Ross Casebook 2022

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Content

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Welcome to the Ross 2022 Casebook!

Dear CC@R Member,

Welcome to the Ross 2022 Casebook. This book focuses on the case-interview portion of the consulting interview and is to be used in conjunction with other case-oriented club training materials.

The elements tested in a case interview are core to firms' hiring decisions. These cases, or mini-business problems, are a glimpse into a consultant's life as they are frequently taken from real client experiences. Given practice and experience, cases become a natural way of thinking about how you would structure approaches and solutions to nearly any type of problem. Along the way, we hope you will find you enjoy solving problems in this manner and would enjoy performing this type of work for a living.

In order to facilitate your preparation, your fellow club members have created the following cases with customized frameworks and solution elements. These cases act as a strong reference point for what to expect during a consulting interview but are in no way all encompassing. Since each case comes down to a conversation between the interviewer and the candidate, it is very plausible that one candidate could receive the same case from two different interviewers and have two very different conversations about the business problem. In fact, we encourage this.

Finally, you may have noticed that you are reading this compilation in landscape format. This is intentional. Consultants think in terms of PowerPoint slides much more often than essay-style documents. They also constantly work to devise the most succinct way to illustrate and frame-out a problem, necessary action steps, and a solution.

Good luck, and remember your fellow club members are here to help!

2022-2023 Board
Consulting Club at Ross (CC@R)

Case Writers 2022-2023

This casebook would not be possible without the following members from the Ross Class of 2022 and 2023.
Thank you and Go Blue!

Danielle Eisenberg
Hardik Rathod
Nilayan Das Gupta
Aanchal Gupta
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Amanda Bourlier
Kartik Verma

How to Use the Ross 2022 Casebook

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Case Structure

How to Case

Understand the Question (~1-2 minutes)

- **LISTEN**
- Summarize the problem statement to make sure you understand the situation and objectives
- Ask 3-4 clarifying questions around the topic and/or metrics to be used for the analysis
- The questions posed should necessitate a short response

Develop Framework (~1-2 minutes)

- Ask for a moment to plan your structure
- Develop 3-4 areas to analyze along with a few tailored sub-topics
- Structure the framework in a logical fashion – it should open with the most important topic and provide the interviewer with a roadmap of where you plan to take the case
- Engage the interviewer by turning the framework towards them

Exhibits, Analysis, Brainstorming (~25 minutes)

- Refer back to the framework as you move through each of the main areas
- Use one sheet of paper per topic – think of the case as a PowerPoint deck
- Tie back each piece of analysis to the main objective/problem statement
- Walk through the calculations /analysis, driving insights
- Answer brainstorming questions using structure

Form Recommendation (~1-2 minutes)

- State your recommendation as a direct response to the problem/objective – it should not come as a surprise to the interviewer
- Incorporate key metrics/ findings as a part of your recommendation
- Include risks and next steps

Administering Cases

Great case experiences are not solely determined by strong candidates formulating frameworks and solving math. The interviewer's interaction with the candidate and ability to convey information will very easily change the style of a case. Given the interviewer's position of power in the discussion, there are several things to keep in mind prior to, during, and after a case interview.

Preparing for Interview

- Read the case over 2-3 times
- Familiarize yourself with the relevant numbers and details
- Determine your 'character'
  - Rushed partner or disinterested client representative?
- Prepare for how you will address irrelevant questions or requests for data you do not have
  - Make up fake data and let candidate go fishing, or let them know it is irrelevant?

During Interview

- Track time (about 25 minutes is average) - balance finishing case and letting candidate struggle
- Candidates can often think of very different approaches to cases. Before discounting questions as wrong, ask the candidate for their thinking... if it makes sense, go with it
- Consider what a consultant would be looking for in the candidate
- Presentation: can I put this person in front of a client?
- Aptitude: can this person do the work?
- Interest: does this person like what they are doing?

After Interview

- Provide feedback
  - This is possibly the most critical step of the case interview process
- Honestly let the candidate know strengths, but more importantly areas for improvement
- Without honest feedback and constructive criticism, it is very difficult to improve

Key Formulas

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Topic	Formula
NPV or Valuing Money Over Time	Value to Perpetuity = $\frac{\text{Value of Asset}}{\text{Discount Rate}}$ NPV = $\sum_{t=0}^{n} \frac{\text{Annual Cash Flow}}{(1+r)^t}$
Rule of 72	Time for Invested Principle = $\frac{72}{r}$ r = Rate of Return (%)
Little's Law	Inventory = Throughput x Flow Time
Inventory	Inventory Turns = $\frac{\text{COGS}}{\text{Average Inventory}}$ Days of Inventory = Inventory Turns * 365
Profitability	π = Q (P-VC) - FC
Breakeven	Breakeven = Investment Price - Cost
Margin	Gross Margin = $\frac{\text{Revenue - Cost}}{\text{Revenue}}$ Net Margin = $\frac{\text{Net Income}}{\text{Sales Revenue}}$
Markup	Markup = $\frac{\text{Price - Cost}}{\text{Cost}}$

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Topic	Formula
Return on Assets (ROA)	$ROA = \frac{\text{Net Income}}{\text{Total Assets}}$
Return on Equity (ROE) DuPont Analysis	$ROE = \frac{\text{Net Income}}{\text{Total Shareholders' Equity}}$ $ROE = \frac{\text{Net Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$ ROE = Operating Efficiency * Asset Utilization * Leverage
Working Capital	$ROI = \frac{\pi}{K}$ K = Capital Invested (Assets, Working Capital, etc.) Working Capital = Assets - Liability
Income Statement	Sales – COGS = Gross Profit - SG&A = EBITDA - Depreciation/Amortization = Operating Profit - Interest Expense = EBIT - Tax Expense = Net Income

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Industry Overview

*Note: Please know that this industry reviews do not consider any impacts of COVID-19. Since case interviews are supposed to resemble real world conversations, we would recommend taking the pandemic into account and acknowledging how it may impact these industries.

Airlines

Key Ideas

- Consolidation in industry
- Low cost carriers and fare competition on competitive routes
- Online booking and check-in
- Expansion of domestic and international routes
- Capacity optimization (Load Factor)

Revenue Streams

- Ticket sales to economy and business passengers
- Charges for baggage and on-board services (up-selling)
- Cargo transportation
- Credit cards

Cost Drivers

- Fuel
- Labor
- Marketing
- Terminal fees
- Insurance/legal fees

Customer Segments	• Leisure travelers – (generally price sensitive) • Business travelers – (very important to airlines due to margins and services purchased) • Freight/Cargo transportation
Channels	• Internet - online travel sites, airline websites • Airline sales team: call centers, online, or kiosk • Travel management companies (TMCs) serving corporate clients, travel agents
Risk	• Changes in fuel prices have a major impact on profitability • Macro-economic conditions greatly impact amount of leisure travelers • An intensely competitive market with many foreign airlines partly government subsidized
Key Economic Drivers	• World price of crude oil • Trips by US residents • Optimization of capacity • Per capita disposable income

Key Companies

- Delta
- American Airlines
- United
- Emirates
- Air France
- KLM
- British Airways
- RyanAir
- AeroMexico
- Singapore Airlines

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Automotive/Manufacturing

Key Ideas

- Automakers, Original Equipment Manufacturers (OEMs), replacement parts production, rubber fabrication
- Highly capital and labor intensive
- Extensive competition due to foreign automakers
- Unions

Revenue Streams

- New car sales
- Auto part sales
- Services offered with vehicle purchase
- Financing
- Extended warranties
- Leasing

Cost Drivers

- Labor
- Materials
- Advertising
- Financing costs
- Recall costs

Customer Segments	• Cars, vans, pickup trucks and SUVs • Personal car buyers • Rental car companies • Commercial purchasers • Government purchasers
Channels	• Automobile dealers • Secondary automobile market • Automotive parts/services outlets
Risk	• Globalization of the industry enables more ease of foreign competition • Extensive competition impact on already low margins • Changes in consumer trends and tastes
Key Economic Drivers	• GPD growth • Income growth/disposable income • Price of crude • Steel prices • Consumer confidence index • Yield on Treasury note

Key Companies

- Ford
- General Motors
- Toyota
- Honda
- Fiat Chrysler
- Tesla
- General Electric
- Boeing
- Airlines
- Embraer
- Lockheed Martin

Commercial Banking

Key Ideas

- Consolidation/acquisitions
- Increased mobile banking
- Channel innovation in digital & physical channels
- Customer attrition rate
- Offshoring of call centers, back office functions
- Digitization of processes
- Cross-selling

Revenue Streams

- Loan interest
- Loan types
  - Real estate
  - Auto
  - Education
  - Personal
- Service fees
- Spread between interest rate charged & Fed rates
- Credit cards

Cost Drivers

- Wages
- Bad debt expense
- Interest rates on deposits
- Branch and compliance costs
- Overhead costs - paper fee; error rate costs for manual processing

Customer Segments	• Wealth: deposit balances, income • By lifestyle: buying behavior • Size: small businesses and consumers • Age: under 35 adapt to technology better
Channels	• Savings and loan • Credit union • Traditional checking • Online banking • Microfinance
Risk	• Change in savings behavior • Loan default, interest rates and federal funds rates
Key Economic Drivers	• Consumer confidence • Household debt • Employment statistics • Urbanization • Home and car buys • Disposable income • Interest rate • Government regulation

Key Companies

- Wells Fargo
- Citicorp
- US Bank
- HSBC
- Bank of America
- JP Morgan Chase
- Barclays
- Deutsche Bank
- Credit Suisse
- Morgan Stanley

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Health Care

Key Ideas

- Affordable Care Act
- Highly fragmented: top 50 organizations account for 15% revenues
- Employers pushing health care costs onto employees
- Aging Baby Boomer population driving increased revenues

Revenue Streams

- Hospital care
- Physician and clinical services
- Prescription drugs
- Nursing
- Dental services
- Research, equipment, investment

Cost Drivers

- Dependent on segment
- Significant costs related to new technology implementation
- Often inefficient organizational structures

Customer Segments	• Patients/consumers • All generations and segments of the population require different products/services
Channels	• Hospitals • Doctors offices • Nursing homes • Outpatient surgery centers • Pharmacies • Medical equipment
Risk	• New legislation (impact of Affordable Care Act still uncertain) • Funding availability
Key Economic Drivers	• Regulation for health & medical insurance • Federal funding for Medicare and Medicaid • Aging population • Advances in medical care and technology

Key Companies

- HCA Healthcare
- Ascension Health
- Trinity Health
- CommonSpirit Health
- Advent Health
- Dignity Health

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IT/Infrastructure

Key Ideas

- Cloud based platforms vs on-premise infrastructure
- User centric IT solutions – IT depts want to enhance usage and productivity
- Open platforms / integrating and partnering with other providers

Revenue Streams

- Hardware sales
- Maintenance contracts
- Implementation consulting services
- SaaS

Cost Drivers

- Labor
  - R&D/Engineering of products
  - Sales/Marketing teams - huge front-end expense
- Hardware manufacturing

Customer Segments	• Enterprise (SME / Large) • Consumer • Third party resellers (SHI, CDW)
Channels	• Direct • Partnership • Reseller
Risk	• Startups and new entrants • Bring your own device initiatives • Tariffs
Key Economic Drivers	• Cyber security • Demand for enterprises to go digital • Mobility • Data & Analytics

Key Companies

- Microsoft
- HP
- IBM
- Dell-EMC
- SAP
- Oracle

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Non-profits

Key Ideas

Intended Impact

- Define success criteria
- Think big picture (e.g., society, people you are working for/with
- Consider trade-offs
- Depth vs. breadth of reach
  - Quality vs. quantity of program initiative
  - Intended impact should align with strategic goals

Theory of Change

- Define specific actions steps to achieve the intended impact
- Define timelines, initiative priorities and ownership responsibilities

Implementation Feasibility

- Revenue impact (self sustaining model, grants)
- HR costs: creating new roles, hiring new staff, train existing and new staff, modify existing organization structure
- New infrastructure cost – IT systems, office space
- Indirect costs
  - Impact on culture of organization
  - Impact on scale on quality of outcomes

Performance Measures & Reporting Impact

- Measure performance vs. peers
- Set milestones for financial and operational goals
- Monitor and modify plan accordingly
- Consider performance during and after implementation of initiatives

Case Topics	
• Growth through existing platforms • Growth through new partnerships • Growth driven by policy changes	• Thought sharing to strengthen the industry • Growth using technology

Oil & Gas

Key Ideas

- Upstream, midstream, downstream
- PV-10
- Cost per gallon
- OPEC
- GDP growth
- Renewable energy
- Fracking

Revenue Streams

- Crude oil
- Gasoline
- Natural gas
- Refining products such as lubricants
- Gas stations: gasoline, food market, car wash

Cost Drivers

- Exploration: seismic studies, drilling rigs and labor
- Production: refining
- Pipelines
- Gas station: oil, labor, insurance, licenses

Customer Segments	• Petroleum refiners • Electricity generators • Domestic and commercial users • Other industries
Channels	• Retail • Wholesale • Commercial
Risk	• Access to reserves • Energy policies • OPEC decisions • Political pressures • Substitutes/renewable energy
Key Economic Drivers	• Government regulation • International oil production and demand

Key Companies

- Exxon Mobil
- Baker Hughes
- Saudi Aramco
- Gazprom
- Pemex
- Philips 66

Pharmaceutical

Key Ideas

- Affordable Care Act
- Aging population
- Patents and generics
- Research & Development
- Insurance
- FDA
- Market penetration
- Contract vs. in-house salesforce

Revenue Streams

- Insurance payments
- The federal government provides certain grants to subsidize R&D
- Due to significant R&D lead times revenue is highly volatile
- Seasonality is high on certain products (vaccines and cold medicine) and low on other products (pain medicines)

Cost Drivers

- Research & Development
- Manufacturing cost (the largest share of the industry's costs)
- Marketing costs
- Wages
- Liability insurance and legal fees

Customer Segments	• Medical patients • Prescribing doctors	• Government insurance programs • Health insurance companies
Channels	• Over-the-counter • Prescription drugs: hospitals, pharmacies • Mail order pharmacy: Express Scripts, Walgreens	
Risk	• Generic manufacturers pose a major competitive threat following patent expiration • Tariff barriers are no longer a relevant form of protection • Unfavorable government healthcare regulations and CMS rates	
Key Economic Drivers	• Median age of population • Research and development expenditure	• Insurance and regulatory landscape • Patent protection

Key Companies

- Roche
- Pfizer
- Johnson & Johnson
- Merck
- Novartis
- Abbvie

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Private Equity & Hedge Funds

Key Ideas

- Components of the revenue charge
  - Invested capital
  - Transaction and advisory fees
  - Carried interest
- Divestures

Revenue Streams

- Wages and profit-sharing
- Administrative costs (regulatory filings, record keeping, accounting and travel)
- Outsourcing of capital intensive IT functions for algorithmic trading

Cost Drivers

- Value creation: sell under-performing assets, optimize price, diversify customer base, operations efficiency
- Exit: strategic or IPO
- Synergies
- Stability of cash flows (IRR, NPV)
- Targeted returns ~ 40%+
- Un-invested capital vs. invested

Customer Segments

- Pension funds (largest share)
- Private investors (e.g. high net-worth individuals)
- Banks, sovereign funds and life insurance companies

Channels

- Large firms focus on deals ~ $1.0B; middle market firms cover deals between $15.0M- $1.0B
- Average holding period before sale has increased from 3 years to 6 years in the past 15 years
- Borrowing can typically range from 65.0% to 85.0% of the purchase price of the firm

Risk

- New regulation -> compliance costs, Rising competition -> decreasing industry fees
- Competition also exists with sovereign wealth funds and corporate buyers
- Changes in tax structure

Key Economic Drivers

- Investor uncertainty/pension demand
- Access to credit/interest rates
- Regulations
- Exit opportunities
- GDP/investment returns

Key Companies

- Blackstone
- KKR
- CVC Capital Partners
- The Carlyle Group
- EQT
- TPG Capital

Retail

Key Ideas

- Same store sales
- Sales per square foot
- Inventory turn-over
- Seasonality/recessions
- Trends

Revenue Streams

- Women's apparel sale
- Drugs & cosmetics
- Furniture & household appliances
- Children's apparel
- Men's apparel
- Toys
- Footwear
- Misc. items

Cost Drivers

- Cost of Goods Sold (74% of costs)
- Transportation
- Wages
- Rent and utilities
- Marketing

Customer Segments	• The industry is consumer-oriented and, due to the spectrum of products, its markets are generally segmented into different incomes, demographics and age groups
Channels	• Department stores/big box retailers • Discount retailers • Demographic retailers • Shopping malls
Risk	• Changes in disposable income • Demand and supply issues • Overstock • Easy entry invites competition
Key Economic Drivers	• Consumer sonfidence index • Per capita disposable income • International export/import • Gross domestic product/inflation • Households > $100,000 income (luxury goods) • Commodity prices (eg. gold price for jewelry)

Key Companies

- Walmart
- Target
- Costco
- CVS
- Walgreens
- Kroger

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Telecommunications

Key Ideas

- Deregulation led to spur of new companies
- Bottlenecks: high capital, scarce operating skills and management experience
- Shift from telephones to internet based services for mobile
- Bundling of services

Revenue Streams

- Voice calls
- Additional lines/family plans
- Text and image communication
- Data subscriptions
- Accessories

Cost Drivers

- Infrastructure
- Wages
- Marketing and advertising

Customer Segments	• Residential and small business (price sensitive) • Large multinationals (price insensitive)
Channels	• Retail stores - carriers and mass retailers • Online
Risk	• Rapid development of technology • High exit barriers • Systems not reusable across industries
Key Economic Drivers	• Investment in rising technology services • Number of subscriptions to additional services • Number of broadband and mobile internet connections

Key Companies

- Verizon
- AT&T
- T-Mobile
- Vodafone
- NTT Corp
- Telefonica SA

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Utilities

Key Ideas

- Increase in energy consumption
- High investment costs and regulations
- Industry structure disintegrating into smaller supplier segments
- Seasonality
- Gov. incentives for sustainable initiatives
- Bundling services w/renewable

Revenue Streams

- Transmitted electricity: base load and intermittent electricity
- Base load (95% of industry)
- Coal, natural gas, nuclear, other
- Intermittent: renewable energy

Cost Drivers

- Purchased power accounts (nearly half of total costs)
- Infrastructure
- Wages
- Marketing
- Maintenance contracts

Customer Segments	• Commercial and industrial • Residential
Channels	• Transmission lines/pipelines • Upstream electricity generators
Risk	• Clean energy threatens the future of traditional power generation methods • Seasonal demand leads to uncertain estimates • Energy efficient appliances decrease consumption
Key Economic Drivers	• Economies of scale • Industrial production index • Climate/seasonality

Key Companies

- PG&E
- AES
- Duke Energy
- Exelon
- National Grid
- Nextera Energy

Cases

Table of Contents

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Gaming Challenges

Media & Entertainment | Go-to-Market Strategy

Interviewee Led

Ratings:
Quant - 2
Qual - 1
Overall - 1

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Prompt

- Storm Games is a video game developer focused on computer games
- Their main title, King of the Forest, is an online RPG that has been extremely successful
- While the game still provides a steady cash flow to Storm Games, growth has stagnated in the recent years as the numbers of new players has decreased significantly, and average revenue per user has reached a plateau
- Storm Games plans on going public in the near future and in order to show strong results before the IPO, the company has hired you to develop a strategy to show investors that it can continue to grow

Clarifying Information

- RPG stands for "Role Playing Game"
- At this time, the company is exploring a number of alternatives and has yet to determine the target result
- Storm Games has only developed RPGs for computers

Interviewer Information

Clarifying Information:

- The case starts with an open-ended brainstorming question, and becomes more straight-forward after the framework stage
- The two exhibits are fairly simple to read and understand. The numbers on Exhibit 1 may seem slightly intimidating at first, but once adjusted according to the calculation method, they round up pretty easily
- The footnote on Exhibit 1 will be relevant to solving the case. Candidates may need help identifying that information

Exhibit Summary

- Exhibit 1: Revenues Mobile Game Industry per Segment
- Exhibit 2: Storm Games Estimated Game Development Costs per Segment

Brainstorming Question

At a high level, what are the main avenues where the company can potentially increase revenues?

Question Guidance:

The interviewee should recognize that there are basically two alternatives for Storm Games revenues to continue growing.

1. Increase revenues originating from current games. A few possibilities include:

- Increase prices (basic)
- Displayed ads periodically, much like a commercial break on TV (basic)
- Increase the portfolio of additional in-game features as well as merchandise for purchase (basic)
- Product placement where other companies pay for in-game advertising. For example, Coke could pay Storm Games to create a character that drinks the beverage from time to time (advanced)

2. Launch new games:

- Potentially branch out to new platforms and genres

Ultimately, we will proceed with the second alternative. If the interviewee does not identify it on their own, suggest it so they can move to the framework.

Potential Framework

Storm Games decided to develop a new game for mobile platforms. They now must decide which segment of the gaming market they will invest in. They can develop another RPG game for mobile devices, or they can branch out into other genres. Regardless, their goal to payback the investment within one year.

Gaming Industry/Market

- Size of each segment of the market
- Industry trends

Storm Games Capabilities

- Expertise to develop games in other segments
- Synergies
- Reputational risks

Profit

Revenue

- Average revenue per user
- Number of users

Cost

- Investment Costs
- Fixed Costs
- Variable costs

Notes / Advice to Interview / How to Move Forward:

- This case requires a hybrid approach, combining the traditional profitability framework with additional buckets to account for the qualitative aspects of the problem

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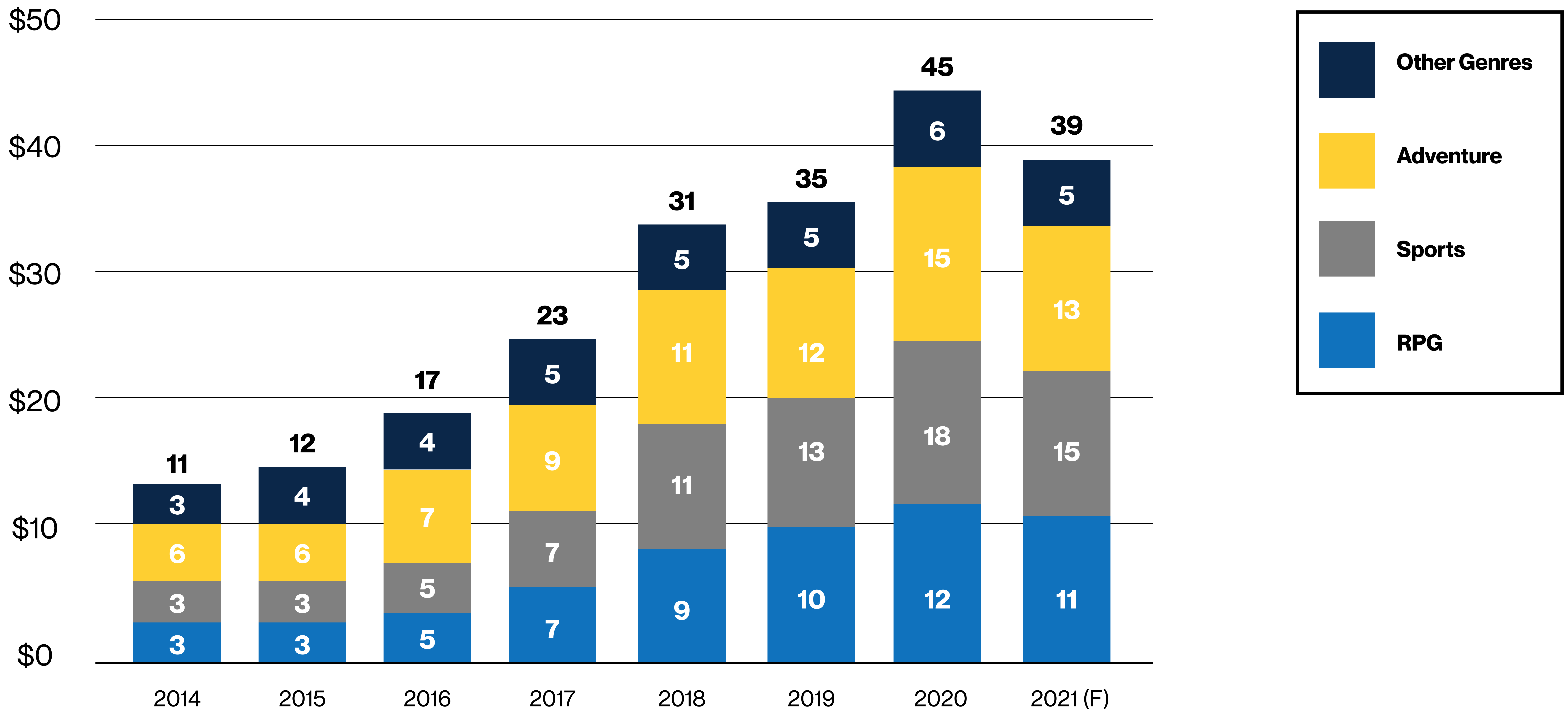
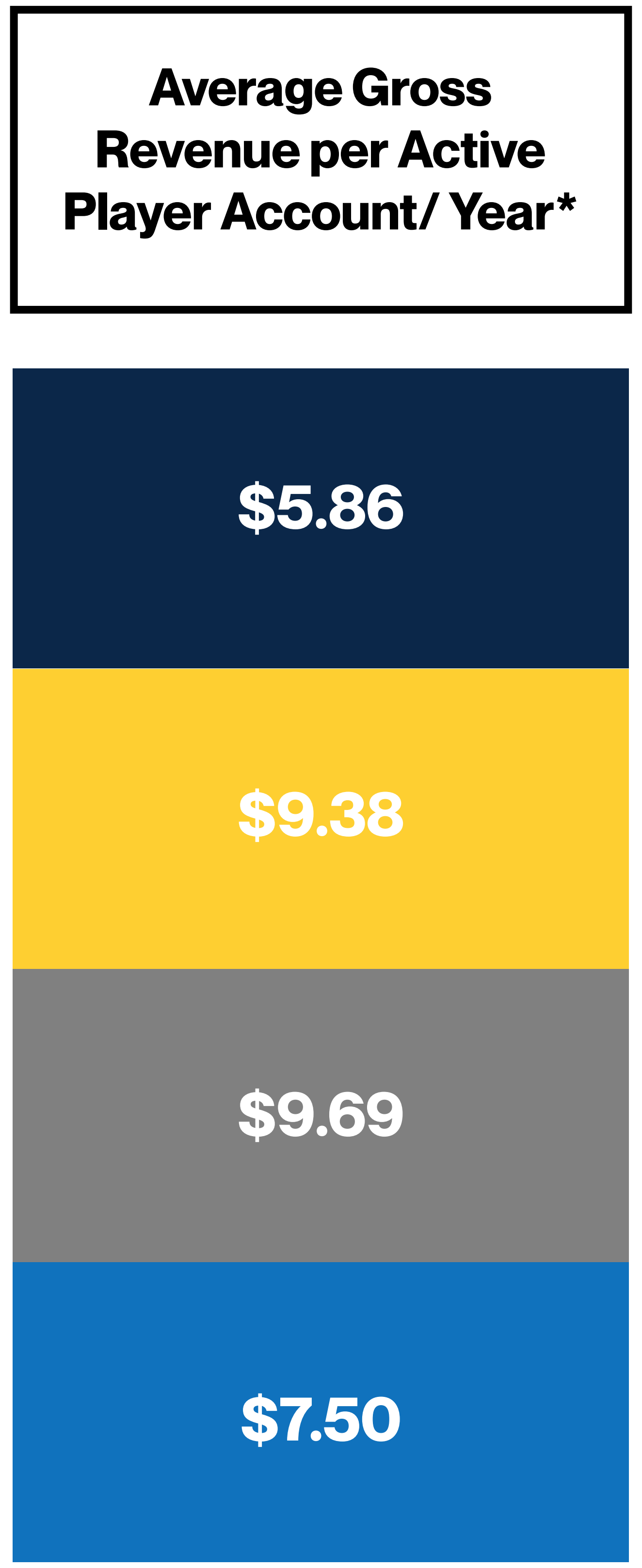
Exhibit 1

