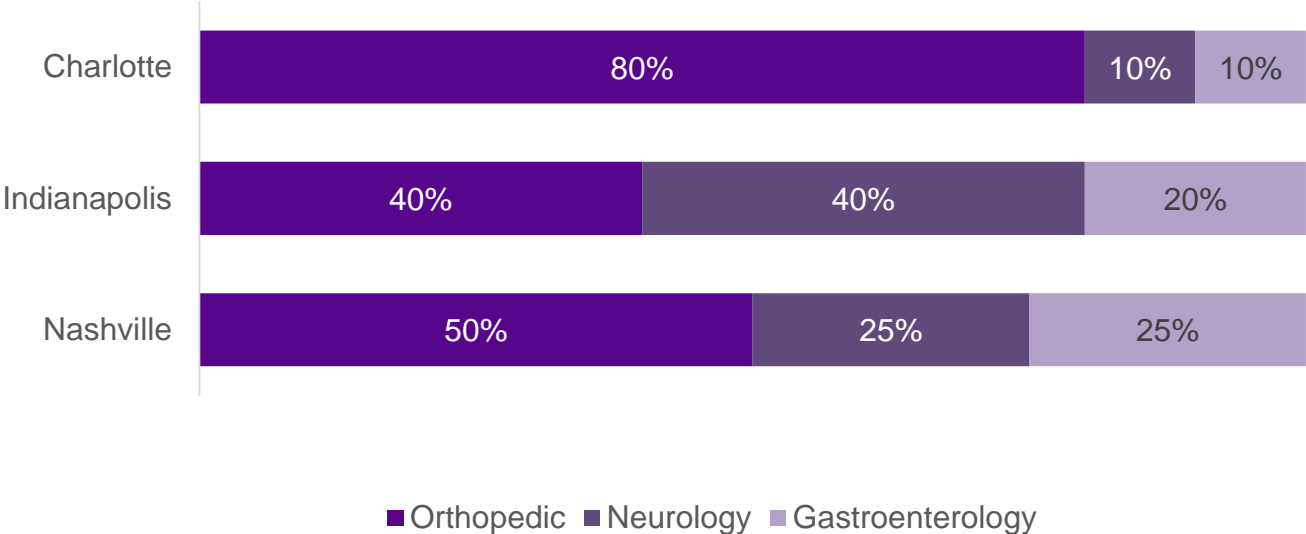
## Next Steps:

- 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

**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 Structure:** 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
<b>Revenue/year</b>	<b>\$1B</b>

## 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 scarified its profit to penetrate the market.



- 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 nights) = 5,600 stays/year
- **Nook Co. Cost** = 196M
  - Variable Costs:
    - Labor:
      - Service Staffs: 2K/month \* 12 month \* 1K = 24M/year
      - Kitchen Staffs: 3K/month \* 12 month \* 500 = 18M/year
    - Food and Supplies: 5K/stay \* 5,600 stays = 28M/year
    - Transport and Activities: 10K/stay \* 5,600 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** =  $84M/0.05 = 1.68B$
- **ROI** =  $(1.68B - 1.5B)/1.68B = 12\%$
- 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

