

# ROSS CASEBOOK 2019



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# Note from the Board

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Dear CC@R Member,

If you are reading this, then you are interested in pursuing a consulting career upon graduating from business school. In order to increase your familiarity with the consulting interview format, the Consulting Club at Ross has established a robust wrap-around training program focusing on the different parts of the recruiting and interviewing process. 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 (and often the interviewer’s) life and are frequently drawn 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 that you enjoy solving problems in this manner, and that you would find this type of work gratifying.

In order to facilitate your preparation, your fellow club members have recorded their real-life case interview experiences and their 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. Each case comes down to a conversation between the interviewer and the candidate, so it is very possible that two candidates could have two very different conversations about the same 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. You will find this format dovetails well with how you write your notes in cases, and how you will convey information as a consultant.

Remember that regardless of how you perform on individual cases or in recruiting writ large, you are smart, capable, and you’d be an asset to any firm, consulting or otherwise. Good luck and remember your fellow club members are always here to help.

Sincerely,  
2019-2020 Board  
Consulting Club @ Ross

# Consulting Club @ Ross Board Members

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Jordan Morris – Co-President

Ashley Perkins – Co-President

Nick Campbell – SVP Finance & Tech

Mitch Polelle – SVP Education

Erin Ford – SVP Sponsorship & Firm Relations

Eric Wang – VP Technology

Christine Barringer – VP Education

Sankalp Damani – VP Education

Justin Long – VP Peer Coaches

Maneel Grover – VP Casebook

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# Acknowledgements

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Pulling together the casebook was a huge undertaking and we are grateful to everyone who contributed, especially our case writers and editors.

## **Case Writers:**

Christine Barringer – PharmaDeliver  
Jordan Morris – 6PAQ PE  
Junior Louis – Single Cup of Coffee  
Manas Kulkarni – Ferris Wheel  
Maneel Grover – Mega Pharma, Mike Apparel  
Mitch Polelle – Hamm's University  
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## **Case Editors:**

Jake Corness, Justin Long, Jordan Morris,  
Mitch Polelle, Sankalp Damani

## **Casebook Editors:**

Maneel Grover & Alex Lowy

# Administering Cases

Great case experiences are not determined solely by strong candidates cranking out detailed issue and financial-based analyses. The interviewer-interviewee interaction and the candidate's ability to convey information can 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