Revenues Mobile Game Industry per Segment ($Billions)





- **Note:** Distribution platforms (i.e. Google Play and App Store) retain a 30% commission over gross revenue
- RPG = Role Playing Game
- *Players may play multiple games per year across different segments

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Exhibit 1 Guidance

Revenues Mobile Game Industry per Segment

Candidates should recognize:

- Despite drop in 2021, the industry demonstrates a strong growth trend
- Adventure and Sports are the segments that are driving industry growth; RPG has remained stable

Best candidates will recognize:

- The most plausible explanation for the 2020 numbers is the impact caused by Covid-19. As people were isolated, there was an increase in the pursuit for virtual entertainment options, thus boosting revenues from the gaming industry. As the pandemic is expected to subside in 2021, revenues are expected to return to the previous trend

Additional guidance:

- **Footnote** about commissions will be important later in the case
- **Player Accounts:** An individual user may play multiple games, across different segments. For each game the user must create a unique player account. Therefore dividing a segment's Total Revenue by the average User Account revenue will NOT yield the total number of users. Furthermore, the total number of users has no bearing in the resolution of the case

Exhibit 2

Storm Games Estimated Game Development Costs per Segment ($M)

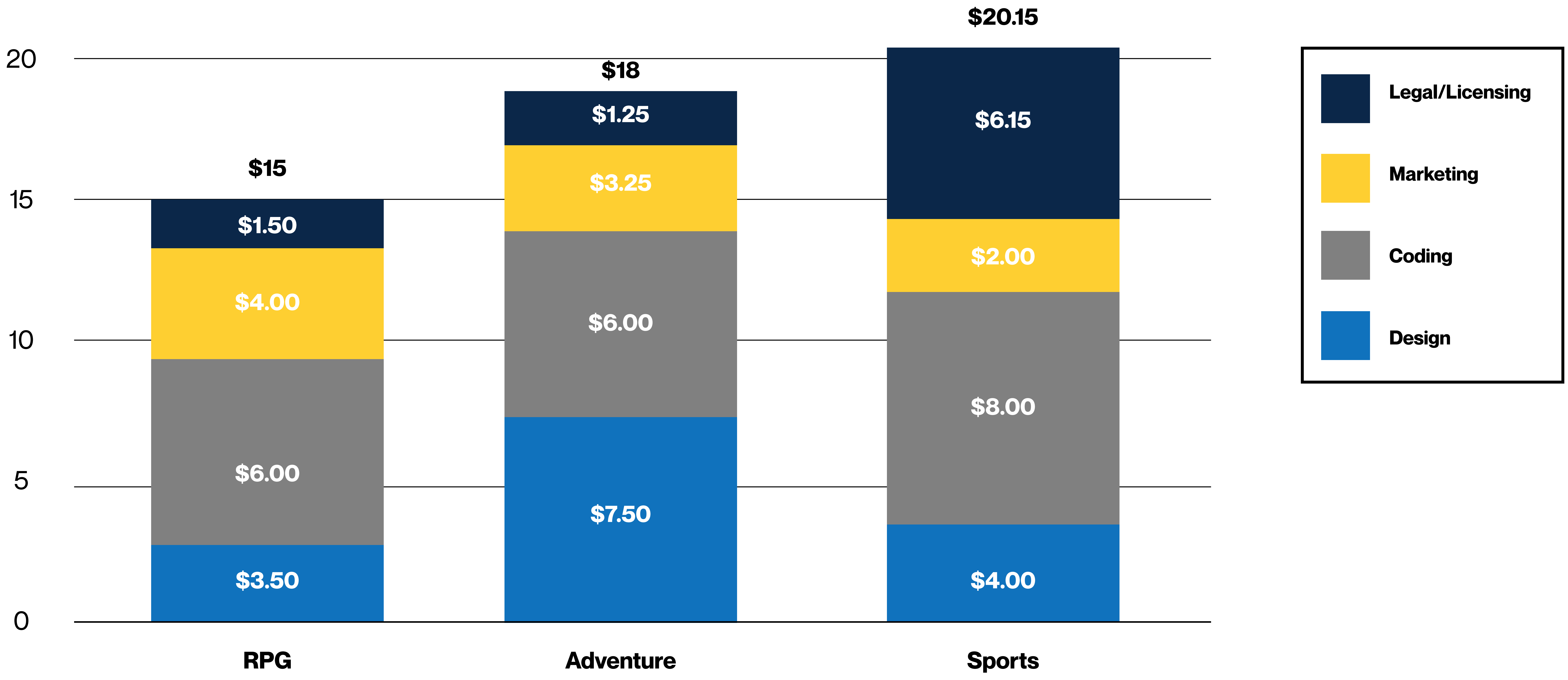

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Exhibit 2 Guidance

Estimated Game Development Costs per Segment

Questions for Candidates about Exhibit that the Interviewer should ask:

- How many player accounts does Storm Games need to gain in order to payback the investment within one year (in each segment)?
- Based on that result, in which segment should Storm Games invest?

Question/Exhibit Guidance:

Candidates should recognize:

- To perform the calculation, the candidate will need the Average Player Account Revenues from Exhibit 1
- The values must be discounted of the commission charged by the distribution platforms. This information is in the footnote of Exhibit 1

Additional Guidance:

- Legal/Licensing costs are significantly higher in Sports Games as athletes and teams are paid for the use of their names and images
- Costs for RPG games are significantly lower because the company already has the expertise and resources required to develop the games from this segment

Exhibit 2 Guidance

Estimated Game Development Costs per Segment

	Design	Coding	Marketing	Legal/Licensing	Total Cost
RPG	3.50	6.00	4.00	1.50	**15.00**
Adventure	7.50	6.00	3.25	1.25	**18.00**
Sports	4.00	8.00	2.00	6.15	**20.15**

Gross Revenue * (1-Commission) = Net Revenue

RPG $7.50 * (1 - 20%) = $6.00

Adventure $9.38 * (1 - 20%) = $7.50

Sports $9.69 * (1 - 20%) = $7.75

Note:

Avg. Gross Rev per Active Player Account (Ex. 1)

Platform Commission Fees (Footnote Ex.1)

Total Cost/Net Revenue = Player Accounts

RPG 15.00/5.8 = 2.59

Adventure 18.00/7.50 = 2.40

Sports 20.15/7.75 = 2.60

Note:

Millions of Player Accounts

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Conclusion

Recommendation

- Storm Games should develop an Adventure game.
- Despite of the lower production costs for RPG games, the higher average revenue obtained in the Adventure segment makes it a more attractive genre, as the company would need gain less users in order to payback its investment.

Risks

- Given that up until now Storm Games has only developed games within the RPG genre, the company may lack the expertise to effectively branch out and penetrate other segments of the market
- Average revenues may be misleading. It would be helpful to also understand the variance and the range of the values comprising the average
- If the new game is not successful, this could damage Storm Games' reputation, consequently affecting the company's plans for the IPO

Next Steps

- Assess internal capabilities and determine if external talent is needed to develop an adventure game

Case 2

Household Cleaners Growth

CPG | Growth Strategy

Interviewee Led

Ratings:
Quant - 2
Qual - 2
Overall - 2

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Prompt

Your client is a global consumer packaged goods company —Grime Co.
Grime Co. makes paper products (like paper towels), home cleaning products, and laundry care products. The company's Board of Directors has set an aggressive revenue target of $2 billion four years from now. Currently, revenues are $1 billion. The CEO has come to you to ask for help. Specifically, our client would like you evaluate the company's position and to help develop a strategy to deliver top-line results of $2 billion by 2025.

Net sales: Retail sales minus trade spend. Trade spend is what manufacturers pay distributors or retailers to incentivize them to sell their products to end consumers.

Notes / Advice to Interview / How to Move Forward:

- This case is about growth both through internal actions and through acquisition. Initially, the candidate should brainstorm an array of possible growth strategies. Eventually, he or she will have to drill down on new products and acquisition, in addition to considering market growth. Then, they will have to evaluate two targets, demonstrating an understanding of positive and negative synergies. Without considering market growth, organic growth, and inorganic growth —and without exploring synergies in acquisition — the candidate will not be able to solve the case.

Additional Information:

- The company has a strong stance if favor of sustainability
- Sales are divided evenly between the three categories — 33%

If the candidate asks which growth strategies Grime Co. has considered, the interviewer should prompt them to brainstorm various options — see next slide.

Framework/Clarifying Information

Areas the candidate should explore:	Information provided upon request
Market Growth: Growth through maintaining market share in a growing market	When the candidate asks, reveal that market growth alone will bring sales to $1.5 billion by 2025. Specifically, the company is growing overall at 10% and expects to maintain a constant market share.(10% compounded over four years is roughly $500 million incremental) In the interest of keeping this case shorter, the candidate does not have to calculate this. If the candidate asks about categories, tell him or her that growth is about the same in all three.
Organic Growth: Actions taken within the organization to drive revenue. Ex: • Price adjustments to drive volume • Increased advertising • Vertical integration • Promotions and deals • New products *Interviewer should steer candidate to explore new products*	The candidate must cite new products: it is the only organic growth strategy that is viable for our client in this case. The interviewer should provide logical reasons to why the other options are not available at this time. Our client has a new toilet cleaning product in development that analysts believe will do well. The following details should be provided by request: • Product is near launch • Price will be $5 a unit, but requires 20% trade spend per product to reach volume target • Expected to sell 40 million units on average per year No other investment is required — sunk cost. (See slide 3 for calculations)
Inorganic growth: Growth through acquisition or joint venture	The candidate must identify growth through acquisition: our client's Corporate Development department has identified two high-priority acquisition targets —Organoclean and Home Defense Inc. (See slide 4 for detailed information)

Additional Information

New Product Calculations: The candidate must determine how much top line growth can be achieved through the launch of the new product.

Current Net Sales	$1 Billion
Net Sales in 2025*	$1.5 Billion
Deficit	$500 Million
New Product	$160 Million
New Deficit	$340 Million

Price**	$5 per unit
Profit: Trade Spend – 20% =	$4 per unit
Avg. units per year x	40 Million
Net sales per year =	$160 Million

* $500 Million achieved through incremental market growth, as cited on the previous slide
** Data presented to candidate from previous slide, these are just calculcations
Note: Market Growth assumptions are built into new product calculations

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Additional Information

Acquisition Calculations, Sales Forecast: The candidate must determine which property our client should purchase. Candidate should request each data set: sales, products, and growth.

Target	Organoclean (Private)	Home Defense Inc. (Public)
Products	Organic Household Cleaners	Household cleaners, bug control
Sales	$150 million	$200 million
Growth Rate	10%	20%

2021 Sales Instruct candidate to round to the nearest $10 million	$165 million $181.5 million $199.65 million $219.615 million	$240 million $288 million $345.6 million $414.72 million
Rounded 2026 Sales	$220 million	$410 million

With a deficit to the 2025 sales target of $340 million, the candidate might be tempted to choose Home Defense Inc. as the better acquisition target. If asked, confirm that our client can only buy one.

However, the candidate must also consider positive and negative synergies before choosing a target…

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Additional Information

Acquisition Calculations, Synergy Considerations: The candidate must determine which property to purchase. Candidate should brainstorm synergies and calculate financial impact.

A good interviee will cite several of these as potential synergies. Push the candidate along until he or she lands on both distribution and values:

POSITIVE

- Distribution synergies
- Procurement synergies
- Manufacturing synergies
- Back-office synergies
- Co-branding new products
- Scale synergies

NEGATIVE

- Corporate culture mismatch
- Anti-trust issues
- Mission or values clash
- Brand dilution

Synergies impacting Organoclean and Home Defense

*Candidate can consider year 1 today

Organoclean

Our client believes it can leverage its Europe distributon network to generate additional sales:

- $40 million year one*
- Should triple in 4 years

$500 million deficit
- $160 million new product
- $200 million Organoclean 2025
- $120 million Europe sales

= $0 deficit to 2025 target

Home Defense Inc.

Our client will not sell harmful chemicals, and all of Home Defense's bug killers fall into this category. They cannot be reforumated or sold. Our client would have to discontinue these products.

- 25% of sales are bug killers

$500 million deficit
- $160 million new product
- $410 million Home Defense 2025
- $102.5 million lost sales

= $32.5 million deficit to 2025 target

Conclusion

At this point, the candidate should realize that Organoclean is the best option between the two, and that together with the launch of the new product and market growth, Grime Co. will hit its 2025 net sales target of $2 billion

Recommendation

- Although market growth and the launch of a new toilet product should get Grime Co. to $1.66 billion in net sales by 2025, the $2 billion net sales target will not be met. Therefore, Grime Co. will also have to pursue growth through acquisition. Of the two targets preferred by the client — and since Grime Co. can only buy one — we recommend purchasing Organoclean. The growth of the company coupled with positive distribution synergies will allow Grime Co. to reach its 2025 target.

Risks

- Growth trajectory of target could change
- Price of target could be too high to afford
- Target could be unprofitable — risk of sales focus
- Doubling in size itself could be a risk — too fast

Next Steps

- Verify assumptions and assign roles
- Draft pre-diligence plan
- Establish contact with target
- Conduct detailed valuation and determine BATNA
- Roll out new product

Little Bud Co.

CPG | Growth Strategy

Interviewee Led

Ratings:
Quant - 2
Qual - 2
Overall - 2

Prompt

Our client, Little Bud Co, is a beer company in a small country in Latin America. Little Bud and its main competitor, Geineken, are the only players in the market. Geineken's operations are significantly bigger than Little Bud's.

Little Bud's CEO asked us to provide her with strategic options for the company and a recommendation on what she should do.

Clarifying Information

- If interviewee asks, "What are the CEO's Goals?", turn the question back: "What are the goals of a company?" Then rapidly lead conversation to the goal of maximizing shareholder's value
- Market is mature (growth is low)
- 10% of sales are made through large retailers and 90% through bars, restaurants and small retailers
- Focus on market of regular beer; market for small brewers / specialty beers should be disregarded (very small market)

Possible Framework/Case Guidance

Revenue
- Market Size
- Distribution
  - Retailers
  - Restaurants/bars
- Price
- Product Mix

Competition
- Compare financials
- Operations
- Pricing
- Buy/sell

Competition
- Fixed Costs
  - PP&E
  - Distribution
  - Marketing
- Variable Costs
  - COGS
  - Labor

Company
- Supply chain
- Economics of scale
- Geographics/related markets

Exhibit Summary

- Exhibit 1: Revenues by Channel
- Exhibit 2: P&L for Little Bud and Geineken

Notes / Advice to Interview / How to Move Forward:

At the beginning of the case (after candidate presents their framework):

- What are the two most relevant sources of information that you need to start this analysis?
  Suggested answer: market size and P&L for Little Bud and main competitor.

- **Once the candidate asks for market size data, present Exhibit 1 and ask for initial insights.**

- Exhibit 2 provides financial comparison information. What are the margins for each player? What are the possible reasons for the margin differences?
  Suggested answer: Geineken could have higher margins due to higher prices, lower costs or both.

- What are the strategies that Little Bud should consider?
  Suggested answer: Go to niche market, go to related markets, sell to competitor

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Brainstorm & Guidance

After the Interviewee has reviewed the given exhibits, ask them to Evaluate Potential Options for Little Bud.

Brainstorming Solution

- Increase market share:
    - Product innovation: Consumer taste is already well defined. There is no room for new products.
    - Price war: It's virtually impossible for Little Bud to enter a price war against Geineken
    - Marketing: Geineken spends 5x more in marketing. Trying to compete against a player this big on marketing expenditures is not a good strategy.
- Reduce costs: There are no opportunities for further reducing costs.
- Focus on niche market: Interviewer should say that niche market for beer in this country is very small. Move into related markets (e.g. carbonated soda, juices, etc.): interviewer should say that the company has already conducted analysis and decided it's not a good alternative, due to competition.
- After comparing both companies, the candidate should understand that scale economies are a major source of competitive advantage in this market and propose some strategic alternatives to Little Bud. The interviewer should rapidly move the discussion toward selling the company.

Guidance

The interviewer should propose to focus on the valuation of the business.
Ask the candidate to propose how to value the company.

Solution

- The candidate should be able to propose at least the two most common valuation methods: DCF and multiples (multiples are used for quick assessments and we have EBITDA figures). Once asked for it, the interviewer should give the multiple to be used: EV/EBITDA = 10x
- What is the market value for Little Bud?
    - ***Suggested answer: based on the multiple and EBITDA figures, $50M***
- What is Little Bud's value to Geineken ?
    - ***Suggested answer: considering Geineken margins and Little Bud revenues, Little Bud's value to its competitor is $214M (potentially higher, due to the fact that Geineken would become a monopoly and be able to increase price and further squeeze suppliers)***
- How to "force" Geineken to pay more than $214M?
    - ***Suggested answer: Little Bud should open bid to other companies. Geineken has the incentive to maintain its market dominance and doesn't want a big international player to enter the market.***

Note: When answering LB's value to Geineken, Interviewee should assume new net profit margin will be same as Geineken

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Conclusion

Recommendation

- Recommend the CEO to sell Little Bud.
- The company has no competitive advantage. Geineken has margins high enough to enter a price war that would lead Little Bud to bankruptcy.
- Also, through an open bid to the market, Little Bud could achieve a higher valuation.

Risks

- There might be legal issues by antitrust agencies that would prevent a transaction
- Loyal customers might not perceive it positively
- Jobs may be lost due to the realized synergies and this may cause friction
- Company cultures could clash/cause problems

Next Steps

- Hire an investment bank to structure the deal
- Evaluate risk of ruling from antitrust agencies
- Identify potential cost saving opportunities in case Geineken responds by reducing prices

Excellent Case Answers

- Star candidates will showcase business skill in identifying the correct valuation model and price.
- Should justify reasons on selling the company and why not increase price or reduce cost.
- Realize that a price war may not offer as high a valuation as discussed as Geineken is the only other potential candidate at the moment and more analysis must be done to determine if there are other prospective companies that would be interested in entering the market.

GasCo Goes the Distance

Oil & Gas| Market Entry/Profitability

Interviewee Led

Ratings:
Quant - 1
Qual - 3
Overall - 2

Prompt

Your client is GasCo, a US-based natural gas company. In the last year, natural gas prices in the US have declined while prices in APAC and EMEA have increased. GasCo currently has managed to develop a new way to transport gas. The new technology significantly lowers the cost of transportation. Due to the new technology, GasCo would like to expand in the global market.

GasCo would like to know if they should enter the APAC, EMEA, or both regions?

APAC - Asia Pacific & China
EMEA - Europe, Middle East, and Africa

Clarifying Information

- GasCo's new technology is unique to their company and no other competitors have this technology. The new technology significantly lowers the cost to transport gas. Gas normally has to be shipped in large containers, but now the gas is able to be liquified and then transported, significantly reducing cost of transportation.
- GasCo's main concern is overall profitability when entering the market.
- GasCo is worried about 1) whether there will be demand in the region and 2) which market is more profitable
- GasCo has 2 major customers: 1 in China and 1 in Japan

Interviewer Information

Clarifying Information

- This case is based off a final round interview with a partner who worked in O&G.
- This case is meant to be qualitative and test the candidate to see how creative they can be during brainstorming.

Brainstorming question:
- What conditions might affect profitability when entering a foreign market?

Exhibit Summary

- Exhibit 1: Proposed Entry Points Global Map – to show the two options presented and understand distance from US headquarters

Potential Framework

1. Market – Should we enter?

Market Size
- What is the size of the market in each region?

Competition
- How many competitors are there in each region?

Barriers of Entry
- Regulatory landscape in each region?

2. Incremental Revenue

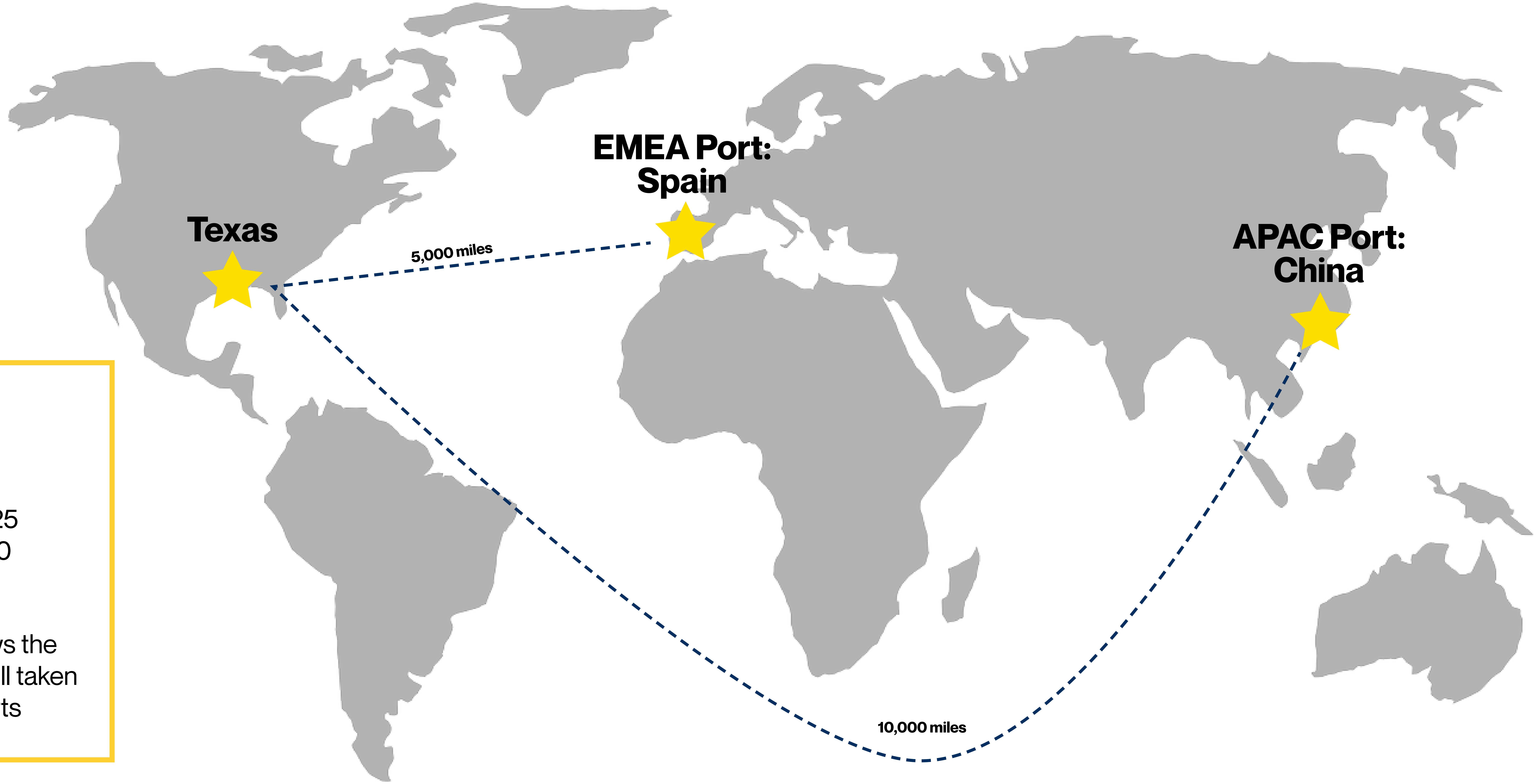
- Number of customers in each market
- Pricing for both markets
- Channels currently sold in

3. Incremental Costs

- Fixed Costs – drilling, costs, salaries
- Variable Costs – cost of transportation, tariffs

Exhibit 1

Potential EMEA and APAC Market Entries



Note:

Natural Gas Prices
- GasCo US - $1.50
- EMEA (Russia) - $1.25
- APAC (China) - $2.00

Key:
- The dotted line shows the shipping path that will taken to get to the new ports

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Exhibit 1 Guidance

Potential EMEA and APAC Market Entries

Questions for Candidates about Exhibit that the Interview should ask:

- What can you gather from this map?
- What is the estimated cost to transport gas to Spain vs China? (calculation on next slide – interviewer will need to provide the candidate with some information)

Question/Exhibit Guidance:

- Candidate should recognize: 1) closer distance from US to Europe, but, 2) China is the furthest distance but has large potential to capture more market share
- Strong candidates will: 1) notice that although Europe is the closest to the US, Russia has lower natural gas prices in Russia than US which means there will be increased competition if GasCo enters the market. This could cause a price war and increased competition in EMEA market, 2) China has higher natural gas prices which means GasCo can enter the market competitively and capture more market share.
- Also, an extremely strong candidate will remember that 2 of GasCo's major customers are based in Asia and is another reason to consider APAC over EMEA

Exhibit 1 Guidance

Potential EMEA and APAC Market Entries

When candidate asks for information provide the candidate with the following:

	Spain	China
Distance	5,000	10,000
Cost/Mile	$10	$5.50
# of days at sea	7	20
Cost/Day	750	550
Est. Unit Sales	100,000	250,000
Projected Sales Price/unit sold	$6	$3

Calculations

	Spain	China
Cost		
Distance	5,000	10,000
Cost/Mile	$10	$5.50
Cost for distance	$50,000	$55,000
# of days	7	20
Cost/Day	$750	$550
Cost for trip length	$5,250	$11,000
Total cost	$55,250	$66,000
Revenue		
Est. unit sales	100,000	250,000
Sales price	$6	$3
Potential Revenue	600,000	750,000

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Brainstorming

What conditions might affect profitability when entering a foreign market?