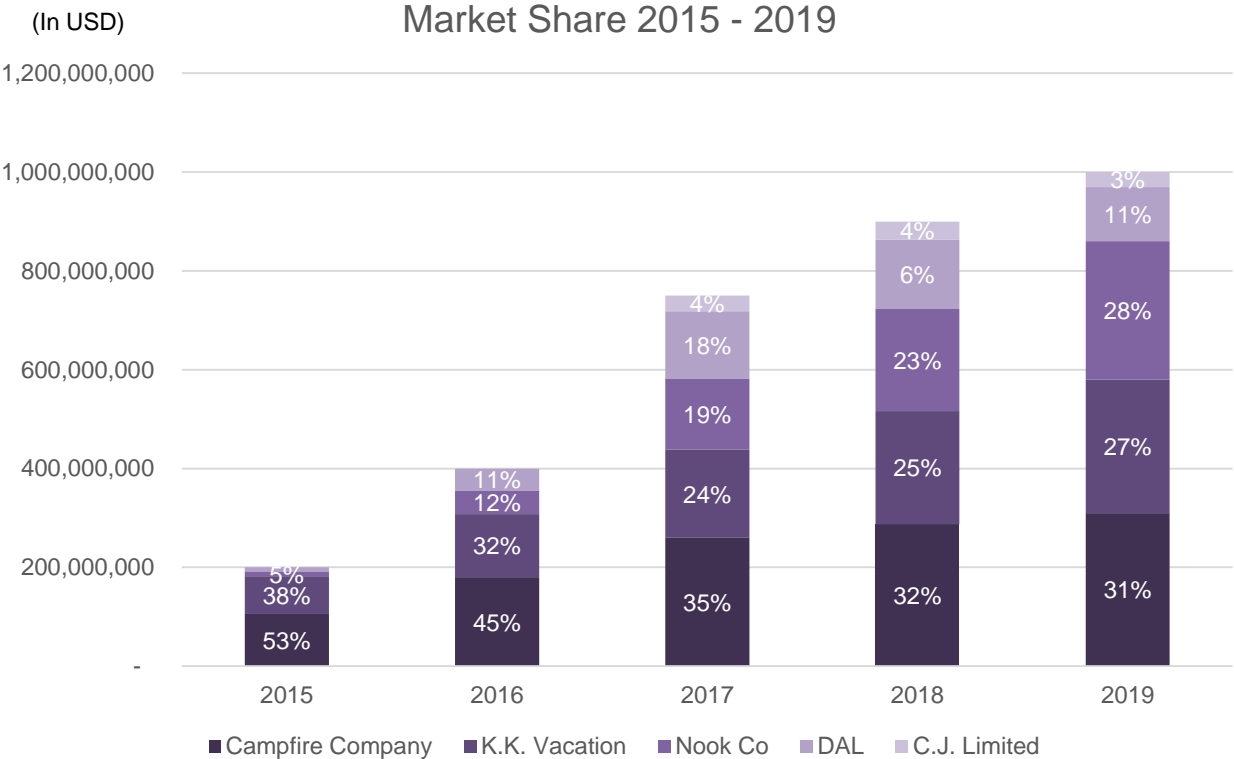
## Bonus: Guide to an excellent case

- 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

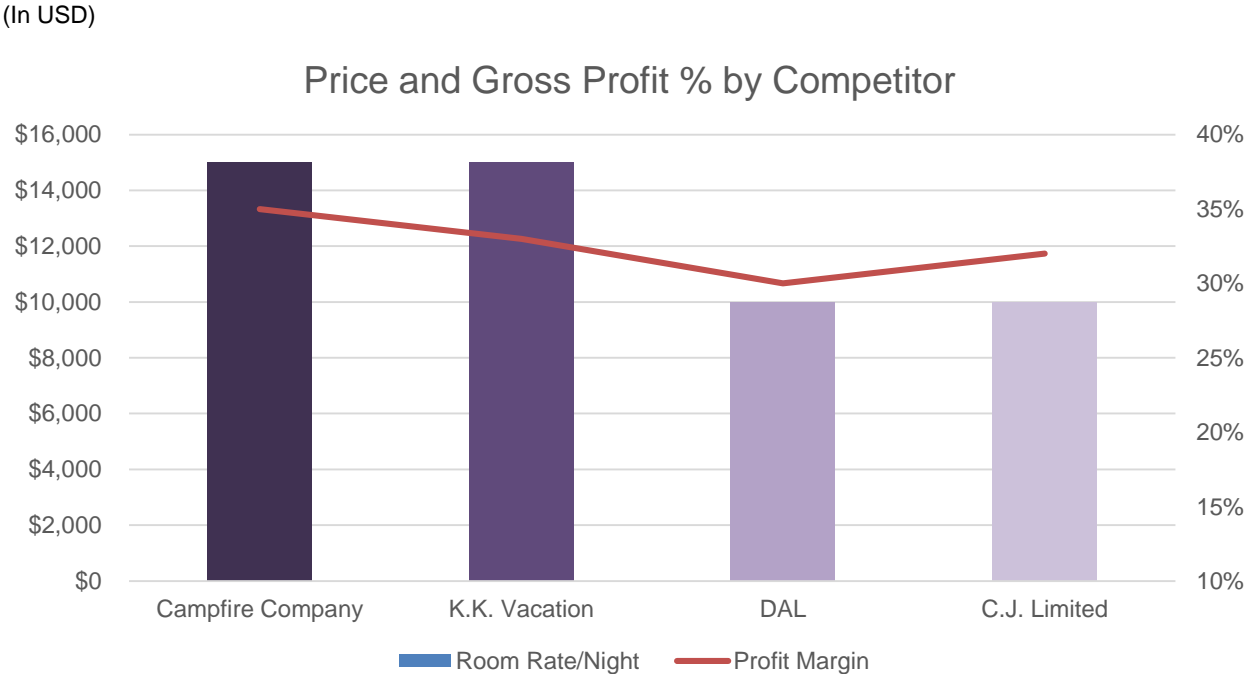
# Exhibit 1: Nook Co. Resort Example (SE Asia Island)



# Exhibit 2: Island Resort Market Share



# Exhibit 3: Competitors' Price and Gross Profit %



# Exhibit 4: Nook Co. Cost Structure

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

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



**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.*

	Male	Women
US Total Pop = 320 M		
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.

**Authors:** Maxine Rusbasan and Sabrina Yudelson **Firm Style & Round:** Bain Round 1  
**[Interviewee-Led]**

**Quant: 7**  
**Structure: 6**

## Case Prompt:

Your client is Royal Cinemas, a NYC theater chain. Their revenue has been badly hurt by decreasing ticket sales, which are at their lowest point since 1996 for both the chain and the industry at large. Royal Cinemas is interested converting their theaters into luxury cinemas. Should they do it?

## Case Overview:

**Industry:** Entertainment

**Case Structure:** Market Entry

### Concepts Tested:

- Revenue calculation
- Chart reading
- Breakeven calculation
- Creative brainstorming

## Overview Information for Interviewer:

Key case steps:

- Evaluate luxury cinema market opportunities
- Breakeven calculation
- Discussion of entry strategy
- Recommendation (yes/no, risks, next steps)

## Exhibit Instructions:

**Exhibit 1:** Show when candidate asks about luxury market size/growth

**Exhibit 2:** Show when candidate asks about financial implications of entry into luxury market

## Clarifying Information:

**Timeframe:** If they choose to enter the market, they intend to enter immediately

**Pricing:** Currently prices tickets and concessions the same as competitors

**Competitors:** There are fewer than 5 major players in NYC

**Financials:** Revenue has been steadily declining for 5 years

**Luxury Market Growth:** Should candidate ask, tell them you do have information on this that you will be glad to share after you see how they'd like to approach the problem from a high level

**Locations:** Currently 10 locations in NYC

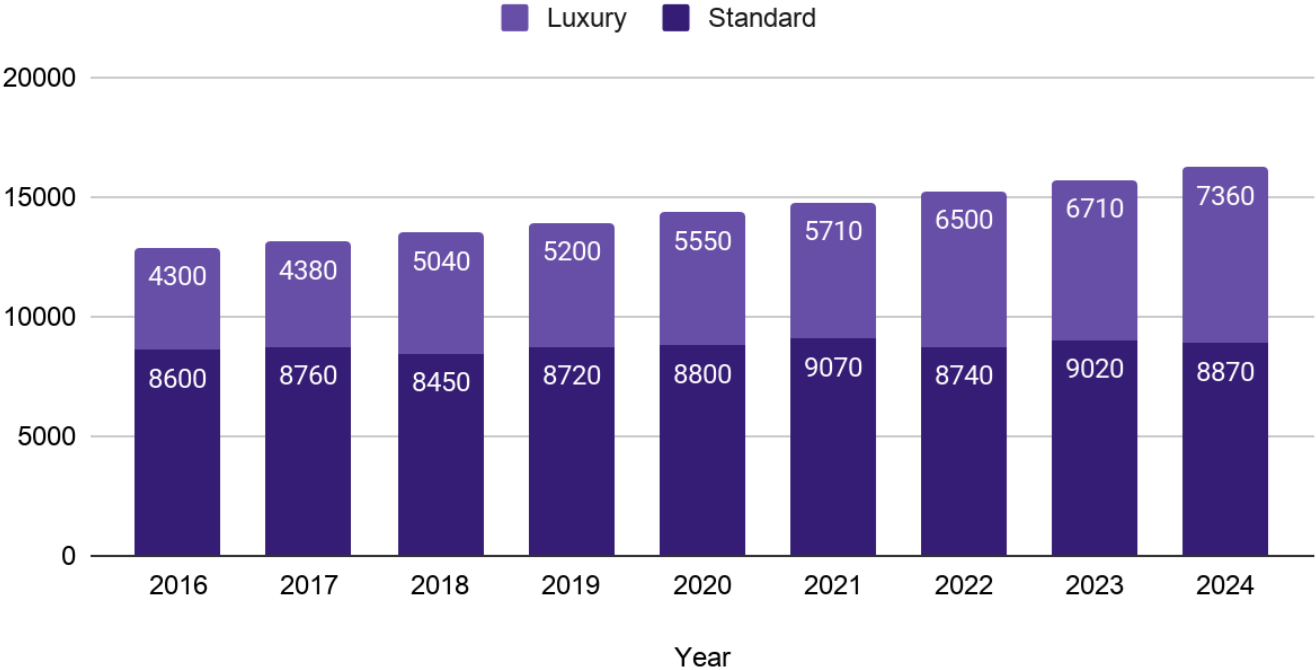
**Other:** They have not previously attempted to enter luxury space

## Interviewer Guide:

### A good framework will include:

- **Financial Implications**
  - Costs
    - Renovations
    - Shutdown costs if location not profitable
    - Equipment
  - Revenues
    - Pricing (tickets, concessions)
    - Quantity (# customers, # of items purchased)
  - Break even point
- **Market Attractiveness**
  - Growth & Size of luxury market
  - Consumers
    - Tastes/preferences
    - Same consumers as before, or entirely different?
- **Competitive analysis**
  - Key players; mkt share, change over time
  - Differentiating factors
  - Competitor response to our entry

## Annual Revenue Trends, U.S. Cinemas (in \$ millions)





## Question:

Royal Cinema is continuing to explore the luxury cinema market. Based on their initial research, they created the following exhibit (**show Exhibit 2**) detailing impacts should they undergo a conversion. How does this exhibit influence your opinion about whether RC should enter the luxury cinema market?