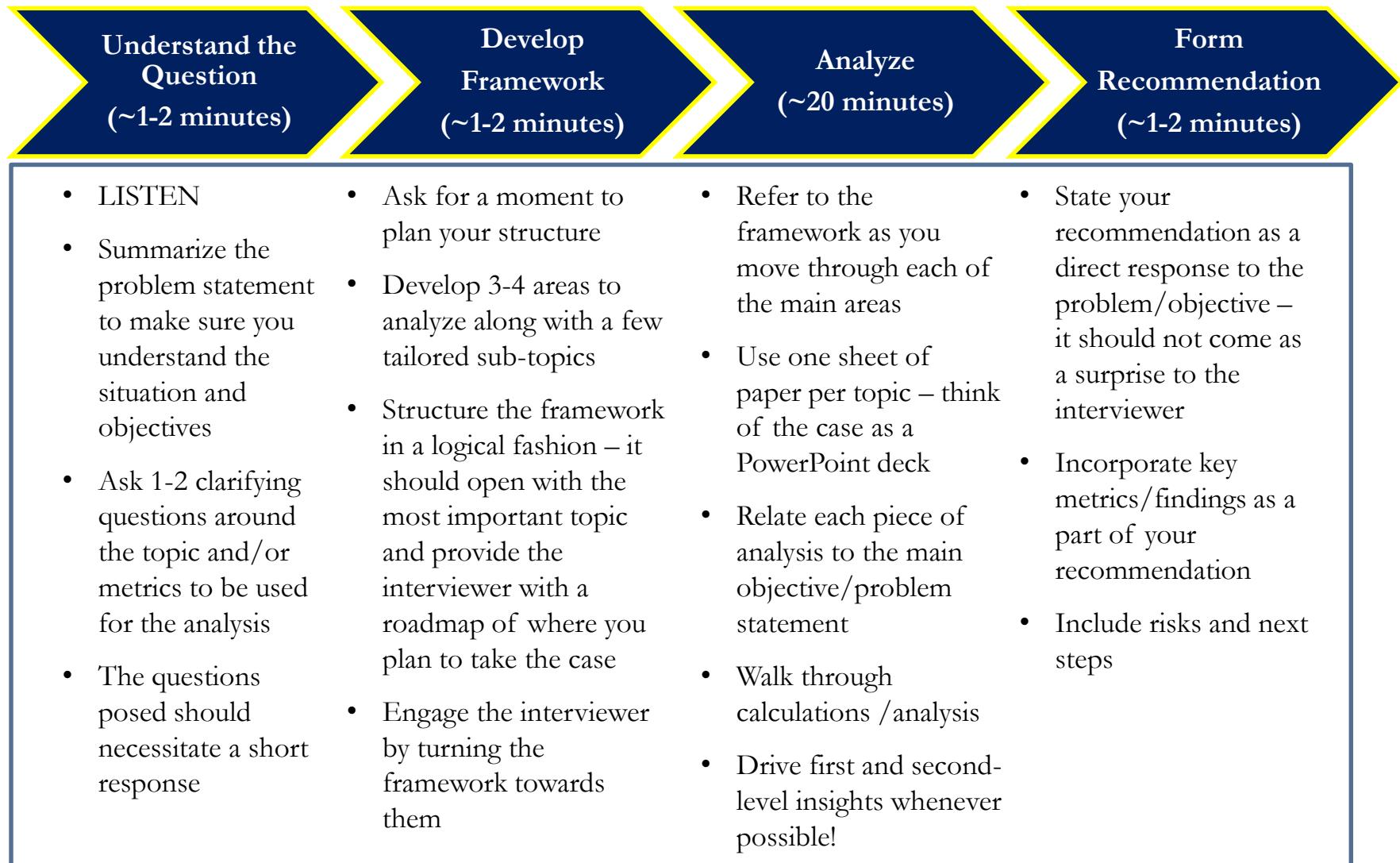
## During Interview

## After Interview

- |   |   |   |
|---|---|---|
| <ul style="list-style-type: none"><li>• Read the case over 2-3 times, familiarizing yourself with the relevant numbers and details</li><li>• Understand what candidate wants to improve</li><li>• Determine your 'character' e.g. rushed partner or disinterested client rep</li><li>• Prepare for how you will address irrelevant questions or requests for data you do not have, i.e. will you make up fake data and let candidate go fishing, or let them know it is irrelevant?</li></ul> | <ul style="list-style-type: none"><li>• Track time (about 25 minutes is average)- balance finishing case and letting candidate struggle</li><li>• Candidates can often think of very different approaches to the same case. Before discounting questions as wrong, ask the candidate for their thinking... If it makes sense, go with it</li><li>• Consider what a consultant would be looking for in the candidate</li><li>• Presentation: can I put this person in front of a client?</li><li>• Aptitude: Can this person do the work?</li><li>• Interest: Does this person like what they are doing?</li></ul> | <ul style="list-style-type: none"><li>• Provide feedback<ul style="list-style-type: none"><li>• This is possibly the most critical step of the case interview process</li></ul></li><li>• Honestly let the candidate know strengths, but more importantly areas for improvement</li><li>• Without honest feedback and constructive criticism, it is very difficult to improve</li></ul> |
|---|---|---|