Brainstorming Guidance:

- Market factors – change in natural gas prices across the market
- Competitor reaction – price war in market with local or regional companies
- Government response – potential tariffs or higher import tax
- Internal company capabilities – sales team, etc.
- Local technological development (more likely for competitors to catch up in tech focused market)

Good candidates will:

- Recognize that there are external and internal factors to consider

Conclusion

Recommendation

- GasCo should enter the Chinese market – although the total cost for China is higher, GasCo's 2 major customers are based in APAC and will allow GasCo to better serve their customers as well as have an opportunity to capture more market share in the long term.

Risks

- Competitor response in China – Chinese government might impose high tariffs or taxes on imported US gas
- Change in market demand due to alternative gas products available in the market

Next Steps

- Conduct a thorough market analysis to better understand competition in China and competitor response
- Put together a internal team to begin developing a market entry plan

Rubicon Co.

Airlines| Post – Acquisition Profitabilityy

Interviewee Led

Ratings:
Quant - 2
Qual - 2
Overall - 2

Prompt

Your client is Rubicon Co, a low-cost airline operating in the US. A couple of years ago, Rubicon Co completed the acquisition of Scarlet Air, an airline based primarily on the West Coast. The post acquisition profits do not meet the executive committee's expectations, and the CEO of Rubicon Co has brought you in to understand the causes and improve profitability.

Interviewer Information

Clarifying Information

- The CEO wants to increase profit by $100M
- Assume Rubicon Co operates a single aircraft type across their fleet with similar seat layouts
- Rubicon Co is an all economy airline, not looking to change the business model
- At this point Rubicon Co is not looking to expand operations internationally
- The industry has remained relatively stable, with single digit profit % growth YoY

Exhibit Summary

- Exhibit 1: Pre & Post Acquisition Financials
  [Candidate should prompt interviewer to share this exhibit]
- Exhibit 2: Northwest Region Route Comparison
  [Candidate will likely require this exhibit to be handed without prompt after exhibit 1]

Potential Framework

Revenue (Synergies)

- Ticketing (all metrics should >= the combined metrics of the individual airlines)
  - # of tickets sold
  - Price of tickets
    - Dependent on routes
      - Consolidation should decrease competition, resulting in increased prices
    - Seasonality
- Fees (all metrics should >= the combined metrics of the individual airlines)
  - On board
    - Wifi
    - Food & bev
    - Luggage
    - Ancillary
      - Change fees

Cost (Synergies)

- Variable Costs (all metrics should <= the combined metrics of the individual airlines)
  - Hourly Labor
  - Aircraft operations
    - Fuel
    - Maintenance & Servicing
    - Parking/Storage
    - Landing fees
- Fixed Costs
  - Central functions
    - Marketing
    - IT
    - HR
    - Etc
  - Plant, Property, Equipment
    - Airport gate rental agreements
    - Corporate building rentals
    - Hanger space

Competitive Response

- Other airlines consolidating in the space could lead to greater pricing pressure as cost structures are reduced
- Alternatively, less players in the space could lead to more favorable pricing as consumers have less choice

Notes / Advice to Interview / How to Move Forward:

- Candidate should look to understand the financials of the airline(s) pre and post merger – if asked, hand Exhibit #1
- Alternatively, the candidate may ask to look at competitors financials as a comparable – if asked, let candidate know that pre-merger Rubicon Co. and Scarlet both met industry averages on financials
- Ensure the candidate mentions that airline routes differ in terms of profitability – if not, ask candidate to think about how the metrics for a flight from DTW to JFK are different than JFK to LAX

Exhibit 1

Pre and post acquisition financials

In Millions of Dollars	Rubicon Co (Pre)	Scarlet Air (Pre)	Rubicon Co (Post)
Revenue (Tickets)	749	690	1439
Revenue (Non-Tickets)	251	210	461
Operations, Variable	650	605	1255
Marketing	50	40	90
IT	75	70	145
HR	20	14	25.5
PPE (Airport Slots, offices)	115	90	153.75

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Exhibit 1 Guidance

Pre and post acquisition financials

Questions for Candidates about Exhibit that the Interview should ask:

- Are there areas of opportunity to positively impact profitability?
- If candidate is struggling, ask: although VC may need to remain at that level, does FC of the combined entity need to be the combined individual FCs?

Question/Exhibit Guidance:

- Candidate should recognize that while synergies were found in HR and Property costs, Marketing and IT costs are equivalent to the sum of the original airline line items – these are two opportunities for cost cutting
- Strong candidates will recognize that the combined company was able to find 25% net cost savings in property and HR – this can be used as a rough baseline for potential cost savings in the IT and marketing buckets

Exhibit 1 Guidance

Pre and post acquisition financials

In Millions of Dollars	Rubicon Co (Pre)	Scarlet Air (Pre)	Rubicon Co (Post)	Rubicon Co (Post) w/ Potential Synergy Gains
Revenue (Tickets)	$749	$690	$1439	Same
Revenue (Non-Tickets)	$251	$210	$461	Same
Operations	$650	$605	$1255	Same
Marketing	$50	$40	$90	$67.50
IT	$75	$70	$145	$108.75
HR	$20	$14	$25.50	Reductions Already Made
Property (Airport, offices)	$115	$90	$153.75	Reductions Already Made
Total Revenue	$1,000	$900	$1,900	$1,900
Total Cost	$910	$819	$1,669.25	$1,610
Profit	$90	$81	$230.75	$289.50
Margin	9.00%	9.00%	12.14%	15.24%
			Increased Profitability	$58.75

Note:
- Case is looking for profitability in terms of dollars. Percentages are given as a nice to have

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Brainstorming

Now that we have identified a potential for cost reductions in the Marketing and IT functions, what are some ways this can be accomplished?

Brainstorming Guidance:

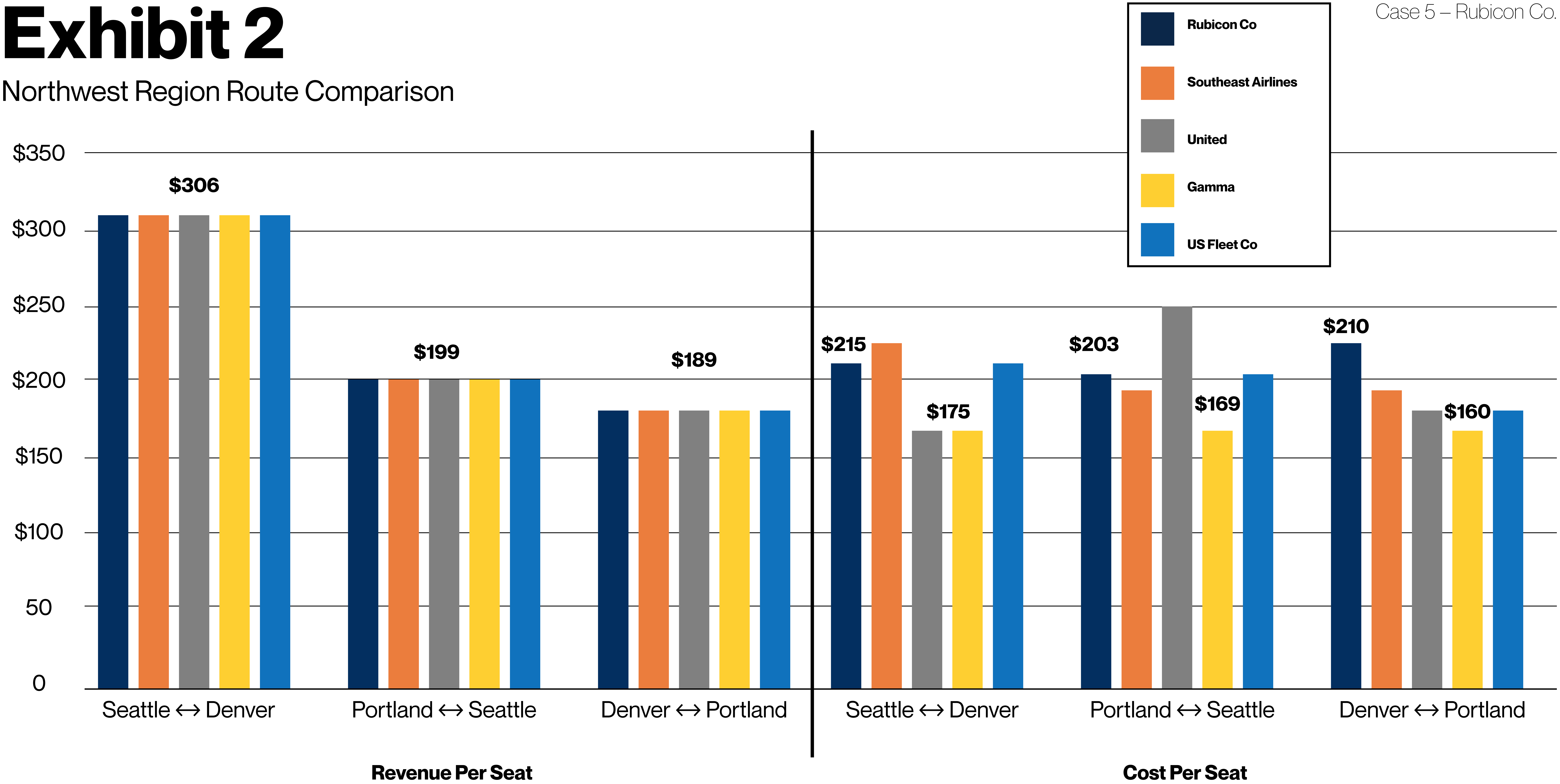
- Candidates should list a few (2 – 3) ways costs could be reduced in each area
- Marketing: Reduce headcount, leverage digital solutions to streamline campaigns, outsource specific functions
- IT: Reduce headcount, outsource specific functions, merge disparate systems

Best candidates will:

- Identify risks associated with their recommendations and plan mitigation steps
- Notice that roughly half of the $100MM improvement target has been achieved, will organically think about other areas to find profit

Exhibit 2

Northwest Region Route Comparison



**Rubicon Co flies ~500k passengers per route per year

Exhibit 2 Guidance

Northwest Region Route Comparison

Questions for Candidates about Exhibit that the Interview should ask:

- One of our analysts flagged the Pacific NW as an area of concern. What are your initial thoughts on the routes?

Question/Exhibit Guidance:

- Candidates should recognize that Portland ↔ Seattle and Denver ↔ Portland are not profitable.
- Strong candidates will calculate the annual profit/loss the airline experiences from the routes and suggest trying to cut costs and match competitors cost structure across all three routes

Exhibit 2 Guidance

Northwest Region Route Comparison

	Profit (Loss) Per seat	Total Passenger Volume	Net Profit (Loss)	Profit Potential (if matching competitors)	Net Profit	
Seattle ↔ Denver	$91	500,000	$45,500,000	$131	$65,500,000	
Portland ↔ Seattle	($4)	500,000	$2,000,000	$30	$15,000,000	
Denver ↔ Portland	($21)	500,000	$10,500,000	$29	$14,500,000	**Net Improvement**
		Total	**$33,000,000**		**$95,000,000**	**$62,000,000**

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Brainstorming

While Rubicon Co. is considering options to lower costs on these routes, some within the company are thinking of cutting the loss-making routes completely. What concerns do you have with this?

Brainstorming Guidance:

- Candidates can think about the issue in terms of qualitative and quantitative buckets
  - **Quantitative:** Loss of revenue from fees, inflight purchases, freight/shipping
  - **Qualitative:**
  - Knockback effect -> passengers flying these routes may be connecting to other profit positive flights, and cutting routes may make other routes less attractive
  - Political issues with city leadership
  - Airport contractual obligations

Best candidates will:

- Think about potential changes in demand for the routes, and ask the airline to consider that before trimming routes

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Conclusion

Recommendation

- To achieve the target profitability improvement, Rubicon Co should reduce costs in Marketing & IT to match synergies achieved in other departments. In addition, the airline should look to reduce costs on their Pacific NW routes to match competitors' cost structure

Risks

- Detriment in morale with headcount reductions/outsourcing
- Changes in demand on routes, impacting pricing and profitability

Next Steps

- Research competitors cost basis for PNW routes and begin matching methodology
- Consider cross training employees to reduce volume of layoffs
- Identify strategy to reduce costs in marketing and IT by 25%

Spice Up Your Life

Private Equity, Food/Retail | M&A, Valuation, Chart Analysis

Interviewee Led

Ratings:
Quant - 2
Qual - 1
Overall - 2

Prompt

Our client, Seasoned Investors (SI), is a private equity firm that has just launched a new fund focused on investments in the food industry. For their first investment, they are considering acquiring Favored Flavors (FF), a spice company specializing in premium organic spices.

Favored Flavors is asking for $75M, and the offer is final. Should Seasoned Investors pursue this acquisition?

Clarifying Information

- Financial Targets: SI seeks a Multiple of Invested Capital (MOIC) of 2x (i.e. it seeks to earn double the value of its investment by the end of the holding period).
- The fund has a holding period of 4 years, at which point the fund will sell the business. SI is confident that they will be able to sell the business at 10x EBITDA.
- FF does not have any debt.
- FF sells primarily to grocery store wholesalers (not an important part of this case).
- A couple SI managing directors have significant experience in this industry, but SI does not currently have any other portfolio companies in the food/beverage market.

Interviewer Information

Notes/Advice to Interview

- MOIC does not involve time value of money, so a discounted cash flow analysis is not needed. (If the interviewee begins to discuss a DCF and/or discount rate)

Exhibit Summary

- Exhibit 1: 2020 Income Statement and Industry Comparison
- Exhibit 2: Revenue Projections

Exhibit 1: 2020 Income Statement and Industry Comparison
- Provide this when the candidate asks about the company's profitability.

Exhibit 2: Product Mix
- Provide this when the candidate asks about costs or revenues by product.

Exhibit 3: Revenue Growth
- Provide this when the candidate asks about growth rates or projections.

Potential Framework

Company

Profitability/Cash Flow Analysis
- Revenue
  - Price
  - Quantity
- Cost
  - Variable:
    - Raw Materials
    - Packaging
    - Shipping
  - Fixed:
    - Manufacturing Plant
    - Labor
    - Other SG&A Costs
- Company Leadership/ Capabilities

PE Firm

- Fund objectives
- Synergies/Improvements
  - Future bolt-on acquisitions
  - Investment-light revenue growth opportunities
  - Cost optimization
- Firm expertise in industry
- Fund restrictions
- Financing the acquisition
- Exit strategy

Market

- Market Growth
- Market Size
- Competition
- Trends:
  - ESG: Fair wages for farmers, ethically sourced spices, sustainability in packaging
  - Customer trends: desire for more exotic foods, healthier eating, more online grocery purchases
- Regulations:
  - Trade restrictions, import/export regulations

Valuation

- Cash flow during holding period
- Exit value
  - Multiples

Note/Advice to Interviewer/ How to move forward
- Handover exhibits 1 and 2 after candidate asks for relevant information
- A strong candidate will set up an equation to evaluate the transaction, such as: 2*Purchase Price ≤ Sum of FCFs + Sale of Business

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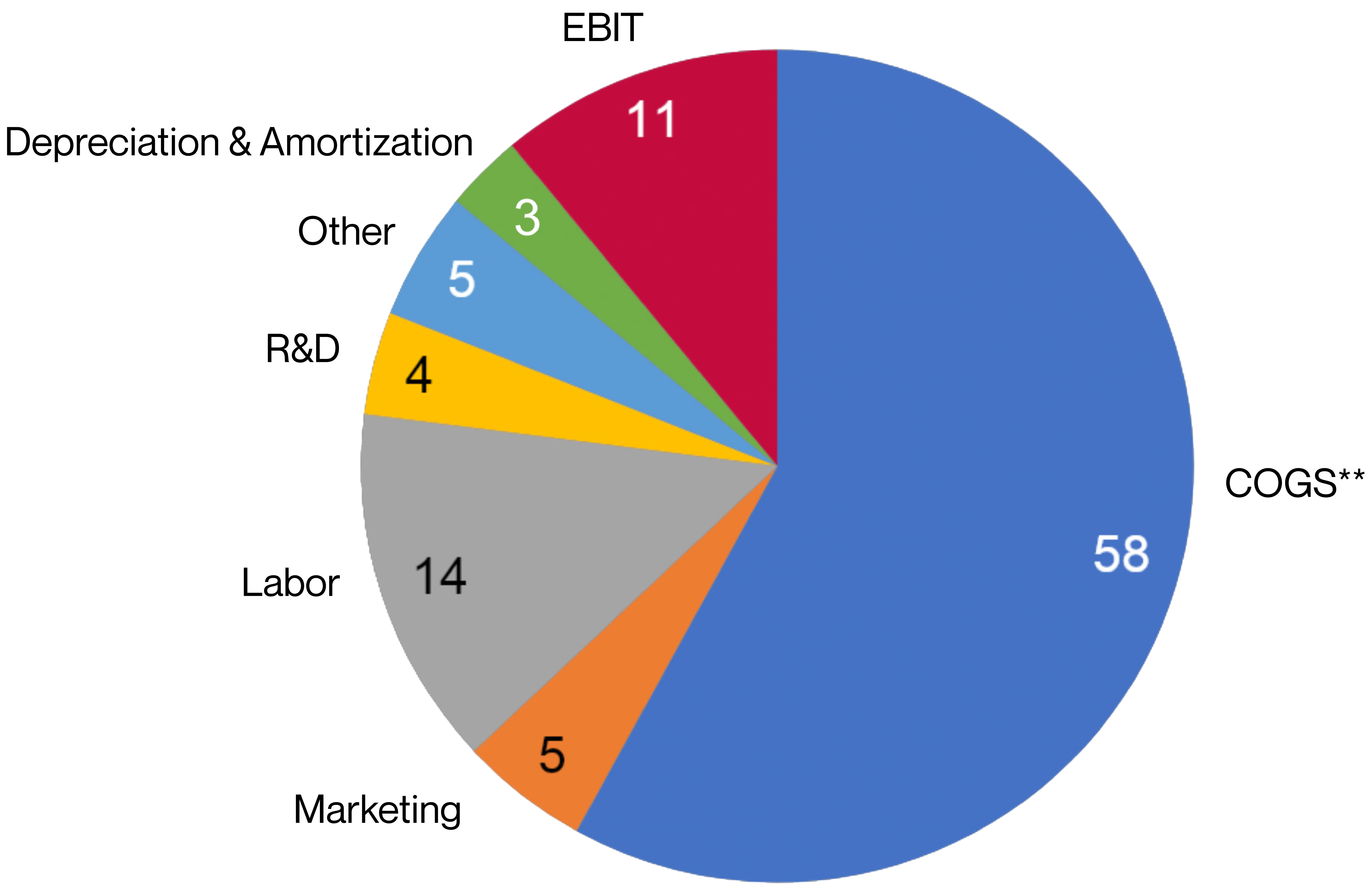
Exhibit 1

FF 2020 Income Statement	
Revenue ($M)	50
COGS ($M)	33
SG&A* (% of revenue)	23%
EBITDA (Revenue – COGS – SG&A) ($M)	5
Free Cash Flow (% of EBITDA)	62.5%

*SG&A includes labor, marketing, R&D, and other costs

Industry Average Cost Breakdown



**Industry average breakdown for COGS is 90% raw material and 10% packaging.

Exhibit 1 Guidance

Questions for Candidates

"Favored Flavors provided us with a summary of their most recent annual income statement. Your consulting team also pulled some industry average cost data for comparison. What insights do you get from this data?"

Candidates should recognize:

- FF's EBITDA is 4% less than the industry average of 14% (EBIT of 11% + Depreciation and Amortization of 3%)
  - FF's COGS (33/50=66%) is 8% higher than the industry average. This could be because of the higher quality of the spices, but there may still be opportunities to optimize.
  - FF's SG&A (11.5/50=23%) is 4% less than the industry average, which could be a competitive advantage.

From here, candidates should drive the case forward by asking for more information on COGS.

Notes/Advice to Interviewer:

- If the candidate has questions around net income or free cash flow, explain that free cash flow is the cash flow available to funding providers (i.e. the amount the PE firm will receive from the business each year)
- If candidate asks for the company's EBIT or Depreciation and Amortization expense, simply state that FF did not provide those line items.

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Exhibit 2

Product Mix

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Exhibit 2 Guidance

Product Mix

Questions for Candidates about Exhibit that the Interview should ask:

Ask the candidate if they have any insights on the exhibit.

- Candidates should also note that packaging is significant at 16% of total cost, which is higher than the industry average of 10%. If necessary, **prompt the candidate to calculate the cost savings that would come from bringing the packaging cost down to the industry average.**
    - Solution: 6% * 33M = $1.98M (rounding to $2M is fine)

- Candidates should also note that Saffron is currently losing money ($50M * 5% = $2.5M in revenue, $33 * 9% = $2.97M in costs (tell the candidate they can round to $3M in cost). **Once the candidate reaches this insight, share that your team believes this cost can be reduced by 1/3rd.**
    - Solution: 9% * (1/3) = 3% change. 3% * $33M = $0.99M (rounding to $1M is fine)

- Total gain in profit/EBITDA = $3M. Prompt the candidate to calculate the free cash flow for 2020 if these changes were made if the candidate does not automatically do so.
    - Solution: $5M + $3M = $8M in EBITDA. 8 * 62.5% (or 5/8) = $5M. Strong candidates will note that EBITDA is now 16%, higher than the industry average, and that FCF is 10% of revenue.

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Exhibit 3

Projected Revenue Growth

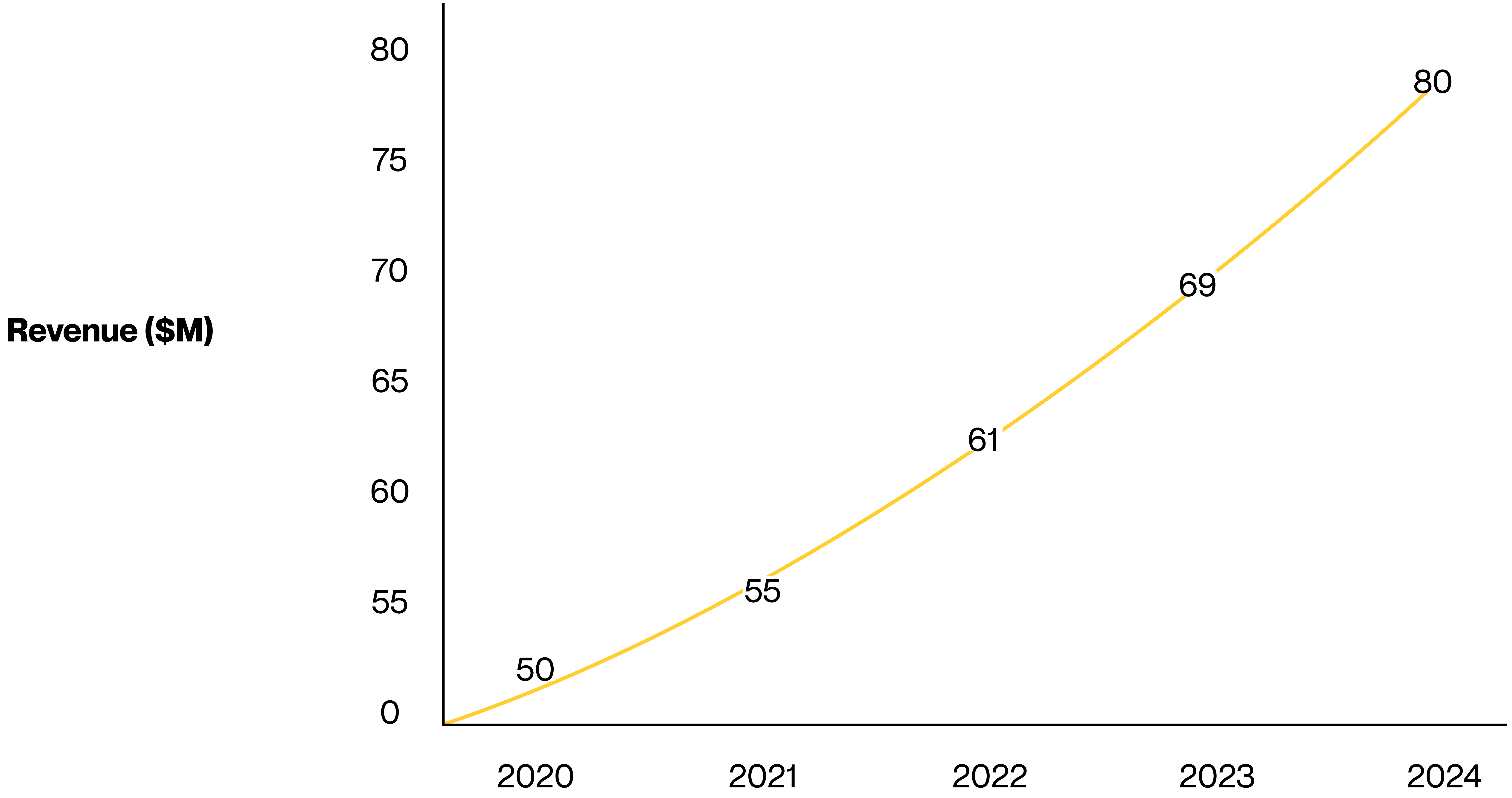

Exhibit 3 Guidance

Projected Revenue Growth

Question/Exhibit Guidance

- Candidates should use this graph to calculate the future free cash flows for the business, using the new profit margins that they calculated from Exhibits 1 and 2.
- **When the candidate asks about the value of the business at the sale or terminal value, mention that SI believes they will be able to sell the company at 10x EBITDA in 2024.**
- By adding each year's FCF and the terminal value, the total projected value of the business should be $154.50, which is greater than the 2x MOIC requirement of $150. Once the candidate has reached this point, ask the candidate to prepare a conclusion for the client.