## Notes to Interviewer:

A **good** candidate will calculate expected revenue for current vs. luxury state, correctly identifying that the revenue potential for luxury cinemas supports the argument for entering this market. An **excellent** candidate may offer reasons why this is the case (increased “actual capacity” and higher prices appears to offset the decrease in number of seats per theater).

An **excellent** candidate might also reference some qualitative details, such as:

- Current (“Standard”) State
  - Pros: Consumers are familiar with the existing brand and quality of cinema
  - Cons: Current state may not be convincing enough draw with growing competition from streaming services, etc.
- Luxury State
  - Pros: Higher quality in viewing experience and concessions offerings
  - Cons: Actual capacity projections are assumptions that are not yet proven - risk overstating opportunity.

### Additional information to provide to help candidate:

- Assume operational costs will remain the same in either scenario
- Population of NYC 19.5M (*optional; not necessary for calculation*)

# Royal Cinema: Exhibit 2

	Current “Standard” State	Luxury State
# Theatre Locations	10	10
# Screens/theatre	10	10
# Seats/screen	150	65
# Showings/week		
Peak	20	20
Off-Peak	40	40
Ticket Price	\$10	\$15
Avg Concession Spend/person	\$10	\$35
Capacity		
Peak	80%	90%
Off-Peak	20%	30%

## Math Question 2:

Royal Cinemas would like to know how long it will take to recoup their conversion/renovation costs.

## Math Solution:

### Payback Period:

$$\text{○ } 100M / (9.75M * 0.5) = 20.51 \text{ weeks or } \sim 5 \text{ months}$$

### Good interviewee should:

- Calculate payback period.
- Note that payback period is quite short -- candidate may question whether this time frame is too good to be realistic.

### Great interviewee will:

- Discuss potential reasons that payback period may be too optimistic.

### Additional Notes

- Assume RC has sufficient financing to invest the \$100M
- Candidate may ask whether the theater will need to be closed for the renovations, because that would be additional revenue loss. Interviewer can share that this will not have meaningful impact on financials.

## Math Information:

### Give to interviewee if asked:

- Initial conversion/renovation costs: \$100M
- Projected Luxury Weekly variable costs: 50% of weekly revenue (*for interviewer reference: ~\$5M*)

-----  
Calculated from Exhibit 2

- Projected Luxury revenue per week: \$9.75M

## Question 3:

Royal Cinemas is aware that it will need to compete with other successful luxury cinemas in New York City. It would like your help brainstorming how it might differentiate itself in this space.

## 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 still remaining structured in their thinking.
- Some examples include:
  - Concessions
    - Partnership with well-known food market or restaurant? Celebrity chef?
    - In theater waiter service (consider food/drink minimum to ensure revenue captured from concessions)
    - Full bar with signature cocktails
    - Digital ordering from seat
  - Environment
    - Premium, comfortable seating
    - Work cafe with wifi outside theater (gets people hanging out + spending money)
    - Aromatherapy in theater
  - Added Content
    - Regular talk backs with film crew
    - Special film shorts before each movie
  - Other
    - Partnerships: Luxury hotel chains, Gyms ...

## Recommendation:

- The client should proceed with plan to convert their non-luxury cinemas into luxury cinemas, for reasons such as:
  - Luxury cinema market is projected to steadily increase
  - Luxury cinemas would result in higher revenue without significant increases to variable costs.
  - Plentiful opportunity for RC to differentiate itself in the space

## Risks:

- Competition with other NYC luxury cinemas
- Hits to revenue of closed cinemas/screens for renovations
- “Actual capacity” projections are assumptions; if they are incorrect, revenue increases may be overblown
- Reliance on concessions for revenue: consider minimum item spend/purchase?
- Brand confusion if they keep some regular cinemas and some luxury
- Threat of streaming services - what if in-person movie attendance totally drops out?

## Next Steps:

- Ensure organizational structure is sound and that RC is well-staffed for venture
- Devise marketing strategy to attract luxury consumers and maintain loyal customers
- Evaluate cost-effective and on-brand potential partnerships for concessions, etc.

## Bonus: Guide to an excellent case

- A good candidate will correctly come to the conclusion that RC should enter the luxury cinema space, and will cite market growth, acceptable breakeven, and differentiation opportunities as support.
- An excellent candidate will also demonstrate exceptional creativity during the differentiation brainstorm while staying structured (rather than list off ideas ad nauseum, they will bucket their ideas into several categories, for instance).

Annual Revenue Trends, U.S. Cinemas (in \$ millions)



## Key Insights Interviewer Should Look For:

- The goal of this exhibit is for the candidate to demonstrate their understanding of the general trend. An excellent candidate will quantify their response, but this is not necessary to move the case forward.
- Luxury theaters are seen here to gain market share as standard theaters lose market share
- This should lead candidate to infer that luxury market is promising prospect
- Excellent candidate should recognize that the U.S. market may not be representative of NYC market

# Royal Cinema: Exhibit 2 Notes

Royal Cinema Methodology				
	Current State		Luxury State	
	Peak	Off-Peak	Peak	Off-Peak
# Theater Locations	10	10	10	10
x				
# Screens/theater	10	10	10	10
x				
# seats/screen	150	150	65	65
x				
# Showings/week	20	40	20	40
x				
Ticket price + Concessions	\$20.00	\$20.00	\$50.00	\$50.00
"="				
<b>Potential Revenue/Week</b>	<b>\$6,000,000</b>	<b>\$12,000,000</b>	<b>\$6,500,000</b>	<b>\$13,000,000</b>
Theatre capacity (avg % of seats filled)	80%	20%	90%	30%
<b>Expected Revenue</b>	<b>\$4,800,000</b>	<b>\$2,400,000</b>	<b>\$5,850,000</b>	<b>\$3,900,000</b>
	<b>\$7,200,000</b>		<b>\$9,750,000</b>	

