Ross Casebook 2020

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Content

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Welcome to the Ross 2020 Casebook!

Dear CC@R Member,

Welcome to the Ross Casebook 2020. 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,

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Case Writers 2019-2020

This casebook would not be possible without the following members from the Ross Class of 2021. Thank you and Go Blue!

Kalane Abbey – Chase-ing Equity
Aditya Akhauri – Chemical Co. Merger
Aditya Arekar – Made of Steel?
Connor Brownell – House of Pizza
Caroline Casey – To buy or not to buy, Buckeye?
Bob Der – Edu-M&A-cation
Caroline Garvey – To stream or not to stream
Elise Goodhue – Wolverine Dairy
Suraj Kandukuri – Revenue Streaming
Sean Kelleher – Compound Virus Vaccine
Ajit Krishna Chilukuri – Quark Energy Needs Cash
Alex Lowy – Unit Airlines
Adam Meyers – Private Security Co.
Gyanesh Mishra – Going Hybrid
Kat Overhage – Women's Leadership Experience
Neha Tadichetty – Glee Corp
Eugenia Tazetdinova – Palestra Fitness

How to Use the Ross 2020 Casebook

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 1-2 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

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

Topic	Formula
Return on Assets (ROA)	$\text{ROA} = \dfrac{\text{Net Income}}{\text{Total Assets}}$
Return on Equity (ROE) DuPont Analysis	$\text{ROE} = \dfrac{\text{Net Income}}{\text{Total Shareholders' Equity}}$ $\text{ROE} = \dfrac{\text{Net Profit}}{\text{Sales}} \times \dfrac{\text{Sales}}{\text{Assets}} \times \dfrac{\text{Assets}}{\text{Equity}}$ ROE = Operating Efficiency * Asset Utilization * Leverage
Working Capital	$\text{ROI} = \dfrac{\pi}{K}$ 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

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

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

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
  - Education
  - Auto
  - 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

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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

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IT/Infrastructure

Key Ideas	Revenue Streams	Cost Drivers
• 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	• Hardware sales • Maintenance contracts • Implementation consulting services • SaaS	• 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

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Non-profits

Link for sample case: http://www.bridgespan.org/MediaLibraries/Bridgespan/BridgespanMedia/AboutUs/HR/PracticecaseinterviewFall2007.pdf

Key Ideas

Intended Impact

- Define success criteria
- Think big picture (e.g., society, people you are working for/with
- Consider tradeoffs
- 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

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Pharmaceutical

Key Ideas

- Affordable Care Act
- Aging population
- Patents and generics
- Research & Development
- Insurance
- FDA
- Market penetration
- Contract v. 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

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) (sub-bullets)
- 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

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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 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 consumer-oriented and, due to the spectrum of products, its markets are generally segmented into different income, demographics and age
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 Confidence 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)

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

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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

Cases

Table of Contents

To Stream or not to Stream

Media | Investment Decision

Ratings:
Overall - 1
Quant - 1
Qual - 2

Prompt

Our client, Divertido Televisión, is a US-based Spanish cable station. Cable TV has historically been a profitable channel for the media company, but they have been struggling over the past few years. The CEO of Divertido Televisión has noticed a rise in other streaming platforms like ZBO and Zetflix and is considering launching a streaming platform. He has hired you to determine whether or not Divertido Televisión should build a streaming platform.

Clarifying Information

- Divertido Televisión is only available in the US and in Spanish.
- Divertido Televisión produces and owns its content.
- Goal/Objective is to breakeven within 2 years.
- If the candidate asks about costs, ask them to brainstorm costs first and then tell them it is a $5M initial investment for web and mobile development and $1M per year for ongoing marketing and support.

Framework

Customer

- Market size
- Existing customer base
- Current demographics
- Demand for streaming platform
- Increase in Hispanic population in US

Financials

- Revenue
  - # of Streaming Subscribers
  - Price of Subscription
- Costs
  - Design
  - Initial Web/mobile development
  - Ongoing development support
  - Marketing

Risks/Opportunities

- Risks:
  - Competitors like ZBO and Zetflix have first mover advantage and could mimic
- Opportunities
  - Reach new geographies with streaming platform
  - Expand to other languages
  - Position as language learning platform not only for native Spanish speakers

Notes for interviewer:

Candidate should focus on understanding existing customer base and how they can get to the estimated # of streaming subscribers.

Exhibit 1

Hispanic Viewers by Generation

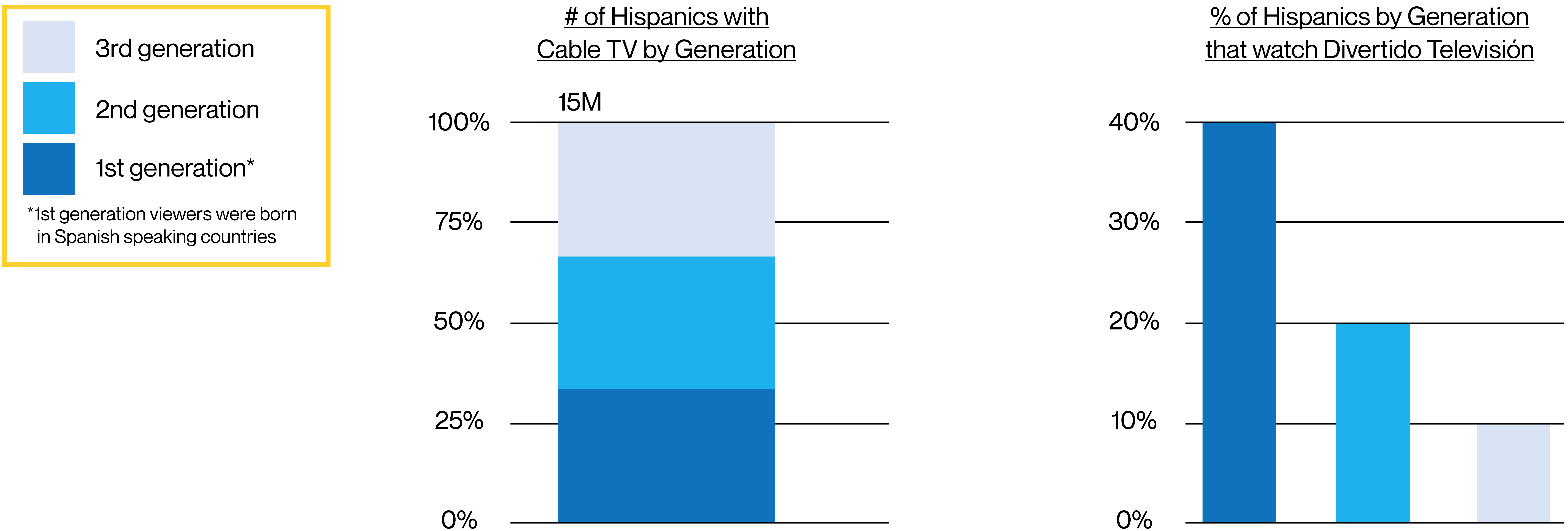

Exhibit 1 – Guidance

Hispanic Viewers by Generation

Questions for Candidates about Exhibit that the Interview should ask:

Where should our client look first?

- Encourage the interviewee to think about the market size (# of Hispanic TV viewers in the US) and size of Divertido Televisión's existing customer base.

Question/Exhibit Guidance:

- Candidates should recognize that we want to understand the number of viewers that tune in to Divertido Televisión
- Strong candidates will recognize and note the differences between # of viewers across generations (1st generations are Spanish-first speakers and therefore more likely to watch TV in Spanish).

Exhibit 1 – Guidance

Hispanic Viewers by Generation

Generation	Calculations	Hispanic Cable TV Viewers (#)	Divertido Televisión Active Viewers (%)	Calculations	Divertido Televisión Active Viewers
1st generation	=15M*33%	5M	40%	=5M*40%	2,000,000
2nd generation	=15M*33%	5M	20%	=5M*20%	1,000,000
3rd generation	=15M*33%	5M	10%	=5M*10%	500,000

Exhibit 2

Streaming Adoption by Generation of Divertido Televisión Active Viewers

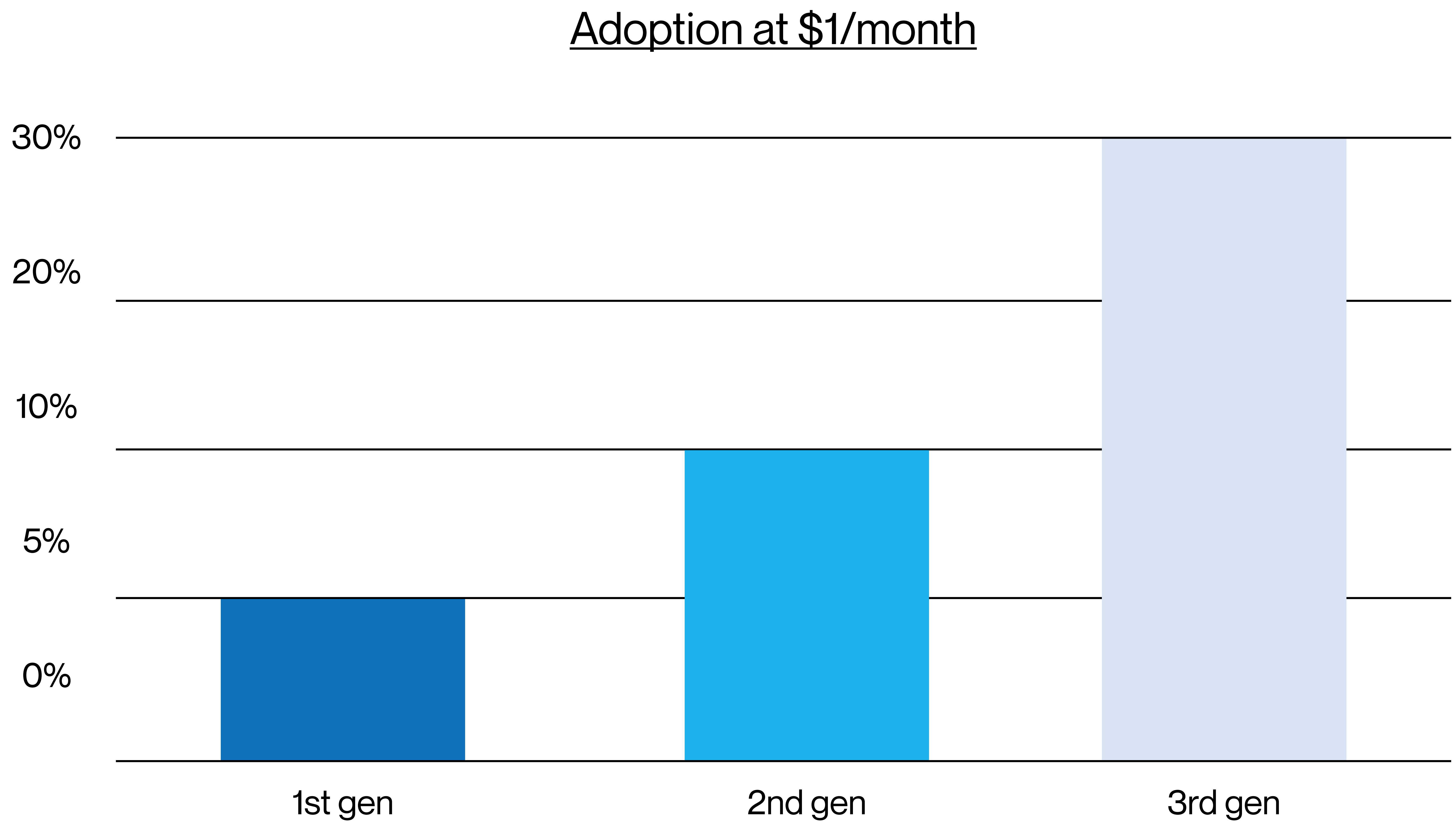

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Exhibit 2 – Guidance

Streaming Adoption by Generation of Divertido Televisión Active Viewers

Questions for Candidates about Exhibit that the Interview should ask:

Where should our client look first?

- Ask what other factors customers care about when choosing a streaming platform?
    - Pricing
    - Demographics and familiarity with technology
- Ask the interview how to evaluate # of viewers that would convert into streaming customers?
    - Survey of existing viewers

Question/Exhibit Guidance:

Strong candidates will recognize that different generations have different tendencies.

- 1st generation Hispanics are more likely to watch Divertido Televisión on Cable TV while 3rd generation are more likely to divide viewing time between Spanish and English channels.
- 3rd generation are more open and interested in streaming platforms.

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Exhibit 2 – Guidance

Streaming Adoption by Generation of Divertido Televisión Active Viewers

Generation	Divertido Televisión Active Viewers	Adoption at $1/month	Calculations	Divertido Televisión Streaming Adoption
1st generation	2,000,000	5%	=2,000,000*5%	100,000
2nd generation	1,000,000	10%	=1,000,000*10%	100,000
3rd generation	500,000	20%	=500,000*20%	100,000
			TOTAL	**300,000**

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Final ROI Calculations

If the interviewee forgets, remind them that the initial investment for the streaming platform would be $5M and there would be annual costs of $1M for tech support and marketing. If needed, also remind that the CEO wants to be ROI positive in 2 years.

1. Calculate Divertido Televisión's revenue/year

Subscribers/Month	300,000
Cost/Subscriber/ Month	$1
Months/Year	12
Revenue/Year	$3,600,000

2. Calculate Divertido Televisión's Annual Profit

Annual Revenue	$3,600,000
- Annual Cost	$1,000,000
Annual Profit	$2,600,000

3. Calculate in what year they would break even

Initial Investment	$5,000,000
+ Annual Profit	$2,600,000
Breakeven	1.9 years

Breakeven within 2 years!

Conclusion

Recommendation

- Candidate should conclude that Divertido Televisión should move forward with a streaming platform and would be ROI positive within 2 years.
- Candidate should also note the popularity of streaming platforms and that they want to cater towards a younger generation that will stay with the platform for years to come.

Risks

- There could be unforeseen costs that jeopardize breakeven in 2 years.
- Streaming competitors could expand their Spanish content offering.

Next Steps

- Move forward with web and mobile development and build out marketing strategy.
- Evaluate expansion opportunities in other geographies.

Glee Corp.

Technology | Marketing/Break-even analysis

Ratings:
Overall - 2
Quant - 1
Qual - 2

Prompt

Glee corp. is an Austin based new social media startup that offers a hobby-based photo and video sharing app. The team has recently raised series A funding and is now looking to launch their iOS app and set up their first revenue channel. The CEO has hired you to evaluate options and identify the most profitable revenue channel.

Clarifying Information

- Competitors are companies like Instagram, Facebook, and Pinterest – all of which are dominant players in the market
- Client is a mobile-first company and is currently focused on the US market. They are currently launching the app only on iOS, but an Android version is expected to follow soon
- The CEO is looking to invest $3M / year on building, and maintaining profitable revenue streams in the app and at a minimum wants to break-even on these annual costs
- Client's userbase primarily comprises of teenagers and young working adults in the age group of 15 – 35 years

Framework

Market

- Market size
- Market growth
- Market share
- Competitor strength
- Target user segments

Revenue Channels

- Advertisements
  - Video ads
  - Banner ads
  - Display ads
- Integrating payment
- Freemium model; In-app purchases
- Data monetization
- E-commerce
- Virtual currency
- Sponsored content
- Subscriptions

Financials

- Variable Costs
  - Marketing
  - Infrastructure
  - Implementation cost
  - 3rd party fees
- Revenues
  - Revenues and profits per channel
  - Revenues and profits per user segment

Others

- Market trends
- Technical capabilities of client
- Quality and potency of revenue stream
- User reactions to product changes
- Patents on any new revenue generation stream
- Regulations on online revenue channels (e.g. payments)

Notes for interviewer:

If the candidate suggests launching an android app to tap into more revenues, then direct them to only consider iOS for the moment.

Brainstorming

What are some ways to make money on mobile apps?

Brainstorming Guidance

- First guide the candidate towards estimating the userbase size for Glee corp.
- Then, drive them towards evaluating revenue channels – ask them to brainstorm and pick their top 3 revenue channels and explain why they picked them.
- Then show them Exhibit 1

Best candidates will:

- Have a basic understanding of the tech industry and be able to segregate and layout the analysis keeping mobile app ecosystem in mind
- Recognize that this is a profitability problem and start with discussions on addressable userbase and revenue per channel

Userbase Calculation

What it the estimated size of Glee corp.'s userbase in the next 3 years

Metric	Value	Comments
USA Population	350M	Estimated by candidate
Mobile internet penetration	80%	Estimated by candidate
Mobile internet users	280M	Calculated by candidate
Mobile social media penetration	90%	Estimated by candidate. Interviewer to provide guidance if needed
Mobile social media users	250M	Calculate and round off
% of iOS social media users	60%	Estimated by candidate
# of iOS social media users	150M	Calculated by candidate
% of iOS social media users in target segment	50%	Estimated by candidate based on age group (15-35 years)
# of iOS social media users in target segment	75M	Calculated by candidate
Expected market share	10%	Provided by interviewer when candidate asks for it
Expected Userbase	7.5M	Calculated by candidate

Guidance on addressable market calculations

Total monthly active users (MAU) of Glee corp.

Considerations for calculations:

- Interviewer may guide the candidate if their estimates for mobile internet penetration, mobile social media penetration, and share of iOS devices vary by a large margin
- Interviewer must provide the expected market share at the end of year 1, when the candidate requests the information
- The candidate need not go throw the exact steps for this estimation, provided they give reasonable explanations and exhibit understanding of the 4 primary levels that affect this estimation: mobile internet users → mobile social media users → iOS social media users → iOS social media users in the age group of 15 – 35 years

Strong candidates will:

- Identify that they must look at mobile penetration and not overall internet penetration since the company only offers a mobile app
- Know that target userbase represents a higher share (~50%) of the overall social media user base. Regular age group-based estimates are weak estimates here.

Exhibit 1

Mobile app revenues by channel

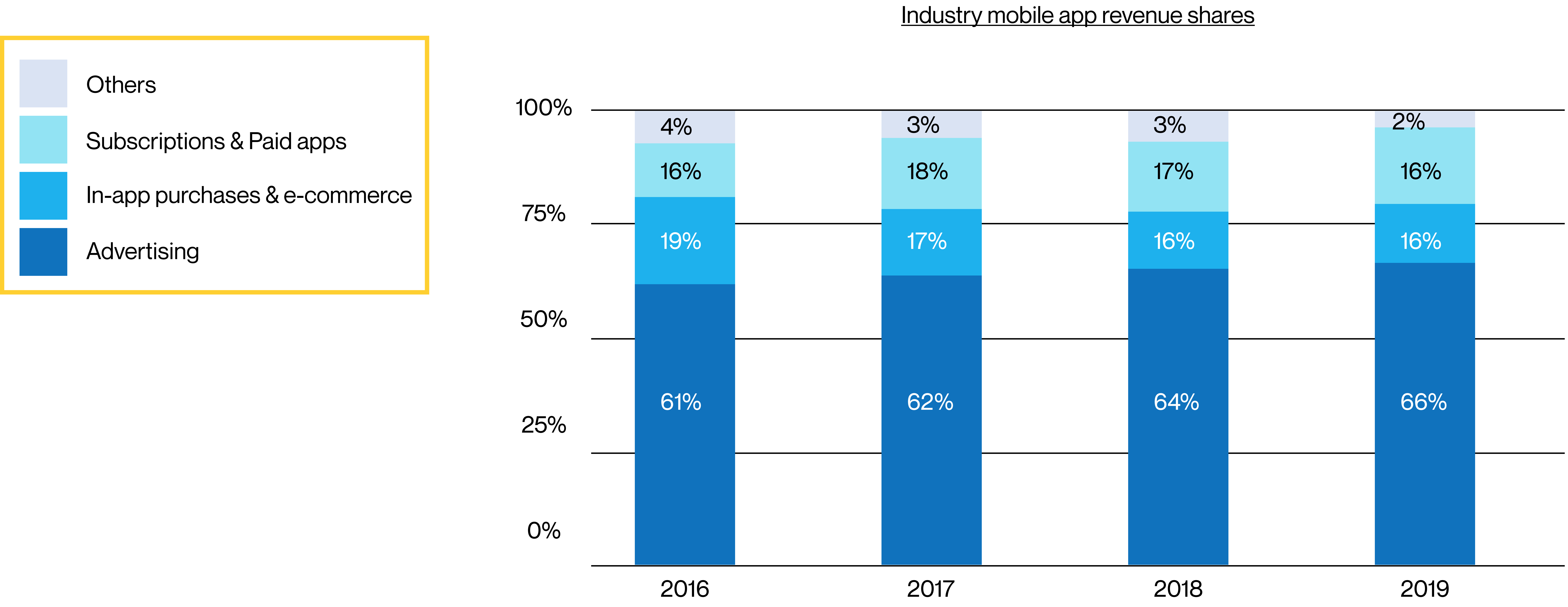

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Exhibit 1 – Guidance

Chart clearing

- Candidates should recognize that advertising has the highest share of mobile app revenues by a large margin and that it has been growing steadily over the last 4 years
- They should immediately prioritize advertising over other channels but should not commit to it yet
- Candidate should now ask for information on implementation details / costs (esp. if they did not ask for this in clarifying questions) across all revenue channels to estimate difference in operating margins – show them Exhibit 2

Exhibit 2

Expected annual costs for implementation

	Expected annual costs
Employee salaries	$1,500,000
Technology & Infrastructure costs (servers, data storage, dashboards, etc.)	$500,000
Support & maintenance costs	$250,000
Content & quality management	$250,000
3rd party feed (consultants, legal, other partners)	$500,000

Note: Assume that the expected annual costs are similar across all revenue channels

Exhibit 2 – Guidance

Table

- Candidate should note that total cost ($3M / year) is constant across all revenue channels, so costs should not factor into the decision for the most profitable revenue stream
- Interviewer may also choose to engage the candidate in brainstorming which of the mentioned costs are fixed vs. variable and why (e.g. technology and infrastructure costs can be either fixed or variable depending on whether the client chose to rent cloud/storage space or buy servers)
- Once the candidate picks advertising as the top choice, prompt them to brainstorm how advertising revenues are made
- At this stage, they should ask for further information on industry prices for advertising – show them Exhibit 3

Exhibit 3

Expected advertising revenues

Metric	Value
Revenue per 1000 impressions	$10
Click through rate	2%
Revenue per click	$2
Conversion rate	10%
Revenue per action	$50

Note:

1. Revenues represent the amount the client will earn for every corresponding state (Impressions, clicks, and actions) for an ad they display on their app.
2. Client will charge all advertisers the same amount for impressions, clicks or actions.

Exhibit 3 – Guidance

Table

- Candidate now has the following information
  - How much the CEO wants to spend / year on the revenue stream i.e., advertising
  - Expected per unit revenues on advertising
- Candidate now needs to calculate the minimum number of annual impressions needed to break-even on annual costs
- From the calculations (next slide) the minimum number of impressions needed comes out to be 20M
- Ask the candidate what they think about this number – Is this achievable or not? Why?