Free Cash Flow Analysis

	2021	2022	2023	2024
Revenue	55	61	69	80
FCF (10% of Rev)	5.5	6.1	6.9	8
Total FCF				**$26.50**

*Note: no discounting needed. If candidate asks about discounting, remind them of the 2x MOIC requirement

Exit Value Analysis

EBITDA (16% of revenue)	12.8
EV/EBITDA multiple of 10x	$128
Total Projected Value ($M)	**$154.50**

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Conclusion

Recommendation

- Seasoned Investors should move forward with the acquisition of Favored Flavors, as the projected value of $154.50M is greater than twice the investment cost of $75M.

Risks

- Candidates could list a variety of risks, including but not limited to any of the factors included on the framework slide. Strong candidates will briefly mention a couple of the most salient risks and include potential mitigating strategies.

Next Steps

- Next Steps should either directly relate to mitigating risks or to exploring additional workstreams identified in the framework that were not covered in the case.

Notes for Interviewer:

- This case tests quantitative skills but also the candidate's ability to remain organized as data from one exhibit often needs to be compared to another for important insights. Strong candidates will be using their notes to not have to ask the interviewer constantly to re-show an exhibit.
- The case topic should be easily relatable for most candidates, so pay attention to the candidate's soft skills and ability to be conversational.

Apogee Bank

Financial Services | Growth Strategy

Interviewee Led

Ratings:
Quant - 2
Qual - 2
Overall - 2

Prompt

Our client Apogee bank, a regional bank with 700 branches in US Midwest, has seen a declining trend in revenues in the past 2 years. Blake Moran, the CEO of Apogee bank, hired you to identify the reasons for falling revenues and recommend ways to grow revenues.

Clarifying Information

- Apogee Bank offers checking and savings accounts, as well as personal, mortgage and auto loans.
- On the checking and savings accounts, Apogee bank makes money from service charges and account maintenance fees whereas it earns interests on loans.
- Apogee bank provides services through both brick-and-mortar branches and online applications.

Interviewer Information

Clarifying Information

- Apogee Bank offers checking and savings accounts, as well as personal, mortgage and auto loans.
- On the checking and savings accounts, Apogee bank makes money from service charges and account maintenance fees and earns interests on loans.
- Apogee bank provides services through both brick-and-mortar branches and online applications.
- The candidate doesn't need to know any other information about the client's business or the retail banking industry to solve this case. If the candidate asks for any more clarification at this point, reverse the question to ask why that specific information is needed for the case.

Exhibit Summary

- Exhibit 1: Average Revenue Per Account (ARPA) by Product
- Exhibit 2: Summary of email survey conducted on churning customers
- Exhibit 3: Partner with WizardTech or Buy Finvest Inc?

Potential Framework

Revenues falling

ARPU decreasing
- Volume of services used by customers decreasing
- Mix of transactions shifting to low value products
- Asset/deposit base shrinking
- Decrease in branch/ATM walk ins

# of customers decreasing
- Customer experience issues
- Lack of online capabilities impacting serviceability and scale
- Trust/Security/Conveience concerns
- No financial education resources
- Lack of rewards/benefits

Change in Market Dynamics

Competition
- New regional banks in the area
- Better interest rates offered by regional or online competitors
- Increased consolidation amongst regional banks

Customer Trends
- Less interest in traditional/regional banks amongst the millennial/GenZ userbase
- Inclining towards non-banking companies/ challenger banks for banking needs
- Lack of rewards/benefits

Government/Regulartory Reasons
- New caps on reserves limitng lending power
- Additional onbaording paperwork limiting new account opening userbase
- Inclining towards non-banking companies/ challenger banks for banking needs
- Lack of rewards/benefits

Growth Opportunities

Organic
- Play with Price
- Market expansion - acquire new accounts
- Market penetration - focus on cross selling
- Diversification - adding new products for new & existing customers

Inorganic
- Buy market share - acquire fintechs/other banks

Notes / Advice to Interview / How to Move Forward:

- Candidate should recognize that this is a revenue problem
- Hand Exhibit 1 if the candidate mentions reve-nues as the area of initial focus
- If the candidate mentions costs or profitability, ask why and then direct the candidate to focus on revenues

Exhibit 1 Guidance

Average Revenue Per Account (ARPA) by Product

Questions for Candidates about Exhibit that the Interview should ask:

What additional insight does this chart provide on the potential root causes behind falling revenues at Apogee?

- Once the candidate recognizes falling # of accounts or deactivation of accounts in the last 2 years as the reason, ask him or her how this trend translates into # of users active on the platform? (Highlight the footnote if the candidate doesn't acknowledge it)
- Once the candidate figures out the primary reason (Customer Churn) behind the fall in revenues in the last 2 years, brainstorm on potential ways to identify reasons for churn and then move to Exhibit 2 after sufficient brainstorming

Question/Exhibit Guidance

- **Candidate should recognize:** Falling revenues across all products, ARPA remaining constant -> Volumes decreasing
- **Strong candidates will:**
- Recognize the relation between ARPA and ARPU (Average Revenue Per User) -> ARPU = ARPA * # of Accounts per user. Since the # of Accounts per user has not changed (as mentioned in the footnote), it can be deduced that customers are leaving the bank
- Start brainstorming reasons for why customers could be churning and what are the best ways to identify reasons for churn i.e. surveys

Exhibit 2 Guidance

Summary of email survey conducted on churning customers

Questions for Candidates about Exhibit that the Interview should ask:

What additional insight does this chart provide on the reasons for recent increase in customer churn?

- Once the candidate identifies the key reasons for churn, push him/her to brainstorm ideas for next steps – adding new investment products.
- After sufficient brainstorming, hand out Exhibit 3 to the candidate.

Question/Exhibit Guidance

- **Candidate should recognize:** Lack of investment/personal finance products offered digitally as the primary reason for churn as can be deduced from: High interest in digital/challenger banks, and mention of digital investment platforms, access to wealth management products and financial advice as the primary reasons for switching to a different platform.
- **Strong candidates will:** consolidate all the key takeaways to recommend next steps (acting on not having enough personal finance products to offer)

Exhibit 3 Guidance

Partner or Buy?

Calculations

- The client here wants to finalize which mode of launch makes more financial sense for the bank
- Steer towards calculating payback/breakeven period if the candidate doesn't move in that direction
- Candidate can assume that cost synergies as mentioned in the footnote can be realized from inception
- Strong candidates will: recognize cost synergies, structure profitability calculations separately and suggest calculating payback period without prompting

Partner with WizardTech		
Total yearly cost	750,000 + 14 * 125,000	2,500,000
Total yearly revenue	23 * 125,000	2,875,000
Yearly incremental profits	2,875,000 - 2,500,000	375,000
Payback (in years)	280,000/375,000	**7.5**

Buy Finvest Inc.		
Total Fixed Cost	150,000 * (1 - 6%)	$141,000
Unit Revenue	800,000/100,000	$8
Unit Variable Cost	8 - 4 * (1 - 5%)	$3.8
Total Variable Cost	(125,000 + 100,000) * 3.8	$855,000
Total Revenue	8 * (125,000 + 100,000)	$1,800,000
Yearly incremental profits	180,0000 - 141,000 - 855,000	$804,000
Payback (in years)	5,000,000/804,000	**6.2**

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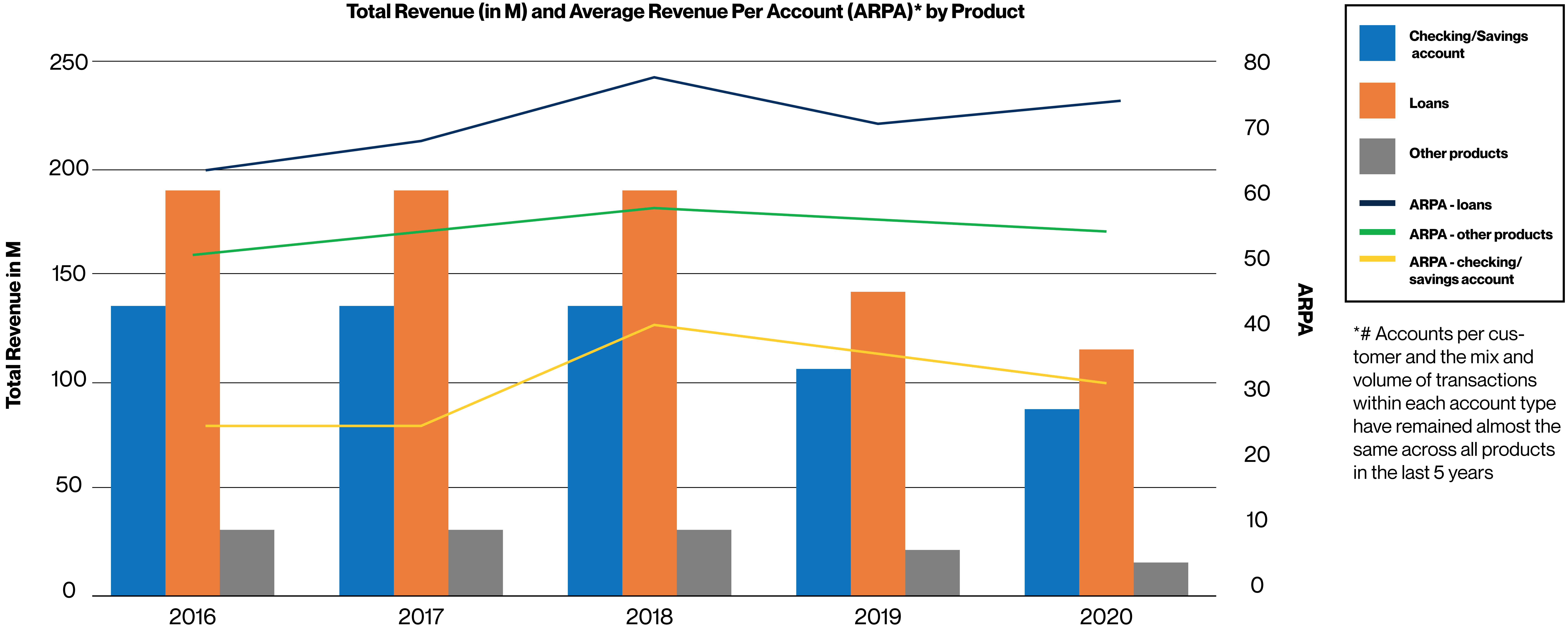
Exhibit 1

Average Revenue Per Account (ARPA) by Product



*# Accounts per customer and the mix and volume of transactions within each account type have remained almost the same across all products in the last 5 years

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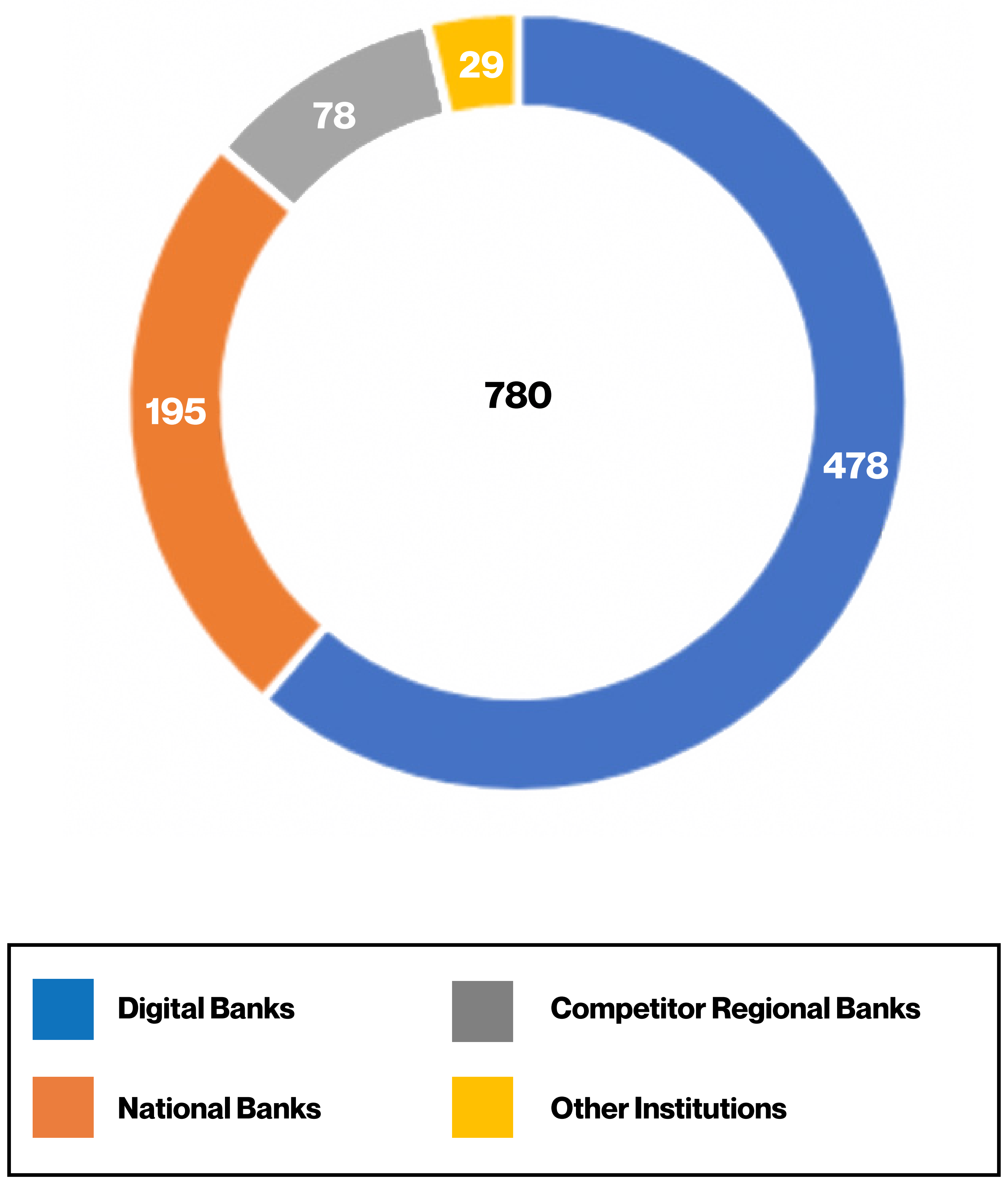
Exhibit 2

Summary of email survey conducted on churning customers

Where did the survey respondents switch to?



Reasons for switching

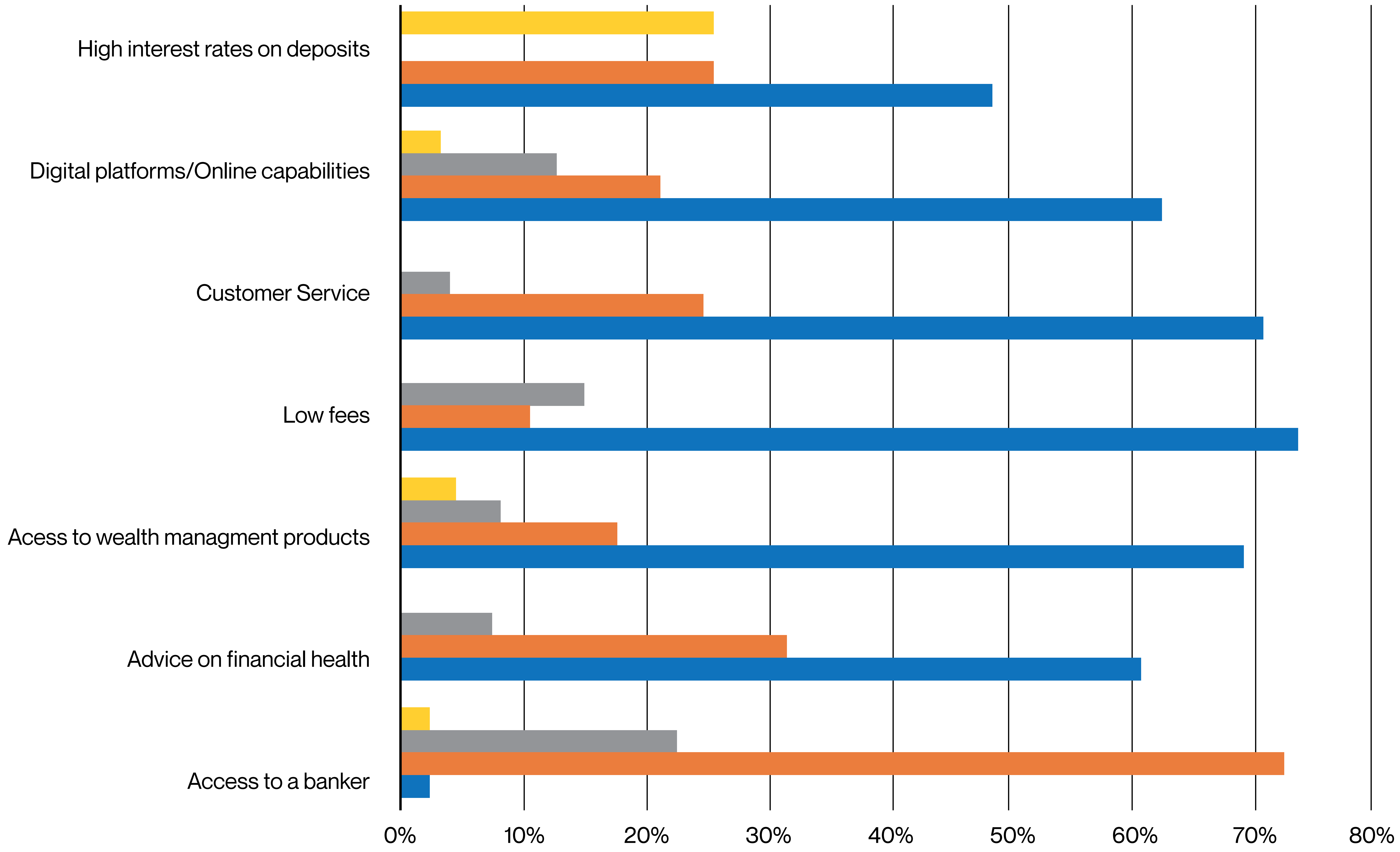


Exhibit 3

Partner or Buy?

Partner with WizardTech	
B2B tech company offering white labelled investment products & services to retail financial services companies	
Setup cost	$2,800,000
Annual maintenance cost	$750,000
Price charged to Apogee for every user onboarded	$14
Average Revenue Per User (ARPU)	$23
Estimated new users	125,000

Buy Finvest Inc.	
New Jersey based FinTech startup offering personal wealth management services	
Buy Price	$5,000,000
Annual Revenue	$800,000
Annual Fixed Cost	$150,000
Contribution Margin	$4
Current Userbase of Finvest	100,000
Estimated new users	125,000

Apogee bank expects Finvest to immediately save 6% on fixed costs and improve contribution margin by 5% if the deal goes through

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Brainstorming

What are some other pros and cons of acquiring Finvest Inc. over partnering with WizardTech?

Pros:

- New resources and competencies - access to additional customers as well as employees, assets and IP
- Reduced entry barriers to launch wealth management services
- Increase bottom line profitability once entities have completed the acquisition
- Increased market power; better positioned to fight competition
- See immediate and long-term tax advantages

Cons:

- High initial capital for acquisition
- Risk losing key employees and customers if combining the two companies is not executed carefully and effectively
- Risk financial detriment if the company being acquired turns out not to have enough value to justify the investment
- Longer implementation time and distraction from day-to-day operations
- Any regulations that limit the acquisition

Any other logical reason is also acceptable

Conclusion

Recommendation

- Acquire Finvest Inc. at $5M for a payback in 6.2 years
- Extend Finvest's investment product offerings to all customers of Apogee Bank

Risks

- The acquisition might not provide the expected benefits due to a mis-managed or prolonged integration
- With no experience in selling wealth management products earlier, there may be hiccups that Apogee Bank can face in marketing and opening new investment accounts
- Finvest's unstated intent to sell and the confidence in maintaining it's current financials
- Customer adoption to these new products by Apogee Bank could be slow

Next Steps

- Ensure appropriate liquid funds are available to fund the acquisition
- Plan an integration strategy to merge with Finvest and to roll-out investment products in phases
- Explore ways to realize additional synergies post acquisition

Attack Helicopter

Defense | Market Entry

Interviewee Led

Ratings:
Quant - 3
Qual - 2
Overall - 3

Prompt

Our client is a US defense contractor and one of its divisions manufactures attack helicopters for military operations. The company is considering setting up a new plant to meet increasing demand in the attack helicopter space. These helicopters are fully equipped with guns and ammo when delivered to the end customer. Our client has considered three sites to setup operations: Brazil, France, and the US.

How would you make this decision, and where should our client set up the plant based on that analysis?

Clarifying Information

- Our client has 3 plants in the US; 2 in Kansas and 1 in Michigan
- The plants operate at full capacity today
- One of the US plants can accommodate an additional assembly line at a cost of $500M; the other 2 are landlocked in residential areas and cannot be expanded

Notes / Advice to Interview / How to Move Forward:

- Candidate should structure the framework to consider the elements for evaluating 3 countries
- Candidate should start with a financial analysis. If not, nudge them in this direction
- If candidate does not mention examples of variable and fixed costs, prompt them to do so prior to revealing financials

Framework

Profitability Analysis of Each Site

- **Cost**
  - VC
    - Materials
    - Hourly Labor
    - Ship/Distribution
  - FC
    - PP&E
    - Utilities
    - SG&A
    - Initial Cost
- **Revenues**
    - Price per helicopter
    - # of helicopters / year
    - How frequently do helicopters get replaced?

Customers

- Where are they based?
- Need to be close to the customer for design inputs?
- Additional customer points?
- Do governments prefer to buy from domestic companies?
- Are there custom designs? Is each helicopter the same?
- Proprietary information: can you build two helicopters for two countries at once?
- Is there a market for private security and not just military?

Suppliers

- Supply chain considerations
  - Do we have an adequate supply base in each location?
    - Assembly inputs
      - Spare parts
      - Raw materials
  - Local regulations: can you import what is needed?

Logistics

- What's it going to take to get the product to the customer?
- Labor
  - Availability of skilled managers & technicians
- Export control restrictions?

Financial Information

Cost Information

Initial Plant Set up Cost: $500M (US) | $2B (BR) | $3B (FR)

Fixed Cost: $100M annually in all three countries

Variable Cost: $15M (US) | $20M (BR) | $25M (FR)

Market Size and Revenue Information

Defense budgets for next 5 years: $100B (US) | $15B (BR) | $10B (FR)

% of Defense budgets to be spent on our helicopters: 20% (US) | 50 % (BR) | 15% (FR)

Sales Information

Each helicopter sells for $100M/unit, but if they are imported into the US, the US government requires them to be certified; the certification process costs $15M/unit.

In the case of attack helicopters, the US and France each have export control restrictions in place prohibiting the sale of attack helicopters to other countries.

Implication: If the client manufactures within the US, they will only be able to sell to the US government – no exports are allowed.

Math Solution

If plant in the US

Revenues:

US revenues over 5 years = 20% of $100B = **$20B**

Costs:

# of copters = $20B / $100M = 200 helicopters
Variable Cost: 200 helicopters * $15M = **$3B**
Fixed Cost: $100M annually
Initial Cost: $500M

Profit = Rev – VC – FC – IC
*Profit = $20B - $3B – ($100M * 5) - $500M =* **$16B**

If plant in Brazil

Revenues:

US **revenues** over 5 years = 20% of $100B = **$20B**
BR **revenues** over 5 years = 50% of $15B = **$7.5B**

Costs:

# of US-bound copters: $20B / $100M = 200 helicopters
# of BR-bound copters: $7.5B / $100M = 75 helicopters
Variable Cost: (275 helicopters * $20M)** + (200 helicopters * $15M)* = **$8.5B**
Fixed Cost: $100M annually
Start-up Cost: $2B

Profit: $27.5B - $11B = **$16.5B**
Key Takeaway: Plant in Brazil will give us profits higher than US by $500M

Notes

- Interviewee should notice that France is not an attractive candidate due to having the same exact costs as Brazil but significantly smaller revenues in addition to export issues.
- Once interviewee mentions a profitability calculation, nudge them to calculate profit over the next 5 years
- ** = VC to manufacture in Brazil *= Certification costs to sell to United States

Brainstorming

Evaluate the potential risks of acquiring helicopters in Brazil.

Brainstorming Guidance

- If the interviewee does not provide potential risks for moving forward with Brazil, ask this question.

Best candidates will:

- Drive the case toward potential risks of launching in Brazil without prompting.

Potential Solutions

- Political stability
- Product quality
- Robustness of supply chain
- Cultural customs are different and may affect business relationships
- Know-how in other countries
- Brand image and trust in helicopters
- National security may be an issue as helicopters/defense equipment will be manufactured outside of US

Conclusion

Recommendation

- Based on the financials, Brazil appears to be a more attractive candidate for setting up the new plant because:
  - Our profits over 5 years will be higher by $500M
  - We won't be entirely dependent on one single country (US) for sales

Risks

- Those gained from brainstorming

Next Steps

- What is the potential for selling choppers outside of these 3 countries to the global market?
- What will labor's reaction at our
- existing plants be if we
- Are US relations with Brazil likely to be cordial over the next 5 years for us to benefit from favorable export control policies?

FLC Sports League

Sports | Profitability & Market Entry

Interviewee Led

Ratings:
Quant - 2
Qual - 3
Overall - 3

Prompt

Your client is a major sports league called FLC. They organize a national championship and several other smaller competitions. Serving as the only professional men's soccer league in the country, FLC currently has 10 teams. FLC is involved in general league management, which includes setting rules of gameplay, organizing the US National Championship, drafts, matches, referees and deals with sponsors etc. Currently FLC only receives revenues from royalties paid by the teams within the league, and the company is interested in increasing its net income by expanding its operations.

Notes / Advice to Interview / How to Move Forward:

- In this case, the candidate should **NOT** focus on FLC's current existing costs. The main focus is to evaluate different options to expand FLC's operations to meet the target NI growth.