**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

## 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, vaccine)
- Equipment

### Recurring Costs

- Labor
- Lodging
- Food

### Opportunity Costs

- Teaching salary
- Other potential expeditions

## 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:**  $(900 - 500) / 500 = 400 / 500 = 80\%$

## 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%) < 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

**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

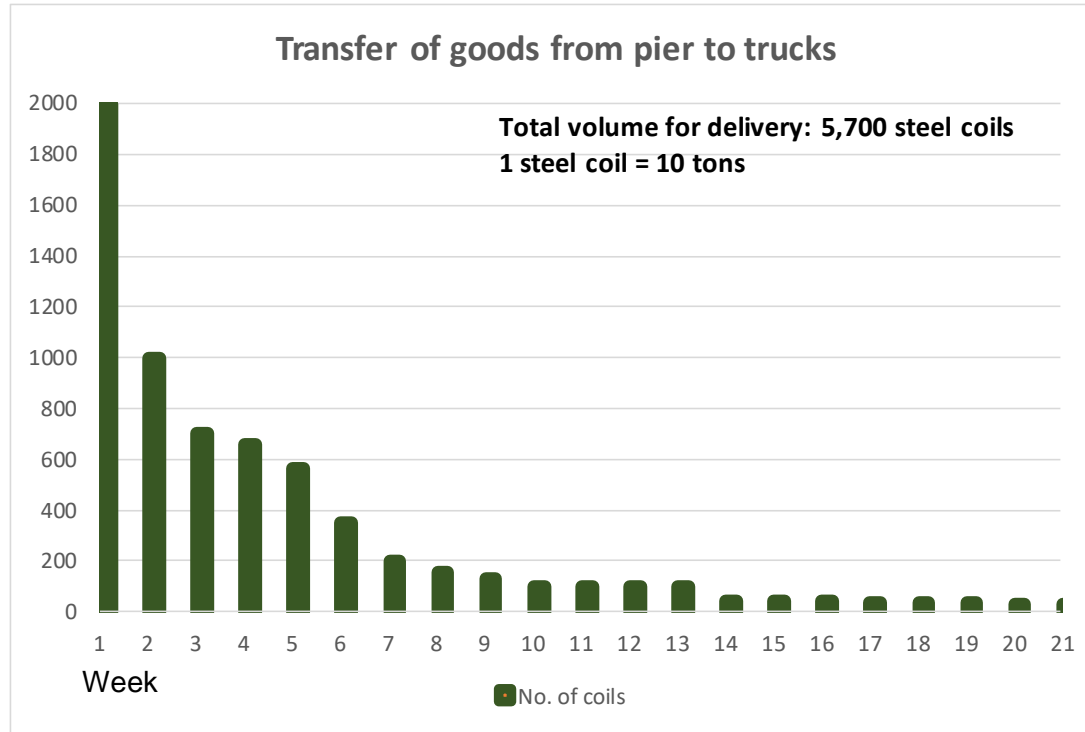
	RAIL	TRUCK	BARGE	VESSEL
<b>Deliveries/Week</b>	10	20	4	3
<b>Volume/Delivery (ton)</b>	40000	20000	50000	100000
<b>Utilization %</b>	67%	75%	80%	100%
<b>Cost (\$/ton)</b>	\$25	\$30	\$25	\$10
<b>Frequency (days)</b>	5	1	20	14

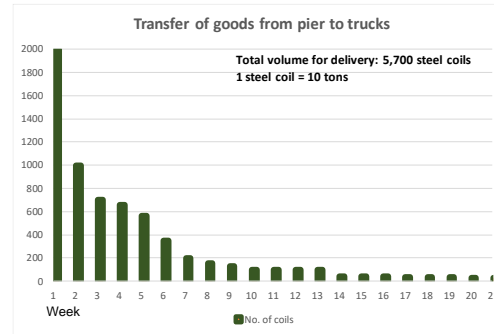
# Steel Co.: Guide to Exhibit 1

		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:  
• $(5700 - 3000) * 10 \text{ tons} * (\$30 - \$10) = \$540,000$
- 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:** 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:

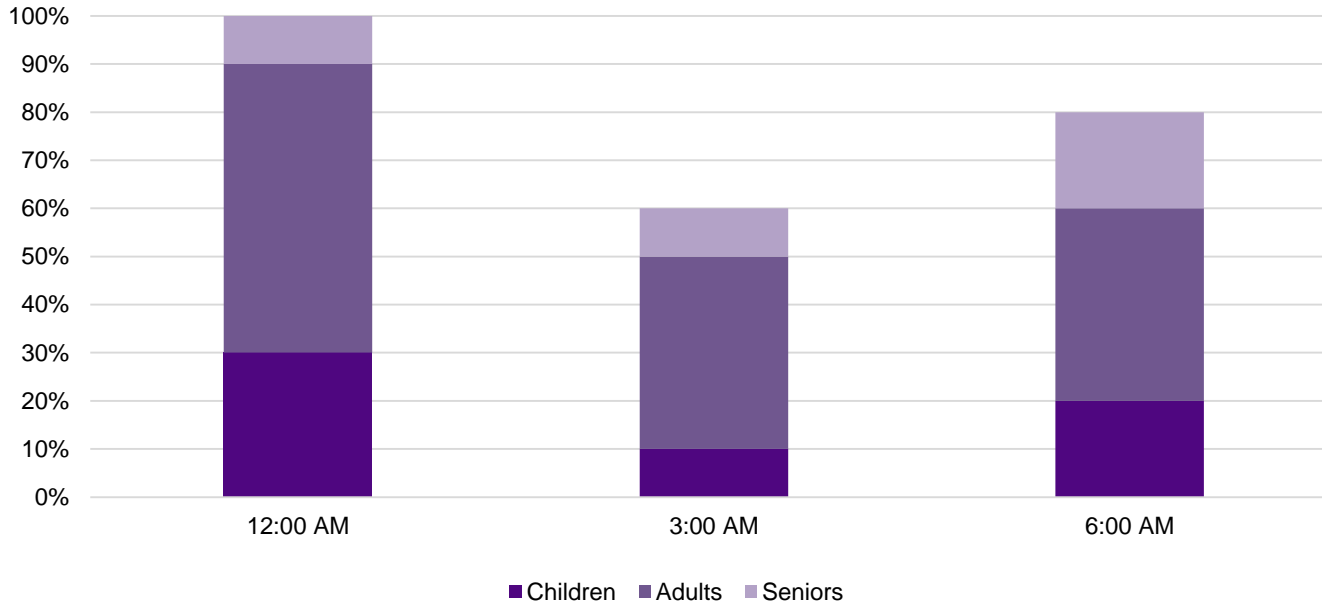
- Revenue
  - Ticket sales
  - Concessions
- Costs
  - Staff (cashiers, ticket checkers, cleaning, extra security)
  - Maintenance of projector, concession machines (popcorn, slushies)
  - Utilities
  - COGS

### 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)



## Expected seat utilization per showing



*Note: Each theater has 300 seats*

## 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?

## 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.

# Is Teleconferencing a Good Call?:

**Authors:** Yang Liu, Wilson Keng (Stern '20)  
**[Interviewer-Led]**

**Quant: 8**  
**Structure: 7**

## Case Prompt:

Your client is a national wealth management firm within a larger bank. The current CIO has created a test pilot of a cutting-edge virtual conferencing software in the NYC office. The firm currently employs many Wealth Advisors who meet clients at satellite offices around the country and is deciding whether to roll-out this software across all locations. The aim is to reduce Advisor travel costs, which is currently borne by the firm, at cost. How should the client proceed?