Exhibit 3 – Guidance

Revenue channel	Revenue share	Final values
Number of impressions	x	20M
Cost per 1000 impressions	$10	$10
Total revenue from impressions	= (x/1000)*$10	$200k
Click through rate	2%	2%
Number of clicks	= 2%*x	400k
Cost per click	$2	$2
Total revenue from clicks	= 2%*x*$2	$800k
Conversion rate	10%	10%
Number of conversions	= 10%*2%*x	40,000
Cost per action	$50	$50
Total revenue from actions	=10%*2%*x*$50	$2M
Total annual revenue	**$3M**	**$3M**

- Total annual revenue can be calculated by solving for x, i.e., minimum number of impressions needed in a year to break even
- **Calculations:**
    - Total annual revenue =
    - Total revenue from impressions +
    - Total revenue from clicks +
    - Total revenue from conversions
- From the calculations, the number of annual impressions needed is 20M

Conclusion

Recommendation

- The CEO should invest the $3M in advertising since 20M annual ad impressions seems very reasonable for a total userbase of 7.5M

Risks

- Negative user reaction depending on type and length of ads
- Smaller than expected market share
- Fewer impressions, clicks, and conversions than expected
- Variable revenues across industries may impact overall expected revenues

Next Steps

- Identify partner agencies and negotiate % split in revenues
- Set up a team to start working on the design (UI / UX) and infrastructure

Edu-M&A-cation

Education | Brainstorming

Ratings:
Overall - 1
Quant - 1
Qual - 2

Prompt

Your friend at a VC firm is looking to invest in an EdTech startup, ABC123. ABC123 delivers remote, K-12 learning and is taking aim at the lack of quality education to students within the US. The company's plan is to provide the hardware, peripheral devices, and teachers for students to learn through its virtual platform. School districts or individual schools will pay an installation fee for the initial setup on-premise and a subscription fee for the teaching services.
What would you recommend your friend take into consideration around the potential Series A funding?

Clarifying Information

- **This is more of a brainstorming and structure case, so the framework may take longer than normal.**
- ABC 123 works in the elementary education space, but the tech can be leveraged for higher education
- ABC 123 has clients that are public and private schools
- This is within the US in which most education laws apply at the state level
- The VC firm has no education industry experience but does work with tech companies
- If asked about the founders, they are a diverse team with experience in related EdTech
- The VC is looking for at least a 10x return in the next 5 to 7 years

Framework

Define the Market

- Education areas
  - K-12
  - Higher Education
  - Professional development
- Size of market & growth trends
  - Increasing technology change
  - Bottom-up (penetration rate a certain price; annual recurring revenue of a % of market share) and Top-down (TAM, SAM, SOM)
- Competition
  - Fragmentation
  - Power (reputation, financial backing, existing relationships, etc.)
  - Barriers to entry (Bonus: High capital requirements)
- Regulation & Policy

Valuation

- Value of company
  - One formula (no numbers needed; bonus if justify second method and identify preferred one)
  - Main: Revenue multiple of justified comparable companies
- Assets/Defensibility of the product/ service
  - Workforce
  - Team cohesion
  - Alignment on mission, vision, and values
  - Track record in industry
  - Intellectual Property (patents)

Transaction Considerations
(optional, can be brought in during brainstorm)

- Favorability of deal terms (can afford to keep pro rata ownership at desired level)
  - Required return/price
  - Arguments to lower price
  - Ways to engineer transaction
- Synergies/Dissynergies of future M&A
  - Cost, revenue, tech or whole company
  - Fit with VC portfolio companies

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Interviewer Guidance

- The candidate should be evaluated on the structured approach. Since not all candidates are familiar with the education technology industry, it is OK to provide a helping hand through more specific questions to test whether the candidate would come up with similar or better ideas than the framework shared above. Example questions below:

  - What are issues with the industry being so fragmented?
  - Around the potential investment, what are the key areas of risk to focus on?
  - What do you think about ABC 123's competitive advantage?
  - How would one go about sizing the market? Valuing the company?

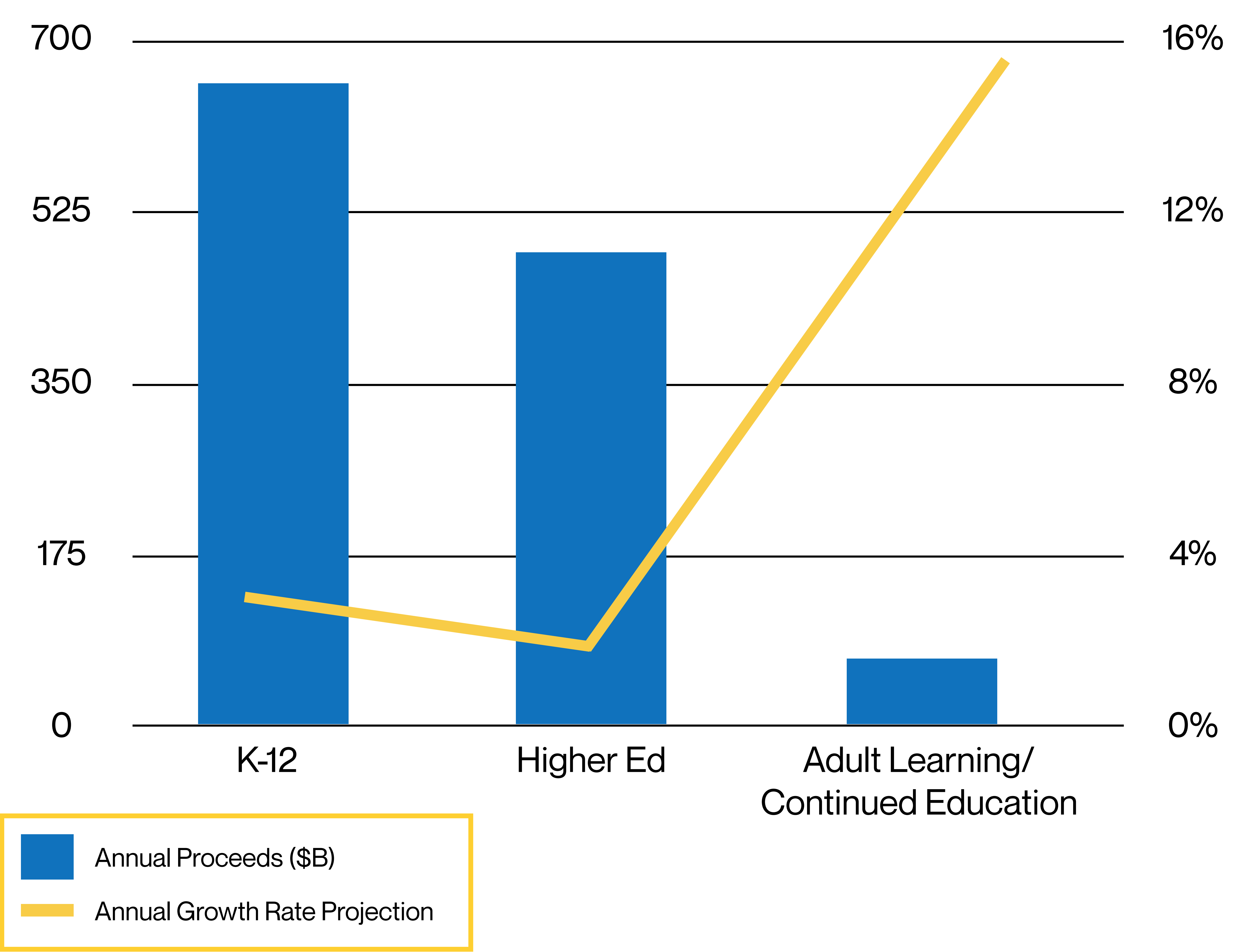
- Strong candidates will recognize: VC should be looking for gigantic returns through revenue growth, not cutting costs; focus on identification of defensibility of company; identify specific traits to look at in terms of competition; identify increased regulatory risk of the industry; importance of ABC 123 management makeup; coherent valuation model

- Share exhibit 1 when done with the framework or when the candidate requests it (Interviewer can share the exhibit to advance the case)

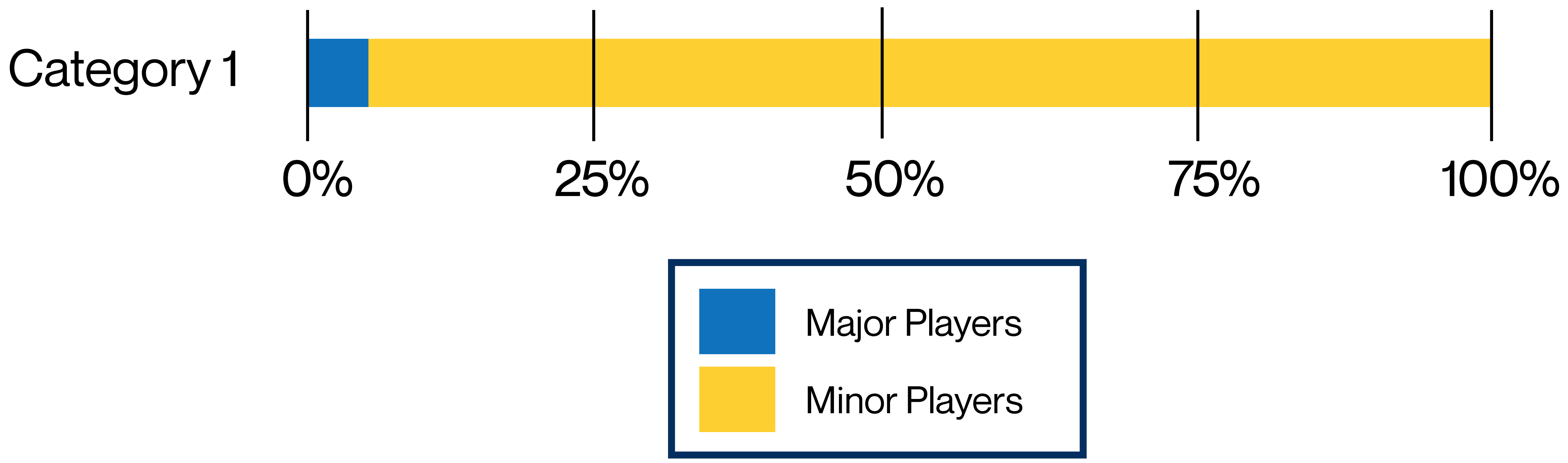
Exhibit 1

Market Information

Market Sector Size & Growth Rate



Market Share Concentration



Industry Trend Topics

- Internet access & 5G
- Virtual learning & remote work
- Privacy concerns with pervasive technology
- Reduction in reliance of standardized testing
- Students lag behind peers in East Asia and Europe in reading, math, and science

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Exhibit 1 – Guidance

Market Information

Questions for Candidates that the Interviewer could ask:

- What market sectors or trends should be prioritized
- Is this a market to do further research? What information would you want if you could drive at 1/2/3 sources? What would be alternative sources to have proxy information?

Question/Exhibit Guidance:

- Candidate should recognize: The market is fragmented, there are two large market segments that will remain top for the foreseeable future (should focus on one at this stage of investing)
- Strong candidates will: combine all of the information to drive at second- and third-level insights such as additional areas ABC 123's products and services can be leveraged, opportunity areas to investigate further; be creative and thoughtful to identify how the information fits together and drives at insights not readily available on the page through additional data that could be reasonably obtained upon further research

Brainstorming

How would one structure an approach to future acquisitions of companies and integrations for ABC123?

Best candidates will:

- Cover a full and/or partial M&A integration
  - Synergies:
    - Revenue – cross-selling, new geographies, etc.
    - Costs – reduce headcount through operational efficiencies, improved processes, and better technology
  - Dyssynergies:
    - Taxes, severance, transaction costs, etc.
  - Integration management:
    - Culture
    - Service agreements (if applicable)
    - Brand

Conclusion

Reccomendation

- Because of X market conditions, I recommend the friend continue pursuing/walk away from the investment. A way to value the target would be Y through Z comparable companies.

No right answer. Interviewer should judge a candidate's depth and confidence instead.

Risks

- This is a constantly changing space, so there may be a significant risk of losing to a competitor based on not being first-to-market
- There are high regulations in the industry that need to be navigated to win

Next Steps

- Further due diligence on the market and technology for competitors and their capabilities to sure up the understanding of defensibility (interview potential customers/users)

Made of Steel?

Metals | Growth Strategy/M&A

Ratings:
Overall - 2
Quant - 1
Qual - 2

Prompt

Our client is a Pennsylvania based Fortune 500 company. It is the third largest producer of steel in the US with a wide range of metal products and manufacturing capabilities. The company's profit margins have been stable over the last few years, but the CEO is under pressure from investors to increase profit. The company has hired us to help figure out opportunities for growth.

Clarifying Information

- Capabilities: Manufacturing, recycling, milling. Products: Finished steel, raw materials. Sells to construction and manufacturing industry
- Annual Revenue = $15BN. Revenue growth ~ 3% Y-o-Y for 3 years; Profit margin ~15% for the past 3 years
- Industry average growth rate is 3%. #1 and #2 competitors have been growing revenues at 15% for the past 3 years
- CEO is open to all modes of growth
- **(optional: ask candidate to brainstorm modes of growth before providing info below - provide both points together so as not to lead)**
- Firm has excess capital of $1BN that can be used for acquisitions
- Organic growth is an option – we can meet increased sales demand as current plant utilization ratio is at 70%

Framework

Acquisitions

- Acquire competitors
  - Increase geographical reach
  - Reach new industry customers - e.g. auto, manufacturing, utilities, etc.
- Vertical integration
  - Mining companies
  - Suppliers of raw materials
  - Transportation companies
  - Finishings - paint, fireproofing, etc.
- Horizontal integration
  - Substitutes - metals like aluminum, plastics
  - New industries - auto, chemicals, etc.
  - Joint Ventures or partnerships

Notes for interviewer:

- Best candidates will recognize this is a mature industry and commodity market – avenues for growth are limited – acquisition is the best option
- Candidate should mention acquisitions in framework – prompt if not – What other modes of growth can you think about?
- Brainstorm#2 can be used as guidance to discuss organic modes of growth. Move to Exhibit#1 if candidate wants to investigate acquisitions first

Organic Growth

- Review existing product mix
  - What price range are we selling products in – low, medium, premium?
  - What is our market share compared to competitors?
- Invest in new product lines
  - What are the gaps in the value chain where we could add products
  - What other industries can we target beyond our current capabilities
  - Can investment in R&D help us innovate
- Grow geographically
  - Within USA – are we concentrated in a few areas?
  - Can we add manufacturing facilities to reach distant areas
  - Can we expand geographically – North America or rest of world
- Increase sales staff and resources
  - What are our sales practices? Scope for improvement?
  - Sales or marketing incentives?

Exhibit 1

Comparing 2 potential acquisition candidates

Our team has identified 2 potential companies that the client can acquire for $1BN that we would like you to evaluate

Company 1 is a supplier of recycled metals - used as raw material in steel production

- By acquiring this company, the client will be able to buy raw materials at cost. The reduced purchasing costs will boost free cash flow by $55MN annually in perpetuity – with 3% growth
- After meeting supply for client, company will still have excess capacity and will generate revenues of $500MN and free cash flow of $55MN in perpetuity - with 3% growth

Company 2 is a Clean-Tech company – reduces carbon emissions, improves iron-ore mining efficiency, etc.

- Anticipated revenues of $150MN and free cash flow of $51MN in perpetuity – with 7% growth

When asked:

Assume market rate of return or discount rate of 10%
Both companies have zero debt

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Exhibit 1 – Guidance

Comparing 2 potential acquisition candidates

Questions/Exhibit Guidance

- Candidate should do financial analysis
- Candidate should automatically mention non-financial considerations and move to brainstorming#1. Can be prompted towards if not.

Calculations

Company 1
Total FCF = \$55MN + \$55MN from purchase savings = \$110MN
NPV = \$110MN/(0.10-0.03) = \$1.57BN > \$1BN

Company 2
Total FCF = \$51MN
NPV = \$51MN/(0.10-0.07) = \$1.7BN > \$1BN

Brainstorming 1

What factors other than the financials would you consider?

Brainstorming Guidance

- Both acquisitions are financially similar – recognize goal to increase revenue
- Discuss pros and cons: commodity market vs growth market; vertical vs horizontal integration; internal capabilities

Best candidates will:

- Recognize rate of revenue growth from acquiring company 1 is low
- Question if technology from company 2 can be used by our client

Brainstorming 2 (Optional)

What options for pursuing organic growth would you explore?

Brainstorming Guidance

- Geographic, product mix, hiring sales teams, etc. – refer to framework

Note:

- US steel is not price competitive with Asian steel for global exports
- Tariffs add further complications
- Entering new markets even within the US not easy due to established market players, transportation costs
- Steel industry demand is dependent on stimulus, infrastructure demand, etc. which tends to be cyclical

Best candidates will:

- Recognize organic growth is difficult in steel industry and will point out the shortcomings while brainstorming

Conclusion

Recommendation

- Acquire company 1 because:
  - Same industry – vertical integration – improves existing capabilities
  - Higher boost to near-term revenue
- Acquire company 2 because:
  - Risk is diversified, sustainable revenue growth
  - Increasing sales volume in a mature industry is difficult
  - Potential for reducing emissions through use of acquired technology

Risks

- Lack of expertise in case of company 2, low growth rate for company 1, etc.
- We are not able to achieve competitor's growth rate of 15%

Next Steps

- Due-diligence into company

Revenue Streaming

Media, Technology | M&A

Ratings:
Overall - 2
Quant - 1
Qual - 2

Prompt

Our client, Vidnet, started as an online DVD rental company. Thanks to an early pivot into online movie and television streaming, the company found massive success as internet infrastructure improved and enabled widespread video streaming. Over the last ten years, Vidnet has amassed customers around the globe, growing to $20B in annual revenue. Today, however, the company is faced with increasing competition as new video streaming platforms have emerged.

The CEO is considering the purchase of a popular music streaming platform, DotMuse, to diversify revenues and fend off competition. She has asked our firm what factors she should be considering, and whether Vidnet should make the purchase?

Clarifying Information

- **Who are the new competitors?** These are a mix of video streaming services with features ranging from low price to original content and will be explored later in the case. None of them are streaming music at the current moment.
- **Does Vidnet have past M&A experience?** The company has not completed an acquisition in the past, which is why they are engaging our firm.
- **How do users access the services?** Vidnet and DotMuse are both accessible via computers and mobile devices. Vidnet also built partnerships with several major electronics companies to have its platform built into SMART TVs.
- **Where does DotMuse operate?** DotMuse currently makes $9B in annual revenue, also from customers around the world. We'll provide a more specific breakdown later.
- **Does Vidnet still sell DVDs?** The company has limited DVD sales in North America and Europe, where sales total to about $.5B. For the purposes of this engagement, we will focus on streaming.

Framework

Music Streaming Market

- Magnitude and growth
- Competition
  - Number and fragmentation
- Bargaining power of music providers
  - Number and fragmentation of major labels, artists
- Broader market conditions
  - Is this a favorable time to buy a company?

Revenue Synergies

- Cross selling
  - Advertising across platforms or markets (DotMuse may be more popular in places with poor internet infrastructure)
- Pricing
  - Bundling may lead to more revenue from existing customers
- IP & Unique Assets
  - Shared data improves recommendation algorithms
  - Differing content relationships may enable acquisition of new content

Cost Synergies

- Redundancies
  - HR, IT, and other back office functions can be consolidated
- Economies of scale
  - Bargaining power with content companies
  - Fixed assets like servers and office space can be shared DVD and CD materials for hard copy sales

Risks

- Integration costs
  - Cultural differences
  - Employee training for policies, IT, etc.
- Brand dilution
- Better alternatives
  - Other music platforms
  - Other diversification strategies
- Due diligence
  - Overestimating synergies, especially revenue synergies
- Valuation
  - Similar acquisitions, DCF, asset value methods

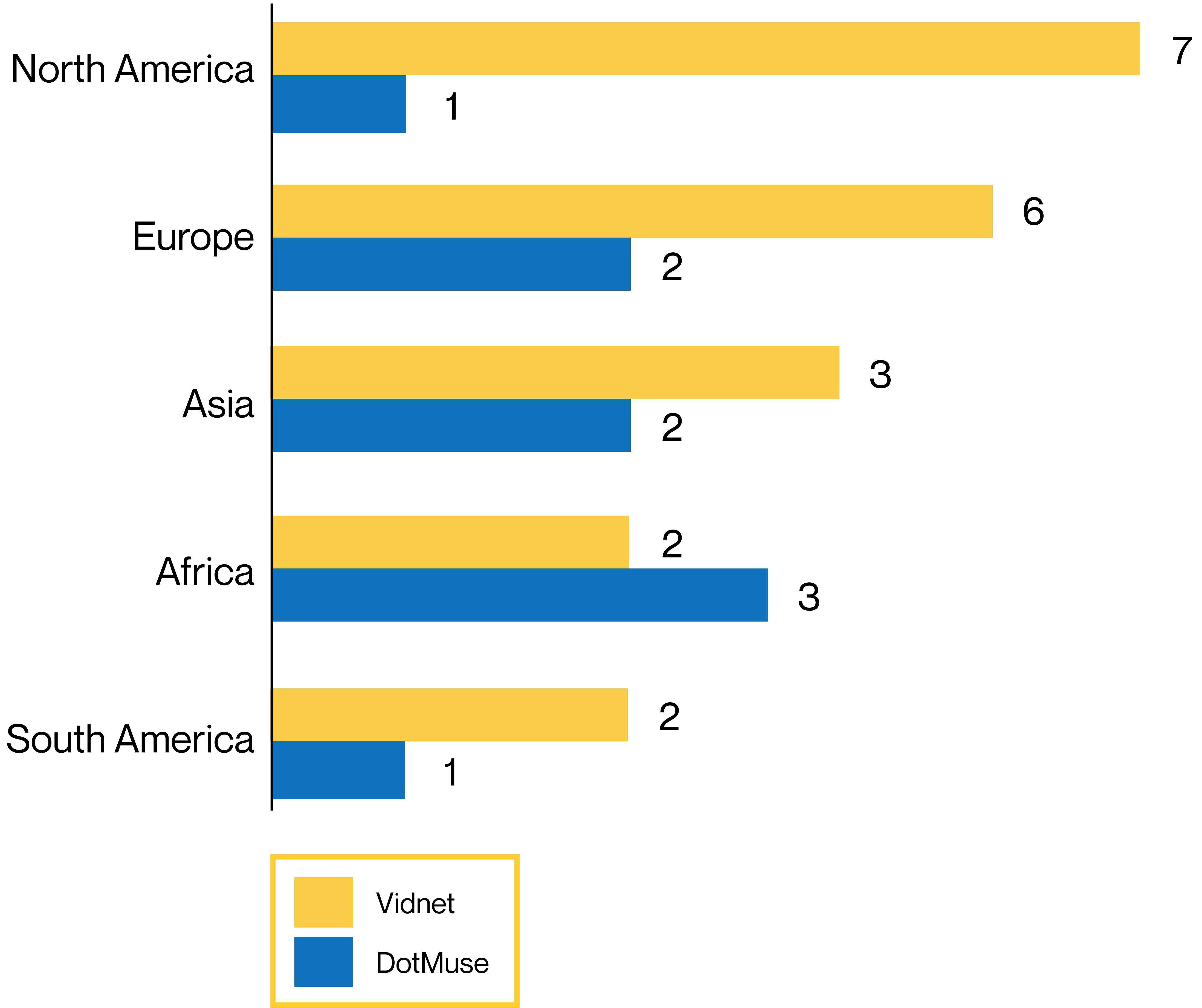
Notes for interviewer:

- This case takes place early in the target selection phase. Candidate should not fixate on price or financials.
- The general case flow is exploring synergies (Exhibit 1, Calculation), Strategy (Exhibit 2), Alternatives (Brainstorm).