Clarifying Information

- This year, FLC's revenue was ~$100M with 10% Net Income
- FLC wants to increase its NI by 20% in the next year, with an ROI (NI / Investment) hurdle rate of 15%
- For the purpose of this case, consider that FLC's current operations and revenue management are fully optimized (no organic growth possible)
- FLC is responsible for large upfront commercial, operational, and marketing costs when a new team enters the league
- FLC does not own any teams in the league
- Candidate should assume that teams are interested in joining the league for any option chosen

Guide to Handouts

- Provide Exhibit #1 when candidate requests information regarding potential revenues/market size
- Provide Exhibit #2 when candidate requests information on existing geographies or suggests evaluating geographic expansion
- Provide Exhibit #3 when candidate requests information on costs involved to accept new teams
- Candidate should clarify that FLC is a soccer league and that FLC's only revenue stream is royalties from teams in the league

Possible Framework

Market Entry – Same Business

- New sport – hockey, baseball, football
- New geography – recruit new teams in US cities
- New leagues – women, youth

Market Entry – Different Business

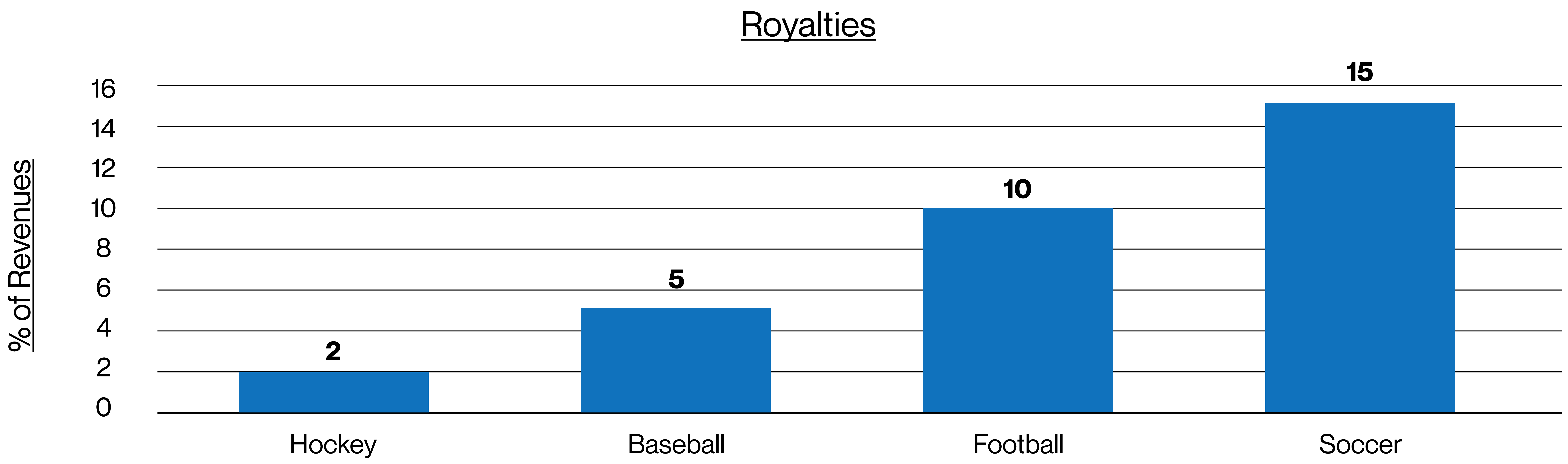
- Acquiring a team – good idea, but if it is a soccer team, conflict of interest. If other sports, very risky, because FLC doesn't have the know how

Current Business

- Increase royalties – not possible, revenue management fully optimized
- For each of the options, candidates should come with a method to evaluate revenues & costs to FLC
  - Revenue drivers: royalties paid to the league (soccer fans, avg. spent with sports, team avg. revenues)
  - Cost drivers: marketing, labor, SG&A
- Give extra credit for candidates that come with those different options and can point out different drivers/risks

Exhibit 1

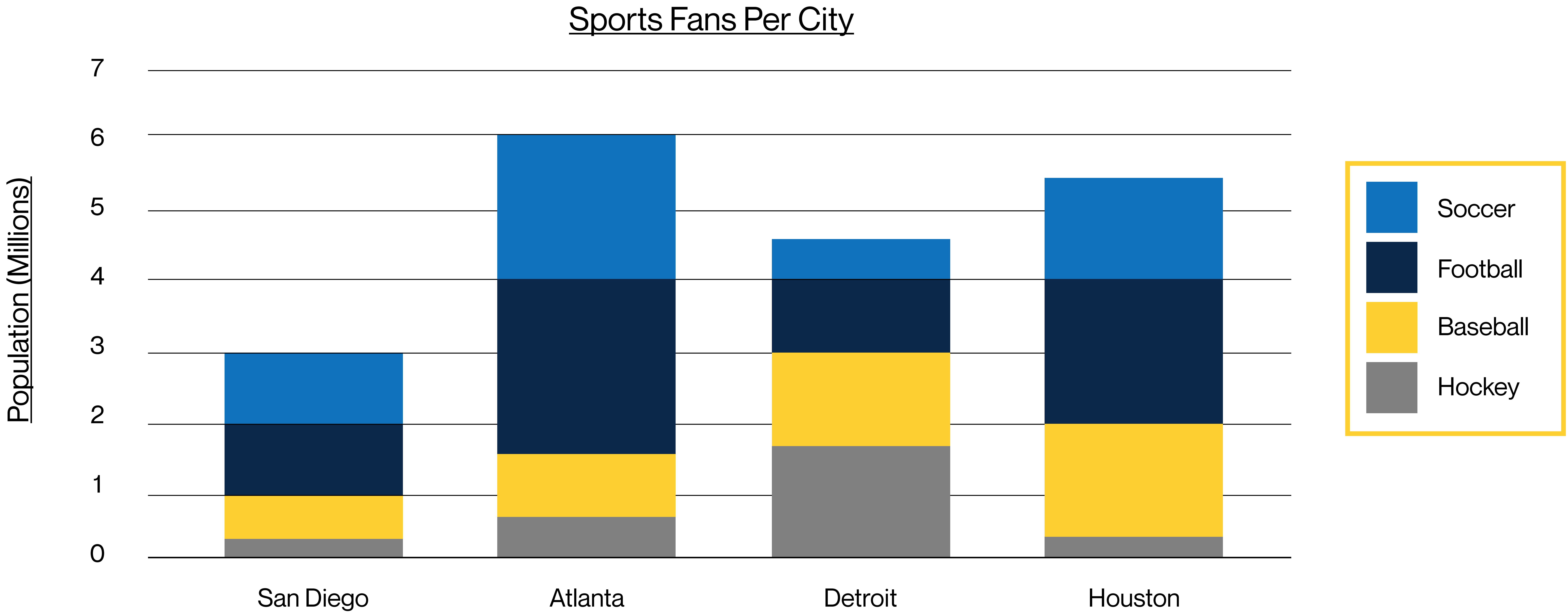
Average royalties paid for league management



	Hockey	Baseball	Football	Soccer
# of Teams	10	8	10	10
Avg Revenue Per Team ($M)	40	50	100	60

Exhibit 2

Sports fans in cities where FLC is not present



New club projected revenue per sports fan (years)	San Diego	Atlanta	Detroit	Houston
	$30	$50	$25	$40

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Exhibit 3

FLC's total cost to foster a new team

City	Sport	Cost ($M)
San Diego	Hockey	1
	Baseball	2
	Football	3
	Soccer	5
Atlanta	Hockey	9
	Baseball	10
	Football	12.5
	Soccer	7.5
Detroit	Hockey	4
	Baseball	1.5
	Football	2.5
	Soccer	2
Houston	Hockey	1
	Baseball	4
	Football	8
	Soccer	4.5

Exhibit Insights

Insights – Exhibit 1

A **good candidate** will exclude Hockey and Baseball from further analysis after calculations, but a **great candidate** will exclude these two sports just looking at the graph and not doing any math.

Calculations:
Hockey – 10 x $40M x 2% = $8M
Baseball – 8 x $50M x 5% = $20M
Football – 10 x $100M x 10% = $100M
Soccer – 10 x $60M x 15% = $90M

Takeaway:
Move on with soccer and football

Insights – Exhibit 2

A **great candidate** will start with Atlanta and will remember to multiply the final revenue of each team by the royalties % and NI margin

Calculations:
Atlanta football – (4M – 2.5M) x $50 = $125M rev. x 10% royalties paid to FLC = $12.5M in new rev. x 10% NI margin = $1.25M
Atlanta soccer – (6M – 4M) x $50 = $100M x 15% royalties = $15M x 10% = $1.5M
Houston football – (4M – 2M) x $40 = $80M x 10% royalties = $8M x 10% = $0.8M
Houston soccer – (5.5M – 4M) x$40 = $60M x 15% royalties = $9M x 10% = $0.9M

Takeaway:
Atlanta and Houston are good options

Insights – Exhibit 3

A **good candidate** will get here with Atlanta soccer and football recommendation. A **great candidate** will point out possible risks of moving to another sport.

Calculations:
Atlanta football - $1.25M NI / $12.5M cost = 10% ROI
Atlanta soccer - $1.5M NI / $7.5M = 20% ROI
Houston football - $0.8M / $8M = 10% ROI
Houston soccer - $0.9M / $4.5M = 20% ROI

Takeaway:
Football's ROI is lower than FLC's hurdle rate, so FLC should move on with soccer in Atlanta and Houston

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Conclusion

Recommendation

- FLC should invest in an Atlanta ($1.5M) and a Houston ($.9M) soccer team in order to achieve the $2.4M (24%) increase in net income and respect the ROI hurdle rate of 15% in both investments (Atlanta and Houston – 20%)

Risks

- Customer preference can change from soccer to other sports
- Average spend may be lower than expected
- As FLC grows, costs can increase more than expected

Next Steps

- Start negotiating with the candidates
- Set up initial marketing and communication plan for the launch
- Consider other cities to keep expanding in the following years

Excellent Case Answers

- Candidates come up with two or more opportunities to expand (other sports, other cities, other leagues)
- Candidates who quickly realize that hockey and baseball are not viable
- Candidates who identify risks involved in opening a football league (lack of know how, competitors)
- Candidates with perfect math calculations / organization

Marie's Café

Food | Profitability

Interviewer Led

Ratings:
Quant - 2
Qual - 3
Overall - 3

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Prompt

Marie's Café is a small local coffee shop that serves coffee. Marie's has been around for decades and is known for its high quality drinks and cozy atmosphere. The café has seen declining profits over the last few quarters, and the owner has hired you to increase its profits.

Clarifying Information

- There are two other coffee shops nearby that sell coffees and pastries. (There is no further information on these competitors.)
- Marie's currently serves two items (coffee and latte) in three different sizes.

Note:

- If the candidate touches on prices or costs, show Exhibit 1 and ask to calculate avg. profit / customer
- Next give candidate the relevant data points including Exhibit 2 and ask to calculate avg. profit / day

Framework

External Factors

Market
- Market growth
- Changing consumer preferences (Product, atmosphere)

Competition
- New low cost competitors
- New substiutes (restaurants or fast food chains close-by)

Internal Factors

Company
- Foot traffic in the coffee store (Increase number of customers)
- Process Efficiency (average time to cater to each customer)
- Capacity of the cafe

Product
- Product diversification (limited product range)
- Price sensitivity of customers
- Complimentary products and services (wireless services)
- Quality of products/brand image (building on brand)

Exhibit Summary

- Exhibit 1: Products, Costs, and Customer Split
- Exhibit 2: Demand of coffee per hour

Question 1

Questions for Candidates about Exhibit that the Interview should ask:

- ***How much profit does Marie's cafe currently make per customer?***
- Assume each customer only purchases one drink per visit. *(Show Exhibit 1)*

Guidance:

- Strong candidates will point out the larger sizes yield larger gross profit, and suggest new profit increasing strategies (promoting sales of larger sizes, introducing a 20 oz size, eliminating 8 oz sizes). Profit here does not include baristas.
- Avg Profit = $1.50 / customer.
  See Calculations to the right.

Product	Price	Cost	Unit Profit	% of Customer Purchases	Profits per Customer
Coffee, 8 oz.	$1.00	$0.50	$0.50	15%	$0.08
Coffee, 12 oz.	$1.50	$0.70	$0.80	15%	$0.12
Coffee, 16 oz.	$2.00	$0.90	$1.10	15%	$0.17
Latte, 8 oz.	$3.00	$1.30	$1.70	20%	$0.34
Latte, 12 oz.	$4.00	$1.90	$2.10	20%	$0.42
Latte, 16 oz.	$5.00	$2.50	$2.50	15%	$0.38
			Average Profit		**$1.50**

CCR
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Question 2

Questions for Candidates about Exhibit that the Interview should ask:

What is the average profit that Marie's Café earns per day?

- Each customer purchases exactly one beverage
- Two baristas are working at any given time. Baristas are paid $15/hr
- Hours: 7am to 10pm, Monday through Friday. Closed on weekends
- The number of customers per hour is listed below. Customers leave if they cannot be served quickly
- On average, it takes 2 minutes for a barista to complete an order
- **Show Exhibit 2*

Guidance:

- Candidate should realize that the café is losing money in the evening hours. Candidate should suggest adding or subtracting baristas based on demand. Assuming 2 baristas per hour, the average profitability per day would be $607.50. By adding a third barista to the morning shift and reducing one at night, the new profit would be $787.50

Time	Demand per Hour	Served	Current Profit	Optimal Baristas	Optimal Served	Optimal Profit
7AM to 10PM	100	60	180	3	90	270
10AM to 1PM	80	60	180	3	80	225
1PM to 4PM	60	60	180	2	60	180
4PM to 7PM	40	40	90	1 or 2	30 or 40	90
7PM to 10PM	15	15	-22.5	1	15	22.5
			$607.50			**$787.50**

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Exhibit 1

Products, Costs, and Customer Splits

Product	Price	% of Customer Purchases
Coffee, 8 oz.	$1.00	15%
Coffee, 12 oz.	$1.50	15%
Coffee, 16 oz.	$2.00	15%
Latte, 8 oz.	$3.00	20%
Latte, 12 oz.	$4.00	20%
Latte, 16 oz.	$5.00	15%

Product	Cost
Cup, 8 oz.	$0.30
Cup, 12 oz.	$0.40
Cup, 16 oz.	$0.50
4 oz. of coffee	$0.10
4 oz. of latte	$0.50

Note: Food and packaging costs are separate.

Exhibit 2

Demand of coffee per hour

Time	Average Demand per Hour
7AM to 10AM	100
10AM to 1PM	80
1PM to 4PM	60
4PM to 7PM	40
7PM to 10PM	15

Question 3

If candidate mentions that competitor sells pastries, while Marie's Café does not: follow up by asking, "what factors should Marie's Café consider before purchasing an oven to sell pastries?"

Brainstorming Guidance

Revenue
- Doughnut sales, increased synergies with coffee/volume of customers

Costs
- Fixed costs – purchasing/maintaining oven, setting up display case, storage, advertising
- Variable costs – ingredients, hiring/training staff

Capacity
- Room in café for oven and ingredients
- Baristas available to accommodate for increase in demand

Brand Image – Marie's is known for its coffee and atmosphere; adding pastries may change image and drive away loyal customers, especially if they are low quality

Competition – Price and quality compared to competitors

Alternative Opportunities – Purchasing doughnuts from somewhere else

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Question 4

A new espresso machine, priced at $2000, can greatly decrease the time it takes to make a latte.
The average time it takes to complete an average customer's order decreases from 2 minutes to 90 seconds.
How long would it take to pay back the machine?

Math Solution:

- Daily Profit shown below, calculated with the optimal number of baristas
- Machine would be paid back in 14.8 days
- (2000/(922.5 - 787.5) from Question 3)
- Baristas in the 7-10AM would also yield similar profits with the advantage of turning away few customers

Time	Demand per Hour	Served	Profit	Optimal Baristas	Optimal Served	Optimal Profit
7AM to 10PM	100	80	270	3	100	315
10AM to 1PM	80	80	270	2	80	270
1PM to 4PM	60	60	180	2	60	180
4PM to 7PM	40	40	90	1	40	135
7PM to 10PM	15	15	-22.5	1	15	22.5
			$607.50			**$922.50**

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Conclusion

Recommendation

- Focus on driving profits through larger size of coffee due to higher gross profit per transaction
- Schedule 4 baristas during peak times and 2 baristas during slower periods
- Offer complimentary add on services such as wireless services
- Diversify product range by including food.

Risks

- Offering wireless services might make customers stay for longer and the capacity of the cafe might not be enough to hold the customers.
- Baristas unable to accommodate demands

Next Steps

- Hire 4 baristas for peak time or use the new machine.
- Sell food along with coffee. As baristas are currently limited, think about buying food/ pastries from wholesaler.

Excellent Case Answers

- An excellent caser will provide both the pros and cons of starting wireless services. He/She would also be able to highlight capacity and process optimization issues.

Midwest Hospital

Healthcare | Profitability

Interviewer Led

Ratings:
Quant - 2
Qual - 3
Overall - 3

Prompt

Midwest Hospital is a research-based hospital and takes pride in its joint replacement surgery department. Recently Midwest Hospital did a P&L analysis for all departments and found that the joint replacement surgery department is providing losses.

The CEO has asked us to help out.

Clarifying Information

- There are no financial targets.
- Focus of this case is only on joint replacement surgery.
- Give the exhibits in the subsequent slides only when the candidate asks for the relevant data.

Note:

- At some point near the start of the case, interviewer should take the lead.
- Make Exhibit 1 and 2 available for the interviewee ahead of question 1 and 2.

Framework

Profit = Revenues - Costs

Revenue
- No. of Surgeries
- Complexity of surgery
- Patient Mix
- Price
- Other Charges (bed, medicines)
- Post Surgery (visits, medicines)

Competition
- Price
- Patient Mix
- Better facilities/equipment

Costs
- Fixed Costs
  - Hospital
  - Doctors
  - Equipments
  - Insurance
  - License
- Variable Costs
  - Visiting Doctors/Surgeons
  - Govt. regulation

Customers
- Age group
- Paying with insurance

Exhibit Summary

- Exhibit 1: Patient Mix
- Exhibit 2: Joint Replacement Department P&L
- Exhibit 3: Competitive Benchmark

Question 1

Would it be advisable to not cater to Medicare patients (assuming no backlash)?
(Show Exhibit 1 & 2)

Solution:

- On a fully cost allocated basis, Medicare patients are unprofitable but they are still paying $1k above the variable cost (marginal cost). This helps cover the fixed costs of the department. So, it is not recommended to stop conducting surgeries for Medicare patients.

- Total Cost / # of Surgeries = $21M / 1000 = **$21,000 / surgery**
- Marginal Cost / # of Surgeries = $14M / 1000 = **$14,000 / surgery**
- Revenue per Medicare patient = **$15,000 / surgery**

Question 2

What is the number of surgeries that Midwest needs to conduct in a year to breakeven?

Solution:

- Average revenue per patient is 19k. Average variable cost is 14k. Gross margin per patient is 5k. Fixed cost are 7M, so 1400 surgeries are required to breakeven. Assuming same proportion as in Exhibit 1 the hospital requires 140 commercial, 420 insurance, and 840 Medicare Patients

Avg. Revenue Per Surgery = Total Revenue / # of surgeries = $19M / 1000 = **$19,000 per patient**
Avg. Variable Cost = Total Variable Cost / # of Surgeries = **$14,000 per patient**
Fixed Costs = **$7M**

Breakeven = FC / (Rev - VC) = $7M / ($19000 - $14000) = **1400 Surgeries**

Patient Mix:
Commercial = 10% * 1400 = **140 surgeries per year**
Insurance = 30% * 1400 = **420 surgeries per year**
Medicare = 60% * 1400 = **840 surgeries per year**

Percentages based on share of surgeries from Exhibit 1

Question 3

Why is Competitor D able to stay profitable despite having fewer patients and unfavourable patient mix? (Show Exhibit 3)

Solution:

- Competitor D might have a lower cost structure or was able to negotiate better pricing from payers.

Question 4

Evaluate potential risks to increasing the number of surgeries.

Brainstorming Guidance:

- There might not be enough market demand and increasing surgeries would mean stealing marketing share from competitors
- The competitors might reduce the price and enter a price war
    - Quality of surgery may be reduced, impacting reputation.
    - Surgeons may resent higher workload

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Conclusion

Recommendation

- Increase total number of patients to cover
- Change mix of patients to have a higher proportion of commercial and insured customers
- See if you can negotiate with insurers and Medicare for higher reimbursement.

Risks

- Those gained from brainstorming

Next Steps

- Analyze scope for cost reduction, starting with competitive benchmarking
- Analyze scope for increase in price, starting with competitive benchmarking
- Analyze profitability of post care services
- Start conversations with reimbursement providers

Excellent Case Answers

- Star candidates quickly identify that competitor D has a similar patient mix but is still profitable.
- Candidate should provide a reason as to why the client should not eliminate medicare patients
- Candidate should bring up the idea that joint replacement department may be a loss leader and provides synergies with other department offerings

Exhibit 1

Patient Mix

Payer Type	# Surgeries	List Price	Invoiced Price
Commercial (Enterprises)	100	$40,000	$40,000
Insurance	300	$40,000	$20,000
Medicare (Government)	600	$40,000	$15,000

Exhibit 2

Joint Replacement Department P&L

		$M
Revenue		**$19**
VC	Physician	$5
	Materials	$5
	Others	$4
FC	Facilities	$3.5
	Others	$3.5
Total Costs		**$21**
Profit		**($2)**

Exhibit 3

Competitive Benchmark

	Surgeries	Commercial	HMO	Medicare	Profitable
Midwest Hospital	1000	10%	30%	60%	No
Comp A	1200	20%	20%	40%	Yes
Comp B	800	30%	20%	50%	Yes
Comp C	900	10%	20%	70%	Yes
Comp D	1000	5%	25%	75%	Yes

EuroRail

Hospitality | Growth

Interviewee Led

Ratings:
Quant - 2
Qual - 2
Overall - 3

Prompt

Our client, EuroRail, is a railway company that operates luxury trains across Europe. It is a very different kind of railway company where tourists sign up for a 24-hour trip on the train. The trains are like hotels on wheels with various amenities on board - ranging from a ball room, jacuzzi, spa, and a bar. These trains are very popular in the Europe and run at 100% capacity throughout the year. Its end of 2022 and the company is looking to quickly increase its yearly revenue for year 2023. What should they do?

Clarifications (provide only if asked for):

- Goal: Increase revenues by at least €44M for the year 2023
- Current revenue can be calculated later (but for reference current revenue is €365M, so €44M is about 12% growth)
- The company charges €100 per person per trip (note, this is average price and candidate should ideally ask about different tiers or segments in the train. If they ask about segments tell them ticket prices by segments from exhibit 1)
- The company operates 20 trains across Europe
- The trains run at 100% capacity and 365 days a year.
- Demand for Luxury currently perfectly matches with capacity but the demand for economy is so high that company has to deny many registrations everyday.
- No competitor in the market

Expected Framework

Increase Average Spend

- Increase prices
- Change mix of cabins tiers
- Introduce new tiers in train
- Improve quality of onboard services to drive more onboard sales

Find New Revenue Stream

- Introduce casinos on-board similar to casinos on cruise ships
- Place advertisements inside and outside the trains to get ad-revenues
- Partner with luxury companies to drive commission-based sales onboard
- Add more coach to the train
- Any practical idea is acceptable…

Grow Inorganically

- Add new trains to the feet
- Expand to other geographies and introduce new routes
- Acquire competitors
- Explore partnering with other railway operators

What is acceptable performance?

- A good candidate will create a framework that explores ways to grow revenue and will not include other out of scope levers such as costs or profits

What is expected from an exceptional performance?