## Case Overview:

**Industry:** Financial Services

**Case Type:** IT, Cost Analysis

### Concepts Tested:

- Exhibits
- Brainstorming
- Structured Math

## Overview Information for Interviewer:

- This case will be interviewer-led. It will assess candidates on three-key areas:
  - Ability to think creatively on data requests to approach the case
  - Cost/Benefit analysis of a major capital expenditure
  - Brainstorming qualitative factors of a buying decision

## Clarifying Information:

- **Time Frame:** As soon as possible
- **Purpose:** Assess whether or not Teleconferencing should be used by Wealth Advisors *in lieu* of traveling to meet new/current clients at satellite offices
- **Geography:** US Only. All Advisors are located in NYC, Houston, Chicago, and San Francisco. Satellite offices are scattered throughout the Midwest and southern United States, which require extensive, frequent travel to meet current and prospective clients
- **Current State:** Primarily via in-person meetings. Occasionally phone and email. There is no virtual conferencing in use, with the exception of the test pilot (which was implemented 6 months ago)
- **Technology:** The virtual conferencing allows for instant messaging, video chatting, screen share/share control, conference calling, and call forwarding to a mobile phone
- **Goal:** The goal is to reduce costs; revenue growth is not in scope
- **Competitors:** Unknown

## Interviewer Guide:

- **A Good Framework Will Include:**
  - A focus on cost factor comparisons between travel and implementing/operating teleconferencing system at all locations
  - Opportunity costs of investment in teleconferencing
  - Alternative options, such as 1) outside vendors 2) hybrid models 3) restructuring travel reimbursement scheme 4) benefits and disadvantages of relocating advisors to satellite offices
- **An Excellent Framework Will Include:**
  - Qualitative Factors: 1) impact on client experience 2) headcount reduction among advisors post implementation 3) confidentiality or compliance concerns regarding recorded conversations and complaints



# Is Teleconferencing a Good Call?: Question 1

## Question #1:

What would you include in your data request to address this problem?

## Notes to Interviewer:

- This is a brainstorming exercise to guide the interviewee towards asking for the exhibits you have on hand
- Good answers would consider the use cases of the software, cost to implement, current office locations, current capital expenditures being planned, and available budget
- Examples of data requests include:
  - Current organization structure of the firm
  - Employee handbook / standard operating procedures (SOP) to conduct sales calls and meetings
  - **Current costs incurred for employee travel [Exhibit 1]**
  - Location of offices in the United States
  - List of any current or planned capital expenditures
  - Current and/or next year's IT budget
  - Employee and/or customer satisfaction surveys
  - **Cost of teleconferencing software being considered [Exhibit 2]**

# Is Teleconferencing a Good Call?: Question 2

## Question #2:

- How much is spent on travel per year?
- On average, how much travel cost does each employee incur per year?
- What insights can you draw?

## Notes to Interviewer:

- Remind the interviewee to read the footnote, if needed
- Conclusion to draw is that each employee costs ~\$1.3 million in travel (rounding is fine). This cost is driven primarily by cities where employees need to travel more frequently (SF and Chicago), despite equivalent M&E (meals & entertainment) and roughly similar travel costs. This may imply a strong need for teleconferencing to minimize costs and travel burden on the Advisors

City	Average No. of Trips per week	Number of Weeks Traveled per Year	Total Cost per Round-Trip	M&E Cost per Trip	# of Advisors	Total Cost (Annualized)
New York	2	10	\$600	\$50	10	\$ 6,000,000
Houston	2	25	\$500	\$40	5	\$ 5,000,000
San Francisco	3	20	\$700	\$50	10	\$ 21,000,000
Chicago	3	30	\$600	\$30	10	\$ 16,200,000
				<b>Total</b>	<b>35</b>	<b>\$ 48,200,000</b>

# Is Teleconferencing a Good Call?: Exhibit 1

## Travel Cost per Advisor

City	Average No. of Trips per week	Number of Weeks Traveled per Year	Total Cost per Round-Trip	M&E Cost per Trip
New York	2	10	\$600	\$50
Houston	2	25	\$500	\$40
San Francisco	3	20	\$700	\$50
Chicago	3	30	\$600	\$30

*As of 5/1/2019, the number of Advisors: NY (10); Houston (5); SF (10); Chicago (10)*

# Is Teleconferencing a Good Call?: Question 3

## Question #3:

- What is the annual cost of each solution?
- How long will each solution take to reach break-even?
- How much would each solution save in travel costs annually?

## Notes to Interviewer:

- If prompted, assume the teleconferencing solution will **reduce travel expenses by 10% (\$4,820,000)**
- If needed, remind the interviewee that the below are figures per month
- Interviewee does not need to calculate payback exactly; the main insight is that both are very close
- Inter-company billing is still considered a cost to the department and should be included
- A strong candidate will notice that the Outside Vendor and the Build In-House options have the same monthly cost and can avoid calculating the run-rate more than once

Note: Run-Rate cost is Monthly Cost \* Number of Advisors \* 12 Months  
 Note: Break-even is calculated by Implementation Cost / Travel Savings per Year

Options	Dev. Cost	Implementation Cost	Monthly Maint. Cost / User	Monthly Subscription Cost / User	No. of Advisors	Annual Run-Rate Cost	Travel Savings per Year	Break-Even
Outside Vendor	-	\$11,000,000	-	\$2,000	35	\$840,000	\$3,980,000	~2.8 Months
Build In-House	\$500,000	\$8,500,000	\$1,500	\$500 <sup>1</sup>	35	\$840,000	\$3,980,000	~2.1 Months

# Is Teleconferencing a Good Call?: Exhibit 2

## Cost Comparisons: Outside Vendor vs. Build In-House

Options	Development Cost	Implementation Cost	Monthly Maint. Cost / User	Monthly Subscription Cost / User	Travel Savings per Year	Break-Even
Outside Vendor	-	\$11,000,000	-	\$2,000	NA	NA
Build In-House	\$500,000	\$8,500,000	\$1,500	\$500 <sup>1</sup>	NA	NA

1 – Inter-company billing

## Question #4:

What other factors should we consider before making a decision?

## Notes to Interviewer:

- Provide an expansion upon any qualitative factors previously mentioned in the framework; instruct the candidate to brainstorm and group factors into buckets if they did not already do previously
- Candidate can mention compliance issues regarding telecommunication, cybersecurity concerns, negative impact on client experience, additional training required, large upfront investment required, and the potential impact on each Advisor's relationship with clients via virtual conferencing
- An excellent candidate would have covered these factors earlier and can move forward with recommendations
- *It is recommended that the interviewer push the interviewee to choose one option and defend. The payback period is essentially equivalent, so financials are not the main reason to choose over the other*

# Is Teleconferencing a Good Call?: Recommendation

## Recommendation:

- It is not clear which option is the better choice due to similar payback periods
- Pro/Con of Vendor: Less internal manpower needed to maintain, but more expensive subscription cost
- Pro/Con of In-House: Customized solutions and control of design, but more manpower needed to maintain (especially across multiple offices)

## Risks:

- Potential impact on Advisor relationships with clients
- Cybersecurity concerns
- Large upfront investment required

## Next Steps:

- Conduct employee and customer studies to understand the impact of the recommendation
- Better understand in-house capabilities vs. an outside vendor's

## Bonus: Guide to an excellent case

- An excellent candidate will find shortcuts in the mental math required. The candidate should notice that neither solution is a clear choice and will need to discuss the qualitative factors of pros/cons before deciding which software to implement

**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			Future		
Item	Beer	Cider	Item	Beer	Cider
Cases per Day	30	0	Cases per Day	24	12
Days per Month	20	20	Days per Month	20	20
Months per Year	12	12	Months per Year	12	12
Bottles per Case	30	30	Bottles per Case	30	30
Revenue per Bottle	\$ 5.00	\$ 6.00	Revenue per Bottle	\$ 5.00	\$ 6.00
Revenue per Year	\$ 1,080,000	\$ -	Revenue per Year	\$ 864,000	\$ 518,400
<b>Total Revenue</b>	<b>\$ 1,080,000</b>		<b>Total Revenue</b>	<b>\$ 1,382,400</b>	

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

## 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 = $0.005 * 13M$	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.