# Case Structure

## How to Case



# Key Formulas Review

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

# Key Formulas Review

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



# INDUSTRY OVERVIEW

# Airlines

Key Ideas	Revenue Streams	Cost Drivers
<ul style="list-style-type: none"><li>▪ Consolidation in industry</li><li>▪ Low cost carriers and fare competition on competitive routes</li><li>▪ Online booking and check-in</li><li>▪ Expansion of domestic and international routes</li><li>▪ Capacity optimization (Load Factor)</li></ul>	<ul style="list-style-type: none"><li>▪ Ticket sales to economy and business passengers</li><li>▪ Charges for baggage and on-board services (up-selling)</li><li>▪ Cargo transportation</li><li>▪ Credit cards</li></ul>	<ul style="list-style-type: none"><li>▪ Fuel</li><li>▪ Labor</li><li>▪ Marketing</li><li>▪ Terminal fees and hangar rentals</li><li>▪ Insurance/legal fees</li></ul>
<b>Customer Segments</b>	<ul style="list-style-type: none"><li>▪ Leisure travelers – (generally price sensitive)</li><li>▪ Business travelers – (very important to airlines due to margins and services purchased)</li><li>▪ Freight/Cargo Transportation</li></ul>	
<b>Channels</b>	<ul style="list-style-type: none"><li>▪ Internet - online travel sites, airline websites</li><li>▪ Airline sales team: call centers, online, or kiosk</li><li>▪ Travel management companies (TMCs) serving corporate clients, travel agents</li></ul>	
<b>Risk</b>	<ul style="list-style-type: none"><li>▪ Government regulation and dramatic risk of equipment failure (e.g. Boeing 737 MAX)</li><li>▪ Labor unrest, strikes and work slowdowns</li><li>▪ An intensely competitive market with many foreign airlines partly government subsidized</li></ul>	
<b>Key Economic Drivers</b>	<ul style="list-style-type: none"><li>▪ World Price of Crude Oil</li><li>▪ Trips by US residents</li></ul>	<ul style="list-style-type: none"><li>▪ Optimization of capacity</li><li>▪ Per capita disposable income</li></ul>

# Automotive/Manufacturing

Key Ideas	Revenue Streams	Cost Drivers
<ul style="list-style-type: none"><li>▪ Automakers, Original Equipment Manufacturers (OEMs), Replacement Parts Production, Rubber Fabrication</li><li>▪ Highly capital and labor intensive</li><li>▪ Extensive competition due to foreign automakers</li><li>▪ Unions</li><li>▪ Commitment to Electric Vehicles</li></ul>	<ul style="list-style-type: none"><li>▪ New car sales</li><li>▪ Auto part sales</li><li>▪ Services offered with vehicle purchase</li><li>▪ Financing</li><li>▪ Extended warranties</li><li>▪ Leasing</li></ul>	<ul style="list-style-type: none"><li>▪ Labor</li><li>▪ Materials</li><li>▪ Advertising</li><li>▪ Financing costs</li><li>▪ Recall costs</li><li>▪ Research &amp; Development</li></ul>
<b>Customer Segments</b>	<ul style="list-style-type: none"><li>▪ Cars, vans, pickup trucks and SUVs</li><li>▪ Personal car buyers</li><li>▪ Rental car companies</li></ul>	<ul style="list-style-type: none"><li>▪ Commercial purchasers</li><li>▪ Government purchasers</li></ul>
<b>Channels</b>	<ul style="list-style-type: none"><li>▪ Automobile dealers</li><li>▪ Secondary automobile market</li><li>▪ Automotive parts/services outlets</li></ul>	
<b>Risk</b>	<ul style="list-style-type: none"><li>▪ Globalization of the industry enables more ease of foreign competition</li><li>▪ New entrants in the electric vehicle or mobility as a service sectors</li><li>▪ Changes in consumer trends and tastes</li></ul>	
<b>Key Economic Drivers</b>	<ul style="list-style-type: none"><li>▪ GPD growth</li><li>▪ Income growth/disposable income</li><li>▪ Price of crude</li></ul>	<ul style="list-style-type: none"><li>▪ Steel prices</li><li>▪ Consumer confidence index</li><li>▪ Yield on Treasury note</li></ul>