- An exceptional candidate will acknowledge the fact that the trains are running at 100% capacity and will not suggest revenue growth strategies that aim at increasing volume (Example: decrease price to drive more sales, target new customers, improve marketing and sales, etc.)
- Additionally, an excellent candidate will not only discuss inorganic growth strategies but will also acknowledge that EuroRail wants to increase revenues within the next year so acquisition, partnerships, buying new trains, etc. might not be feasible options due to time constraints

Notes for Interviewer

- Shoot down ideas such as new routes / new trains (not possible in one year) or add coach (no engine capacity)
- Push candidate to towards ideas such as increase price or change mix of cabin tiers (the ideal idea at this point is to explore price increase of one or both segments)
- Ask candidate to hold the thought on new revenue stream ideas
- If candidate asks for information regarding willingness to pay, current pricing and tiers, etc. show them Exhibit 1
- In any case, do not show Exhibit 2 without going through (and solving) exhibit 1

Exhibit 1

Data from consumer insights team

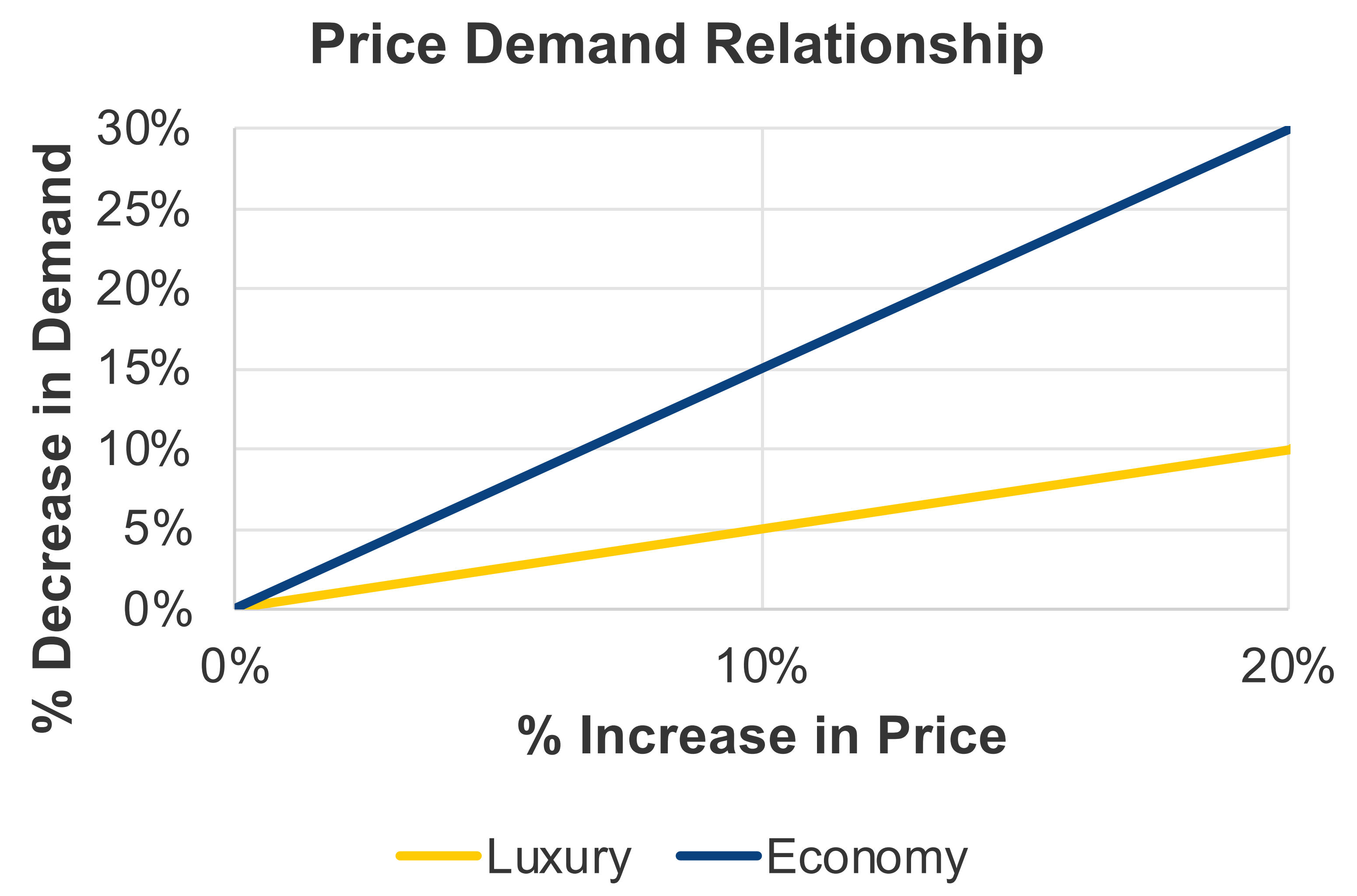
EuroRail Train

Economy Coach
10 cabins per coach
2 PAX per cabin

Luxury Coach
10 cabins per coach
2 PAX per cabin

PAX = passenger

EuroRail Revenue Strems	Economy	Luxury
Ticket per PAX	€75	€125
Onboard spend per PAX	€25	€25



Notes

- This is only a graphical representation of train to show split of economy and luxury cabins. Actual trains also have more coaches dedicated to onboard amenities such as spa, jacuzzi, bar, etc.
- EuroRail does not want to increase prices by more than 20% due to fear of public outrage

Exhibit 1 Guidance

Pre and post acquisition financials

Notes for Interviewer

- This case is difficult to solve at yearly level. Candidate should bring everything down to per train per day level (ok to use 360 days / year)
- A good candidate will indicate that economy price cannot be increased because of high demand elasticity (higher quantity decrease per percent increase in price). Therefore, increase price of luxury segment.
- An excellent candidate will realize that increase prices will free up some cabins due to reduced demand. These empty cabins can then be used for other purposes.
- **Mini Brainstorm:** Ask candidate to generate ideas about what to do with the free cabins. Ask "what else" till they are out of ideas. Direct candidate towards the idea of free upgrade for loyal economy passengers at price of economy cabin i.e., €75 per person.
- After candidate has explored 20% price hike and realized EuroRail is still not able to meet the target, communicate that you like the idea of 20% price hike but what else can we do. Candidate should go back to the framework and suggest exploring additional revenue streams.

Goal = €44M over next year = €44M / (20 trains x 360 days) = €6,111 per train per day additional revenue (Okay to go with €6,000)

Scenario	Luxury Ticket Sales	Economy Ticket Sales	Total Sales
Current	= 10 coaches x 10 cabins x 2 PAX x €125 = €25,000	= 10 coaches x 10 cabins x 2 PAX x €75 = €15,000	= €25,000 + €15,000 = €40,000
10% price increase for luxury segment • 5% demand drop • Free upgrade for economy travelers to freed up 5% luxury cabins	= €25,000 x 1.1 x 0.95 = €26,125	= €15,000 x 1.05 = €15,750	= €41,875 = €1,875 additional revenue (not enough, so explore 20% price increase)
20% price increase for luxury segment • 10% demand drop • Free upgrade for economy travelers to freed up 10% luxury cabins	= €25,000 x 1.2 x 0.90 = €27,000	= €15,000 x 1.1 = €16,500	= €43,500 = €3,500 additional revenue (still not enough, so explore additional revenue growth ideas)

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Exhibit 2 (for interviewer)

- After asking candidate about additional revenue streams, inform that EuroRail would like to add a casino coach onboard and give below information about the Casino Coach:
    - Additional Revenue: €25 per PAX
    - Casino coach will be created by converting 1 economy coach
    - Casino will require 6 moths to launch

- After candidate calculates net new revenue form Casino Coach, ask them to brainstorm some pros and cons of casino and then move on to the recommendations

Solution to Casino Coach

Revenue Lost Due to Coach Conversion	New Revenue	Net New Revenue
• 20 Economy PAX x (€75 ticket + €25 onboard purchases) • = €2,000	= 380 PAX x €25 x 50% year = €4,750 **Note:** • Candidate should realize that there will only be 380 PAX and not 400 PAX since EuroRail will convert one of its economy coach to casino and will lose 20 economy PAX • If candidate misses the time factor, direct them to think how time required for launch will impact the new revenue (Casino Coach will take 6 months, therefore it will generate revenue only for 50% of the year	€2,750

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Brainstorming

What are some pros and cons of each program having a Casino Coach?

Below is an example of answer. This is not an exhaustive list, and any additional reasonable points are acceptable

Pros:

- High revenue potential in the long term
- Will make train more attractive for all passengers
- Adding a casino could be a good way to justify 20% price increase

Cons:

- Might face regulatory issues
- Casinos are risky investments and EuroRail might lose money on bad days
- Will require high investment (security, surveillance, dealers, etc.)
- High time to launch

Conclusion

Recommendation

- To achieve its revenue growth target of €44M in 2023, EuroRail should increase price of its luxury segment by 20%.
- This will lead to 10% drop in demand. EuroRail can give free upgrades to its loyal economy travelers to backfill freed up luxury cabins. (combined €3,500 additional revenue per train per day)
- EuroRail should also convert one of its economy coaches on each train to a casino (Additional €2,750 revenue per train per day)

Risks

- Increase in price might not be well received by the travelers
- Price hikes might make this industry more attractive and invite competition
- Casinos are risky and capital-intensive investments

Next Steps

- Announce launch of onboard casino along with price hike – create marketing and communication material
- Perform customer research to decide games to be place in casino
- Consult lawyers to discuss regulations around casino operations
- Hire designers to redesign coach as a casino

DoWork

Technology & Real Estate | Growth

Interviewee Led

Ratings:
Quant - 2
Qual - 3
Overall - 3

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Prompt

DoWork is a provider of coworking spaces (both physical and virtual) and uses Technology solutions to run a lean and efficient operation. The company went through acute financial stress post Covid but has since recovered with increasing number of people returning to office and companies opting for more flexible lease arrangements due to hybrid work. The CEO has approached you to explore new growth frontiers while maintaining a strong focus on profitability.

Clarifications (provide only if asked for):

- What is our client's business model? Or How does our client make money?
  Answer: Our client makes money by renting office places at a cheap rate by signing long term contracts and renting them out at higher rates to enterprises and start-ups. It has recently started exploring providing technology enabled services for lease and commercial space management
- What is the current revenue and profitability?
  Answer: Revenue is at around 1 BN and Profit Margin is at 15%
- What is the growth target? What timelines?
  Answer: Double revenue in 3 years, increase or maintain profitability
- What is the market or geography in consideration?
  Answer: US
- What does virtual coworking space mean?
  Answer:. Virtual meeting software solutions

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Expected Framework

Revenue Growth Opportunities

- Organic:
  - Price increase
  - Increase # customers
    - New customers, same products (segmentation and marketing)
    - Same customers, new products (R&D, pricing and marketing)
    - New customers, new products (riskier bet)
- Inorganic:
  - Acquire a competitor
  - Expand geographically

Profitability

- Revenue
- Cost
  - Fixed Cost: Long term lease, labor
  - Variable Cost: negligible but limited to consumables like food and beverages, stationary etc

Market

- Competition
- Covid and related challenges
- Real estate cost
- Leasing vs. upfront purchase

What is acceptable performance?

- A good response will mention growth opportunities and profitability framework

What is expected from an exceptional performance?

- An exceptional framework will have the acceptable framework with structured market conditions / other considerations to consider for growth and profitability

Exhibit 1

Exhibit 1a: US Revenue in BN $ for 3 largest commercial lessors

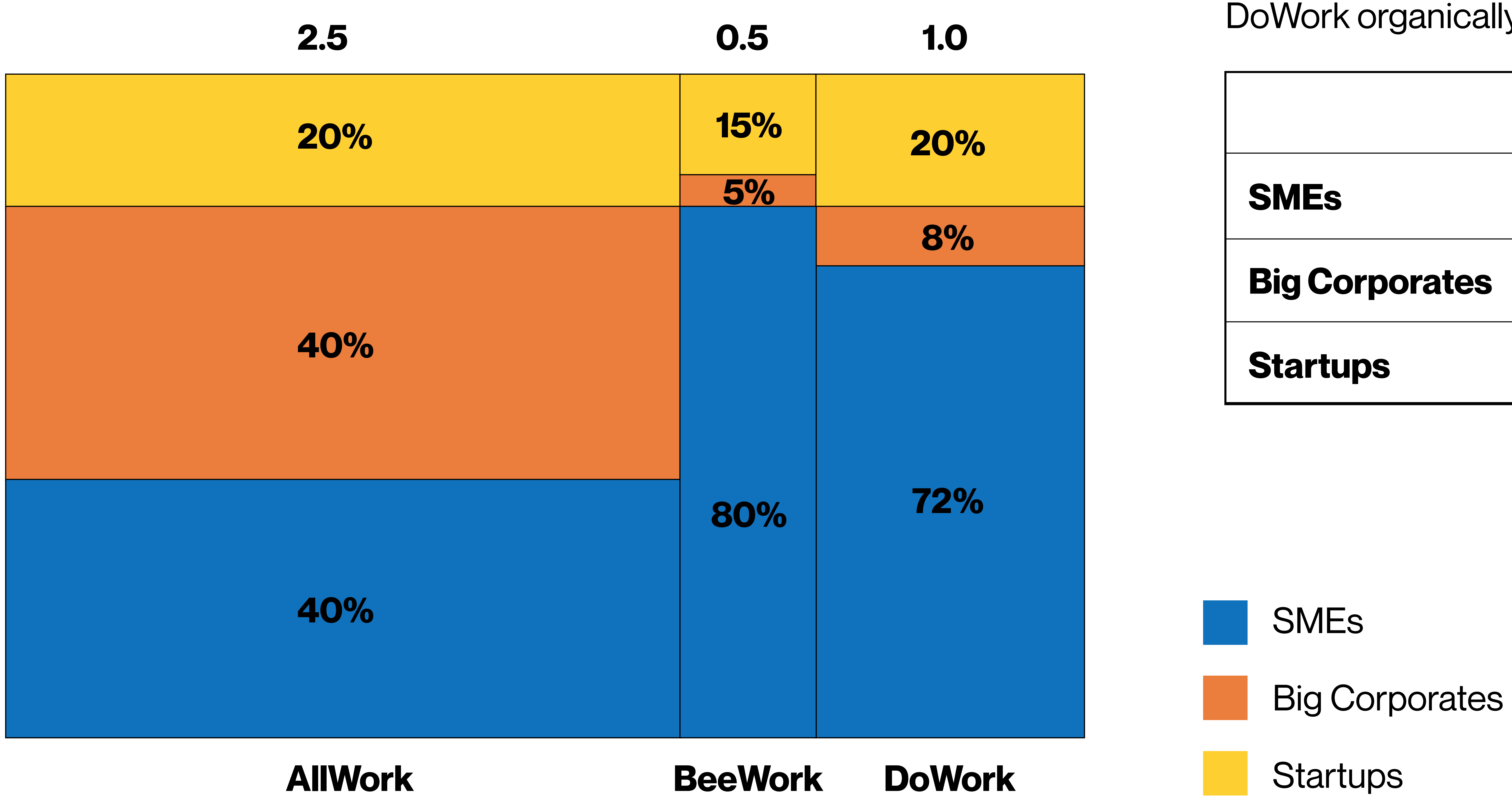
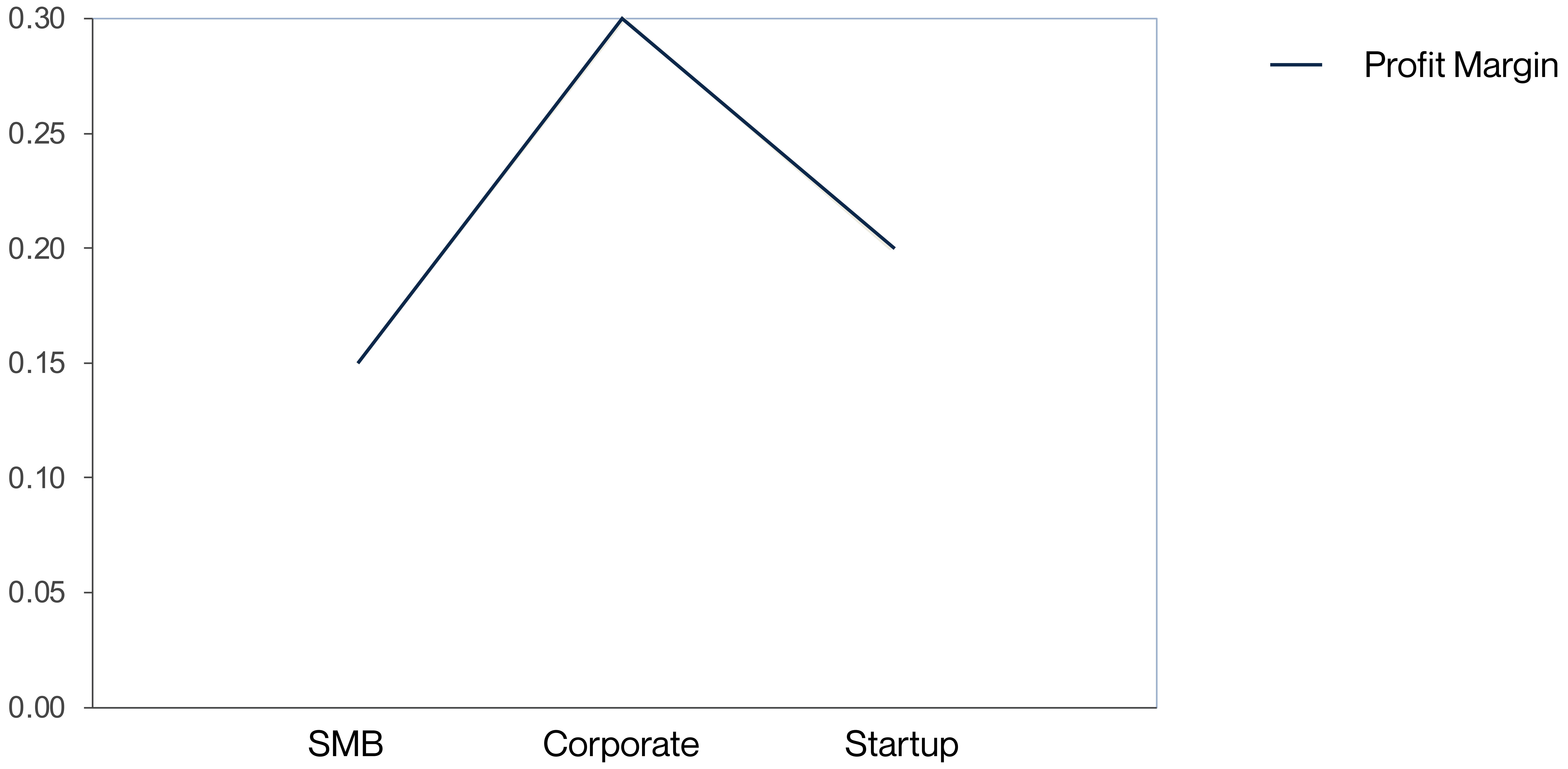


Exhibit 1b: Revenue share that can be captured by DoWork organically

	AllWork	BeeWork
SMEs	10%	20%
Big Corporates	25%	10%
Startups	30%	20%

Exhibit 2

Net profit margin by segment post organic expansion



Interviewer Guidance for Solving Exhibit 1

Guidance for the Interviewer

Once Exhibit 1 is presented, the interviewer should move forward by guiding that organic expansion is the right way to go to meet the company objectives. The interviewee calculates the incremental revenue using the table 1 and 2, the interviewer should ask for additional observations/inferences (if any) from the Exhibits and follow up with questions on other key considerations (profitability) that the client should consider.

What should a good response look like?

- **Exhibit 1a:** Candidate should be able to call out key observations and risks basis revenue and market share number for each competitor
- **Exhibit 1b:** Candidate should be able to calculate incremental revenue gain for DoWork

What should an excellent response look like?

A candidate should call out considerations around profitability (case objective) and capacity (does DoWork have existing capacity to meet additional demand or does it need further investments which can impact profitability)

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Interviewer Guidance for Solving Exhibit 1

	AllWork	BeeWork	DoWork
Revenue	2.5	0.5	1.0
SMEs	20%	15%	20%
Big Corporates	40%	5%	8%
Startups	40%	80%	72%

	AllWork	BeeWork
SMEs	10%	20%
Big Corporates	25%	10%
Startups	30%	20%

Objective is to double revenue from 1 to 2 BN USD.

Incremental Revenue:

From SMEs: 20%*2.5*10% + 15%*0.5*20% = $ 65 MN
From Big Corporates: 40%*2.5*25% + 5%*0.5*10% = $252.5 MN
From Startups: 40%*2.5*30% + 80%*0.5*20% = $380 MN

Total incremental Revenue : ~700 MN (ok to approximate)

However, this is falling short by 300 MN. Hence, the interviewer should follow up with a brainstorming session on meeting the 300 M shortfall only after guiding the candidate through the profitability exhibit.

Interviewer Guidance for Solving Exhibit 2

Segment	Profit Margin
SMEs	15%
Big Corporates	30%
Startups	20%

Objective is to maintain or increase profitability.

Incremental Revenue and Profit:

From SMEs: 20%*2.5*10% + 15%*0.5*20% = $ 65 MN | Profit: ~ $ 10 MN
From Big Corporates: 40%*2.5*25% + 5%*0.5*10% = $252.5 MN | Profit: ~ $ 75 MN
From Startups: 40%*2.5*30% + 80%*0.5*20% = $380 MN | Profit: ~ $ 76 MN

Total incremental Revenue and Profit: ~700 MN (ok to approximate) | Profit : ~ $ 160 MN

New Profit Margin : (150 + 160) / 1.7 = 18% which is more than 15%

Alternatively, an exceptional candidate should be able to infer from the graph that since each segment's profit margin is more than 15% the overall margin would stay above 15%.

Interviewer should guide the discussion towards technology solutions and ideas that the client can pursue to further increase their revenue from existing customers.

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Guidance for Brainstorming

Question

- What are some tech led initiatives that Do-Work can pursue to make customers feel safe about in-person work?

Potential Solutions

- Autonomous Cleaning Solutions
- Zero touch and voice enabled tech
- Mobile and App based accessibility
- Remote Collab Tools
- People Counting sensors and over crowding alerts
- Attendance management
- Lease management for B2B enterprises

Exhibit 3

Tech initiatives for incremental revenue generation

Idea Name	Implementation Timeline	Implementation Cost	Incremental Revenue (in USD)	Operational Cost (in USD)	Risk*	Lead Time to Revenue Realization post Implementation
Attendance management for enterprises	2 years	NA	150 MN	10 MN	Medium	.5 years
CRM management	1 year	NA	200MN	50MN	High	1 year
Lease management SaaS	1.5 years	NA	300MN	5MN	High	2 years
Voice enabled Technology	1 year	NA	350MN	50MN	High	2 years

*Riskiness of a project is a function of internal parameters.
Due to internal controls DoWork is not able to execute more than one High risk project at any given point of time.

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Interviewer Guidance for Solving Exhibit 3

Objective is to increase revenue by 300 MN in the next 3 years

- First initiative has an implementation + lead time of 2.5 years and incremental revenue of 150 MN which is short of 300 M
- Second initiative has an implementation + lead time of 2 years and incremental revenue of 200 MN which is short of 300 M
- Third initiative has an implementation + lead time of 3.5 years and hence not eligible
- Fourth initiative has an implementation + lead time of 3 years and incremental revenue of 350 MN: this initiative should be prioritized over other

Since these initiatives don't have a fixed cost component there is no impact on the profitability of the enterprise during implementation and lead time.

Also, since operational cost is negligible compared to revenue profit margin improves considerably.

Conclusion

Recommendation

- DoWork should focus on capturing more market share from competitors using aggressive marketing techniques to grow its market share and focus on the most profitable segment i.e. Big Corporate
- DoWork should also implement technology led initiatives to boost revenue and cost-saving

Risks

- Covid can cause further disruption and hinder growth
- Rising real estate costs in major cities can increase long term lease rentals

Next Steps

- Hire a dedicated marketing and research team for competitor analysis and growth marketing

Banana Heaven

Public Sector | Profitability

Interviewer Led

Ratings:
Quant - 1
Qual - 3
Overall - 2

Prompt

The government of Banana Haven (an island in the Indian ocean) is predominantly an agricultural economy. Majority of the population is involved in the farming of paddy (rice).
Once grown on the farm, paddy is then bought by the government at a predefined price called as the Minimum Selling Price (MSP). Banana haven is going through a crisis of depleting groundwater (water that is used for agriculture). Since paddy uses a lot of water in its cultivation stage, the water level is reducing by ~ 50 feet every year. This is a major cause of concern on the island and the government is planning to introduce a crop diversification program as a pilot to incentives farmers to shift from paddy to other crops that use less groundwater. What should be the government's plan of action to conduct a successful pilot and replicate the program in the whole island nation.

Clarifications

It's a McK style case, so just ensure that the interviewee understands the prompt and can use clarification questions to -
- Summarize the prompt
- Ask you to repeat any information that the interviewee might have missed

Expected Framework

Financials/Economics

- Farmers
  - Profit from new crop
  - Profit from old crop
- Government
  - Actual ground water reduction
  - Subsidy to be given to make up for loss

Market/External Factors

- Market for alternate crop
  - Market Size/Demand trend
  - Existing players
- Soil/Climate
  - Does the country have the right soil/climate for the crop
  - Other factors like crop damage, wild animals etc.

Risks

- Operations
  - Technical knowledge to the farmers to shift
- Implementation
  - Supply chain of new crop
  - Government budget
  - Adoption by farmers
- Scaling
  - Resources to scale

What is acceptable performance?

- Ability to identify that the project can be successful only when it makes economic sense to the farmers. The new crop plus government subsidy should ensure that the farmers make at least the same they were making earlier
- Keeping in mind the objective to reduce ground water

What is expected from an exceptional performance?

- Taking into account external factors like soil/climate
- Being creative on ways to ensure adoption of the new pilot. Giving incentives to farmers through subsidy
- Introduce gamification/tech for review and monitoring of the pilot and keeping in mind the challenges faced during scaling

Exhibit 1

Financial analysis of crop options

Crop	Crops/acre ($)	Revenue/acre ($)	Ground water saved (%)
Paddy	200	500	–
Maize	150	300	50%
Pulse	300	400	40%

- Total farmers - 1k
- Area per farmer - 500 acre

Interviewer Guidance for Solving Exhibit 1

Crop	Crops/acre ($)	Revenue/acre ($)	Profit/acre ($)
Paddy	200	500	300
Maize	150	300	150
Pulse	300	400	100

Cost to government for shifting from Paddy to maize:

Total profit (Paddy) = 300 * 1k*500 = $150 M

Total profit (Maize) = 150*1k*500 = $75M

Extra $75M budget needed from government.

Each farmer to be given at least $150/acre to shift from paddy to maize

What is acceptable performance?

- Calculating profits directly from the data for all the 3 sources
- Combining the profit with information about groundwater reduction and deciding to go ahead with maize as an alternate crop
- Calculate the total profit. Multiplying the profit/acre with total number of acres and total number of farmers
- number of acres and total number of farmers

What is expected from an exceptional performance?

- Understanding that there is a difference of 150 profit/acre that needs to be filled by the government
- Calculating the budget needed from the government. Multiplying the gap in profit ($150/acre) and multiplying the profit/acre with total number of acres and total number of farmers to get the yearly budget for the government

Brainstorming Question

Question

After 6 months, the pilot project was successful and the government now plans to rollout the pilot to all the 100k farmers in the island. What should the government do to ensure scaling the pilot from 1k farmers to all the 100k farmers in the island nation of banana heaven?

Solution

Supply

- Adoption of maize
  - Mitigating risks from crop transfer
- IEC/Awareness
  - Using education content to increase awareness about groundwater
- Operations/technical support to farmers
  - Expert consultation to farmers

Demand

- Creating Market for alternate crop
  - Export opportunities
  - Raw material for other industries like alcohol
- Government subsidy/support
  - Non monetary incentives to farmers
  - 100% assurance of buying the maize crop from farmers

Conclusion

Recommendation

- Government should go ahead with the pilot with maize as a possible alternative to current paddy cultivation to tackle groundwater depletion

Risks

- Financial burden - Extra budget of $75M needs to be given to the pilot to make economic sense to the farmers
- Dependence on rice - If country is dependent on rice for domestic use, then alternate sources need to be figured out
- Soil/Climate needs might not be optimum for maize production

Next Steps

- Due diligence on the existing market for maize including exports. Any possible ways to increased demand
- Analysis of soil/climate conditions to identify potential land areas for pilot implementation
- Creating a plan for scaling the pilot

One Tree Hill

Non Profits | Micro-Economics, Financing

Interviewee Led

Ratings:
Quant - 3
Qual - 3
Overall - 3

Prompt

The nonprofit organization, One Tree Hill (OTH), has a mission of restoring forest cover globally. They typically give grants (donations) to local NGOs, communities, or startups that reforest (i.e., plant trees) in a given area. Due to the limited supply of grant funds in recent times, and in order to enter a very lucrative market, OTH is looking for ways to fund some reforestation projects through the sale of carbon credits (CC), also called “carbon financing”. They have a portfolio of projects in need of funding, and they would like to select a few for carbon financing. Should OTH pursue carbon financing, and if yes, for which projects?