Exhibit 1

Revenue and Cost Information for Vidnet/DotMuse

Revenues by Geography ($B)



Cost by Category as Percent of Revenue

	Vidnet	DotMuse
Cost of Revenue		
Content Acquisition	23	46
Data Streaming	15	8
Operating Costs		
User Acquisition	28	25
Admin & Staff Salaries	23	24
HR, IT, & Back Office	9	8
Rent & Overhead	12	19
Other Costs	6	7

Exhibit 1 – Guidance

Revenue and Cost Information for Vidnet/DotMuse

Exhibit Guidance

Revenues

- Vidnet and DotMuse are dominant in different geographic markets. Both companies could cross-sell to the counterpart's customers to increase market share. E.g. Vidnet to DotMuse's customers in Africa and DotMuse to Vidnet's customers in North America.

Costs

- Identify percentage imbalances, particularly in Content Acquisition, Data Streaming, and Rent & Overhead.
- Recognize cost redundancies, particularly in back-office functions. The NewCo will not require the same number of HR, accounting, etc. staff and tools, which could potentially result in a reduction below 8%.

Best candidates will:

Revenues

- Talk through examples on how to cross-sell the services. E.g. Advertisements for a free trial of DotMuse when you open up the Vidnet app, and vice versa. Or a service bundle with both subscriptions at a discounted price.

Costs

- Talk through examples on how the companies can help each other lower costs. E.g. Vidnet can leverage connections with content producers and provide economies of scale to help DotMuse lower Content Acquisition costs. DotMuse can share best practices to help Vidnet lower streaming costs. DotMuse offices can be moved if they are in a more expensive city or consolidated if there is space in Vidnet offices.
- Highlight acquisition-specific nuances. E.g. Staff from both companies need to be retained when examining redundancies to maintain company-specific knowledge and create a sense of fairness in the NewCo. Synergies will be highly impacted by the level of integration (i.e. whether this will be a tuck-in or a standalone acquisition.)

Calculation

Vidnet has strong relationships with content producers and is confident that they can bring DotMuse's cost of Content Acquisition to a similar percentage as their own. What would be the cost savings in dollars for this scenario?

	Current	Projected
DotMuse Revenue	$9B	$9B
% of Revenue	46	23
Cost of Content Acq.	$4.14B	$2.07B
Difference between Current & Projected	**$2.07B**	

Candidate should recognize that this is just half of the current percentage

Exhibit Guidance

- Candidate should recognize that they have all necessary data and complete the calculation easily.
- Tip: $9B can be written as $9,000M. 50% of this is $4,500M. Minus $360M is $4,140M.
- Candidate should acknowledge that $2.43B is a sizable chunk of the current revenue stream, making DotMuse an attractive target.

Best candidates will:

- Recognize that this is cost synergy calculation is highly dependent on the assumption that Vidnet's relationships can reduce DotMuse's costs to a similar percentage of revenues. They should question this assumption and suggest further due diligence.
- Connect the high savings number to the valuation of the target. How much of this synergy each party captures is dependent on whether the target company has produced similar estimates through its due diligence, number of other potential buyers, etc.

Exhibit 2

Features of Vidnet, Vidnet Competitors, and DotMuse

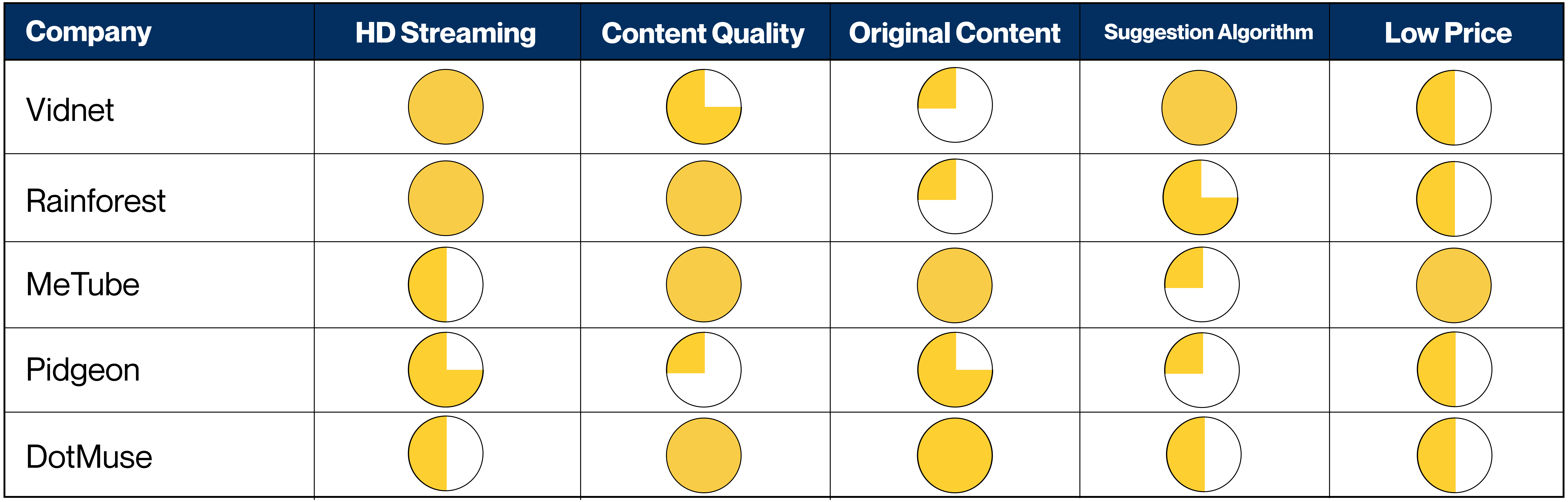


Exhibit 2 – Guidance

Features of Vidnet, Vidnet Competitors, and DotMuse

Exhibit Guidance

- Candidate should examine the companies and observe that Vidnet and Rainforest are very similar in features. The acquisition of DotMuse, may be an opportunity to differentiate the platform and diversify revenues as the CEO requested.
- They should also notice that HD Streaming, Content Quantity, and Suggestion Algorithm are all features that are relevant to music. The acquisition of DotMuse would be helpful for retaining or drawing additional revenue from current Vidnet customers if DotMuse's HD Streaming and Suggestion Algorithm features can be improved via knowledge or resource transfer.
- On the other hand, Vidnet can use the acquisition of DotMuse to develop capabilities around producing original content. In addition to diversifying revenue by adding a new type of content, knowledge or resource transfer can help them diversify within their current medium.

Best candidates will:

- Consider how strategy affects level of integration. Knowledge transfer is generally easier through a tuck-in acquisition, but a standalone acquisition would be sufficient and less complicated if the goal is simply to diversify the types of content offered.
- Point out that Vidnet and DotMuse are not the low-priced options in the market. This means options designed to draw more revenue out of current customers (e.g. bundling) are more viable. However using the same customer base may be bad from a diversification perspective, in which case Vidnet may consider targeting other, low-priced streaming services.
- Notice that the differences in data streaming costs in Exhibit 1 are likely rooted in differences in HD Streaming features.

Brainstorming

Aside from the acquisition of DotMuse, what are other ways that Vidnet can diversify their revenue streams?

Brainstorming Guidance

- **Streaming Platforms**
  - Other video platforms, Other music streaming platforms, other media (e.g. video games).
  - Tiered pricing (e.g. regular and HD streaming, family plans)
- **Services**
  - Original content, Merchandising, DVD/Blu-ray Sales.
- **M&A alternatives**
  - Organic growth (i.e. start their own music streaming platform), Joint venture, Partnership, purchase assets (e.g. streaming exclusivity rights)

Best candidates will:

- Consider methods of diversification both in terms of other streaming platforms and other services for Vidnet.
- Think of alternatives to M&A, acknowledging the complicated process and permanence of integration.

Conclusion

Reccomendation

- Vidnet should acquire DotMuse because projected cost synergies are above $2B, which is a significant proportion of DotMuse's revenues. This provides a profitable way for Vidnet to diversify revenues.

Risks

- Vidnet might not be able to bring down Content Acquisition costs to the projected value.
- Synergy capture may be lost due to integration challenges (loss of key staff, culture clashes, service interruptions).
- Vidnet may experience negative brand impacts as it strays from video streaming.

Active Invoice

- Conduct proper due diligence to confirm synergies.
- Consider alternative streaming platforms or services in place of DotMuse.
- Develop integration strategy, in particular, whether this will be a tuck-in or a standalone acquisition.

Chemical Co. Merger

Chemicals| M&A, Brainstorm

Ratings:
Overall - 2
Quant - 2
Qual - 2

Prompt

Your client, ChemCo, is a large mid west chemical company. A few years back it merged with its main rival, another large chemical giant. However, the merger has run into troubled water and they have hired you to look into it and turn it around.

Interview Guidance

- This case needs to be done in under 30 minutes as that was the allotted time
- The case is more of a discussion and not led strictly by either interviewer or interviewee
- The focus is more on the thought process rather than the calculations
- Key point to judge: Ability to brainstorm and think creatively of a seemingly mundane situation

Clarifying Information

- This was a merger of equals and both companies had very similar sizes, product portfolios, customers etc.
- ChemCo has many different products and divisions, and it supplies to all kinds of industries, and for this exercise we need to find the weak spot in the portfolio
- Internal investigation has revealed that while other divisions are running profitably, the sulfuric acid plants aren't
- Both companies had major sulfuric acid manufacturing capacities, and the plants have operated as it is since the merger

Framework

Decreasing Profitability

Why is division losing money?

- Decreased Revenues
  - Fewer # tons of acid
  - Lower $/ton
  - Locked in long-term contracts
  - Market trends/demand shifts
- Increased Costs
  - Fixed
  - Plant utilization rates
  - Admin/mgmt salaries
  - Variable
  - Input costs (raw materials)
  - Wages (union, shortage)

Synergy Realization

What synergies can boost profit?

- Revenue
  - Remove customer cannibalization across geographies
  - Generate market power to increase prices
  - Cross-market customers for add-on products
- Cost
  - Capacity vs Demand – investigate unused capacity
  - Procurement synergy – best prices from suppliers
  - Eliminate SG&A redundancies

Division Strategy/Value

Does division have other strategic value?

- Internal Supplier
  - Used as input for other, more profitable products
  - Treat as cost center not profit
- Loss Leader
  - Package deal for more profitable purchases
  - Low prices allow bundle contracts
- Price out competition
  - Low prices eliminate competition and allow future growth

Interview Guidance

Notes / Advice to Interviewer / How to Move Forward

- **Step 1:** Let interviewee run through the framework and ask for relevant information on each of the heads. Ex: Do we have any info on the personnel costs? Reply appropriately as only available exhibits are on total costs and revenues

- **Step 2:** Push interviewee to discuss synergies and understand what may exist. We do not have additional information on synergies so drive towards profitability discussion

- **Step 3:** Handover exhibits 1 & 2 after brainstorming with the candidate

- **Step 4:** Candidate should figure out that combining exhibit 1 & 2 can lead to an NPV calculation after which value of this division can be found and a recommendation made
  - For exhibit 1, clarify to interviewee that the revenue figure will be same in perpetuity
  - For exhibit 2, say that cost for the last projected year can be assumed constant in perpetuity
  - Discount rate is 5%

- **Step 5:** Brainstorm on potential actions (spinoff, bundle, etc.) for Sulfuric Acid division and pros/cons

Exhibit 1

Revenue for Sulfuric Acid division ($M)

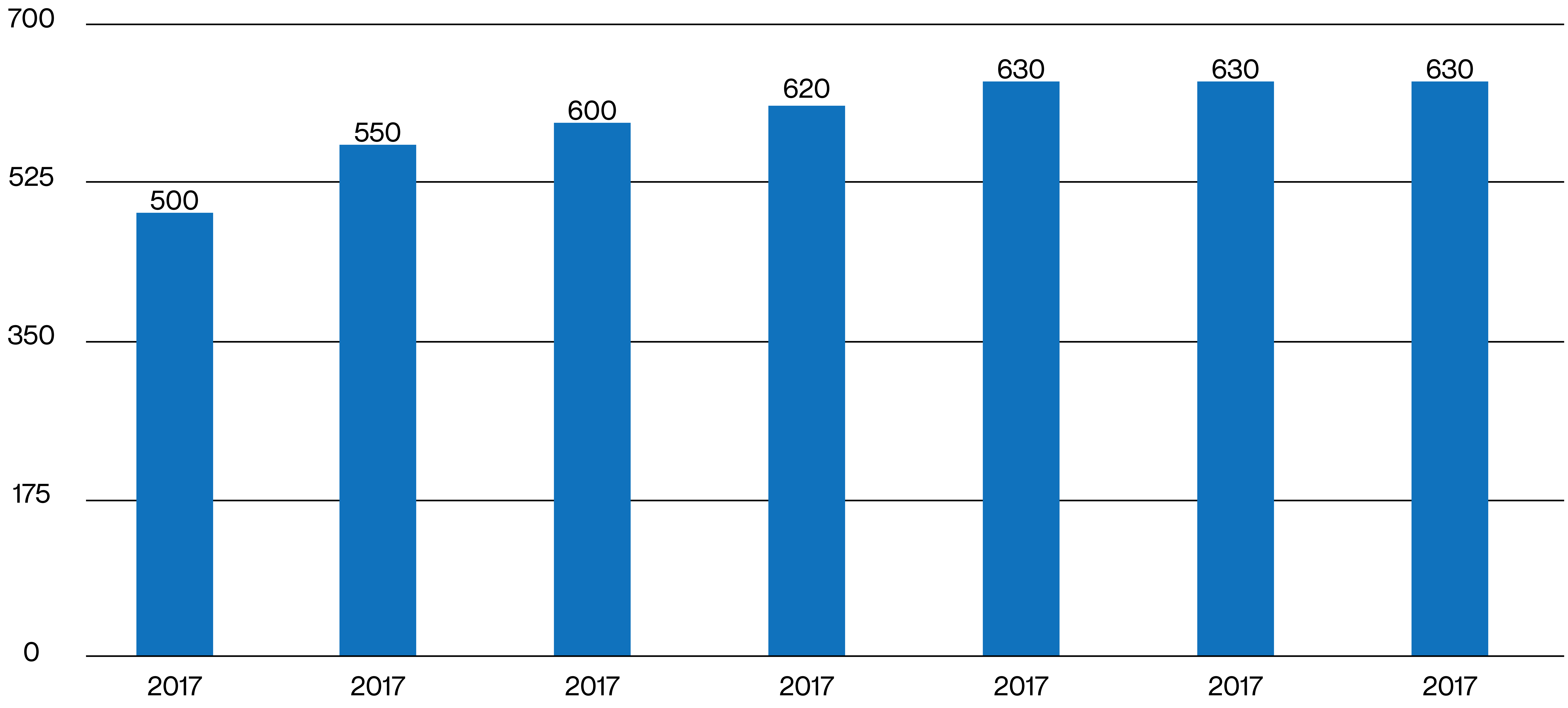


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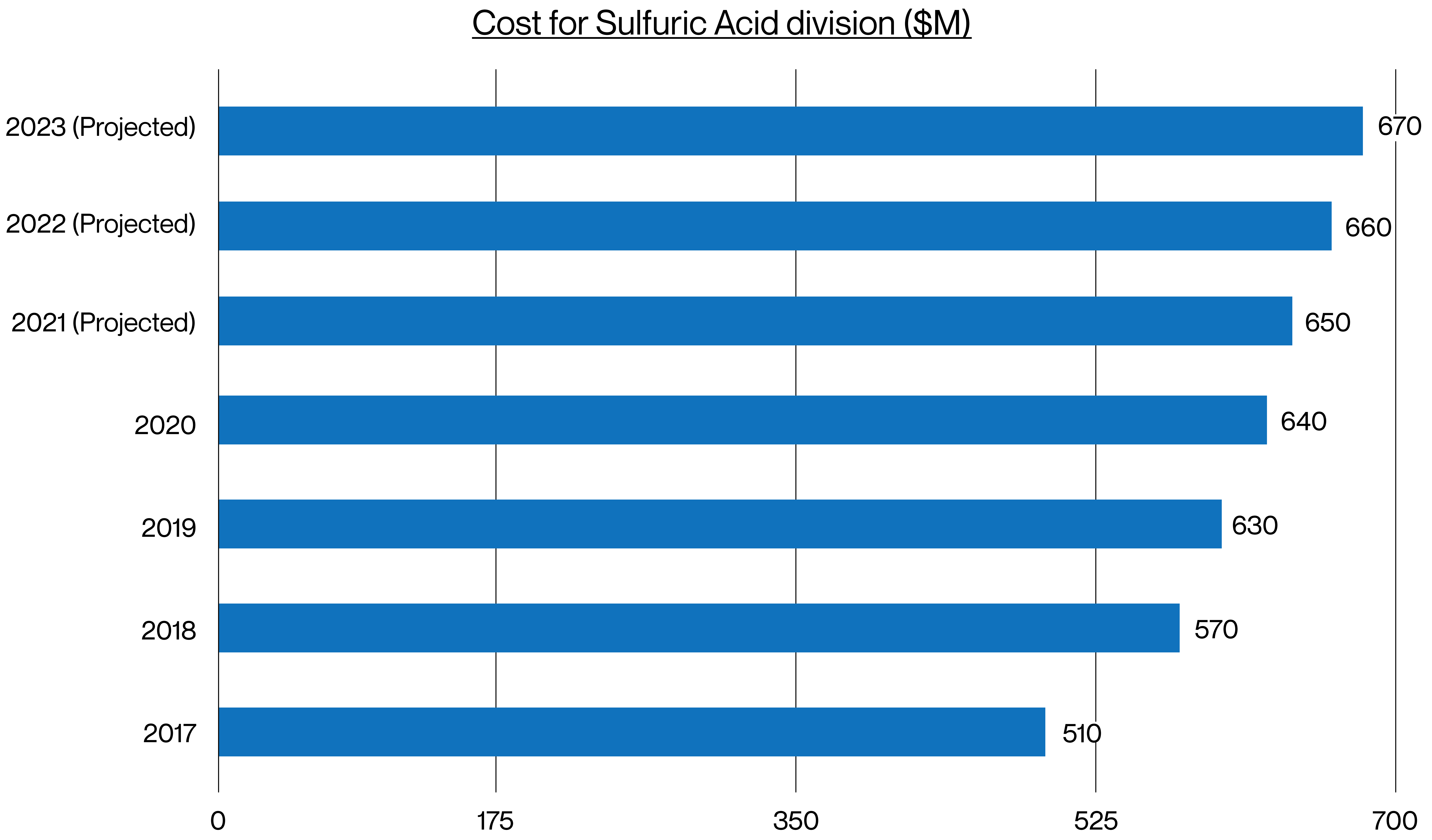
Exhibit 2


Cost for Sulfuric Acid division ($M)
2023 (Projected)
670
2022 (Projected)
660
2021 (Projected)
650
2020
640
2019
630
2018
570
2017
510
0
175
350
525
700

Interview Guidance

Breakdown of Exhibits & Calculations

- **Exhibit 1** shows that revenue from division is going to flatline, so any value that will come will be from cost control
- **Exhibit 2** shows that cost is going up regularly. Reasons could be – environmental regulations, increase in sales and distribution costs, competition, etc.

- **Combining the two exhibits:**
  - NPV = Sum of Free Cash Flows / Discount Rate
  - Free Cash Flow = Revenue – Cost
    - FCF for 2021: 630-650 = -$20M
    - FCF for 2022: 630-660 = - $30M
    - FCF for 2023 and beyond: 630 – 670 = -$40M
  - For ease of calculation, recommend taking 2023 as terminal value for NPV calculation.
    - NPV = -$40M/5% = -$800M
  - If candidate performs actual NPV:
    - Year 1: -$20M/1.05 = -$21M
    - Year 2: -$30M/(1.05)^2 = -$33.075M
    - Perpetuity: -$40M/.05 = -$800M/(1.05)^3 = -691M
    - Total: -$21M - $33.075M - $800M = -$745.075M

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Brainstorming

What are some potential actions that ChemCo can take? What are the benefits and risks?

After determining that the sulfuric acid division is NPV negative, the interviewee should recognize a bad investment. Prompt the interviewee to think of potential actions that ChemCo can take with the division. Responses will vary

Carve Out

- Benefits
  - Sells full unit and all assets as standalone business
  - Higher price to buyer
- Risks
  - Competitor can buy
  - Business NPV negative – what price can be achieved?
  - Sulfuric acid as an input more expensive to buy

Divestiture

- Benefits
  - Sell some of the assets/part of the business
  - Keep profitable portion/assets of business
- Risks
  - Can't meet internal demand for sulfuric acid
  - Industry demand increases (or costs decrease)

Operate as Cost Center

- Benefits
  - Manage overall business profitability with sulfuric acid as input
  - See true cost of more complex chemical sales
- Risks
  - Sulfuric acid not used in other divisions
  - External suppliers are cheaper

Conclusion

Recommendation

- Sulfuric acid division has an NPV which is negative, therefore it has next to no value and should be shut down

Risks

- Explore possibility of selling division to a rival who can perhaps get economies of scale from it and would be willing to pay for it
- Prepare for shutdown eventuality by starting negotiations with unions, reallocating resources, managing internal synergies as sulfuric acid might be needed with other internal divisions
- Evaluate if buying acid from outside for other divisions is more costly than purchasing internally

Next Steps

- Shutdown costs negate any savings
- Loss of market power
- Buying sulfuric acid externally might be more costly than sourcing internally

Going Hybrid

Retail & E-Commerce| Synergies/M&A

Ratings:
Overall - 2
Quant - 1
Qual - 3

Prompt

Our client 'Reliable' is the leading brick and mortar retailer in an Asian market.
The CEO has asked whether they should enter the e-commerce industry?