# Commercial Banking

Key Ideas	Revenue Streams	Cost Drivers
<ul style="list-style-type: none"><li>▪ Consolidation/acquisitions</li><li>▪ Increased mobile banking</li><li>▪ Channel innovation in digital and physical channels</li><li>▪ Customer attrition rate</li><li>▪ Offshoring of call centers, back office functions</li><li>▪ Digitization of processes</li><li>▪ Cross-selling</li></ul>	<ul style="list-style-type: none"><li>▪ Loan interest</li><li>▪ Loan types<ul style="list-style-type: none"><li>▪ Real estate</li><li>▪ Auto</li><li>▪ Personal</li><li>▪ Education</li></ul></li><li>▪ Service Fees</li><li>▪ Spread between interest rate charged and Fed rates</li><li>▪ Credit cards</li></ul>	<ul style="list-style-type: none"><li>▪ Wages</li><li>▪ Bad debt expense</li><li>▪ Interest rates on deposits</li><li>▪ Branch and compliance costs</li><li>▪ Overhead costs - paper fee; error rate costs for manual processing</li></ul>
<b>Customer Segments</b>	<ul style="list-style-type: none"><li>▪ Wealth: deposit balances, income</li><li>▪ By lifestyle: buying behavior</li></ul>	<ul style="list-style-type: none"><li>▪ Size: small businesses and consumers</li><li>▪ Age: under 35 adapt to technology better</li></ul>
<b>Channels</b>	<ul style="list-style-type: none"><li>▪ Savings and loan</li><li>▪ Credit union</li></ul>	<ul style="list-style-type: none"><li>▪ Traditional checking</li><li>▪ Online banking</li></ul>
<b>Risk</b>	<ul style="list-style-type: none"><li>▪ Change in savings behavior</li><li>▪ Loan default, interest rates and federal funds rates</li><li>▪ New entrants from non-banks and FinTech companies (i.e. Robinhood, SoFi, etc)</li></ul>	
<b>Key Economic Drivers</b>	<ul style="list-style-type: none"><li>▪ Consumer confidence</li><li>▪ Household debt</li><li>▪ Employment statistics</li></ul>	<ul style="list-style-type: none"><li>▪ Urbanization</li><li>▪ Home and car buys</li><li>▪ Disposable income</li></ul>
		<ul style="list-style-type: none"><li>▪ Interest rate</li><li>▪ Government Regulation</li></ul>

# Health Care

Key Ideas	Revenue Streams	Cost Drivers
<ul style="list-style-type: none"><li>▪ Affordable Care Act</li><li>▪ Highly fragmented care networks</li><li>▪ Employers pushing health care costs onto employees</li><li>▪ Aging Baby Boomer population driving increased revenues</li></ul>	<ul style="list-style-type: none"><li>▪ Hospital care</li><li>▪ Physician and clinical services</li><li>▪ Prescription drugs</li><li>▪ Nursing</li><li>▪ Dental services</li><li>▪ Research, Equipment, Investment</li></ul>	<ul style="list-style-type: none"><li>▪ Dependent on segment</li><li>▪ Significant costs related to new technology implementation</li><li>▪ Often inefficient organizational structures</li></ul>
<b>Customer Segments</b>	<ul style="list-style-type: none"><li>▪ Patients/consumers</li><li>▪ All generations and segments of the population require different products/services</li></ul>	
<b>Channels</b>	<ul style="list-style-type: none"><li>▪ Hospitals</li><li>▪ Doctors offices</li></ul>	<ul style="list-style-type: none"><li>▪ Nursing homes</li><li>▪ Outpatient surgery centers</li></ul>
<b>Risk</b>	<ul style="list-style-type: none"><li>▪ New legislation and shifting regulations</li><li>▪ Funding availability</li></ul>	<ul style="list-style-type: none"><li>▪ Pharmacies</li><li>▪ Medical equipment</li></ul>
<b>Key Economic Drivers</b>	<ul style="list-style-type: none"><li>▪ Regulation for health &amp; medical insurance</li><li>▪ Federal funding for Medicare and Medicaid</li></ul>	<ul style="list-style-type: none"><li>▪ Aging population</li><li>▪ Advances in medical care and technology</li></ul>