Clarifications (provide only if asked for):

- A carbon credit (CC) is a tradable certificate that provides the holder of the credit the right to emit greenhouse gases, typically 1 ton of carbon dioxide equivalents. Corporations and countries purchase carbon credits to “offset” their emissions above allowable limits.
- If the candidate asks about the process for selling carbon credits, show them the flowchart in Exhibit 1 (this is just meant to help them understand the process, candidate is not expected to draw insights from this)
- There is no target amount to be raised for funding these projects (there are many). The case is about whether financing a project via generating and selling carbon credits is a feasible option. If feasible, OTH will proceed with that project.
- Who is the customer? Typically, corporations or countries wanting to offset emissions from their operations.
- This is a forward-looking analysis, i.e., only for new projects. We can ignore any past planted trees or projects.

Exhibit 1

Reforestation projects identified → Estimate carbon removal potential of project (carbon credits generated) → External Audit of estimates → Carbon Credits (CCs) certified → Sale of CCs to buyers

- 1 ton of CO2 removed by trees = 1 carbon credit generated
- Done by external agencies/certification bodies

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Expected Framework

- **A. Financial factors**
  - Costs of carbon financing
    - Costs of certification; external audit; commissions to CC issuing body tree planting & maintenance costs; labor
  - Revenue generating potential
    - Price at which carbon credits are sold; customer demand for purchasing CCs; market trends – nascent vs growing
  - Opportunity costs
    - Does this preclude projects from other forms of funding or other revenue sources (e.g.: sustainable timber sales)
- **B. Logistical factors**
  - Resources & capacity to execute
    - Manpower, technical assistance, on-field resources, etc. for data collection and ongoing monitoring
  - Timeline
- **C. Legal & Regulatory factors**
  - Geography of project – national policy on CCs? Who can you sell to?
  - Any unique taxation policies to consider?
  - CC Regulatory bodies like the UNFCCC – what is their role?

- This is a sample MECE framework, but there can be more factors candidates explore.
- A **good candidate** will identify that the process in Exhibit 1 involves many costs, and the final goal is to find the projects that are ”profitable”. The framework will reflect that this case boils down to doing a cost-benefit analysis.
- An **exceptional candidate** will also identify the variety of other factors that can go into this decision, such as the timeline, national climate policy, etc. The candidate should also bring in knowledge and examples from this widely covered subject in the real world.

Interviewer Guidance (After Framework)

After the framework, the candidate should ask for data on the costs of the various steps – tell them the information in **Table 1**. If they do not ask, guide the interviewee towards thinking about how an organization can generate carbon credits, who would issue these, certify them, etc.

Table 1 (To share with candidate)

Fixed costs (do not change with size of project):
1. Audit cost = $325,000
2. Project certification cost = $175,000

Variable costs:
1. Carbon Credit issuance fee = $2 per CC issued
2. Tree planting & maintenance cost = $5 per tree (throughout the tree's lifetime)

Price of CC sold in the market:
$10 per CC

After receiving Table 1 information, the candidate should realize that the costs are variable and should seek information on the number of trees in various projects and the number of carbon credits that can be sold.
Show them Exhibit 2

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Interviewer Guidance (Solving Exhibit 2)

(Time value of money can be ignored)

Method 1: Candidates can solve this in the traditional method of calculating variable costs for each of the projects, add fixed costs, then subtract total cost from revenue to find if it's profitable. However, this is extremely lengthy and not advised.
[Example for Project A: Total CCs generated = Number of trees*CC potential per tree = 3M * 1 = 3M
Total revenue = Total CCs generated * $10 per CC = 30M; Variable costs = $2 * Number of trees + $5 * CCs generated = $21M;
Total costs = $21M + $0.5M (Fixed cost) = = $21.5M; Profit = Revenue - Cost = $8.5M. Hence, this project breaks even]

Project	Number of trees	Tree species	Location	Total CCs	Total revenue	Variable costs	Fixed costs	Total costs	Profit
A	3000000	Oaks	France	3000000	30000000	21000000	500000	21500000	8500000
B	7000000	Mangroves	India	5250000	52500000	45500000	500000	46000000	6500000
C	4000000	Acacia	Ghana	2000000	20000000	24000000	500000	24500000	-4500000
D	3000000	Alder	Peru	1800000	18000000	18600000	500000	19100000	-1100000
E	350000	Rubber	Venezuela	280000	2800000	2310000	500000	2810000	-10000
F	2000000	Apple	Turkey	600000	6000000	11200000	500000	11700000	-5700000
G	3000000	Acai Palm	Brazil	1200000	12000000	17400000	500000	17900000	-5900000
H	4000000	Maple	Canada	2200000	22000000	24400000	500000	24900000	-2900000

Method 2: Instead, candidate should take a unit economics approach – what is the minimum carbon credit potential per tree beyond which it becomes profitable? (if candidate is struggling, ask them this question as a hint).
Let "x" be the Carbon Credit potential/ number of CCs per tree (0.5, 0,6, 1, etc).
Our break-even equation **per tree** then becomes: 2x + 5 = 10x [We converted all costs and revenues to a per tree basis; 2x = Cost per CC * number of CC per tree = Cost per tree; 5 is the planting cost per tree; 10x = Price of CC * CC per tree = Price per tree]

Solving this, we get x =0.625. Projects with CC potential per tree > 0.625 could breakeven, depending on fixed costs (Projects A, B, E). Now candidate can perform the calculations shown above only for these 3 projects and find that Projects A & B are profitable!

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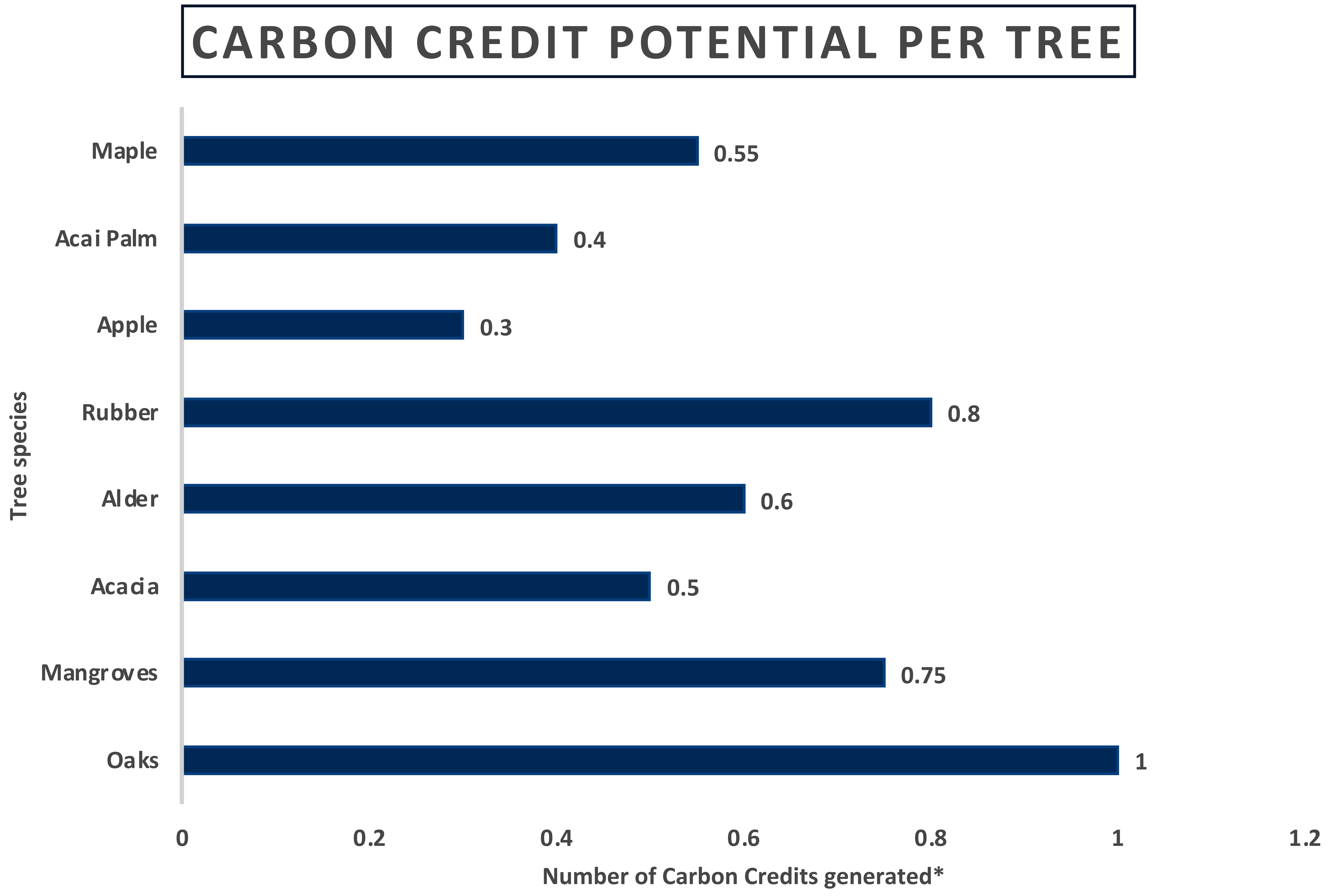
Exhibit 2



Project	# of trees	Tree Species	Location
A	3,000,000	Oaks	France
B	7,000,000	Mangroves	India
C	4,000,000	Acacia	Ghana
D	3,000,000	Alder	Peru
E	350,000	Rubber	Venezuela
F	2,000,000	Apple	Turkey
G	3,000,000	Acai Palm	Brazil
H	4,000,000	Maple	Canada

*Carbon credits generated are over the tree's lifetime of 30 years, not annually

Brainstorming Question

What other factors would you consider when evaluating if OTH should proceed with carbon financing of Projects A & B?

Expected Answer:

Candidate should provide a structured list of factors other than financial feasibility to be considered when evaluating this decision, including but not limited to:

a.) Legal ramifications of selling carbon credits generated in reforested areas
b.) Double counting of carbon credits with national commitments of reforestation
c.) Availability of manpower to perform the tasks required
d.) Timeline of cash flows – when does the money from sale of CCs come in? Does this overlap with the requirement of funds?
e.) Availability of grant capital in the country – we may want to explore CCs in regions where grants are limited

Interviewer Guidance for Exhibit 3

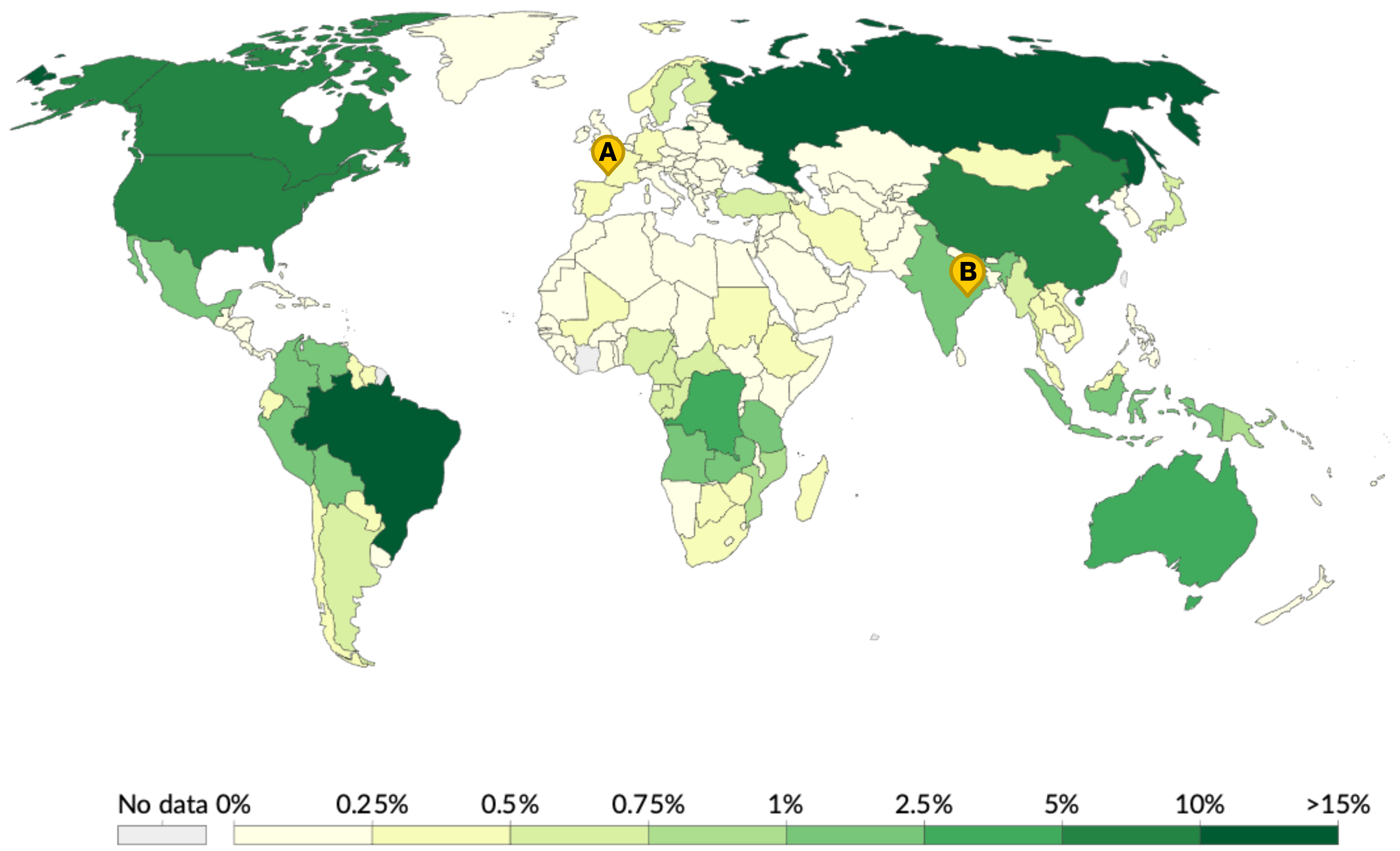
Once candidate lists a few factors, show them Exhibit 3 and ask for their thoughts. The chart and map in Exhibit 3 is intentionally ambiguous. While India (Project B) has lower availability of grant funding capital and hence may need to do carbon financing more, it has fewer forest protection services available – which makes implementation very difficult. Similarly, existing forest cover and density is very different for both projects.

There is no "right" conclusion from Exhibit 3, it is meant to test the candidate's ability to interpret ambiguous data. Any reasonable conclusion is accepted.

Exhibit 3

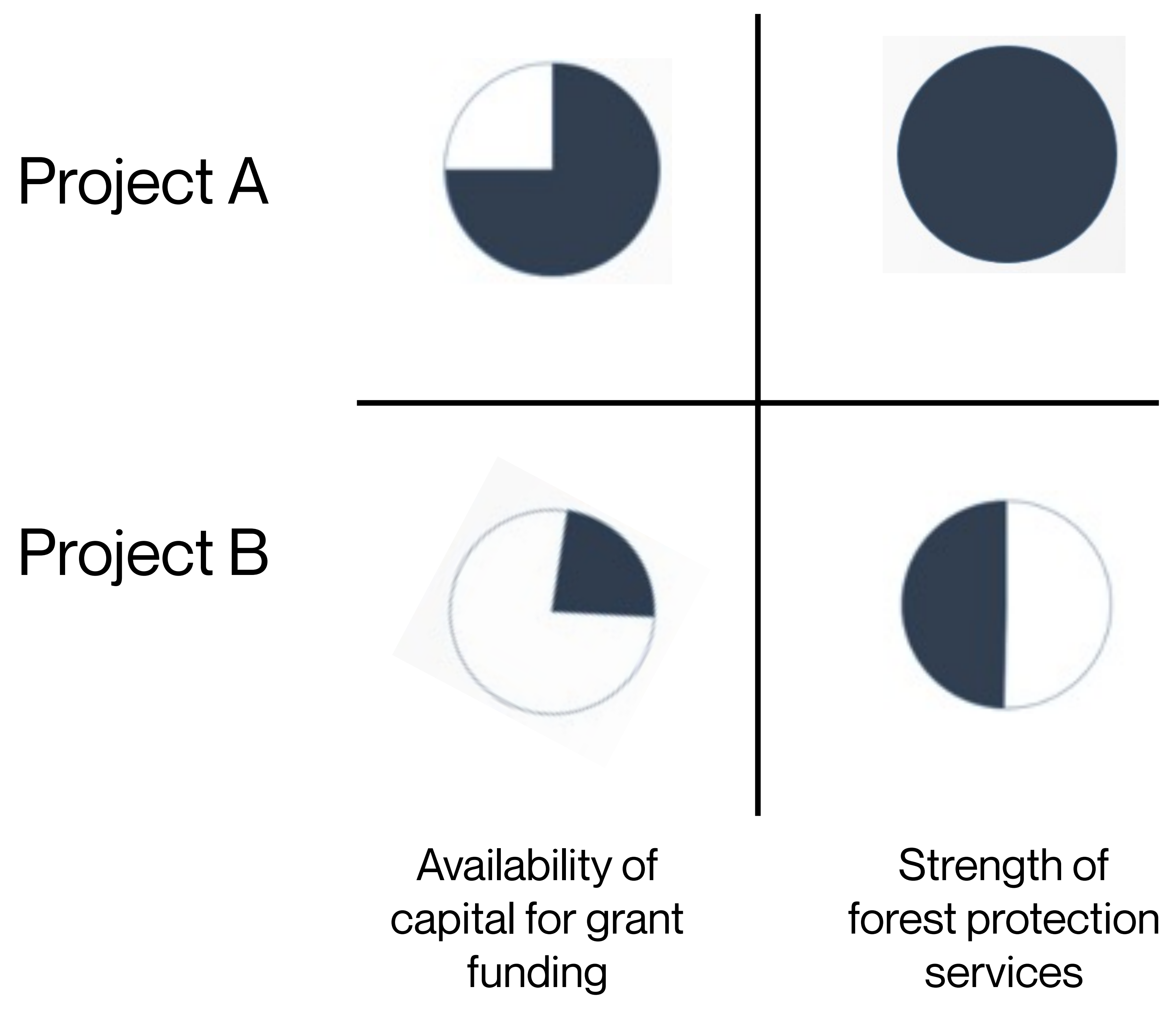
Share of global forest area, 2020

Source: Our World in Data



Source: UN Food and Agriculture Organization (FAO). Forest Resources Assessment.

Resource Availability



Conclusion

Recommendation

- There can be multiple reasonable recommendations for this case. Project A and B are both profitable, however they differ significantly on other factors. Candidate can recommend to proceed with both projects or either one, but they should give a sound justification for their choice. The justification should summarize all the areas that were covered in this case (financial feasibility, geography, resource availability, and any others from framework/brainstorming).

Risks

- We have ignored the time value of money in our calculations. $8.5M over a significantly long project period could mean very little returns on a yearly basis to the project.
- The source of revenue is sale of carbon credits in the future. Upfront capital is still required to plant trees and kickstart the project, so OTH will have to find other sources of cash for that purpose.
- Any regional limitations/ policy risk/ other area covered in brainstorming

Next Steps

- Source start up capital for projects to begin planting of trees
- Work with French and/or Indian governments to understand carbon sale rights, policy, and other legal ramifications of this project
- Gauge interest from potential corporate customers for carbon credits

Alternative Milk

Consumer Packaged Goods | M&A

Interviewee Led

Ratings:
Quant - 2
Qual - 2
Overall - 2

Prompt

Your client is FoodCo a multi billion dollar company looking to enter the growing alternative milk market. FoodCo has partnered with Bain to understand the best way to enter the market through acquisition of a growing brand, Smilk. Smilks profits have doubled in the last 3 years in both the US and Europe. FoodCo has expressed interested in purchasing the US business of Smilk. FoodCo's main objective is to increase Smilk market share in the US to 8% in the next 5 years and increase profitability by 6x in the next 5 years. How would you help FoodCo think about a potential acquisition of Smilk?

Clarifications

- **What products does Smilk sell:** drinkable alternative milk products (like oat, almond and soy milk)
- **Value Chain:** Smilk handles everything from manufacturing to distribution in supermarkets
- **Specific financial target for FoodCo:** 6x profit and increase market share to 8%

Expected Framework

Smilk Profit

- Revenues in US
  - # of Sales
  - Current distribution channels (Supermarkets, ecommerce)
  - Pricing
- Costs in US
  - Variable Costs
    - COGS
    - Distribution costs
  - Fixed Costs
  - Manufacturing costs
  - Facilities cost

Market of Alternative Milk

- Growth + size of market in US
- Competition in the space
- Customers preferences / trends in market

FoodCo Company

- Revenue Synergies
- Cost Synergies
  - Savings in manufacturing
  - Economies of scale
  - Supplier cost savings
- Expertise

What is acceptable performance?

- Candidate mentions the above three buckets.

What is expected from an exceptional performance?

- Candidate mentions the three buckets, sufficiently expands on each bucket, and remembers that the goal is to increase profit.

Question 1

Question #1: what is the total market size today and in 5 years of the alternative milk market?

Provide candidate with 5 year growth rate of 40%

Crop	Smilk Market Size	Smilk Market Share	Alternative Milk Market Size
Today	$5M	4%	=5M/4% = $125M
5 year growth rate is 40%			=125M*1.4=$175M
**8% of Alt Milk Market	Solve For (Answer $14M)	8%	=$175*.08=$14M

**Candidate should remember that FoodCo wants to increase Smilk market share in the US Alt Milk market to 8% in the next 5 years and therefore note that to be successful Smilk must be able to obtain a market size of $14M in 5 years to reach FoodCo target.

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Question 2

Our client is curious in understanding the profitability of the US SMILK businesses.

Question #1: What is Smilk's profit for the US?

Question #2: What would the growth rate need to be to obtain 6x profit?

Question 1	US Smilk Business	Calculation	Notes
Sales Worldwide	2.5M products sold		
% of business	40% (provided)	2.5M*.4 = 1M products	Candidate should solve for number of products sold in US
Sales Price	Average price $5		
Revenue	SOLVE FOR	=1M * $5 = 5M	
Profit Margin	15%		
Profit	SOLVE FOR	5M*.15 = 750K	

Question 2	US Smilk Business	Calculation	Notes
Profit	750K		
Profit 5 Years	SOLVE FOR	$750k*6 = $4.5M	
Growth Rate	SOLVE FOR	($4.5 – 750K)/ 750k = 5%	**

**A good candidate will contextualize the 5% growth rate indicate if they believe this is reasonable or not.

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Brainstorming Question

Question

What are some synergies we can expect to see if FoodCo acquires SMILK?

Solution

Revenue Synergies

- Diversify product mix with alternative milk products from SMILK
- Cross-sell SMILK with complementary FoodCo products

Cost Synergies

- Supply Chain & Operations – Greater buyer power and economies of scale by producing products in the same location
- SG&A – reduce headcount to share marketing, finance, sales, and IT teams

Brainstorming Question

Question

What are some risks to FoodCo if they acquire SMILK?

Solution

- Culture clash – the culture at SMILK and FoodCo are not compatible and they don't see the synergies that they expected
- Operations in US
- Brand cannibalization

Conclusion

Recommendation

- Yes, FoodCo should acquire Smilk because they will be able obtain their goal of increasing market share by 8% and profitability by 6x.

Risks

- Culture clashes may occur between FoodCo and Smilk
- Government approval of acquisition

Next Steps

- Send Smilk a term sheet with details for the acquisition
- Start preparing internal teams to onboard and transition the Smilk team
- Conduct a survey to further understand the alternative milk market and remain a leader in the category

Jab We Profit

Telecom | New Product

Interviewee Led

Ratings:
Quant - 2
Qual - 2
Overall - 2

Prompt

Telecom Co, a large Indian telecom service, has a new CEO who is determined to revive the struggling company. He has come up with the idea to launch a new, unlimited long-distance minutes cell plan called 'Geet' to attract new customers. This is a big strategic risk at a time the company is under intense scrutiny from shareholders and the general public, so he has hired us to evaluate if this product is a good idea. Should he launch this product or not?

Clarifications

- Telecom Co has operations only in India
- Telecom Co only has B2B and B2C subscriptions. We'll treat it as one pool of subscriptions.
- Telecom Co does not currently have an unlimited minutes plan; customers looking to make long distance calls must pay per minute.
- Telecom Co's main business is providing mobile communication services (e.g., data and minutes). It has some smaller investments in areas such as television and home internet, but these are minor parts of the business.
- There are several telecom players in India; our client is the fourth largest.
- The CEO needs the investment to break even by the end of the 2nd year, due to pressure from investors to see improvement to the company's performance.

Case flow (interviewer only)

Steps:

1. Interviewer reads the prompt and answers any clarifying questions
2. Candidate develops a framework referencing revenues and costs (among other possible things). Let the candidate pick if they want to start with revenues or costs (the order isn't important).
3. Revenue side steps:
   - Ask candidate what they would need to estimate potential revenue
   - The candidate needs to know the market size, estimated market share and pricing per year. The market size will be given in Exhibit 1; the market share will be given in Exhibit 2; pricing will be given by the interviewer when asked (flat $4 / yr pricing for long-distance plans)
   - Have the candidate estimate revenue.
4. Cost side steps:
   - When the candidate asks about costs, read them the cost information, share Exhibit 3
   - Have the candidate estimate total costs from this information.
5. Break-even analysis:
   - With the revenue and cost analysis done, the candidate can put it together to estimate the breakeven timeline
6. Final brainstorm: If the company does not invest this money in the new product, what else should they consider doing instead to revitalize the company?
7. Final recommendation

Note that all values are given in US$ throughout the case. Assume constant terms (no need to factor in inflation).

Expected Framework

What is acceptable performance?

A good framework will be along the lines of the following:

- Revenues from launching product
  - Number of prospective customers
  - Price
- Costs from launching product
  - Fixed
  - Variable
- Other Considerations
  - Alternatives to launching this products
  - Competition

What is expected from an exceptional performance?

A great framework will be along the lines of the following:

- Break-even analysis
  - Projected revenues (market size * share * price)
  - Projected costs (fixed, variable, overhead)
- Market factors
  - Short-term view (do consumers want this product? how big is the market today?)
  - Long-term view (is the market growing? are competing technologies like FaceTime on the horizon?)
  - Competitors (how fragmented is the market? how powerful are competitors?)
- Risks
  - Cannibalization (will this product cannibalize our existing customers?)
  - Competitive response (can competitors just copy this product?)