Clarifying Information

- Largest physical retail firm in the country; more details about the market shall be shared later
- Sells products in the following categories: Electronics, Apparel, Books, and Home Improvement
- Its stores are present across the country and cater to the physical retail customers. There are no plans to expand outside the country
- The firm manufactures private labels and third-party products; this is not a focus area for the case
- No profitability and timeline objectives (candidate to suggest suitable targets later based on provided data)

Framework

Market

- Size
- Growth
- Customers
- Products
- Profitability*

* Not a focus area for this case

Entry Barriers

- Capital reqts.
- Technological reqts.
- Supplier relations
- Competitive intensity
- Government regulations*

* Not a focus area for this case

Client Capabilities

- Financial
- Operational
- Partnerships
- Brand equity
- Lobbying power*

* Not a focus area for this case*

Entry Strategy

- Timing
- Mode
- Phasing*

* Not a focus area for this case*

Notes for interviewer:

- **Candidate should attempt to:**
  - First understand market attractiveness (hand exhibit 1, wait for candidate to ask for competitor data before handing exhibit 2)
  - Conclude that market has potential, then explore entry requirements and the client's existing capabilities (exhibit 3)
  - Conclude that client lacks a few capabilities, then explore if there are any attractive acquisition targets (exhibit 4)
  - Incorporate the shared data points and decide the ideal acquisition target (exhibits 5 and 6 – optional, skip if time is over)
- **If candidate goes another direction, ask why. Then bring back to above flow through following questions:**
  - Is the e-commerce market attractive? (hand exhibits 1 & 2)
  - Can Reliable build an e-commerce venture? (hand exhibit 3)
  - Should Reliable acquire existing firms? (hand exhibit 4)
  - Which firm should Reliable acquire? (hand exhibits 5 and 6 – optional, provide this additional information if there is time left)

Exhibit 1

Physical retail & E-Commerce market growth ($ Bn)

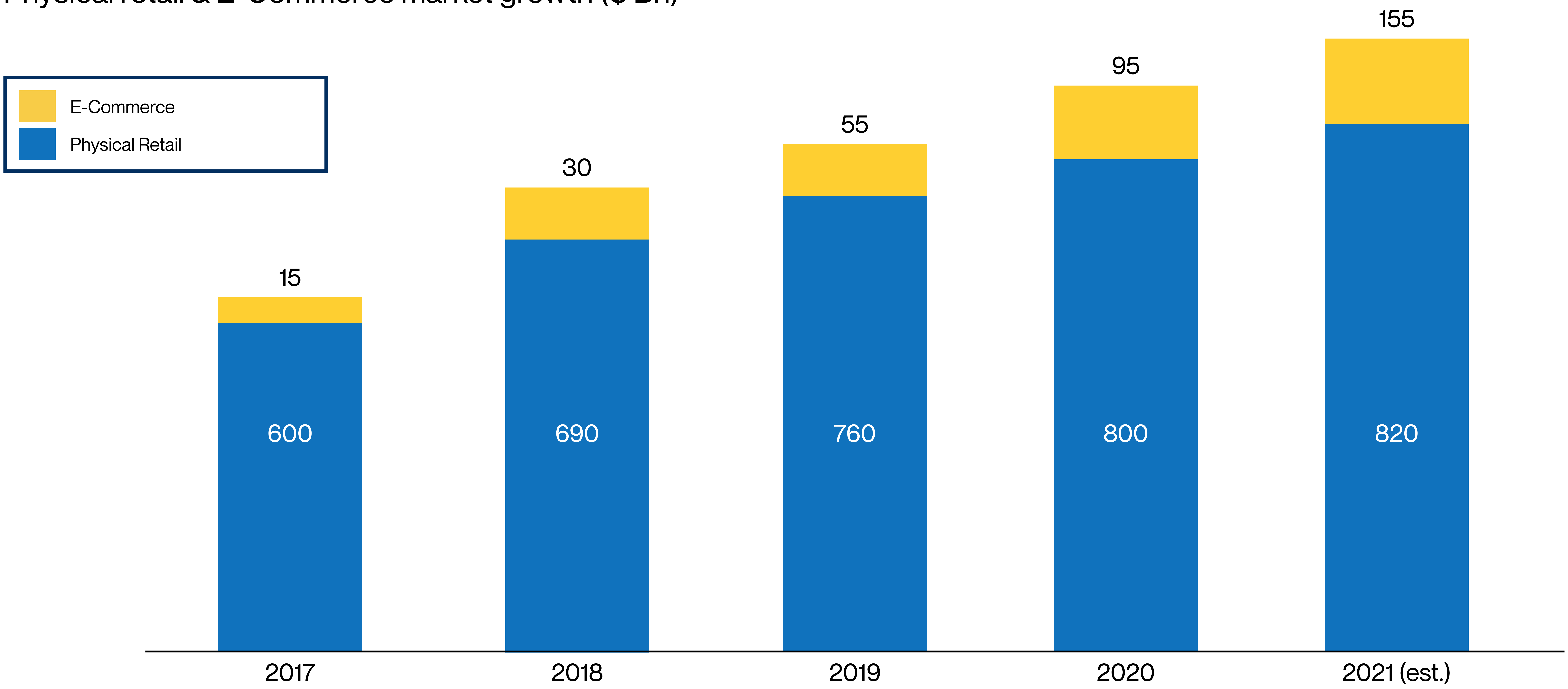

Exhibit 1 – Guidance

Physical retail & E-Commerce market growth

Questions for Candidates about Exhibit that the Interviewer should ask:

- Does e-commerce have potential? How about physical retail?

Best candidates will:

Candidate should recognize:

- E-comm has increasingly larger share of total retail market
- Physical retail growth has been decreasing sharply
- Takeaway 1: Poor growth prospects in physical retail without increasing market share
- Takeaway 2: E-commerce market is growing rapidly

Strong candidates will recognize:

- Total retail market growth rate has fallen to half of the original value
- (Business sense) Consolidation may result if growth rates continue to decrease
- Takeaway 3: Should evaluate competitors to explore acquisition opportunities

Period	Physical Retail Growth	E-comm Growth	Total Retail Growth
2017-18	15%	100%	17%
2018-19	10%	83%	13%
2019-20	5%	73%	10%
2020-21	3%	63%	9%

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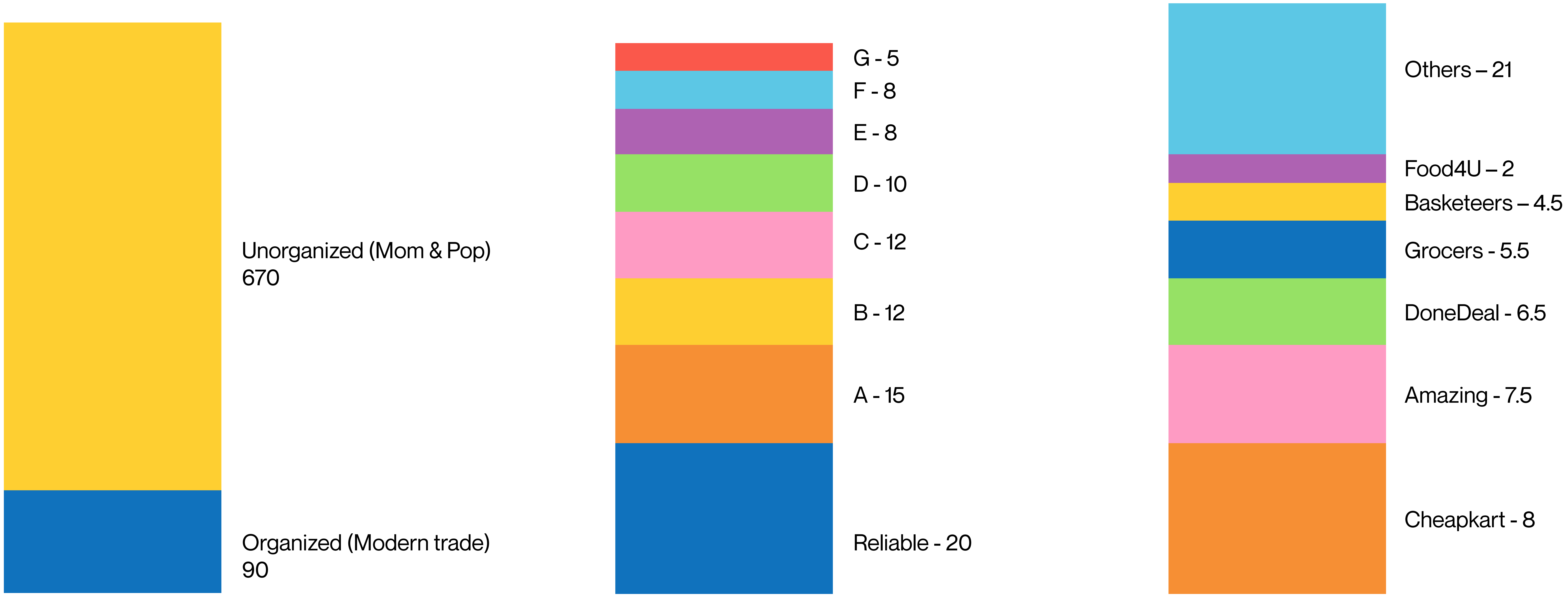
Exhibit 2

Physical retail & E-Commerce market in 2019 ($ Bn)



- Cheapkart was recently acquired by the world's largest retailer
- Amazing is a subsidiary of the world's largest e-commerce firm

Exhibit 2 – Guidance

Physical retail & E-Commerce market in 2019

Questions for Candidates about Exhibit that the Interviewer should ask:

- How significant is the competition in these markets?

Best candidates will:

Candidate should recognize:

- Physical retail is predominantly unorganized (if candidate brings it up, instruct to ignore unorganized retail for this case. Reliable doesn't wish to focus on unorganized retail customers)
- Both organized retail and e-commerce markets have several firms with similar sizes, indicating neither has a monopoly and there is an intense competition for market share
- Takeaway 1: Increasing market share is difficult in either market without acquiring existing firms

Strong candidates will recognize:

- (Industry knowledge) Retail and e-commerce firms primarily compete on price; it is difficult to differentiate and steal market share from others
- Takeaway 2: Low value in acquiring organized retail competitors as the growth is declining
- Takeaway 3: Better to acquire firms in growing E-commerce market than stagnant physical retail

Brainstorming

What will Reliable require to enter the e-commerce market?

Brainstorming Guidance

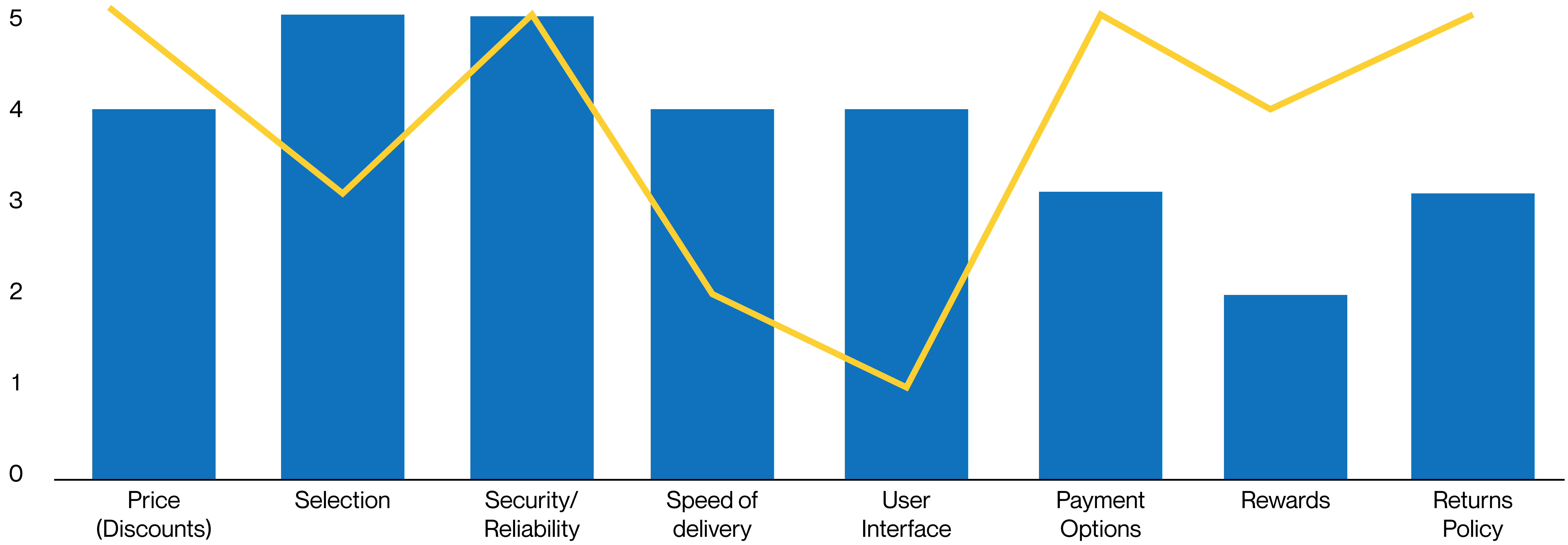
- Bring focus to required capabilities for an e-commerce firm
- (Optional) Follow up by asking which capabilities Reliable might lack?
- A few industry drivers and required capabilities are illustrated in exhibits 3 & 4

Best candidates will:

- Start from listing the e-commerce market drivers and work backwards to determine required capabilities
- Few candidates may list the capabilities and then relate them to the drivers, it is acceptable if they explain the rationale
- Structure the list of drivers/capabilities and state which ones are more important

Exhibit 3

E-Commerce Market Drivers: Importance & Reliable's estimated positioning



- Bar graph indicates the relative importance of industry drivers (based on customer surveys)
- Line graph indicates Reliable's achievable performance compared to industry standards (internal estimates)

Exhibit 3 – Guidance

E-Commerce Market Drivers: Importance & Reliable's estimated positioning

Questions for Candidates about Exhibit that the Interviewer should ask:

- Can Reliable build an e-commerce venture?
- (Optional) Why does Reliable lag on a few drivers?

Best candidates will:

Candidate should recognize:

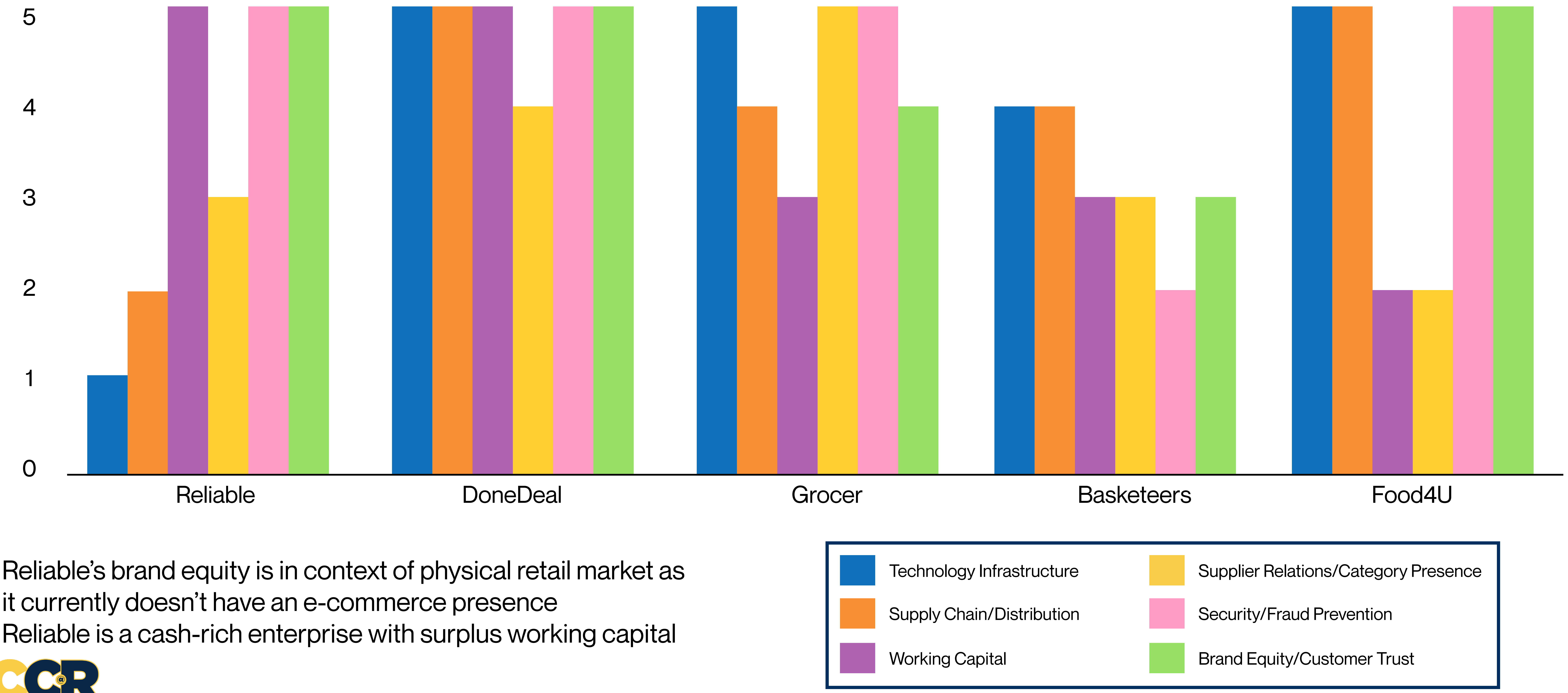
- Reliable can't compete on a few key drivers; it will need to invest for building required capabilities
- Takeaway: Building distribution and technological capabilities will require capital and take time. To quickly enter the fast-growing market, Reliable should explore presence of attractive acquisition targets
- Possible reasons for lag in:
  - Speed of delivery: Brick and mortar stores require different distribution channels compared to that needed for B2C delivery in e-commerce; Last mile delivery capabilities will be missing in Reliable's supply chain
  - User Interface: Physical retailers don't invest in the technological infrastructure that is required for e-commerce

Strong candidates will recognize:

- Possible reasons for lag in selection:
  - Reliable is not offering products in a few important categories
  - Due to limited shelf space, the physical retailers offer smaller selection than that enabled by online marketplaces

Exhibit 4

Firms' ratings on required capabilities



- Reliable's brand equity is in context of physical retail market as it currently doesn't have an e-commerce presence
- Reliable is a cash-rich enterprise with surplus working capital

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Exhibit 4 – Guidance

Firms' ratings on required capabilities

Questions for Candidates about Exhibit that the Interviewer should ask:

- Should Reliable acquire an existing firm?

Best candidates will:

Candidate should recognize:

- Basketeers' poor ratings on security/fraud prevention and brand equity may be hard to address; It is risky to associate with a firm having poor perception among customers
- DoneDeal seems to be the best acquisition candidate followed by Grocers
- Food4U significantly lags in 'category presence' that enables a key driver 'selection'

Strong candidates will recognize:

- Reliable's ample working capital may compensate for fund shortfalls in the target firms such as Food4U
- DoneDeal and Grocers are nearly 1/3rd in size compared to Reliable (exhibit 2) which may result in difficulties during the post-acquisition integration

Exhibit 5 – Optional

Product categories in e-commerce: Market share & firms' presence

Product Category	Market Share	Reliable	DoneDeal	Grocers	Basketeers	Food4U
Electronics	20%					
Apparels	20%					
Books	10%					
Home Improvement	5%					
Health/Personal care	10%					
Groceries	20%					
Perishable food items	15%					

Exhibit 5 – Guidance

Product categories in e-commerce: Market share & firms' presence

Questions for Candidates about Exhibit that the Interviewer should ask:

- We have this additional data, which firm should Reliable acquire?

Best candidates will:

Candidate should recognize:

- Reliable is absent in 'Groceries' & 'perishable food items' categories, acquisition of 'DoneDeal' will not address that selection gap
- Each of the other three firms will allow Reliable to be present across all the categories

Strong candidates will recognize:

- Despite limited category presence, Food4U perfectly complements Reliable's portfolio
- With Reliable's surplus working capital, acquisition of Food4U will allow Reliable to achieve all the required capabilities (Exhibit 4)
- Food4U is 1/10th of Reliable's size and may allow for simpler integration
- Food4U has only 4% of E-Commerce market share, it doesn't enable a leading position and further expansion will be required

Exhibit 6 – Optional

Market Value & estimated synergy ($ Bn)

Target Firm	Market Value	Synergy Est.
DoneDeal	29	1.3
Grocers	19	2.2
Basketeers	17	0.25
Food4U	4	2

- Average Price/Sales multiplier in E-commerce industry is 2.5X

Exhibit 6 – Guidance

Market Value & estimated synergy

Questions for Candidates about Exhibit that the Interviewer should ask:

- We have this additional data, which firm should Reliable acquire?
- Note: Even if candidate didn't identify so, synergy estimates capture takeaways from exhibits 4 & 5 to illustrate Grocers and Food4U as better complements to Reliable's capabilities. Now the candidate should focus on valuation and market size to inform the choice of target firm.

Best candidates will:

Candidate should recognize:

- Required calculations to determine P/S ratios (illustrated in next slide)
- DoneDeal and Grocers are overvalued while Basketeers and Food4U are undervalued

Strong candidates will recognize:

- Market share that each firm will allow Reliable to capture
- Although Food4U is sixth largest e-commerce firm, its revenue is only 1/3rd of DoneDeal
- DoneDeal and Grocers will each allow Reliable to immediately reach comparable market share as Cheapkart and Amazing, allowing better competitive positioning

Exhibit 6 – Guidance

Quoted Price and achievable synergy

Calculations

Candidate should:

- Extract revenue information from exhibit 2
- Calculate each firm's P/S ratio as its market value/revenue
- Note: Synergy est. is not a part of calculation, may act as red herring for a few candidates

Target Firm	Market Value	Synergy Est.	Revenue	P/S	Market Share
DoneDeal	29	1.3	6.5	4.5	12%
Grocers	19	2.2	5.5	3.5	10%
Basketeers	17	0.25	4.5	1.6	8%
Food4U	4	2	2	2.0	4%

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Conclusion

A few data points are optional in this case. Even if all the exhibits are shared, arguments can be made to acquire Grocers or Food4U. Either of the two is acceptable if candidate cites the relevant supporting facts and risks associated with the choice.

Recommendation A

- Acquire Food4U
  - E-commerce market is growing
  - Firm complements Reliable's capabilities
  - It is undervalued

Risks A

- Undervaluation may result from unknown troubles within the firm
- Reluctance of Reliable management to learn processes of a much smaller firm
- Failure to ramp up the e-commerce presence

Next Steps A

- Do further due diligence
- Create necessary systems to ensure Food4U processes are learned and replicated
- Set performance targets to ensure desired growth of the E-commerce venture

Recommendation B

- Acquire Grocers
  - E-commerce market is growing
  - Firm complements Reliable's capabilities
  - It allows strong positioning against market leaders

Risks B

- End up paying a high premium
- Significant culture clash while integrating two large firms
- Cannibalization of physical retail sales in common categories

Next Steps B

- Do further due diligence
- Ring-fence senior management at Grocers
- Evaluate benefits and challenges from operating Grocers as an independent subsidiary

To buy, or not to buy, Buck-Eye?

Insurance | Mergers & Acquisition

Ratings:
Overall - 2
Quant - 1.5
Qual - 2

Prompt

Your client, Wolverine Towers Watson ("Wolverine") is a national insurance company. They are assessing an opportunity to acquire a more regionally based provider, Buck-eye Insurance Company ("Buck-eye"). Buck-eye Insurance Company predominantly provides health insurance. Wolverine Towers Watson has engaged you and your consulting firm to assess this potential acquisition and identify any potential risks.

Clarifying Information

- Wolverine provides home, auto, personal and umbrella insurance coverage.
- Buck-eye serves only a regional client base (Ohio, Indiana, Michigan, Wisconsin & Illinois)
- Wolverine is treating this acquisition like other investments in their portfolio, and requires a 10% ROI
- Wolverine uses a national sales/distribution model, while Buck-eye has a regional sales/distribution model

Company	States	Revenue	Coverage Offered	Employees
Wolverine Towers Watson	50	$8B	Home, Auto, Personal & Umbrella	2,000
Buck-eye Insurance Company	5	$1B	Healthcare / Benefits, Personal	750

Framework

Synergies

- Revenue
  - Current and new policyholder premium
  - Reinvesting (additional) premium in other revenue generating assets
  - Geographic diversification with new locations
- Cost
  - Policyholder purchasing power
  - Industry footprint consolidation
  - Corporate functions and executive team

Acquisition & Integration Costs

- People
  - Lock in bonuses for retained employees
  - Severance packages for fired employees
- Operational
  - IT
  - Marketing
  - Reinsurance
  - Claims / Reserves
- Purchase Price
  - Cash, stock, asset, etc.