# 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

## 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
<b>TOTAL</b>	<b>30</b>	<b>121</b>	<b>144</b>	<b>234</b>	<b>TOTAL</b>	<b>40</b>	<b>132</b>	<b>156</b>	<b>182</b>
Simplified DCF	30	110	120	180	Simplified DCF	40	120	130	140
<b>NPV of Firm A Offer</b>	<b>440</b>				<b>NPV of Firm B Offer</b>	<b>430</b>			

## 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

## 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	

## 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.

$$\begin{aligned} PV &= FV / (1 + r)^n \\ &= 35 / (1.4) & \text{or} & & = 50 / (1.4) \\ &= 25 & & & = 35.7 \end{aligned}$$

- **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.

## 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 <sup>†</sup>	\$30k	\$40k
Expected Annual Bonus	\$30k	\$35k
Tuition Reimbursement*	\$78k	\$0

<sup>†</sup>to be distributed before start of employment

\*to be distributed at the end of year 3



# Exhibit #2: Jimmy's Dilemma

## Projected Annual Salary (\$'000s)

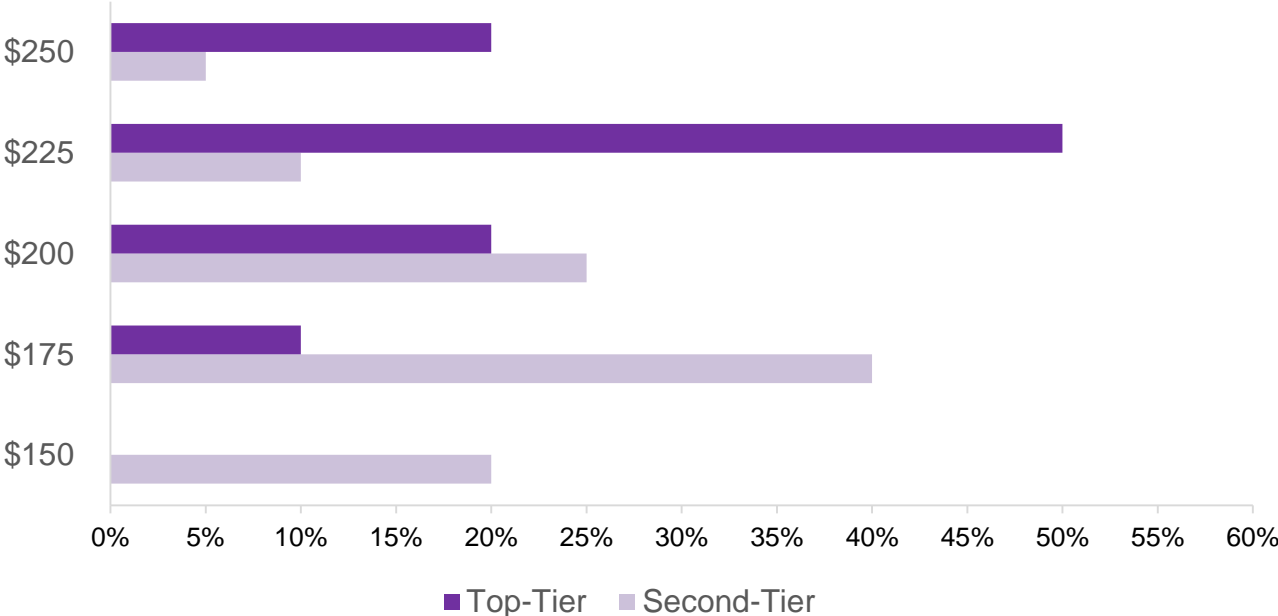


Note: Annual bonus expected to remain constant

# Exhibit #3: Jimmy's Dilemma



## Distribution of Expected Starting Salaries for Exit Opportunities



Note: Assume salary will grow at 5% per year indefinitely

**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



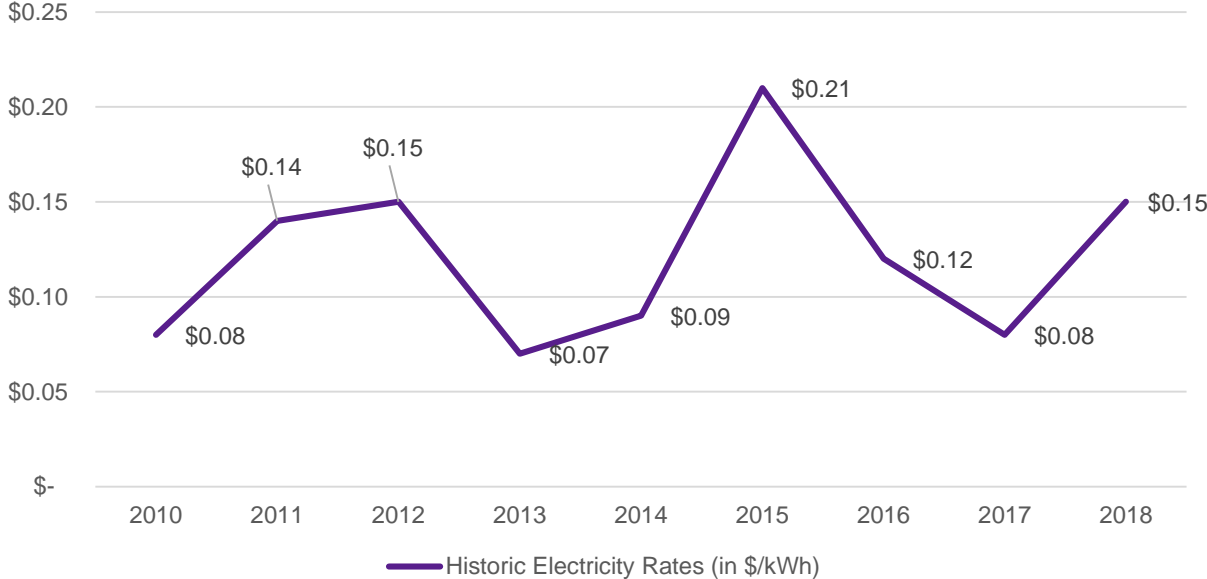
# Exhibit #1: Apartment Co. Financials

In '000s	2016	2017	2018
<b>Revenues:</b>			
Tenant Rent	17,000	20,000	20,500
<b>Costs:</b>			
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
<b>Total Costs:</b>	<b>9,300</b>	<b>11,100</b>	<b>11,600</b>