# IT / Infrastructure

Key Ideas	Revenue Streams	Cost Drivers
<ul style="list-style-type: none"><li>▪ Cloud based platforms vs on-premise infrastructure</li><li>▪ User centric IT solutions – IT depts want to enhance usage and productivity</li><li>▪ Open platforms / integrating and partnering with other providers</li></ul>	<ul style="list-style-type: none"><li>▪ Hardware sales</li><li>▪ Maintenance contracts</li><li>▪ Implementation consulting services</li><li>▪ SaaS</li></ul>	<ul style="list-style-type: none"><li>▪ Labor</li><li>▪ R&amp;D/Engineering of products</li><li>▪ Sales/Marketing teams - huge front-end expense</li><li>▪ Hardware manufacturing</li><li>▪ Cybersecurity</li></ul>
<b>Customer Segments</b>	<ul style="list-style-type: none"><li>▪ Enterprise (SME / Large)</li><li>▪ Consumer</li><li>▪ Third party resellers (SHI, CDW)</li></ul>	
<b>Channels</b>	<ul style="list-style-type: none"><li>▪ Direct</li><li>▪ Partnership</li><li>▪ Reseller</li></ul>	
<b>Risk</b>	<ul style="list-style-type: none"><li>▪ Startups and new entrants</li><li>▪ Bring your own device initiatives</li><li>▪ Tariffs</li></ul>	
<b>Key Economic Drivers</b>	<ul style="list-style-type: none"><li>▪ Cyber security</li><li>▪ Demand for enterprises to go digital</li></ul>	<ul style="list-style-type: none"><li>▪ Mobility</li><li>▪ Data &amp; Analytics</li></ul>

# Non-profits

## 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 and 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	Revenue Streams	Cost Drivers
<ul style="list-style-type: none"><li>▪ Upstream, midstream, downstream</li><li>▪ PV-10</li><li>▪ Cost per gallon</li><li>▪ OPEC</li><li>▪ GDP growth</li><li>▪ Renewable energy</li><li>▪ Fracking</li></ul>	<ul style="list-style-type: none"><li>▪ Crude oil</li><li>▪ Gasoline</li><li>▪ Natural Gas</li><li>▪ Refining products such as lubricants</li><li>▪ Gas stations: gasoline, food market, car wash</li></ul>	<ul style="list-style-type: none"><li>▪ Exploration: seismic studies, drilling rigs and labor</li><li>▪ Production: refining</li><li>▪ Pipelines</li><li>▪ Gas station: oil, labor, insurance, licenses</li></ul>
<b>Customer Segments</b>	<ul style="list-style-type: none"><li>▪ Petroleum refiners</li><li>▪ Electricity generators</li></ul>	<ul style="list-style-type: none"><li>▪ Domestic and commercial users</li><li>▪ Other industries</li></ul>
<b>Channels</b>	<ul style="list-style-type: none"><li>▪ Retail</li><li>▪ Wholesale</li></ul>	<ul style="list-style-type: none"><li>▪ Commercial</li></ul>
<b>Risk</b>	<ul style="list-style-type: none"><li>▪ Access to reserves</li><li>▪ Energy policies</li><li>▪ OPEC decisions</li></ul>	<ul style="list-style-type: none"><li>▪ Political pressures</li><li>▪ Substitutes/renewable energy</li><li>▪ Offshore drilling</li></ul>
<b>Key Economic Drivers</b>	<ul style="list-style-type: none"><li>▪ Government regulation</li><li>▪ International oil production and demand</li></ul>	

# Pharmaceutical

Key Ideas	Revenue Streams	Cost Drivers
<ul style="list-style-type: none"><li>▪ Affordable Care Act</li><li>▪ Aging population</li><li>▪ Patents and generics</li><li>▪ Research &amp; Development</li><li>▪ Insurance</li><li>▪ FDA</li><li>▪ Market penetration</li><li>▪ Contract v. in-house salesforce</li></ul>	<ul style="list-style-type: none"><li>▪ Insurance payments</li><li>▪ The federal government provides certain grants to subsidize R&amp;D</li><li>▪ Due to significant R&amp;D lead times revenue is highly volatile</li><li>▪ Seasonality is high on certain products (vaccines and cold medicine) and low on other products (pain medicines)</li></ul>	<ul style="list-style-type: none"><li>▪ Research &amp; Development</li><li>▪ Manufacturing cost (the largest share of the industry's costs)</li><li>▪ Marketing costs</li><li>▪ Wages</li><li>▪ Liability insurance and legal fees</li><li>▪ Litigation</li></ul>
<b>Customer Segments</b>	<ul style="list-style-type: none"><li>▪ Medical patients</li><li>▪ Prescribing doctors</li></ul>	<ul style="list-style-type: none"><li>▪ Government insurance programs</li><li>▪ Health insurance companies</li></ul>
<b>Channels</b>	<ul style="list-style-type: none"><li>▪ Over-the-counter</li><li>▪ Prescription drugs: Hospitals, pharmacies</li><li>▪ Mail order pharmacy: Express Scripts, Walgreens</li></ul>	
<b>Risk</b>	<ul style="list-style-type: none"><li>▪ Generic manufacturers pose a major competitive threat following patent expiration</li><li>▪ Tariff barriers are no longer a relevant form of protection</li><li>▪ Unfavorable government healthcare regulations and CMS rates</li></ul>	
<b>Key Economic Drivers</b>	<ul style="list-style-type: none"><li>▪ Median age of population</li><li>▪ Research and development expenditure</li></ul>	<ul style="list-style-type: none"><li>▪ Insurance and regulatory landscape</li><li>▪ Patent protection</li></ul>