Risks

- 2020 election year - federal healthcare policy could change (i.e. Obama Care)
- Covid-19 losses and impact yet to be fully evaluated in insurance sector
- Cultural integration of new company (local, regional into a national corporation)
- Customer, vendor & competitor responses

Exhibit 1

Branch location footprint for each Company for select states

State	Buck-eye Insurance Company	Wolverine Towers Watson
Illinois	350	400
Indiana	300	275
Michigan	15	600
Ohio	450	10
Wisconsin	150	500

Exhibit 1 – Guidance

Branch location footprint for each Company for select states

Questions for Candidates about Exhibit that the Interviewer should ask:

- What should our client prioritize when evaluating store presence per state?
- In which states, if any, should Wolverine Towers Watson consolidate operations? Why?
    - Operations should be consolidated in Illinois and Indiana, due to the large footprint they both have in those states.

Question/Exhibit Guidance:

- Candidate should recognize: concentrations of store locations in Michigan and Ohio, respectively, for the two companies.
- Strong candidate should recognize certain states warrant a consolidation, while Michigan and Ohio do not

Exhibit 2

Profitability Overview

	Illinois		Indiana	
Company	Profit Making Branches	Loss Making Branches	Profit Making Branches	Loss Making Branches
Wolverine Towers Watson	100	250	125	175
Buck-eye Insurance Company	300	100	75	200

Question/Exhibit Guidance:

- How should Wolverine evaluate this information? (i.e. which branch locations, if any, should be closed / consolidated based on this new information?)
- What would you recommend for the remaining stores that are not closed via consolidation?

Exhibit 2 – Guidance

Profitability Overview

Questions for Candidates about Exhibit that the Interviewer should ask:

- What information will we want to best evaluate potential consolidation of branch locations in states with portfolio overlap (i.e. Illinois & Indiana)?

Question/Exhibit Guidance:

- Candidate should recognize difference in operational profits / losses on an annualized basis per branch location per state will be critical.
- Strong candidates will start to formulate which states should consolidate which branch locations

Exhibit 3

ROI Calculation

Buck-eye Cost Breakdown	
Functional Divisions	
Actuaries	$3M
Underwriters / Claim Adjusters	$2M
Brokers	$5M
Sales/Marketing	$1M
Operational Divisions	
HR / Finance / Exec Board	$4M
Reinsurance	$1M
Rent	$1M
Losses (annual to date)	
Claims / Losses Paid	$5M
Total:	**$22M**

***Don't share with interviewee**

- Total Annual Revenues (annual premiums + reinvested profits) = $35M
- To calculate net income:
  Revenues - Costs = $35M - $22M = $13M Net Income
- Rule of 72 Discounting:
  72/(Rate of Return) = 72/(10%) = ~7 years to double (or NPV is half)
  *assumes premium growth rates stay the same, no major changes in the market
- Therefore, net income is $13M/2 = $7.5M
- Taking it all together, to achieve the 10% ROI: $7.5M / 110% = $7M

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Exhibit 3 – Guidance

ROI Calculation

Questions for Candidates about Exhibit that the Interviewer should ask:

- How much should Buck-eye be valued at for the acquisition?

Question/Exhibit Guidance:

- How much does it cost to operate Buck-eye Insurance? Let's brainstorm cost drivers. Guide candidate to begin listing costs, provide help / guidance as needed. No need to brainstorm revenue sources as much more straightforward.

- Total Annual Revenues (annual premiums + reinvested profits) = $35M
- To calculate net income:
  Revenues - Costs = $35M - $22M = $13M Net Income
- Rule of 72 Discounting:
  72/(Rate of Return) = 72/(10%) = ~7 years to double (or NPV is half)
  *assumes premium growth rates stay the same, no major changes in the market
- Therefore, net income is $13M/2 = $7.5M
- Taking it all together, to achieve the 10% ROI: $7.5M / 110% = $7M

Conclusion

What should Wolverine do? The CEO is walking into the room in 5 minutes.

Please gather your thoughts and final recommendation.

Recommendation

- Wolverine should acquire Buck-eye, and should pay $7M if they want to achieve their desired 10% ROI to be in line with the rest of their portfolio. Limited risk / geographic overlap, and clearly identified areas to reduce unnecessary loss.

Risks

- Unforeseen hurdles to cross-selling insurance products
- Health Insurance premiums increase, therefore harder to sell
- Competitor to Wolverine Towers Watson acts more quickly
- Drastically different corporate cultures

Next Steps

- Start integration planning (IT, marketing, finance, etc.)
- Build out transparent and clear communication plan for both companies

Wolverine Dairy

Food & Bev | Growth Strategy

Ratings:
Overall - 2
Quant - 2
Qual - 3

Prompt

Our client is Wolverine Dairy, an Ann Arbor establishment selling ice cream, donuts, coffee and a limited selection of groceries. Known for their post-baseball game Ice Cream cones and Game Day donuts, WD has been a beloved Ann Arbor fixture for years. With local costs on the rise and an economic downturn looming, they need our help to stay afloat. Wolverine Dairy owners, lifelong Ann Arbor residents, have hired us to double their revenue.

Clarifying Information

- **Value-Chain:** WD makes their ice cream, donuts and coffee on site after purchasing ingredients from manufacturers, from whom they also purchase their limited selection of groceries for resale.
- **Objective:** double revenue (data to be provided post-framework)
- **Timeline:** 1 year
- **Scope:** only looking at ways to increase revenue, NOT looking at costs

Framework

- **New Customers**
  - New Offerings
    - Develop new offerings internally
    - Partner/Acquire to develop new offerings
  - Same Offerings
    - Inside Ann Arbor
      - Cannibalization
    - Outside Ann Arbor
      - Competitive landscape
      - Regulations in new location?
      - Supplier relationships?
- **Existing Customers**
  - New Offerings
    - Fro-Yo
    - Breakfast Sandwiches
    - Deli-lunch sandwiches & sliced-to-order
  - Same Offerings
    - Expand Marketing
      - Loyalty Programs
      - Coupons
    - Expand Access
      - More hours
      - App ordering

Notes for interviewer:

- Be sure candidate is focused **only on revenue**, costs are out of scope
- Candidate should note that new location & new offerings simultaneously is likely incongruent with a small, local business model
- Push candidate to get to 3rd and 4th level insights
- Before diving into specifics, important to understand what **current revenue** is so we know what we're trying to grow it to → candidate should ask for this information, then give them Exhibit 1

Exhibit 1

Wolverine Dairy current annual revenue

Category	Annual Revenue
Coffee	$36k
Groceries	$30k
Ice Cream	$24k
Donuts	$10k

Exhibit 1 – For Interviewer

Wolverine Dairy current annual revenue

Guidance

- Candidate should quickly calculate that annual revenue is $100K and therefore the goal to double revenue means increasing revenue to $200K
- Now that they know what they are trying to grow revenue to, ask them how they want to do that?
    - Candidate will likely understand that the best options are 1) opening a new location (new customers, same offerings) or 2) developing new offerings (same customers, new offerings) - if not, guide them there
        - It does not matter which lever they want to explore first
        - If interested in opening a new location → see Interview Guidance A
        - If interested in developing new offerings → see Interview Guidance B

Category	Annual Revenue
Coffee	$36k
Groceries	$30k
Ice Cream	$24k
Donuts	$10k

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Interviewer Guidance A

Candidate wants to open new location

- Where would you open a new location?
  - Considerations → Cannibalization, traffic, expense of rent, understanding of market etc.
  - Share with the candidate that the owners are only interested in opening up an Ann Arbor location (guide them to cannibalization understanding)

- Tell the candidate that due to Cannibalization, WD can expect a 25% reduction in revenue per location if they decide to open a new location
  - Original WD revenue of $100K would be reduced to $75K
  - New WD location revenue would be $75K
  - Original WD ($75K) + New WD ($75K) = $150K total revenue

- The $150K here isn't enough to meet $200K revenue goal, so they need to do something else in addition → send them back to their framework

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Interviewer Guidance B

Candidate wants to develop new offerings

- If candidate wants to look into expanding offerings, have them brainstorm (conversationally, no extra framework) about things that might make sense for WD to offer, given their current products and value proposition to community
  - i.e. FroYo because of Ice Cream
- Share that your client passed along some research to support opening a deli, and that they would like to look into that potential
  - Deli would serve lunch (sandwiches) and sliced-to-order deli meats and cheeses
- Ask candidate how they imagine adding lunch would impact revenue?
  - Lunch and expanded grocery services will increase foot traffic, synergistically growing other areas
- Verbally share the following (all units are per store)
  - Deli will earn $32.2k (new information)
  - Grocery will grow by 10%
  - Coffee will grow by 30%
  - Ice cream grows by 16.67%
- Candidate should calculate $150K in revenue, which isn't enough, and ask what else they should do → send them back to their framework!

Category	Annual Revenue
Coffee	$36k
Groceries	$30k
Ice Cream	$24k
Donuts	$10k

→ 30% increase

→ 10% increase

→ 16.6% increase

→ NO increase

Category	Annual Revenue
Deli	$32.2k
Coffee	$46.8k
Groceries	$33k
Ice Cream	$28k
Donuts	$10k

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Conclusion

Recommendation

- In order to meet their $200K revenue goal, Wolverine Dairy should both open a new location and expand their services to include a deli. Each of these initiatives in isolation will bring in $150K total revenue, but together they will bring in $225k

Risks → Next Steps

- Haven't factored in reverse synergies of including a Deli → Marketing & Promotions to play in a new space with different competition
- Brand Dilution → Marketing
- Next Step: decide what menu offerings would be best (customer surveys and research)

Compound-Virus Vaccine

Pharmaceuticals | Profitability & Market Entry

Ratings:
Overall - 2
Quant - 2
Qual - 2

Prompt

Over the last several months, we have seen the emergence of a novel virus, Compound-Virus, which has rapidly spread globally, shutting down economies and infecting millions of people. The US Government just announced a program pledging $10B to fund the development, production, and distribution of a vaccine with the goal of reaching the public in one year.

Our client is the CEO of major pharmaceutical company, JonesCrewsKelleher or JCK, who has hired us to evaluate whether his company should bid for a contract under this program and, if so, how they should plan on executing the order?

Clarifying Information

- **Company info:** JCK is one of the world's largest pharma companies. While officially headquartered abroad, they run a strong US division with a presence in all 50 states. JCK has a broad portfolio of products, including branded pharmaceuticals, vaccines, oral healthcare, nutritional products, and over-the-counter medications. Within the US, JCK maintains facilities for administration, R&D, manufacturing, and distribution.

- **Revenue/Profitability:** Last year, JCK had revenues of about $40B and maintained a net margin of 15%. (Interviewer Only: $6B profit)

- **Company Goals:** The CEO wants to bid on the contract if 1) the vaccine can meet the 12-month deadline and 2) the company does not decrease overall profit during the life of the vaccine.

- **Government Program:** The goal is to push out 300M vaccines in 12 months. Three core areas where the effort will accelerate the timeframe for a vaccine: 1) development, 2) manufacturing, and 3) distribution. Investment in these areas will be a blend of private and public efforts
  - Development: This is the primary focus for private companies as they need to develop a vaccine, receive FDA approval, and have it ready for market in <12 months.
  - Manufacturing: To encourage a focus on development, the government will subsidize 75% of manufacturing investment once a vaccine has passed early stage trials. Manufacturing will run concurrently with development to increase speed-to-market.
  - Distribution: DoD is coordinating distribution efforts and will not require investment from private companies.

Framework

Profit of Vaccine

- Revenues
  - # vaccines
  - $/vaccine
  - Subsidies/grants
- Cost
  - Fixed
    - R&D
    - Plant/manufacturing capabilities
    - Talent
  - Variable
    - Production costs
    - Vaccine ingredients
    - Packaging

Drug/Product Development

- Internal
  - Develop from scratch
  - Pipeline drugs
  - Timeline + cost
  - Risks – clinical trial fails, incorrect talent, etc.
- Acquisition
  - Available companies
  - Drug stage
  - Cost
  - Risks – culture, location, reliability, etc.

Company Capabilities

- Manufacturing
  - Research facilities
  - Plant
  - Govt subsidies
- Distribution
  - Channels (OTC, hospitals, clinics, etc.)
  - Medical liability/lawsuits
- Marketing
  - Reach
  - Customers' perception

Other Factors

- Benefits
  - Brand recognition
  - Media coverage
  - Future gvt contracts
- Risks
  - Faster competitors
  - Disease prevalence/ lifespan
  - Medical liability/lawsuits

Notes for interviewer:

- This is **interviewee-led** case that has three main components:
  1. Determine the overall potential profitability of the vaccine
  2. Evaluate product development of homegrown vs acquisition
  3. Identify production capacity and recommend facilities
- Drive candidate to first question: Is this contract potentially profitable in the first place?

Question 1A Guidance

Candidate Question: Is this contract potentially profitable in the first place?

Interviewer response to Candidate Question:

Since this is such a new program, a lot of the information is based on initial estimates. With those estimates, JCK expects the following:

Revenues

- With government subsidies, each vaccine will sell for $50/dose
- 300M total doses
  - JCK expects delay in implementation and it will take 3 years to vaccinate everyone
    - 50% year 1
    - 30% year 2
    - 20% year 3

Calculations

Total Revenue = $15B (300M doses * $50/dose)

- Year 1 Revenue = $7.5B ($15B * 50%)
- Year 2 Revenue = $4.5B ($15B * 30%)
- Year 3 Revenue = $3B ($15B * 20%)

Questions/Exhibit Guidance

- Candidate should calculate be able to calculate total revenue and recognize that the yearly revenue makes up ~7.5-20% of annual revenue ($40B/year from clarifying questions) which makes this very attractive to pursue
- Candidate should recognize that in order to calculate profitability, we must next look at cost. When asked about cost, interviewer should **ask candidate to brainstorm potential costs to consider**

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Question 1B Guidance

Candidate Question: How much does it cost to produce and sell the vaccine?

Interviewer response to Candidate Question:

We asked about a few of these items and JCK provided the following estimates.

- -Marginal costs will be 33% of sale price
- - Fixed costs will be $500M/ year
- - Initial development costs will be $5B

With this information, the candidate should calculate the cost for each year and then calculate profit without prompting

Calculations

	Year 0	Year 1	Year 2	Year 3
Sales	$0	$7.5B	$4.5B	$3B
Costs				
Development	$5B	$0	$0	$0
Fixed	$0	$500k	$500k	$500k
Variable	$0k	$2.5k	$1.5k	$1k
Total Cost	**$5B**	**$3B**	**$2B**	**$1.5B**
Revenue	$0	$7.5B	$4.5B	$3B
Costs	$5B	$3B	$2B	$1.5B
Profit	-$5B	$4.5B	$2.5B	$1.5B
Total Profit				**$3.5B**

Questions/Exhibit Guidance

Vaccine will generate $3.5B over three years. JCK should be interested in bidding for this contract.

- Good candidates will recognize that margins of this vaccines much higher than standard (which is 15%) and would make up significant portion of yearly profit ($6B)
- Once profitability has been determined, the next question should be about whether JCK can fulfill the production needs on the 12-month timeline

Question 2 Guidance

Candidate Question: How would JCK fulfill the vaccine production needs and timeline?

Interviewer response to Candidate Question:

- Ask what information would be needed to determine this and what they would look at. Guide discussion towards evaluating Internal Development vs Company Acquisition. Once reaching this point, ask the candidate to brainstorm the criteria to evaluate which is the best route.

Internal (Develop)

Pros:
- Known entity and people
- Quality control
- Existing facility, staff, production, etc.
- Established production capacity

Cons:
- Detract from other development
- Potentially longer timeline
- Sacrifice/tradeoff existing production

External (Acquisition)

Pros:
- Potentially quicker to market
- Specialty in novelty vaccines
- Smaller org can be more nimble to shift focus or production

Cons:
- Higher upfront cost
- Different culture, management, etc.
- Integration challenges (management, timeline, legal, etc.)
- Unknown production capacity

Interviewer response to Candidate Question:

- After brainstorm, acknowledge that JCK has informed us that they would prefer to develop internally if possible because they expect a lower entry cost and higher profit margin. Push the candidate on challenges related to production, production capacity, or current categories (i.e. can JCK take on this production capacity). Once headed in this direction - “We have information about production capacity and revenue by segments from JCK” and hand over Exhibit #1

Exhibit 1

JCK Revenue by Segment ($B)

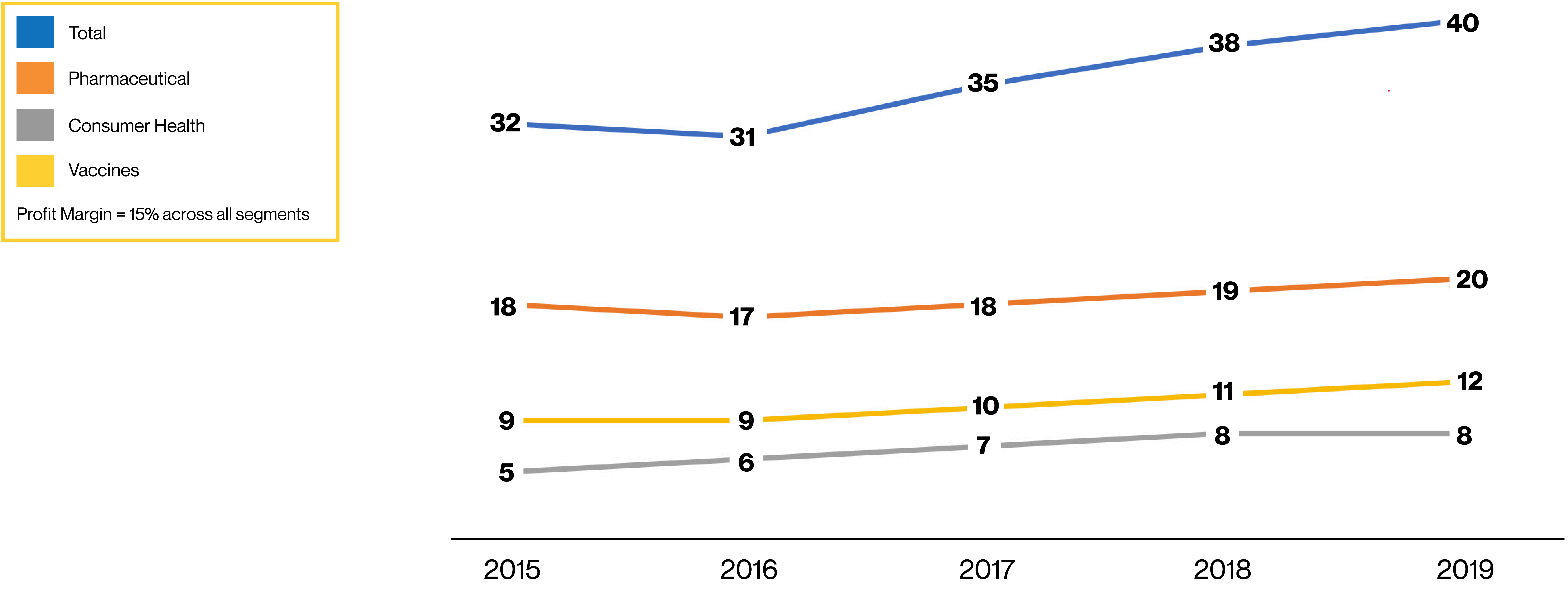

Exhibit 1 – Guidance

JCK Revenue by Segment ($B)

Questions for Candidates about Exhibit that the Interviewer should ask:

- The interviewer should hand the exhibit over and not ask any leading questions
- Candidate should recognize that additional information is needed and ask for price/dose to derive the amount of vaccines sold. When asked, offer the following information:
  - Price/dose = $25/dose
  - JCK's facilities run at near capacity and should take the amount sold as production capacity
- Candidate should calculate the following values:
  - With 15% margin, vaccines brought in a profit of $1.2B in 2019 ($8B * 15%)
  - JCK's vaccine production capacity is 320M doses/year – ($8B sold) / ($25/dose) = 0.32B doses

Question/Exhibit Guidance:

- Vaccines make up 20% of JCK's revenue and while it's the smallest revenue segment, it has grown at a greater percentage rate than the others (60%)
- Production capacity is 320M doses so JCK currently has the capacity to produce enough doses of a new vaccines with current capabilities (300M needed from clarifying questions).
- With $1.2B in yearly profit ($3.6B over three years), JCK will more than make up for any diversion of current production by moving towards new vaccine.
- Great interviewees will recognize that JCK only needs about 50% capacity for Year 1, 30% capacity for Year 2, and 20% capacity for Year 3 so will make more than the lost profit (which is about $1B over the three years).

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Conclusion

Recommendation

JCK should bid for the Compound-virus vaccine contract and seek to develop internally given that it can make the 12-month timeline

- $3.5B in profit over three years from new vaccine sales (lose only $1B from current vaccine segment)
- 75% yearly profit in Year 1
- Internal development allows for greatest control, quality, and time management
- Build partnership and trust with government for future contracts

Risks

- Cannot meet timeline of vaccine development
- Virus dies out before vaccine comes to market
- Competitors win government bid
- Lose market share for growing vaccine business

Next Steps

- Examine pipeline drugs for vaccine possibilities
- Evaluate acquisition opportunities and valuations
- Market/profit analysis to understand which vaccine production should be stopped and switched to new vaccine

House of Pizza

Food & Beverage | Market Entry

Ratings:
Overall - 2
Quant - 2
Qual - 2

Prompt

Our client, House of Pizza, is a single-location restaurant in a Midwestern US college town. They are considering whether to open a full-service bar on the site of their existing parking lot, which they own. House of Pizza's owner has retained us to advise them on whether or not they should enter this market.

Clarifying Information

- The client's financial target is an undiscounted payback period of 3 years
- The client has not considered other alternative uses for this space, but this could be something we can consider in our final recommendation
- The parking lot is sizeable enough to hold a standard size full-service bar
- House of Pizza owns the lot on which the restaurant and parking currently sit
- The restaurant is located close to campus and near several other popular local bars
- Don't go into specifics yet on competition in the area (but it is stable and fragmented)
- Don't go into specifics yet on the full-service bar industry

Interviewer Guidance:

- This is an interviewee led case. Throughout the case, let the interviewee ask for specific data points before presenting exhibits. You can present the exhibits in whichever order the candidate prefers but press them to consider all aspects of the decision by going back to their framework.