Brainstorming Question

How would you estimate the potential revenues for this product?
Note: it is not necessary to do math just yet - just discuss what inputs would be needed.
The interviewer will give the candidate information in the subsequent exhibits.

Solution

Revenue is equal to the market size * the market share * the price of the product
Thus, you would want to know the number of consumers, the share we think we can get, and the price we plan to charge annually.

Tips

To keep it simple, consider only B2C, consumer cell phone plans (e.g., do not need to factor in work-issued cell phones)

Exhibit 1

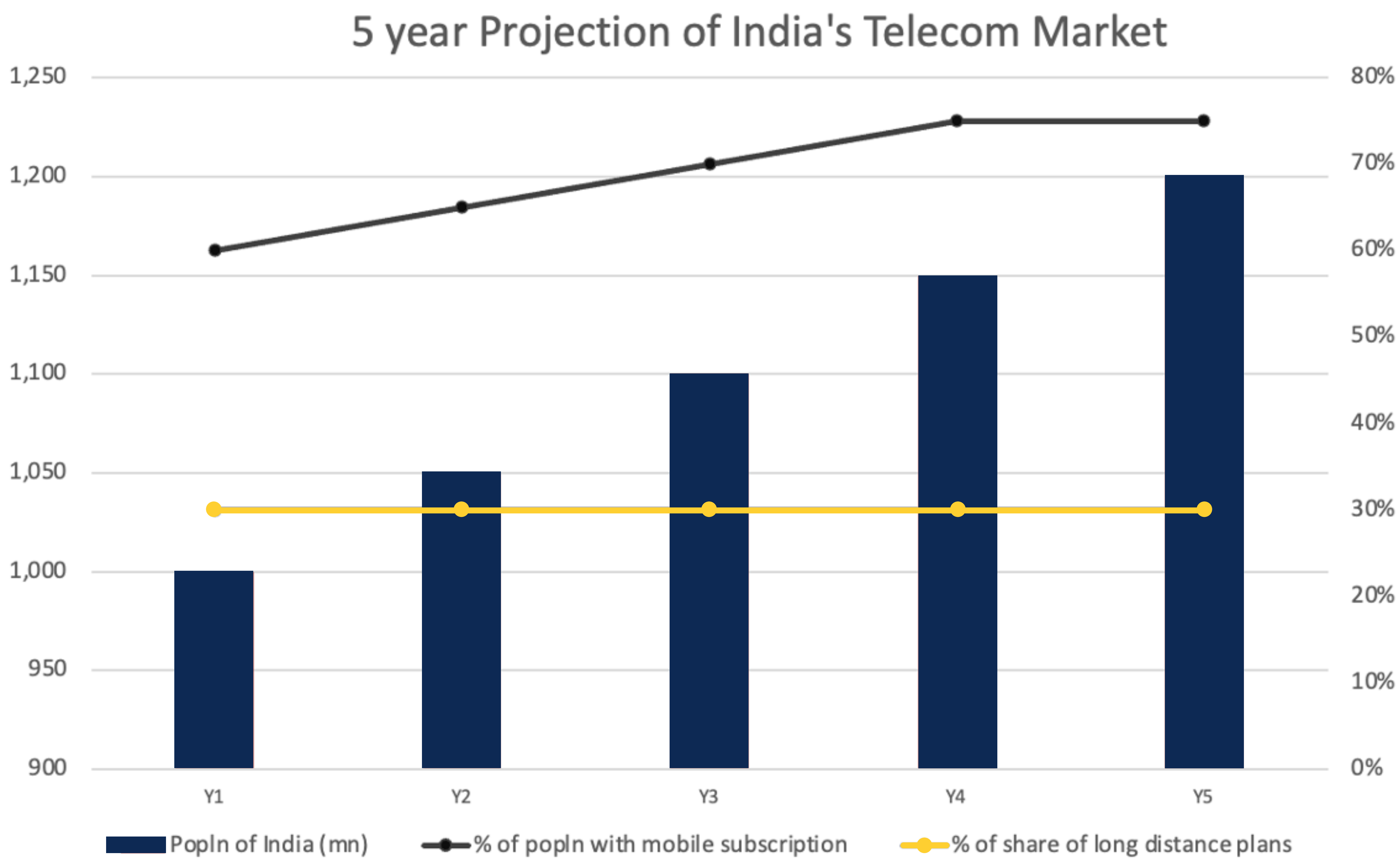

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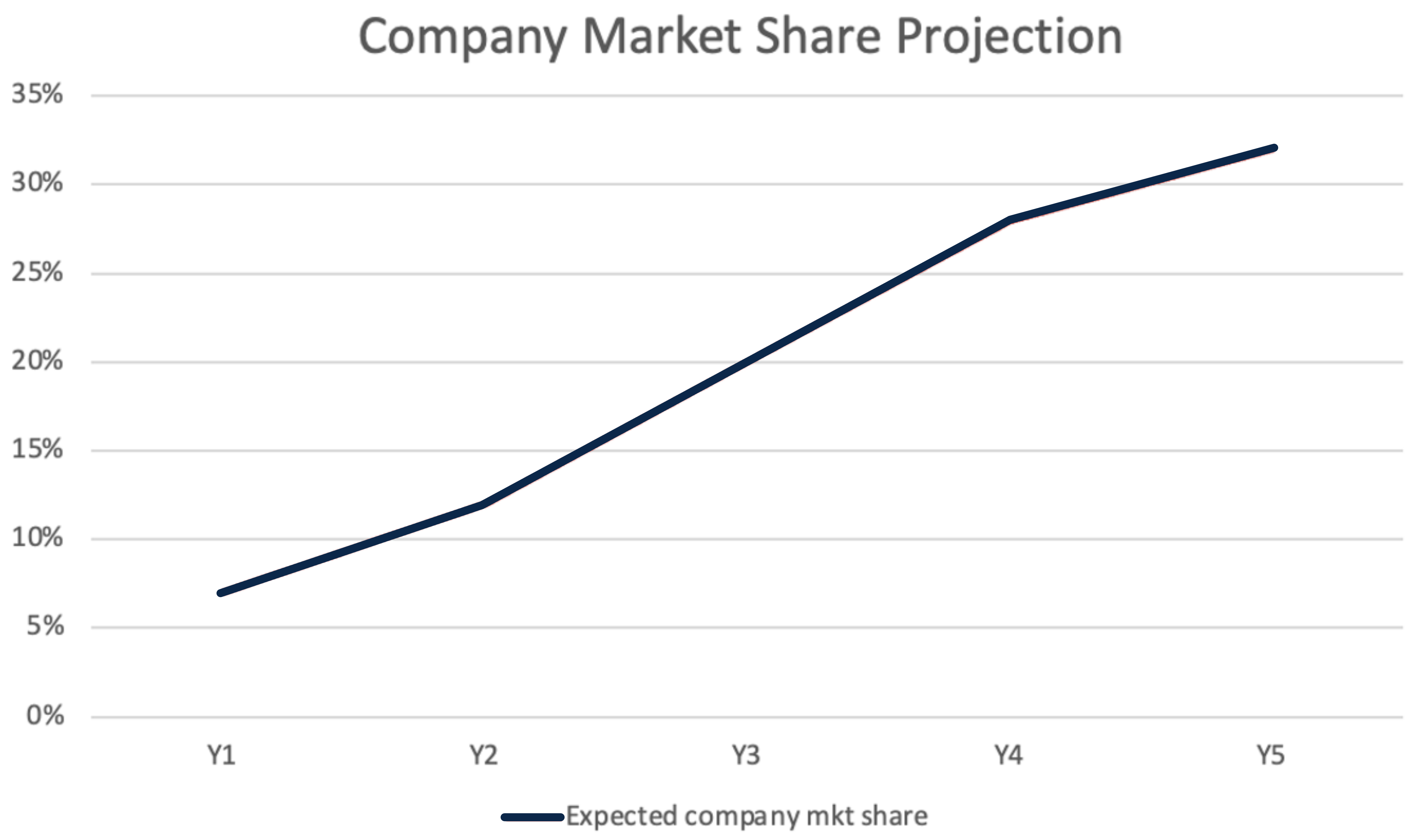
Exhibit 2



Note: the company expects cannibalization in market share from existing products; 3% in Y1, 2% in Y2 and 1% in Y3

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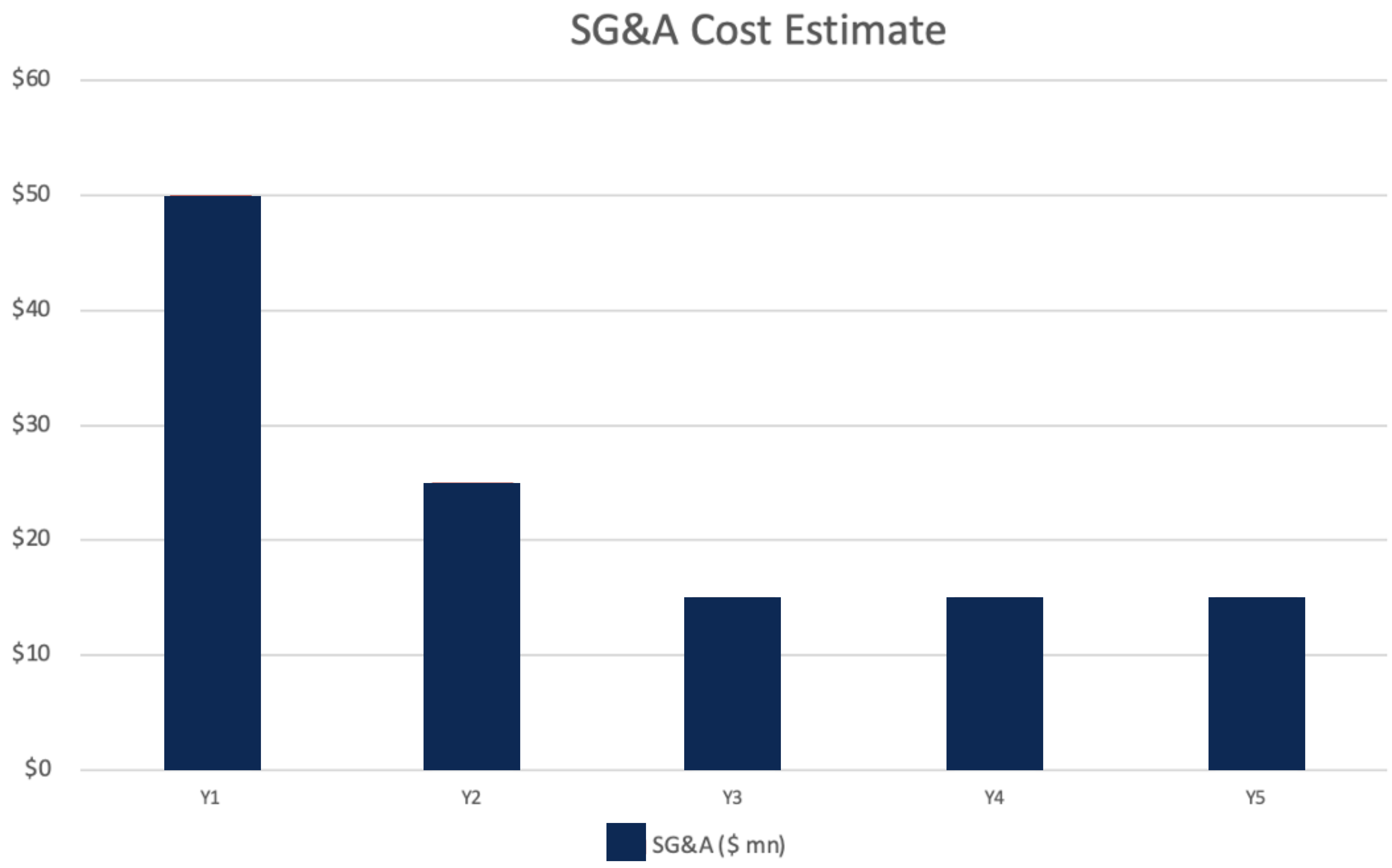
Exhibit 3

Fixed Costs:
- Leasing bandwidth: $500 mn over 5 years
- Operating costs: $125 mn over 5 years

Variable Costs:
- Annual maintenance costs of $7.5 mn/yr for 5 years



Brainstorming Question

If Telecom Co does not decide to move forward with the new, unlimited long distance minutes product, what else should they consider to try to revive the company?

Solution

There are several ways the candidate can approach this. Two options are given below, though they are not the only possible ideas. It is important that the candidate is structured in their response.

Improve core business:

- Evaluate if existing costs can be lowered to improve profitability on existing customers
- Try to steal share of phone subscriptions from other competitors (via lower pricing, better customer service, more convenient locations, etc)
- Try to reach first-time mobile phone customers to grow share of consumers that use mobile phones

Expand beyond the core business:

- Expand into adjacent businesses (home internet, digital streaming services)
- Expand into adjacent geographies
- Expand into selling other types of electronics in addition to phones, such as laptops, tvs, and appliances

Conclusion

Recommendation

- Two options:
  - The candidate can argue that Telecom Co should move forward with the product because it should become profitable in the medium term, although it will not deliver the quick win the CEO is looking for.
  - The candidate can argue that Telecom Co should not move forward with the product because it will not break even within the two years the CEO is looking for.
- Good candidates will note that because the biggest cost is the fixed cost (leasing broadband), the revenue estimates would need to be dramatically different to make it work (e.g.,this is not a case of an assumption being a little wrong).
- Strong candidates will offer alternatives the company could invest in instead.

Risks

- Risks could include:
  - Chance that a competitor launches a competing long distance product, since there it not much moat
  - Chance that long distance calling becomes obsolete as other technologies (such as Skype, Zoom, FaceTime) come into the mainstream

Next Steps

- Next steps should draw from the brainstorm, and include items such as:
  - Work to steal share from competitors to grow (via competing on price or differentiating the product)
  - Work to grow the share of consumers that use mobile phones
  - Expand into adjacent products, such as home internet and entertainment streaming

New England Trucks

Power & Utilities | Operations

Interviewer Led

Ratings:
Quant - 3
Qual - 3
Overall - 3

Prompt

Our client (Power Grid) is a power and utilities company with a national presence. The client has 3 hubs in the New England region where their maintenance activities are centered in. Each hub is identical in size and operations.

Overview of operations:

- Maintenance operations are done between Monday and Saturday.
- Sunday is a day off with only one driver and one engineer at the hub for emergency calls.
- Each hub operates a fleet of trucks which go on routine maintenance runs on a daily, bi-weekly (2 times per week) and weekly basis.
- Each truck carries around diagnostic equipment, replacement parts and two other maintenance personnel
- Each truck starts at their base location at 8AM and has to be back at their base by 5PM

Power Grid is under pressure from the investors to reduce costs but has been facing a shortage of qualified truck drivers. To keep their workforce Power Grid has temporarily increased the hourly rate of each driver from $18/hour to $25/hour, but this rate is not sustainable for the entire workforce.

The VP of Operations thinks costs on the power generation and transmission side have been completely optimized and can see no further reduction and needs your help to bring costs down further.

Clarifications

This is a McKinsey style, interviewer led case and no further clarifications are needed on the prompt except for the parts that the interviewee missed while the prompt was read out

Notes to Interviewer

This case has a lot of details and brainstorming. Try to adjust the pace of the case as needed in question 2. If the candidate takes a long time in Q2 ask them to only find the optimal route for one of the cities and push them to find the optimal case. Once the candidate finds the optimal route give them the optimal number of drivers required.

Question 1

How would you advise the VP of Operations to bring the costs down further?

Expected framework for Average Performance

Needs

Hubs

- Number of hubs
- Stations served by each hub
- Operating hours

Trucks

- Number of Trucks
- Distance travelled by each Truck
- Driving hours

Maintenance

- Maintenance activities
- Time required for each activity

Usage

Personnel

- Driver work hours
- On-site engineer work hours
- Hub employees
- Cost of engineer
- Cost of driver
- Cost of hub employees

Assets

- Asset used per maintenance activity
- Cost of assets per maintenance activity
- Age of vehicles
- Fuel usage
- Vehicle maintenance requirements

New Initiatives

Change Routes

- Increase driving time by adding more stops per run

Fuel Efficiency

- Use fuel efficient vehicles or EVs
- Use more fuel-efficient routes

Hub Reduction

- Increase of decrease the number of hubs

Asset Allocation

- Allocate the right size of the truck per trip

Additional Buckets for Exceptional Performance

New Technologies

- Autonomous vehicles
- Drones for diagnostics
- Sensors to monitors station health and conduct maintenance only when required

Risks

- Layoffs may not be good for company's reputation
- Longer routes may not be great for driver safety
- Reduced maintenance runs may increase risk of outages and fires

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Question 2

[Give Exhibit 1 and 2] Here is the current network of Power Grid and an overview of the current staffing at each hub.
Is there an opportunity to reduce costs here by changing the routes?
Give this information when asked:

- Each driver is allowed to drive a maximum of 8 hours by government regulations (this time includes the time to drive back from the last station)
- Daily stations require 30 minutes at each station
- Bi-weekly stations require 45 minutes at each station
- Weekly stations require 1 hour at each station
- When a driver shows up to work he is paid for the entire duration of 8 AM – 4 PM

Solution

If candidate takes too long to determine the best routes let them do just Boston and Hartford

Daily Trips	H -> B1 -> B2 -> B3 -> B4 -> B5 -> H 30 + 30 + 30 + 30 + 30 + 30 + 30 + 30 + 30 + 30 + 30 = 5.5 Hrs	H -> H1 -> H2 -> H3 -> H4 -> H 30 + 30 + 30 + 30 + 30 + 30 + 30 + 30 + 30 = 4.5 Hrs	(Wed, Sat): H -> N1 -> N2 -> N3 -> N4 -> N5 -> N6 -> N7 -> H 30 x 15= 7.5 Hrs (All 6 Days): H -> N8 -> N9 -> H 30 x 5= 2.5 Hrs
Bi-weekly Trips	(Tue, Thu) H -> B8 -> B7 -> B6 -> H 60 + 45 + 60 + 45 + 60 + 45 + 60 = 6.25 Hrs	(Mon) H -> H1 -> H6 -> H2 -> H3 -> H4 -> H 30 + 30 + 45 + 45 + 30 + 30 + 30 + 30 + 30 + 30 = 6.25 Hrs Wed) H -> H1 -> H2 -> H5 -> H3 -> H4 -> H 30 + 30 + 45 + 45 + 45 + 30 + 30 + 30 + 30 + 30 + 30 = 6.25 Hrs This is a little tricky as the weekly stations need to be visited only once per week and each weekly station can be visited as a part of a daily trip	
Weekly Trips	(Mon) H -> B12 -> B11 -> H | (Wed) H -> B10 -> B9 -> H 90 + 60 + 90 + 60 + 90 = 6.25 Hrs		(Mon, Thu) H -> N1 -> N2 -> N3 -> N4 -> N10 -> H (Tue, Fri) H -> N1 -> N2 -> N3 -> N4 -> N11 -> H 30 x 8 + 45 x 2 + 60 = 6.5 Hrs
Asset Req.	2 Trucks, 2 Drivers	1 Truck, 1 Driver	2 Trucks, 2 Drivers

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Question 2 – Solution Continued

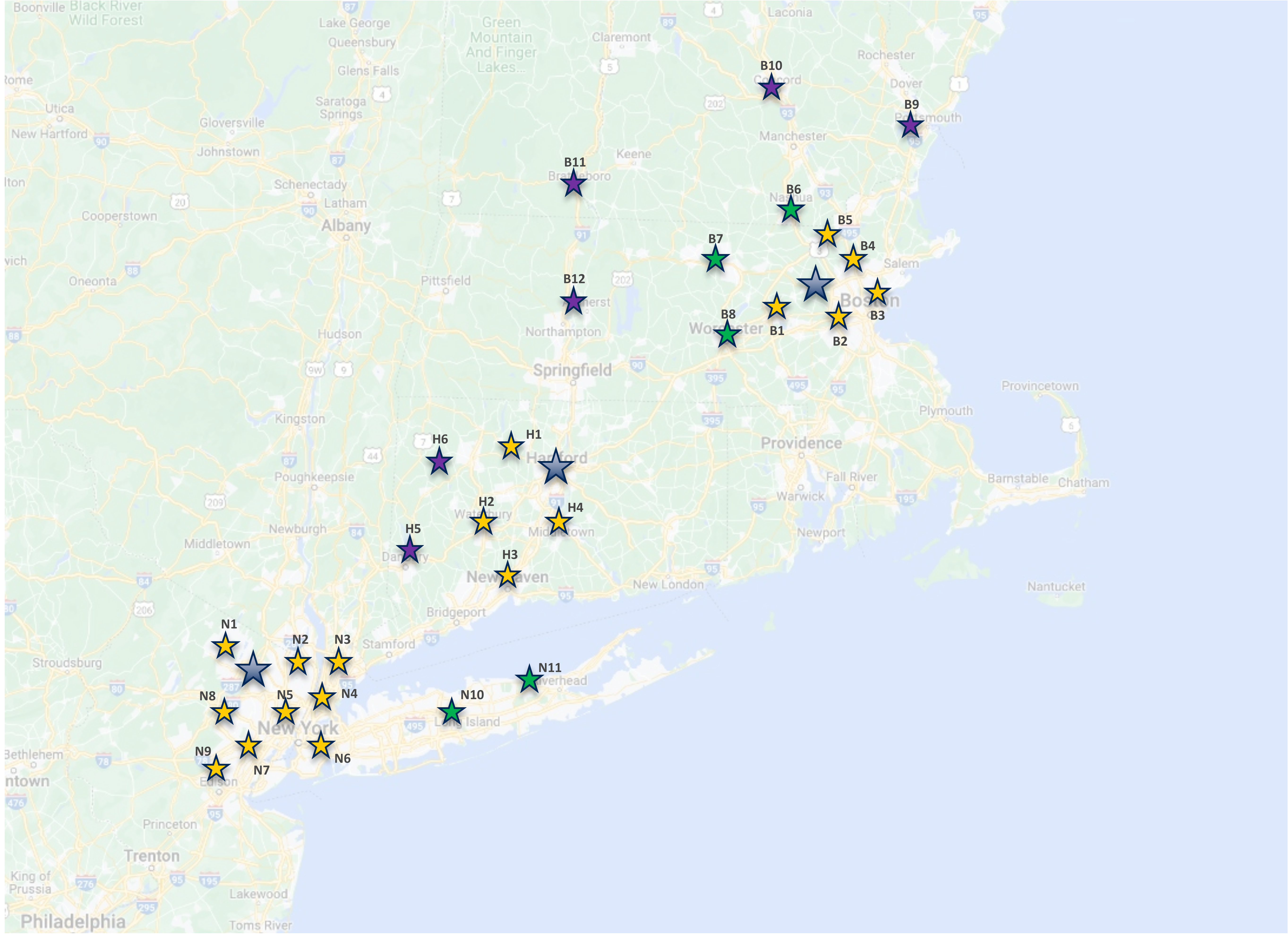
Days of Week	Mon	Tues	Wed	Thu	Fri	Sat	Sun	Old Costs
Boston	3	3	3	3	3	3	1	19 Drivers Days x 8 hours per day x $25 per hour = **$3800 per week**
Hartford	2	2	2	2	2	2	1	13 Drivers Days x 8 hours per day x $25 per hour = **$2600 per week**
NYC	4	4	4	4	4	4	1	25 Drivers Days x 8 hours per day x $25 per hour = **$5000 per week**

Total: $11,400 per week

Days of Week	Mon	Tues	Wed	Thu	Fri	Sat	Sun	Old Costs
Boston	2	2	2	2	1	1	1	10 Drivers Days x 8 hours per day x $25 per hour = **$2000 per week**
Hartford	1	1	1	1	1	1	1	7 Drivers Days x 8 hours per day x $25 per hour = **$1400 per week**
NYC	2	2	2	2	2	2	1	13 Drivers Days x 8 hours per day x $25 per hour = **$2600 per week**

Total: $6,000 per week
Savings: $5,400 per week

Exhibit 1



Hubs

Daily Stations

Bi-weekly Stations

Weekly Stations

Assume:

- Each daily station is 30 minutes away from the hub and 30 minutes away from the nearest daily station
- Each bi-weekly station is 1 hour away from the nearest hub and 45 minutes away from the nearest bi-weekly station
- Each weekly station is 1.5 hour away from the nearest hub and 60 minutes away from the nearest bi-weekly station
- Daily station to weekly or Bi-weekly station takes 45 Minutes
- Bi-weekly station to weekly stations stations take 45 Minutes

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Exhibit 2

Current driver staffing schedule:

Days of Week	Mon	Tues	Wed	Thu	Fri	Sat	Sun
Boston	3	3	3	3	3	3	1
Hartford	2	2	2	2	2	2	1
NYC	4	4	4	4	4	4	1

Drivers on payroll:

	Regular Weekday	Sunday On-Call
Boston	3	1
Hartford	2	1
NYC	4	1

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Question 3

For every driver laid off, the client would have to pay a severance pay of $30K, how long would it take to break even on the costs of layoff?

Baseline

	Regular Weekday	Sunday On-Call
Boston	3	1
Hartford	2	1
NYC	4	1

New Scenario

Regular Weekday	Sunday On-Call
2	1
1	1
2	1

Calculation

Layoffs	Cost of Layoffs
1	$30K
1	$30K
2	$60K

- Total severance payout : $120K
- Savings per week: $5,400
- Time to breakeven: ~22 Weeks

Exceptional candidates would recognize that the client no longer requires the extra trucks without the drivers.
At this point tell them that each truck would currently sell for $30K and ask them to re-consider their calculations.

Solution

4 trucks could be sold for $30K each, resulting in $120K cash,
which would ensure that there is no breakeven period.

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Question 4

[Brainstorming question] The client is considering selling the current fleet and upgrading to a new fleet of trucks. How do you think this would affect their operations and costs?

Cost Increases

- Training Cost/Hire new personnel
- Learning Curve and initial failures
- Maintain new set of spare parts

Cost Reductions

- Fuel efficiency
- Less truck maintenance
- Reduced downtime

Question 5

[Brainstorming question] Is there anything else they could do to reduce costs further?

- Reduce frequency of maintenance
- Remote monitoring of station health
- Train engineer to drive the trucks i.e instead of employing two people send only person can who can do the job for the engineer and the driver

CC@R

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