# Exhibit #2: Apartment Co.



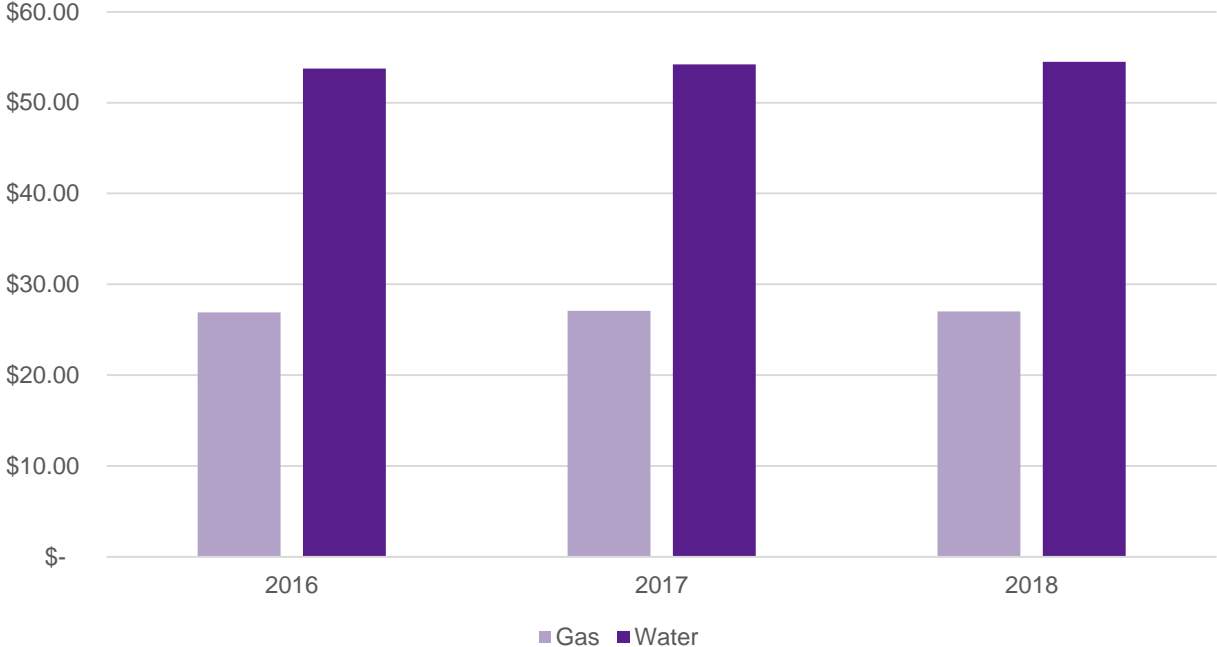
### Historic Electricity Rates (in \$/kWh)



# Exhibit #3: Apartment Co.



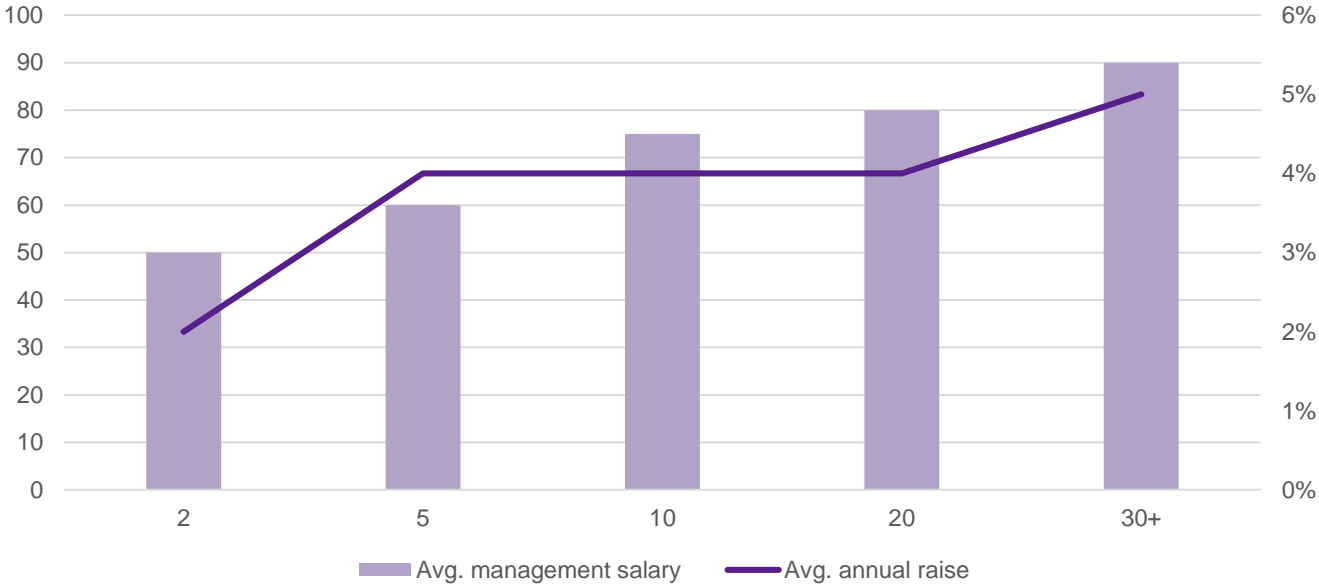
### Avg. Monthly Apartment Spend on Utilities



# Exhibit #4: Apartment Co.



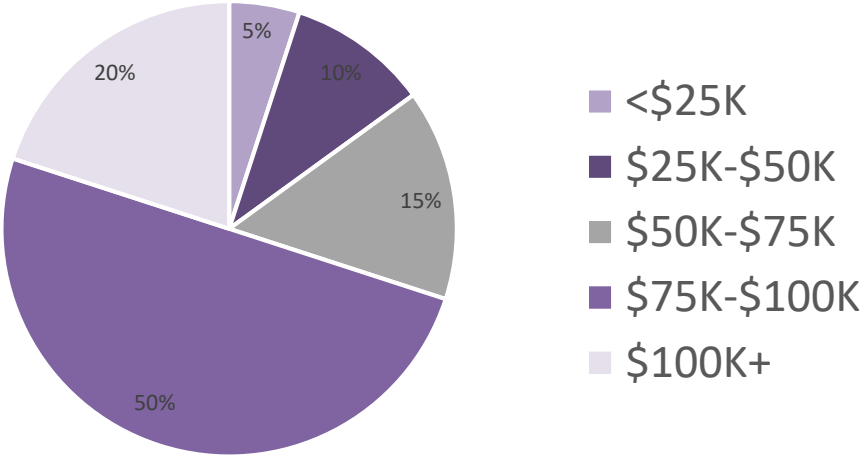
### Real estate management salaries (2017)



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

# Exhibit #5: Apartment Co.

Income level of residents



**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

## 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?



## 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

## 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

## 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

## 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
<b>Total</b>	<b>5,000</b>	<b>1,020</b>
- North America	3,500	1,000
- Europe	1,000	20
- Asia	400	0
- Other	100	0
<b>Annual Growth in Stores</b>	<b>10%</b>	<b>15%</b>

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%



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 :  $24/60 = \$0.40$

## 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

## Revenues and Costs by Beverage Category

Category	Gallons (MM)*		Price / gallon (\$)*		Cost / gallon (\$)	
	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

## 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:** 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 Structure:** 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) <sup>(1)</sup>	Need (Score of 1-5) <sup>(1)</sup>	Impact (Score of 1-5) <sup>(2)</sup>	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