Framework

Competitors

- Local full-service bar trends (increasing popularity, decreasing, etc)
- Number of local full-service bars
- Market share per bar
- Recent changes in # or share per bar

Customers

- Current segmentation (undergrads, MBAs, townies?)
- Customer perception of existing competitors
- Trends/changes in customer perceptions of full-service bars

Company

- Financials
  - Revenues
    - Drinks
    - New bar patrons creating more pizza orders?
    - Miscellaneous (cover charges, karaoke, etc.)
  - Costs
    - Upfront Investment (construction, fridges, barstools, etc.)
    - Fixed Costs (Rent, utilities, insurance, etc)
    - Variable costs (alcohol COGS, bar staff, bouncers, etc)
- Operational concerns (**another dead end, push them away from this bucket)
  - Alcohol license, distribution relationships
  - Competencies to run a bar

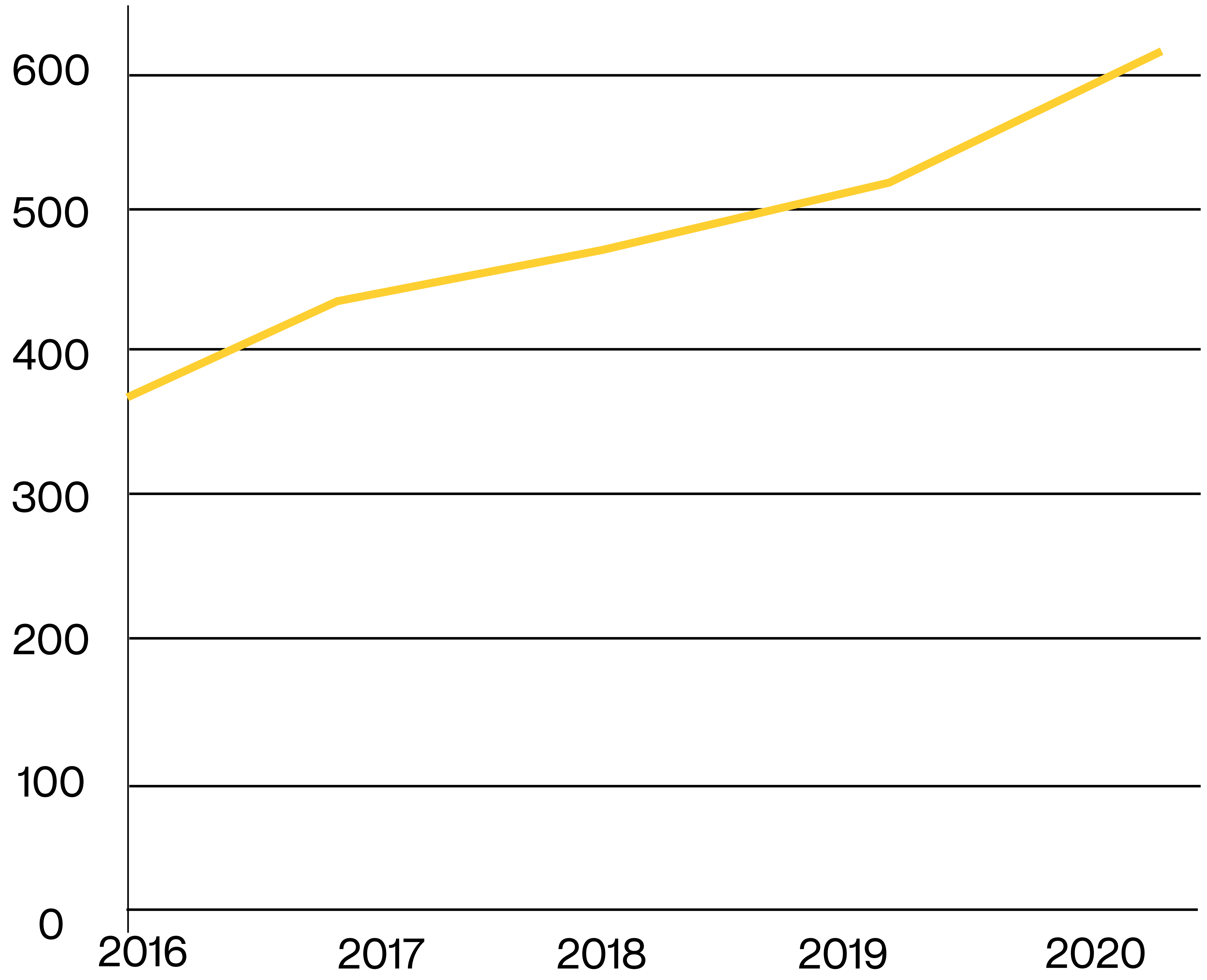
Advice to Interviewer:

Customers and Operational concerns are both dead-end areas. Push candidates away from these sections and towards specific questions regarding the competitive landscape and the projected financial returns. If candidate asks about the competitive landscape, hand them Exhibit 1. If they go straight to financials give them Exhibit 2 but push them to consider other factors afterward as well until they ask for competitive landscape data.

Exhibit 1

Industry and Competitor Data

US Full-Service Bar Industry Revenues (in millions)



City Market Share by Local Competitor

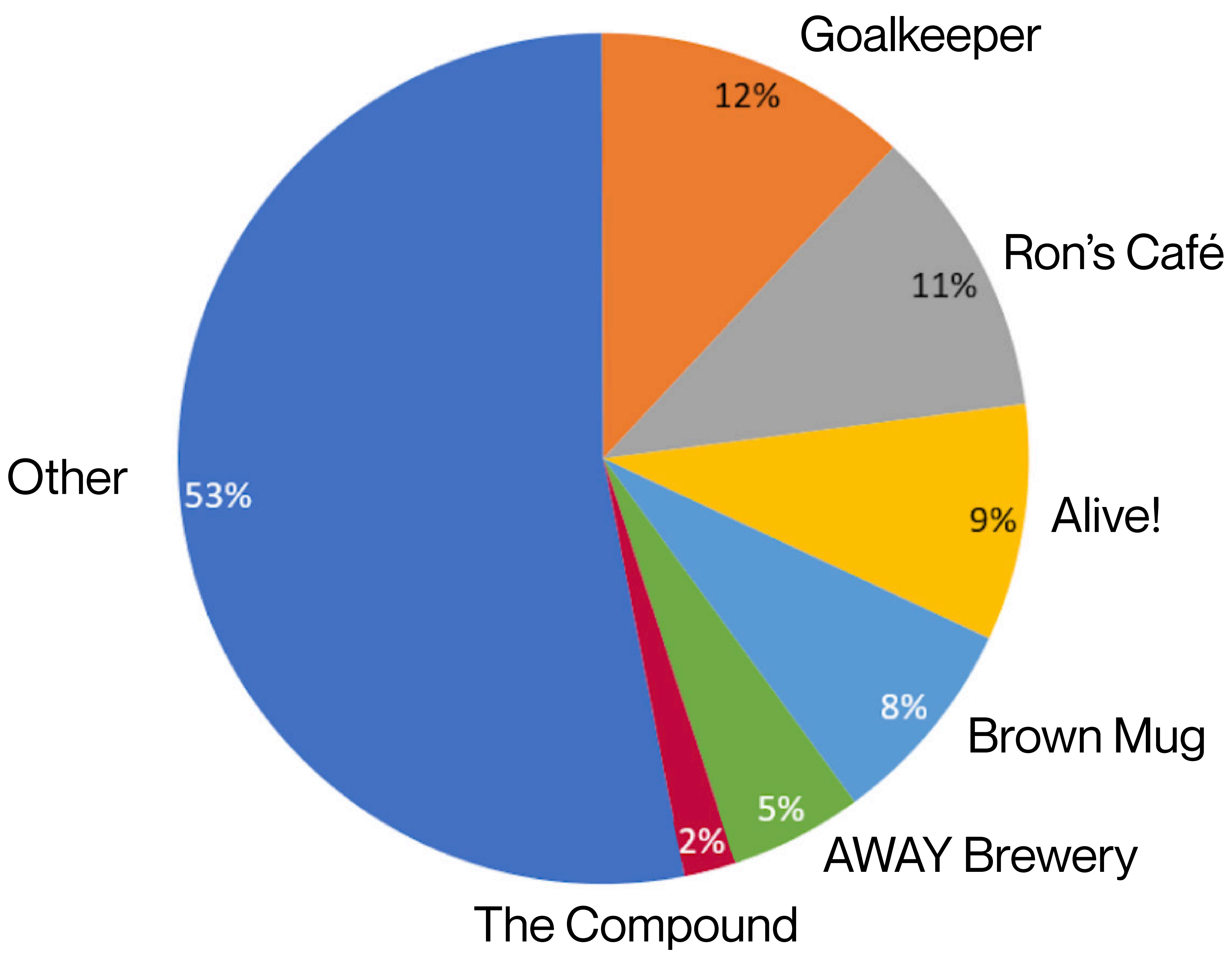
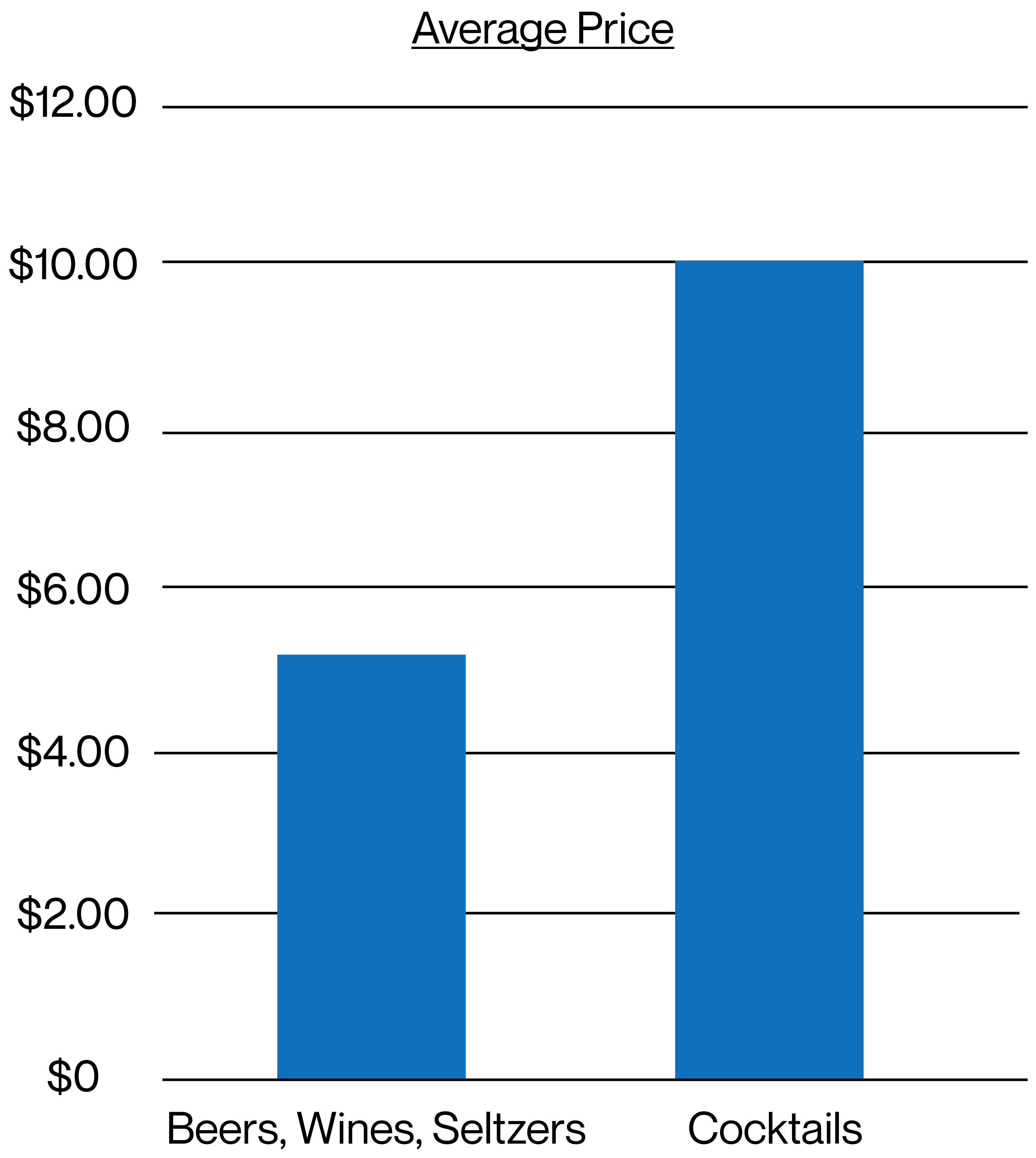


Exhibit 1 – Interviewer Guidance

- Candidate should recognize that the industry is attractive as it’s been growing quickly over the past 5 years.
- Strong candidates will be able to identify that it has grown >50% over the 5-year period.
- Additionally, candidates should identify that the local competition is highly fragmented, with “Other” making up >50% of the market and the top 4 competitors controlling just 40% collectively.
- Strong candidates will conclude that the market is an attractive opportunity and ask to dig into the projected financial data.
- Unless the request for financials is specific, push the candidate to identify what data points they would need to project revenues. When they identify the average price of drinks and projected sales volumes, hand them Exhibit 2.

Exhibit 2

Projected Sales Figures



*Owner underwrites based on a 40 week year (when college is in season)

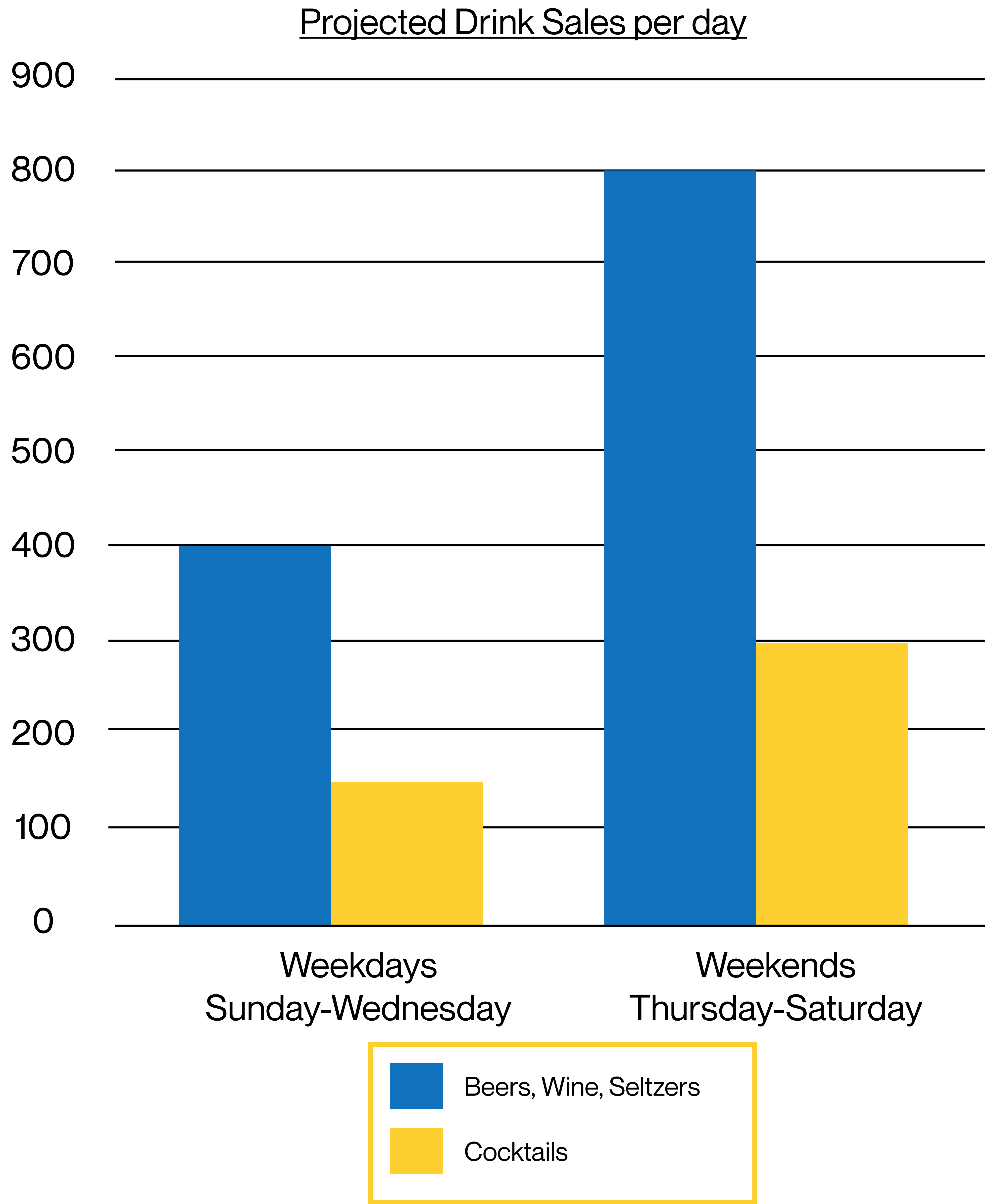


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Exhibit 2 – Interviewer Guidance

- Candidates should recognize that they have all the data they need to calculate projected revenues from the above charts. **Ideally, they will set up a table as shown.**
- Strong candidates might combine calculations to avoid calculating daily and weekly revenues and skip straight to annual but if they struggle encourage them to do it step by step.

Projected Revenues		Weekdays (4 days)	Weekends (3 days)	Total
Beer, Wine, Seltzer	Avg Price # of drinks sold/day Avg Rev/day Avg Rev/week # week/year (x40)	$5 400 $2k $8k $320k	$5 800 $4k $12k $480k	$800k
Cocktail	Avg Price # of drinks sold/day Avg Rev/day Avg Rev/week # week/year (x40)	$10 150 $1.5k $6k $240k	$10 300 $3k $9k $360k	$600k
			Total	**$1.4M**

- Once calculated, candidates should realize that the payback period calculation requires cost analysis as well and ask for cost data. If the question is unspecific, ask them to brainstorm what types of costs they might expect in a business like this.
- Exceptional candidates will have this in their framework already, but, if they haven't, strong candidates will use a structured approach to this brainstorm. Once satisfied with the thoroughness of the costs identified, provide the following cost data on the next slide.

Cost Data

Give the candidate the following information only when asked.

- Upfront Investment (construction, equipment, etc) - $1.5M
  - If they haven't asked, tell them now that the client expects a payback period of 3 years
- Fixed Costs (insurance, utilities, etc) - $15k / month
- Cost of Alcohol - average gross margin is 50%
- Additional Labor Costs - $10/hr, assume 4 incremental staff roles (bartender, waitress, bouncer, manager) working 500 hours each / year
- **Candidates should realize this is time for another structured math calculation and set up something resembling the table on the right.**
- Strong candidates will identify that this is exactly the payback period requested by the client and notice that the financial analysis has reached its conclusion.

Projected Costs		Annual Cost
Fixed Costs	$15k x 12 months	$180k
Labor	$10/hr x 4 people x 500 hr/ppl	$20k
COGS	50% avg margin x $1.4M rev	$700k
	Total Costs	**$900k**
	Annual Profit	**$500k**
	Upfront Investment	$1.5M
	Payback Period	**3 years**

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Conclusion

Recommendation

Based on data in the case, the payback period is exactly 3 years. The interviewee can argue to open or not to open as there is no correct answer.

Most likely they will argue to open based on:

- Payback period is exactly 3 years
- Incremental profit of $500K/year
- Opportunity to cross-sell food and launch other ancillary revenue streams (hot dog cart, jukebox, cover charges, etc)
- Market is growing and highly fragmented

Risks

- Financials are based on sales volume assumptions that require strong market penetration
- Competitor response could induce price war
- High-capital investment could be used elsewhere
- Alcohol licensure and other regulatory risks

Next Steps

- Conduct customer interviews to pressure test sales volume assumptions
- Analyze potential alternate investment opportunities (land and capital)
- Contact local officials to ensure regulatory compliance and approval

Palestra Fitness

Fitness & Wellness | Profitability

Ratings:
Overall - 2
Quant - 2
Qual - 3

Prompt

Palestra is an upscale fitness club located in an affluent residential neighborhood of Ukraine's capital, Kiev. Besides the gym and group classes facilities, it also features a spa, a beauty salon, and a healthy food café. Palestra's management recently learned that a competitor is to launch in a building right next to the fitness club in just a few months. You were hired to figure out whether the club can remain profitable after that happens.

Clarifying Information

- Palestra is a standalone club and not part of any fitness chain, and so is the competitor; Palestra has been operating for 3 years
- Palestra is a fitness & wellness club primarily targeting affluent women aged 30-50 (~50% of memberships)
- The competing fitness club to open soon next door is a boxing and martial arts club that is similar in size but charges about a half of Palestra's membership prices
- Palestra currently doesn't offer boxing nor anything related to martial arts
- Palestra's main source of revenue is membership sales, but spa, salon, and café are integral components of the brand image and important contributors to customer satisfaction
- Palestra sells memberships that allow using its facilities unlimitedly, including the gym, group classes, and steam room of the spa; there is also a range of products and services to be paid for separately, such as food & drinks, personal training sessions, massages, spa and beauty services, etc
- We can assume that the fitness market in Ukraine is stable and flat during the time of the study; no other information related to market is available

Framework

Revenues (Before & After)

- From core business - fitness
    - Membership sales
        - Extension of existing memberships
        - New membership sales
        - Personal trainings
- From non-core businesses
    - Café, beauty salon, spa
- Any other (potential) sources of revenue?

Costs (Before & After)

- Fixed
    - Rent, utilities
    - Overhead
    - Marketing
    - Equipment maintenance
- Variable
    - Variable labor
    - COGS (food & drinks, cosmetics)
    - Other

Competitor

- Positioning & brand
- Product offering
- Prices
- Marketing activity

Notes for Interviewer:

- Candidate should recognize that it is necessary to assess how opening of a competitor will affect Palestra's revenues and costs – provide **Exhibit 1**
- This is a profitability case so a simple revenues-costs framework is acceptable; however, a good candidate will recognize that it is important to understand better the competitor and their product offering, and how similar it is to that of the client's
- Good candidate should be able to hypothesize that the biggest effect will be on revenues, specifically on membership sales, because Palestra's members may switch to the new gym
- Excellent candidate will point that the effect on membership sales will be lower for existing memberships due to customer loyalty, and highest for sales of new memberships

Exhibit 1

Palestra's Statement of Income – in $ thousand

Revenues	
Fitness	
• Membership Sales	600
• Other (personal trainings, fitness supplements, etc)	200
Café	50
Beauty	100
Spa	50

Costs	
General fixed costs (rent, utilities, overhead, etc)	250
Fitness	200
Café	150
Beauty	85
Spa	45

Exhibit 1 – Guidance

Palestra's Statement of Income

Question 1:

- What is Palestra's current net profit? What is its margin?

Question/Exhibit Guidance:

- Net Profit=Revenues(600+200+50+100+50)-Costs(250+200+150+85+45)=1000-730=270; margin is 27%
- Good candidate should notice that café is currently lossmaking
- The candidate should drive the case forward by asking for more detailed information on membership sales and/or membership base – provide **Exhibit 2**
- If the candidate doesn't ask for this information, push them by asking: which part of the income statement is likely to be most affected by the launch of the competing gym?

Exhibit 2

Palestra's Membership Base

Gender	Age	% of membership base (=% of total revenue)	Likelihood of switching to competitor
Men	20-30	10%	60%
	30-40	20%	50%
	40-50	10%	40%
Women	20-30	10%	40%
	30-40	35%	15%
	40-50	15%	5%

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Exhibit 2 – Guidance

Palestra's Membership Base

Question 2:

- What share of Palestra's membership is likely to switch to the competing gym?

Question/Exhibit Guidance:

- 10%x60%+20%x50%+10%x40%+10%x40%+35%x15%+15%x5%= **~30%**
- Excellent candidate should notice that shrinking membership of the gym would also lead to a reduction of revenues from other divisions, i.e. café, beauty, and spa; it should also result in a reduction of variable costs

Question 3

The client anticipates that the revenues from fitness will indeed shrink by 30%. In addition, the client thinks that revenues from other divisions will fall by 10%, and all variable costs will also fall by 10%. Using Exhibit #1, assess what effect this will have on profitability. What would be the new net profit, and the new margin?

Revenues	Before	After	
Fitness			
- Membership sales	600	420	decrease by 30%
- Other (personal training, fitness supplements)	200	140	decrease by 30%
Café	50	45	decrease by 10%
Beauty	100	90	decrease by 10%
Spa	50	45	decrease by 10%
Total Revenue	**1000**	**740**	
Expenses	**Before**	**After**	
General fixed costs (rent, overhead, utilities)	250	250	no change
Fitness	200	180	decrease by 10%
Café	150	135	decrease by 10%
Beauty	85	77	decrease by 10%
Spa	45	41	decrease by 10%
Total Expenses	**730**	**682**	
Net Income	**270**	**58**	**decrease by over 4x**
Margin	27%	8%	decrease by over 3x

Question Guidance:

The candidate should calculate that the profits in absolute numbers would fall by over 4 times, and margin would shrink from 27% to 8% - by over 3 times

Question 4 – Brainstorming

What actions could Palestra take to defend its margin?

	Increase Revenues	Reduce Costs
Related to core business	• Improve retention of existing members by providing discounts & other incentives for extending memberships • Increase sales of new memberships via intensified marketing efforts & advertising campaign	• Explore ways to reduce existing costs
Related to non core business	• Introduce boxing, martial arts & other services that the competitor is offering • Explore potential for revenues from other sources - Rent out spaces - Introduce services for children - Introduce diet counselling - Any other creative ideas are a plus	• Divest lossmaking café

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Conclusion

Recommendation

- Divest café
- Improve retention of existing members by expanding loyalty program & offering discounts
- Increase sales of new memberships via marketing campaign
- Explore potential for new sources of revenues
- Explore potential to decrease existing costs

Risks

- Café is integral to brand; closing a department & firing people would negatively impact the gym's reputation among both members and staff
- Discounts affect revenues
- Marketing campaign requires significant costs
- Decreasing existing costs may affect quality of services

Next Steps

- Assess effects of café closure on members satisfaction and whether there is risk of losing members
- Assess whether it is feasible to improve retention, and what effects would discounts have on revenues
- Assess what budget is required for a campaign, and what extra revenues it may bring
- Explore potential for new sources of revenues
- Explore potential to decrease existing costs

Chase-ing Equity

Financial Services | Market Entry/Sizing & NPV

Ratings:
Overall - 2
Quant - 3
Qual - 2

Prompt

Our client, Brandy Thomas-Chase (BTC), is a high-powered Black financial player and owns one of the most successful VC firms in the country. She has come to us with an issue near and dear to her heart. She believes that mid to large-sized banks have ignored an important potential consumer segment-- the unbanked or underbanked, usually found in underserved minority populations. BTC wants our thoughts on how she can leverage her firm to remedy this, as well as how big this opportunity could be.

Note:

- Unbanked, is defined as a household that has no individual with a checking or savings account. Underbanked is where a household has a bank account but goes outside of the bank for financial services such as money orders, cashing, payday loans, etc.

Clarifying Information on Request

- Client is not currently in the banking space directly
- Client doesn't have a threshold or an expected timeline in mind to recoup a return on the investment
- The main objective of our client is to increase access of some form of banking to underbanked and unbanked populations
- Though they typically invest in somewhat established organization, our client is interested in what taking on this project from the start would look like
- The assumption can be made that they will have the capital ready to take on this endeavor

Framework

Feasibility

Market Size
- How many unbanked/ underbanked?
- Expected value per customer?
- Demographic makeup of customers (age, regions etc)

Mode of Entry
- Organic: internal capabilities and capital investment available?
- Partner/JV: work with existing banks within proximity to these areas
  - Non Traditional partnerships with Venmo, Dollar Tree, Grocery Stores

Attractiveness

Financials
- Initial investment costs: physical brick and mortar build out or tech. development
- Revenue : loans, fees, advertising
- Ongoing Costs
  - Fixed: rent (if brick and mortar), PPE
  - Variable: marketing, personnel

Company & Competition
- Too far from core competencies?
- Brand impact of this move
- Could signal CSR importance?
- Are there any incumbents/existing competitors and are they winning?
- Competitive positioning

Other

Opportunity Cost
- Is there another more attractive opportunity?
- Is there another way to help this group? Funding financial literacy programs?

Question 1 – Market Sizing

How would you think through arriving at the number of underbanked households in the country?

- **Step 1:** 320 Million Individuals in America
- **Step 2:** Number of People Per Household? Assume 2.5 or 3
- **Step 3:** Number of households is ~100M
- **Step 4:** Assume a percentage that are underbanked and give a reason why?
  - Strong candidates will note that the average household has a bank account, so it is under 50 percent
  - Perhaps they will say that it is close to the country's poverty rate of 12-13 percent or something of that nature. At this point tell them that it is 15%
- **Step 5:** # of households in United States X 15% = ~15 million underbanked households which represents the total addressable market

Question 2 – Brainstorming

Many underbanked individuals lack access to brick and mortar banks. What are some ways that we can fix this?

What should be considered with each? Potential Options and Reasoning Are Below

Build Brick and Mortar

Pros
- Full control over the operations and profits of the firm
- Able to control branding and image
- Can leverage the building for other services (Starbucks, etc on ground floor)

Cons
- Expensive, likely most costly option
- Government regulations and permits could delay build out
- No experience in building in poor/ underserved areas

Joint Venture Build w. Big Bank

Pros
- Leverage brand name, expertise and infrastructure with big bank
- Greater access to capital

Cons
- Some level of control is lost
- Big banks have not played in this space in particular, might have to truly prove value

NeoBanking (Digital Only)

Pros
- Lowest cost
- Can reach largest number of people -- this group is digitally native
- More companies able to advertise on digital platform (more revenue)

Cons
- Limited amount of services (for example no mortgage agreements will be made digitally)

Move forward with this option

Question 3 – NPV Calculation

How much will it cost to take on this endeavor and what is the NPV?

Costs	
Upfront Investment	$7M
Personnel Costs	- For simplicity, assume all staff make $130k/yr - 20 engineers - 80 digital bankers - Total : $13M/yr
Fixed/Regulatory Costs	- Servers/Licensing/ Other Tech Fees: $1M Annual - Regulatory Costs: Quarterly payments of $125K - General Operating Expenses:$500K
Total Yearly Costs	$13M + $2M = $15M

Revenue	
Customers	- Digital Bank can serve 10% of the identified underbanked households per year - Total: 1.5 M households
Revenue/Customer	- Given lower income levels for this group, the Bank will only charge $1 in user fees - Total: $12/yr per household
Total Yearly Revenue	1.5 million households x $12 average spend = $18 M

Annual Profit	$18M- 15M= $3M
Discount Rate	40% for perpetuity
Present Value	$7.5M
Net Present Value	**$7.5M-7= $500K**

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Conclusion

Recommendation

- BTC should move forward with this investment. Even though the NPV is relatively low, this endeavor will help close the gap on racial inequity and position BTC to identify other opportunities to engage with this group whether that be by way of creating other financial products or otherwise. This will also allow BTC to expand on their digital capabilities.

Risks

- Costs may be understated and revenue dollars overstated
- Regulations within the banking industry are very stringent and can delay project start especially as it relates to online/digital banking

Next Steps

- Further validate cost and revenue assumptions
- Engage with policy experts to understand more about regulatory procedures in this space
- Think through strategic marketing efforts and tactics to reach end users (underbanked/unbanked communities)

Case 14

Quark Energy Needs Cash

Oil & Gas| Business Strategy

Ratings:
Overall - 3
Quant - 2
Qual - 3

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Prompt

Our client, Quark, is a large multi-national oil and gas company with presence across the entire value chain including exploration, crude production, refining, retail and trading. The recent demand reduction due to COVID has reduced the company's cash flow. The board has promised investors to unlock $1B cash (on top of existing cash flows) in the next 3 years to pay off its mounting debt.

The board is considering several divestments in their portfolio to meet that goal. One such asset under review is a refinery in Rotterdam (the Netherlands). Rotterdam is a hub for production and trading of refined petroleum products in Europe because it hosts Europe's largest seaport. Quark owns one refinery here. Along with producing refined products, the refinery also supports Quark's trading business in a critical way. Should the board divest the refinery?

Clarifying Information

- The company is incorporated in the US with operations in more than 70 countries. However, we are only focusing on the Rotterdam refinery. Consider the combination of refinery and trading businesses to be one complete "Downstream" business unit.
- Trading and refinery are two seperate business of Quark
- The refinery produces several products like gasoline, diesel, jet fuel, etc. It also has excess crude oil storage capacity for traders to store crude, which adds additional synergies to the downstream business unit.
- Traders buy cheap crude from crude carrier ships that come to the port with issues like delays, poor crude quality, etc. This crude is not taken by its original buyer due to those issues. They sell the costly stock they hold in lieu of the cheaper stock they buy and run that crude at the refinery. Without the refinery, they wouldn't be able to run the crude and make the extra money.
- Objective for the board is to unlock $1 Billion cash over the next three years to pay off its debt.
- Discount rate for divestment calculations: 10%

Framework

Divestment Financials

- Financials with refinery
  - Refinery and trading standalone profitability
  - Synergies between the businesses
- Financials without refinery
  - Cash flow from sale of refinery
  - Profits from standalone trading business
- NPV of sale vs continued ownership

Non-sale options

- Increase profitability of refinery and/or trading business
  - Cost of inputs/supply agreements
  - Cost of distribution
  - Operations improvement
- Synergies with other business verticals
- Expand sales of refined products into new geographies

Risks

- Loss of refining capacity when markets pick up
- Regulations

Exhibit 1

Income Statements for Refinery and Trading Business*

*This P&L trend has remained the same for the last 10 years

**Synergies are net of COGS and SG&A

Refinery Income Statement	2019 Figures ($ M)
Revenue	1180
Costs of Goods Sold	1200
SG&A	40
Trading Income Statement	**2019 Figures ($ M)**
Revenue (stand alone)	580
Costs of Goods Sold	380
SG&A	30
Synergies with refinery**	100

Divestment Offer for refinery	**$350M**

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Exhibit 2

Breakdown of refinery's COGS (2019)

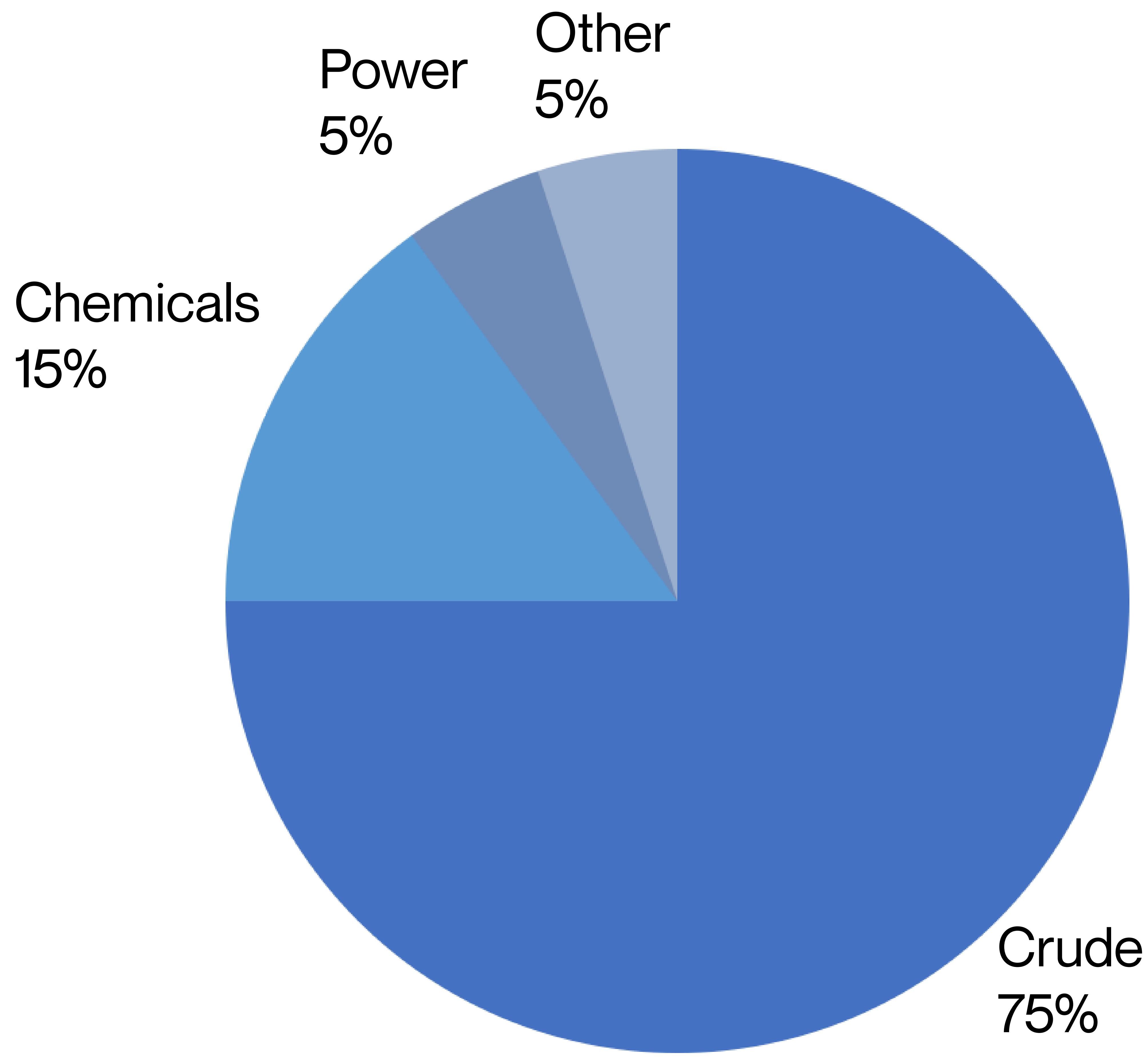

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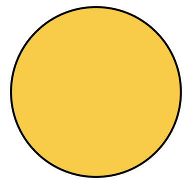
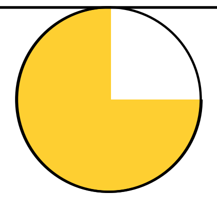
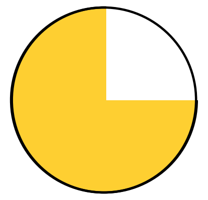
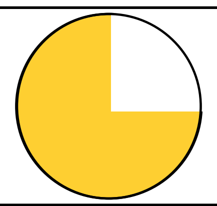
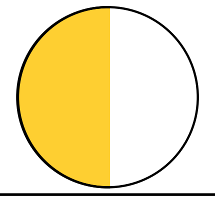
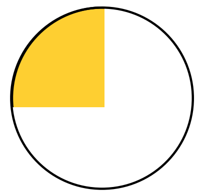
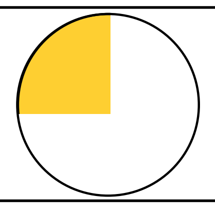
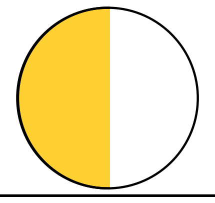
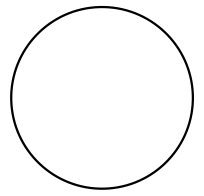
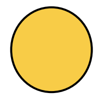
Exhibit 3

Crude Options for Rotterdam Refinery

Crude	Origin	Cost ($/bbl)	Compatibility with refinery*	Additional Investment** ($M)
Duri (current source)	Indonesia	50.20		-
Sokol	Russia	45.18		50
Azeri Light	Azerbaijan	48.05		50
Bonny Light	Nigeria	44.82		50
Arab Heavy	Saudi Arabia	44.97		200
Maya	Mexico	39.44		600
Iran Heavy	Iran	39.55		600
Upper Texas Gulf	USA	25.10		200
Oklahoma Sour	USA	23.45		1000

*  Indicates highest compatibility. "Compatibility" means that the refinery can process the crude without modifications to its machinery

** Additional investment is required to make modifications to the refinery to make it fully compatible with crude. Also includes transportation costs. Consider the impact of additional investment to be immediate (no time delay)

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Exhibit 1 – Guidance

Divestment Financial Calculations

Refinery Stand-Alone Profits

Profit = Rev – COGS – SG&A
= 1,180 – 1,200 – 40
= **- $60 M (Loss)**

Divestment Financial Calculations

Divestment offer for refinery = $ 350 M
Discount rate = 10%; assume perpetuity
Yearly value of refinery to the combined business
= Refinery profits + synergies from refinery
= - $60 M + $100 M = **$40 M**

NPV of refinery for the combined business
= Yearly value of refinery / discount rate
= $40 M/10% = **$400 M**

Net gain from sale of refinery
= Divestment offer cash - loss from sale of refinery (NPV)
= $350 M - $400 M = **- $50 M [Loss]**

Summary

- The synergies between the refinery and trading businesses give higher profit for the entire business unit, even though the refinery itself is not profitable
- Divestment offer is less than the loss of value from selling the refinery by $50 M
- **Therefore, refinery should not be divested**
- Look for other options to unlock cash

Exhibit 1 – Guidance

Divestment Financial Calculations (Alternate Approach)

Refinery Stand-Alone Profits

Profit = Rev – COGS – SG&A
= 1,180 – 1,200 – 40
= **- $60 M (Loss)**

Trading Stand-Alone Profits

Profit = Rev – COGS – SG&A
= 580 – 380 – 30
= **$170 M (Profit)**

BU Profits (Trading + Refining)

Synergies = $ 100 M
BU Profits = Refinery stand-alone profit + Trading stand-alone profit + synergies
= -60 + 170 + 100
= **$210 M (Profit)**

Divestment Financial Calculations

Divestment offer for refinery = $ 350 M
Discount rate = 10%; assume perpetuity
NPV of BU without sale
= (BU profits with both trading & refinery)/(discount rate)
= $210 M/10% = $2,100 M
NPV of BU after sale
= (BU profits with only trading)/(discount rate)
= $170 M/10% = $1,700 M
Gain from sale of refinery
= NPV of BU (Only Trading) – NPV of BU (Trading + Refinery)
(excluding sale price) = $1,700 M - $2,100 M = - $400 M (Loss)
Net gain from sale
= Divestment offer cash + gain from sale of refinery
= $350 M - $400 M = - $50 M [Loss]

Summary
- The synergies between the refinery and trading businesses give higher profit for the entire business unit, even though the refinery itself is not profitable
- Divestment offer is less than the loss of value from selling the refinery by $50 M
- Therefore, refinery should not be divested
- Look for other options to unlock cash

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Exhibit 3 – Guidance

Divestment Financial Calculations (Alternate Approach)

Crude	Origin	Cost ($/bbl)	Compatibility with refinery*	Additional Investment** ($M)
Duri (current season)	Indonesia	50.20		-
Sokol	Russia	45.18		50
Azeri Light	Azerbaijan	48.05		50
Bonny Light	Nigeria	44.82		50
Arab Heavy	Saudi Arabia	44.97		200
Maya	Mexico	39.44		600
Iran Heavy	Iran	39.55		600
Upper Texas Gulf	USA	25.10		200
Oklahoma Sour	USA	23.45		1000

Quark can reach its goal of unlocking $1B over the next three years by switching the crude in its Rotterdam refinery from Duri to Upper Texas Gulf

Current Scenario:

Refinery is using Duri crude @ $ 50.20/bbl

Current crude costs = COGS * crude cost % (from Exhibits 1&2)

= $1,200 M * 75% = **$900 M**

Best Crude Option:

- Upper Texas Gulf or Oklahoma Sour will reduce the cost by approximately 50% ($450 M).
- Further, investment required to run Upper Texas Gulf is less than that for any other crude.
- Even though Oklahoma Sour's cost per barrel is marginally lower than Upper Texas Gulf's, the investment required is quite high ($800 M extra in comparison)
- **Hence, choose Upper Texas Gulf**

Financials with new crude:

New cost of crude is exactly half of that of current

Therefore, savings on crude = current crude cost * 1/2

= $900 M * 0.5 = **$450 M**

Net savings over 3 years

= (Yearly savings on crude * 3) – Initial additional investment

= ($450 M * 3) - $200 M = **$1,150 M**

Conclusion

Recommendation

- Quark Energy should not sell their Rotterdam refinery as the divestment financials are not favorable. The synergies with trading business offset the refinery's poor performance
- Instead, Quark can unlock $1 B over the next 3 years by switching the crude used by the refinery from the costly Duri Indonesian crude to the cheaper Upper Texas Gulf crude. This switch reduces crude costs by 50%, which helps unlock $1.15B over the next 3 years. This will also set the refinery for future success

Risks

- Crude prices used are 2019 prices. Given the recent instability in the oil and gas industry, these prices may fluctuate greatly, which could impact the value gained from the switch
- These prices are also dependent on the import tariffs levied by the government of the Netherlands. Any additional tariffs imposed could impact the value gained
- We also assumed that the refinery will be able to quickly make the modifications necessary to run the crude. $200M worth of modifications are not small and can see delays due to poor project management. This would undermine the value gained

Next Steps

- Secure as much crude at the current prices as possible in order to future-proof ourselves from price fluctuations
- Assemble a high-performing project team to start working and delivering on the modifications necessary to run the new crude at the refinery

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Women's Leadership Experience

Human Capital | NPV/Investment

Ratings:
Overall - 3
Quant - 2
Qual - 3

Prompt

An international medical device company Medical Electronics (ME) is considering investing in a program called "The Women's Leadership Experience" (WLE). This program is a pre-set method which aims to increase the percentage of women in leadership by having them work on strategic projects to improve their skills. Women receive one training session a month as well as work in teams on projects for a few hours a week for one year. After this year they return to full time work and go through the regular promotion process. The company is considering two avenues for building and executing this program. The first is through a local non-profit and the second is through developing in house. ME does not currently have this program developed however, they do have a robust internal training team which provides international support to the company. Assume that the only women who will be selected for this program are those who are one step down from leadership roles and that the company has sufficient growth that promotions will not be limited if deserved.
Should the company move forward with this initiative and how should they run the program?

Clarifying Information

- The company currently has 100 K employees and considers the top 10% of jobs to be "leadership". Women currently occupy 10% of leadership roles.
- The company goal is to increase the percent of women in leadership to 20% within the next 5 years. The company does plan to continue this program for many years after their initial 5 year program is completed.
- The program has a history which says that 2/3 of women who participate will be promoted immediately after competing the program. The company believes this is reliable information and that their internal program will achieve the same success.
- If the program is run internally, women will work on Medical Electronics projects. If the program is run externally, they will work on projects for other local fortune 500 companies.
- The internal program will start at 100 employees and grow at a rate of 100 employees/yr for the next 5 years (i.e. yr 1 = 100, yr 2= 200 etc.) The external program will train 300 employees per year every year at a constant rate.

Framework

Achieve Goals

- Proven efficacy
- Fast enough rate?

Benefits

- Measurable
  - Employee retention/ engagement
  - Market reaction (improved brand >> increased purchases)
- Hard to Measure
  - Positive brand perception which does not directly lead to purchases
  - Companies with women in leadership on average have a stock advantage
  - Dedicated focus on company projects (potential)

Costs

- Program Execution
  - Event space
  - Educational materials (content, speakers, etc.)
  - Food
- Participant Time

Advice to Interviewer/ How to Move Forward

Candidate should recognize:

- Hiring is one of the largest expense for HR. Increasing retention does significantly reduce costs for the company.
- Why purchases increase (especially in Medical device) is very difficult and may be impossible to measure
- Participant time is also a key cost in this equation. We will need to understand differences in hours by program execution to make this decision.
- Candidate may focus on execution first. Redirect to ensure candidate first decides if program is worthwhile, THEN decide how to execute.