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

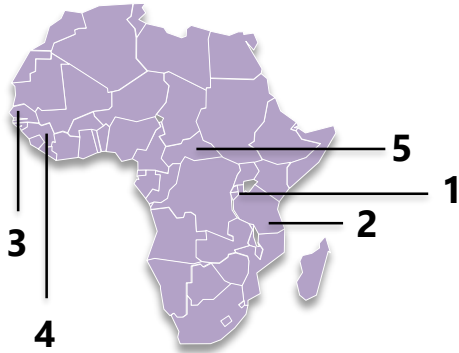
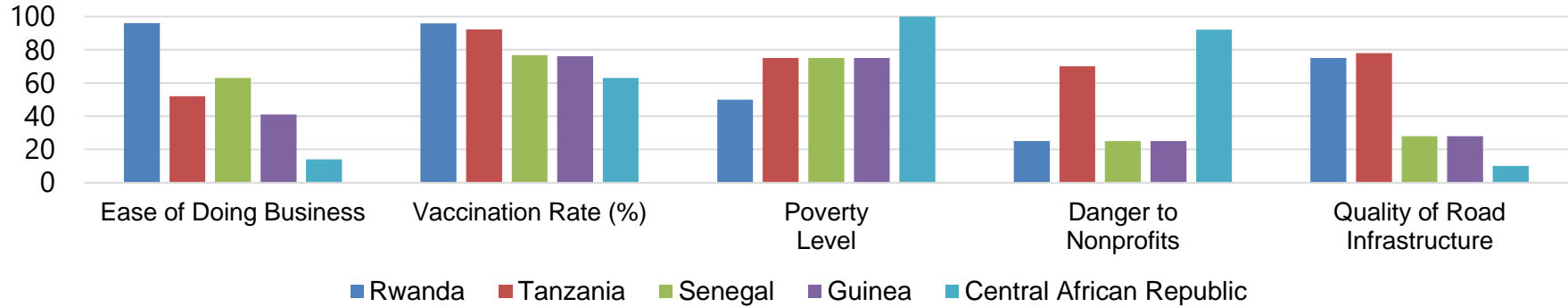
## Notes to Interviewer (continued):

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	<b>ANSWER: Lower vaccination rates, poverty rates and road quality paired with low danger to workers</b>
4. Guinea	<b>ANSWER: Lower vaccination rates, poverty rates and road quality paired with low danger to workers</b>
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

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



# 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:** 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 Structure:** 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

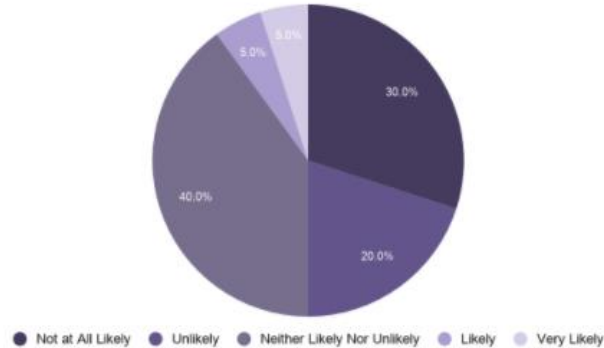
Possible answers are:

- 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 x 10 = \$70
- Pads = \$7 x 2 = \$14
- Liners = \$6 x 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%) = \$637.5M

### 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
  - $\$675\text{M} + \$12\text{M} - \$637.5\text{M} = \$49.5\text{M}$
  - 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

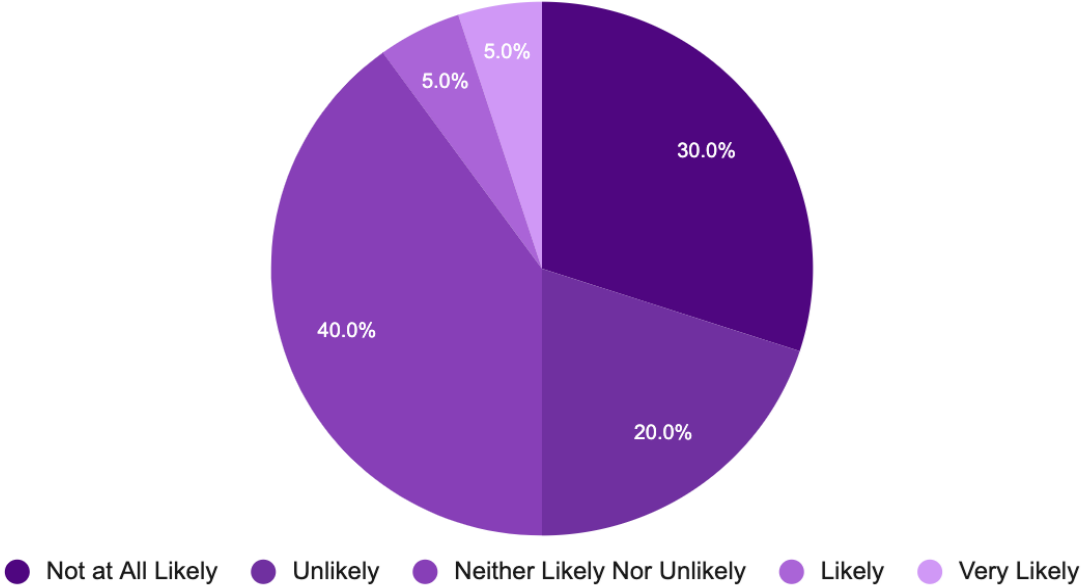
*Product* - changing to fully biodegradable materials, less packaging, transparency on product ingredients, organic products

*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



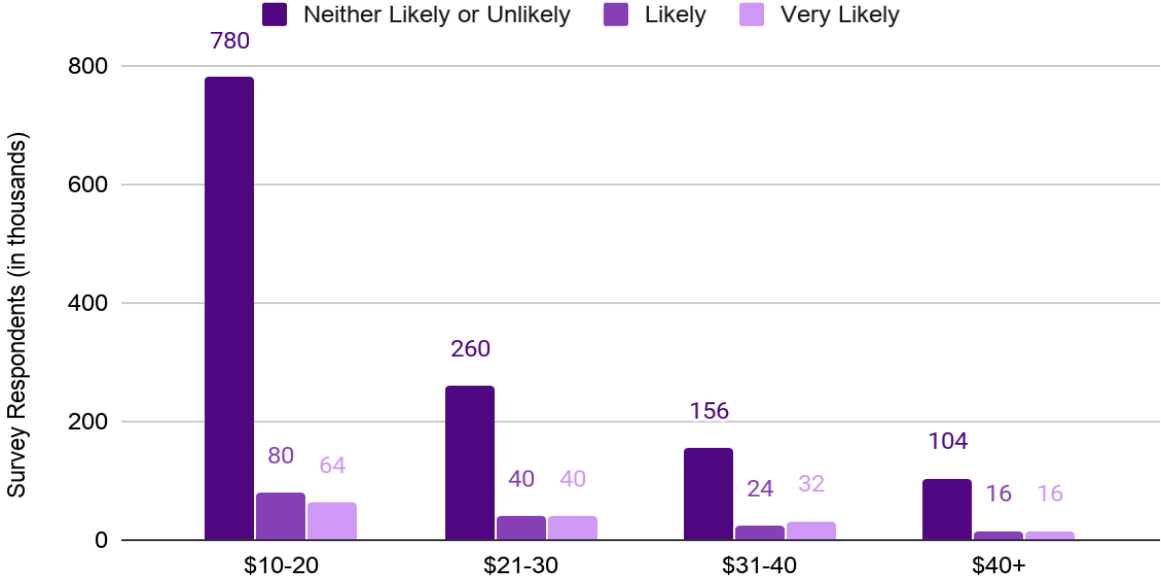
## Current sales information for P&G's menstrual care product line

	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.

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