Calculations 1

How many women need to go through the program?

Current State	
Total Employees	100k
# of Employees in leadership	10k (100k * 10%)
# of leadership who are women	1k (10k * 10%)
Total Women in leadership	1k

Future State	
Total Employees	100k
# of Employees in leadership	10k (100k * 10%)
# of leadership who are women	2k (10k * 20%)
Total Women in leadership	2k

Summary: Need to get 1K women promoted within 5 yrs

If 2/3 of women get promoted after program, 1500 women will need to go through program in order to get enough promoted to meet goals.

Calculations 2

What are the capacity differences between internal and external over 5 years?

	Employees trained through internal program	Employees trained through external program
Yr 1	100	300
Yr 2	200	300
Yr 3	300	300
Yr 4	400	300
Yr 5	500	300
Total	1500	1500

Exhibit 1: Cost/Benefit Analysis

Program Benefits

- Cost savings from employee retention $40M
- Increased profit from customer purchases $22M

Program Costs

If run Internally…

Program Execution................ $200,000/yr
Hours/person.............................. $8/wk
Dollars/hour.............................. $100

If run Externally

Program Execution.................. $20M over 5 yr period
Hours/person............................ 5/wk
Dollars/hour............................ $100

*Medical Electronics will only achieve these benefits if they reach their 20% goals

Exhibit 1 – Guidance

Cost/Benefit Analysis

Questions for Candidates about Exhibit that the Interview should ask:

- What do you notice about these numbers?
- What would need to be true in order to make running the program externally make sense?
- What additional costs would need to be included in order to truly capture the value from increased customer purchases?

Question/Exhibit Guidance:

- Candidate should recognize:
    - High cost of external program… do we have justification for this or ideas how to reduce?

Calculations 3

What are the costs of the program, internally and externally?

	Internal	External
Employee Time Costs		
Number of people	1500	1500
Number of hours per person	50*8 = 400	50*5 = 250
Number of hours total	600,000 (400*1500)	375,000 (250*1500)
Total dollars	60M (600k*100)	37.5M (375k*100)
Execution Costs		
Costs	1M	20M
Total	**61M**	**57.5M**

Assume 50 weeks/year for ease of math

Brainstorming

What other factors would you consider (other than financial) when considering how to execute the program?

Brainstorming Guidance:

- If candidate is struggling encourage them to think about differences between the two programs in the following areas:
  - Who benefits besides the women from this program?
  - Who is the audience for this program and will both execution options meet their needs?
  - What would happen if we extend the timeline beyond 5 yrs?

Best candidates will:

- Notice that prompt said LOCAL nonprofit. If Medical Electronics is international… how will they support this program globally?
- What about extension of the program beyond yr 5? Internal will let us continue to grow class size, external will not
- Internal lets us control content AND get benefit of the women's work on projects. External does not.
- External has appropriate resources already in house. Does Medical Electronics have that capability or could they build it?

Conclusion

Recommendation

- Yes should implement this program.
- Candidate can select either internal or external, as long as they have solid reasoning.

Risks

- Recommendation is based on several assumptions (2/3 promoted, enough room for promotion) – risk that if other factors exist (like unconscious bias) which prevent women getting promoted, this program will not work/drive value
- Program is perceived as publicity stunt not genuine investment

Next Steps

- Evaluate assumptions for validity
- Review internal capabilities to ensure ability to execute program whether internal or external

Private Security Co.

Business Services | Profitability, M&A

Ratings:
Overall - 3
Quant - 3
Qual - 2

Prompt

Our client is a private security guard services firm specializing in commercial real estate customers. 6 months ago they acquired a regional competitor but have noticed declining profitability since the acquisition. What is driving the decline and what should our client do?

Clarifying Information

- The client has a history of successful acquisitions.
- The market is highly fragmented and so acquisition is typically the best method of entry into new states.
- The client is US-only.
- Customers include landlords of office buildings, parking garages, and government facilities.
- Revenue is determined by total number of hours billed and guards are paid by the hour.
- Ignore any potential COVID impact.

Framework

Declining Revenue

Decrease in total hours billed (volume)
Reduction in # of clients
- Decreased existing client retention after acquisition
- Failure to convert new clients

Reduction in hours billed per client
- # of guards per client
- Average hours per guard per client

Decrease in average billing rate (price)
Giving discounts to retain business
- Competition

Unfavorable change in client mix
- Parking garages instead of offices or labs
- Proportionally more government clients

Losing cross or up-selling of services
- Disruption from surveillance apps
- Less overtime

Increasing Costs

Increase in direct labor costs
Quantity of guards
- More guards needed to sustain current billing levels due to rising crime levels

Cost per guard
- Guard tenure/skill levels
- Proportion of overtime pay to regular

Increase in SG&A
- Healthcare premiums
- Pension/retirement contributions
- Marketing and admin expenses
- Management buyouts
- Training costs due to staff turnover from acquisition

Increase in other costs
- Taxes, fees, and licenses
  - New geography means new regulations
- Interest on acquisition debt

Note:

- Candidate should acknowledge it could be either a revenue or cost issue or both
- When prompted on revenue drivers, hand out exhibit #1
- If asked about cost drivers first, can move on to exhibit #2 instead but will need to circle back to #1 eventually

Exhibit 1

Client Breakdown by Revenue

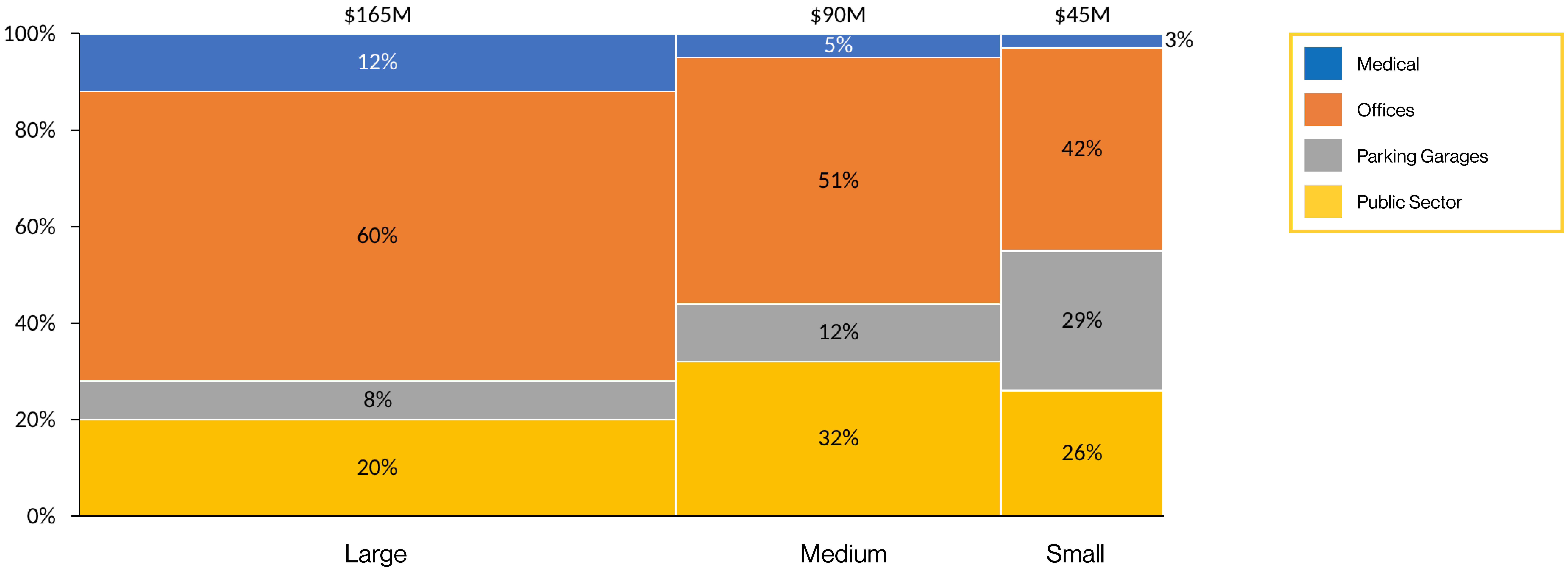

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Exhibit 1 – Guidance

Client Breakdown by Revenue

Questions for Candidates about Exhibit that the Interview should ask:

- Where should the client look first?
- What can we discern from this graph?
- Approximately what percentage of total revenue comes from Office customers?

Question/Exhibit Guidance:

- Candidate should recognize Medical and Parking are likely immaterial and focus on Office segment
- Candidate should use shortcuts to calculate Office revenue
- Strong candidates will realize **there is no so what here** without more data around either changes from prior year or profit margins
- Hand out Exhibit #2 once they ask about margins/costs

Exhibit 1 – Guidance

Client Breakdown by Revenue

	Segment Size ($M)	Percentage	Office Revenue ($M)
Large	165	60%	99
Medium	90	51%	45.9
Small	45	42%	18.9
Total Office			163.8
Total Business			300
Office Percentage			**54.6%**

Candidate should drive to an answer of around 50% - 60%

Exhibit 2

Breakdown by Type of Worker

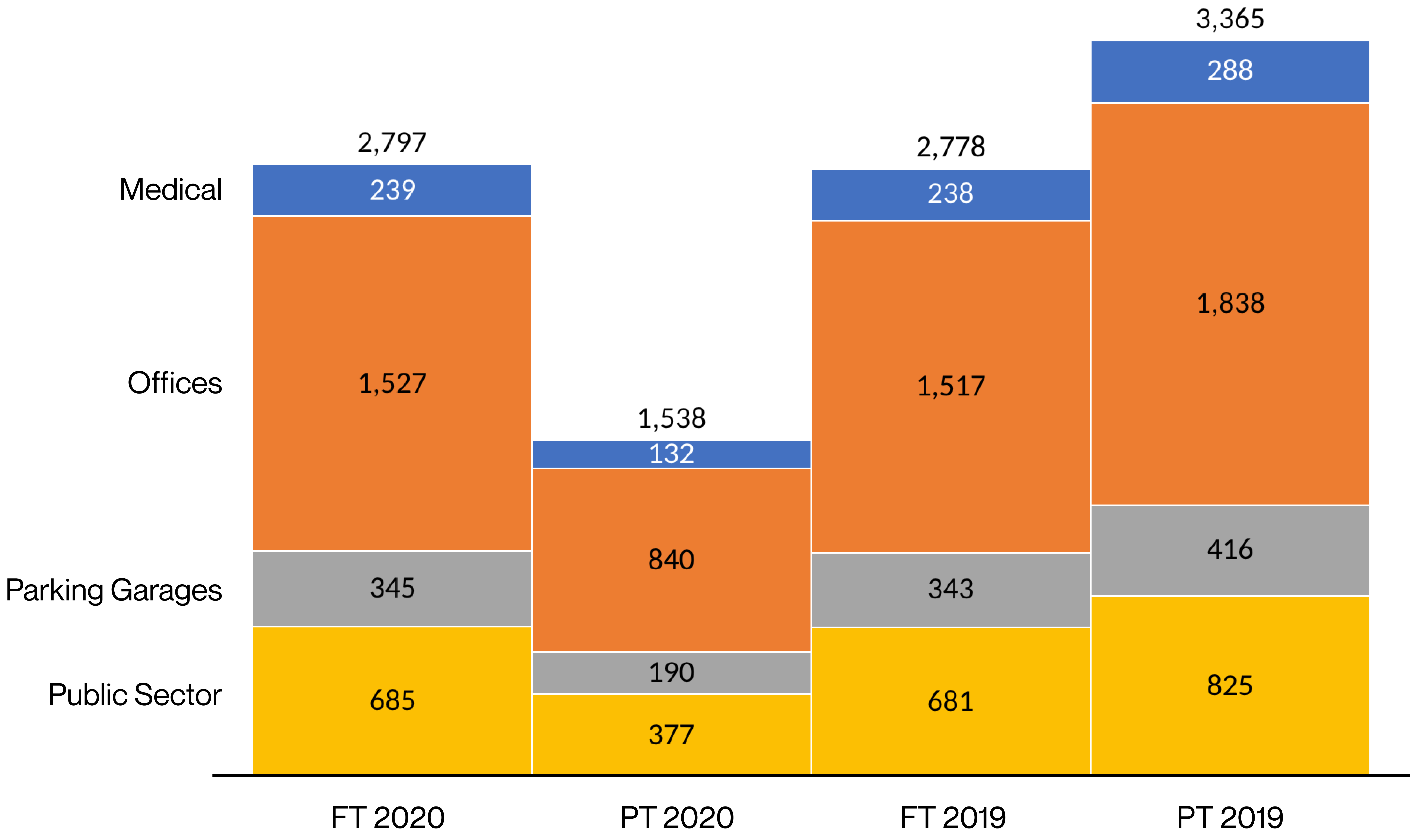

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Exhibit 2 – Guidance

Breakdown by Type of Worker

Questions for Candidates about Exhibit that the Interview should ask:

- What do you notice looking at this?
- What does it mean that the number of PT workers decreased but the number of FT workers is roughly the same?

Question/Exhibit Guidance:

- Candidate should ask what distinguishes between FT and PT (<40 hours/week)
- Candidate should continue to focus specifically on Office category and note that number of FT workers for Office is essentially flat while PT decreased substantially
- Strong candidate will clarify that billing is flat regardless of the number of workers used
- Strong candidate will further intuit that if overall number of hours worked is unchanged, then the hours worked within each category must have changed
- Provide Exhibit 3 when asked about hours worked

Exhibit 3

Guard Hours Worked

	FT 2020	PT 2020	FT 2019	PT 2019
Average Hours Worked Per Worker, Per Week	55	25	45	20
Regular Wage	$20			
OT Multiplier	x2			

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Exhibit 3 – Guidance

Guard Hours Worked

Questions for Candidates about Exhibit that the Interview should ask:

- What can you tell me about the change in hours worked?
- What does this mean financially?
- If necessary, guide the candidate to calculate the CHANGE in costs
- Encourage rounding!

Question/Exhibit Guidance:

- Candidate should notice the units are hours per week and run calculations on a weekly basis going forward, waiting to annualize until the end
- Candidate should realize they need to cross-reference Exhibits 2 and 3 to decipher meaning
- Candidate should clarify that OT rate of $40/hr only applies to any hours over 40 and thus is only relevant for FT workers

Exhibit 3 – Guidance

Guard Hours Worked

Per Week	FT Additional Costs
Change in average OT Hours Worked per Guard # of Guards (approximate) Change in Total OT Hours Worked OT Cost per Hour	10 1,500 15,000 $(40)
Change in OT Total Cost per Week	**$(600,000)**
	FT Additional Costs
Total Change per Week Weeks per Year (approximate) Total Change per Year Share of Office (approximate)	$(280,000) 50 $(14,000,000) 50%
Overall Change across All Segments	**$(28,000,000)**

Per Week	PT Savings
Change in # of Guards (approximate) Hours worked by those guards # of Remainign PT Guards (approximate) Change in average Regular Hours Worked Additional hours worked by remaining guards Change in Total Regular Hours Worked Regular Cost per Hour	(1,000) (20,000) 800 5 4,000 (16,000) $(20)
Savings in Regular Total Cost per Week	**$320,000**

Brainstorming

What should the client do?

Brainstorming Guidance:

- What levers does the client have to correct this problem?
- Would it make sense to drop clients to right-size to the currently available staff?

Best candidates will:

- Recognize there is no wage difference between PT and FT staff for hours worked under 40
- Remember this company was acquired by a larger firm that may be able to pool resources to solve the problem

Conclusion

Recommendation

- Minimize Overtime Pay to save $28M!
- Reallocate or hire more PT and/ or FT staff such that OT worked is minimized
- Be mindful of staffing capacity when pursuing new clients

Risks

- Licensing rules may prevent pooling resources from other states
- Operational risk with hiring large numbers of new employees
- Employee disgruntlement with loss of OT

Next Steps

- Investigate staff capacity throughout the parent company
- Target appropriate hiring channels (job fairs, online postings, etc) and prepare HR resources accordingly

Unit Airlines

Travel & Hospitality| Market Entry

Ratings:
Overall - 3
Quant - 3
Qual - 3

Prompt

Our client, Unit Airlines, is looking to add a new route to its current flight schedule. Unit Airlines is a traditional hub and spoke carrier and thinks the flight would do best flying out of its Detroit Hub but they need our help selecting the location and frequency. Which route should Unit add and at what frequency?

Clarifying Information

- Unit Airlines is currently profitable and they are looking to add another profitable route, they are not concerned about market share. They will not be removing any current routes.
- Unit has done some initial research and they are between three primary candidates: London, Barcelona and Rome. They do not currently fly to any of these locations.
- Unit will have to lease the necessary aircraft to service this new route

Interview Guidance

Part #1: Steer the candidate towards the revenue side of the analysis first. Ask them what information they would need to see in order to know how much revenue each flight will generate. When they have given a satisfactory answer, hand them Exhibit 1.

Part #2: Once the candidate has gotten all of the revenue numbers, they should immediately pivot to the cost side of the decision. Push them here to brainstorm some of the potential costs of operating a flight. Keep asking ”what else” until they run out of answers then hand them Exhibit 2.

Part #3: At this point, remind the candidate that Unit Airlines will need to lease additional planes to operate the route and give them the following information:

- Unit Airlines has decided to lease Boeing 787’s at a fixed rate of $150,000 per week.
- In order to provide daily service they will need to lease two of them. They get a 10% discount if they lease two.

Part #4: With both revenues and costs per flight, the candidate should begin calculate the total profit per week for each city/frequency combination.

Framework

Market Size

- Population of each city
- % that travel (bonus points for separating business and leisure travelers)
- Frequency of flying

Profitability

- Revenues
  - Tickets (again, bonus points for separating business and leisure or first vs. economy fliers)
  - Cargo considerations
- Costs
  - Fixed (new airplane, marketing the new route, insurance)
  - Variable (fuel, crew wages, maintenance, landing fees)

Risks

- Competitive response
- Weather/Delays on each route

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Exhibit 1

Expected Load Factor			
	London	Barcelona	Rome
Daily	75%	60%	50%
4x/Week	90%	70%	60%
2x/Week	100%	80%	70%
Average Ticket Price	$400	$600	$700

Exhibit 1 – Guidance

= Weekly seats sold

Expected Load Factor			
	London	Barcelona	Rome
Daily	3,150 75% (300*.75=225) 225*$400=$90,000 $90,000*7 trips = $630,000 2 Legs = $1.26M/Week	2,520 60% (300*.6=180) 180*$600=$108,000 $108,000*7 trips = $756,000 2 Legs = $1.512M/Week	2,100 50% (300*.5=150) 150*$700=$105,000 $105,000*7 trips = $735,000 2 Legs = $1.47M/Week
4x/Week	2,160 90% (300*.9=270) 270*$400=$108,000 $108,000*4 trips = $432,000 2 Legs = $864,000/Week	1,680 70% (300*.7=210) 210*$600=$126,000 $126,000*4 trips = $504,000 2 Legs = $1.08M/Week	1,440 60% (300*.6=180) 180*$700=$126,000 $126,000*4 trips = $504,000 2 Legs = $1.08M/Week
2x/Week	1,200 100% (300*1 = 300) 300*$400=$120,000 $120,000*2 trips = $240,000 2 Legs = $480,000/Week	960 80% (300*.8=240) 240*600=$144,000 $144,000*2 trips = $288,000 2 Legs = $576,000/Week	840 70% (300*.7=210) 210*$700=$147,000 $147,000*2 trips = $294,000 2 Legs = $588,000/Week

When candidate asks:

- Each trip has a 300 passenger capacity
- Load factors and ticket prices apply to both outbound and inbound legs

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Exhibit 2

Variable Costs Per Flight			
	London	Barcelona	Rome
Fuel	$10,000	$15,000	$17,000
Crew Wages	$25,000	$28,000	$30,000
Landing Fees	$5,000	$3,000	$2,000
Expected Maintenance	$2,500	$4,000	$4,500
Taxes	$1,500	$5,000	$5,500
Aircraft Depreciation	$1,000	$2,000	$4,000

Exhibit 2 – Guidance

Exhibit 2 Answers

Costs Per Flight			
	London	Barcelona	Rome
Fuel	$10,000	$15,000	$17,000
Crew Wages	$25,000	$28,000	$30,000
Landing Fees	$5,000	$3,000	$2,000
Expected Maintenance	$2,500	$4,000	$4,500
Taxes	$1,500	$5,000	$5,500
Aircraft Depreciation	$1,000	$2,000	$4,000
Total	**$45,000**	**$57,000**	**$63,000**

Interview Guidance

cost

Flight Profitability Answers

Weekly Profit			
	London	**Barcelona**	**Rome**
Daily	Revenue per flight = $90,000 Var. Costs per Flight = $45,000 Profit per Flight = $45,000 V. cost = $630/week 14 total flights = $630,000 Total cost: $900K Airplane Costs = $270,000 **Total Profit = $360,000**	Revenue per flight = $108,000 Costs per Flight = $57,000 Profit per Flight = $51,000 V. cost = $798K/week Total cost: $1.068M 14 total flights = $714,000 Airplane Costs = $270,000 **Total Profit = $444,000**	Revenue per flight = $105,000 Costs per Flight = $63,000 Profit per Flight = $42,000 14 total flights = $588,000 Airplane Costs = $270,000 **Total Profit = $318,000**
4x/Week	Revenue per flight = $108,000 Costs per Flight = $45,000 V. cost = $360/week Profit per Flight = $63,000 8 total flights = $504,000 Total cost: $510K Airplane Costs = $150,000 **Total Profit = $354,000**	Revenue per flight = $126,000 Costs per Flight = $57,000 Profit per Flight = $69,000 V. cost = $456K/week Total cost: $606K 8 total flights = $552,000 Airplane Costs = $150,000 **Total Profit = $402,000**	Revenue per flight = $126,000 Costs per Flight = $63,000 Profit per Flight = $63,000 8 total flights = $504,000 Airplane Costs = $150,000 **Total Profit = $354,000**
2x/Week	Revenue per flight = $120,000 Costs per Flight = $45,000 Profit per Flight = $75,000 4 total flights = $300,000 V. cost = $180/week Total cost: $330K Airplane Costs = $150,000 **Total Profit = $350,000**	Revenue per flight = $144,000 Costs per Flight = $57,000 Profit per Flight = $87,000 V. cost/week = $228K total cost: $378K 4 total flights = $348,000 Airplane Costs = $150,000 **Total Profit = $198,000**	Revenue per flight = $147,000 Costs per Flight = $63,000 Profit per Flight = $84,000 4 total flights = $336,000 Airplane Costs = $150,000 **Total Profit = $186,000**

Conclusion

Recommendation

- Unit Airlines should add the Detroit to Barcelona route to its network and lease two planes to fly it on a daily basis. They will earn a profit of $444,000 per week

Risks

- Load factors are less than anticipated
- Ticket prices are lower than forecasted or costs are higher than expected
- Unknown competitor response

Next Steps

- Begin negotiating plane leases and marketing the flight to potential fliers in both cities.