# Private Equity & Hedge Funds

Key Ideas	Revenue Streams	Cost Drivers
<ul style="list-style-type: none"><li>▪ Components of the revenue charge<ul style="list-style-type: none"><li>▪ Invested capital</li><li>▪ Transaction and advisory fees</li><li>▪ Carried interest</li></ul></li><li>▪ Divestitures</li></ul>	<ul style="list-style-type: none"><li>▪ Wages and profit-sharing</li><li>▪ Administrative costs (regulatory filings, record keeping, accounting and travel) (sub-bullets)</li><li>▪ Outsourcing of capital intensive IT functions for algorithmic trading</li></ul>	<ul style="list-style-type: none"><li>▪ Value creation: sell under-performing assets, optimize price, diversify customer base, operations efficiency</li><li>▪ Exit: strategic or IPO</li><li>▪ Synergies</li><li>▪ Stability of cash flows (IRR, NPV)</li><li>▪ Targeted returns ~ 40%+</li><li>▪ Un-invested capital vs. invested</li></ul>
<b>Investors</b>	<ul style="list-style-type: none"><li>▪ Pension funds (largest share)</li><li>▪ Private investors (e.g. High net-worth individuals)</li><li>▪ Banks, sovereign funds and life insurance companies</li></ul>	
<b>Averages in industry</b>	<ul style="list-style-type: none"><li>▪ Large firms focus on deals ~ \$1.0B; middle market firms cover deals between \$15.0M- \$1.0B</li><li>▪ Average holding period before sale has increased from 3 years to 6 years in the past 15 years</li><li>▪ Borrowing can typically range from 65.0% to 85.0% of the purchase price of the firm</li></ul>	
<b>Risk</b>	<ul style="list-style-type: none"><li>▪ New regulation -&gt; compliance costs, Rising competition -&gt; decreasing industry fees</li><li>▪ Competition also exists with sovereign wealth funds and corporate buyers</li><li>▪ Changes in tax structure</li></ul>	
<b>Key Economic Drivers</b>	<ul style="list-style-type: none"><li>▪ Investor uncertainty/Pension demand</li><li>▪ Access to credit/interest rates</li><li>▪ Regulations</li></ul>	<ul style="list-style-type: none"><li>▪ Exit opportunities</li><li>▪ GDP/Investment returns</li></ul>

# Retail

Key Ideas	Revenue Streams	Cost Drivers
<ul style="list-style-type: none"><li>▪ Same store sales</li><li>▪ Sales per square foot</li><li>▪ Inventory turn-over</li><li>▪ Seasonality/recessions</li><li>▪ Trends</li></ul>	<ul style="list-style-type: none"><li>▪ Women's apparel sale</li><li>▪ Drugs &amp; cosmetics</li><li>▪ Furniture &amp; household appliances</li><li>▪ Children apparel</li><li>▪ Men's apparel</li><li>▪ Toys</li><li>▪ Footwear</li><li>▪ Misc. items</li></ul>	<ul style="list-style-type: none"><li>▪ Cost of Goods Sold</li><li>▪ Transportation</li><li>▪ Wages</li><li>▪ Rent and utilities</li><li>▪ Marketing</li></ul>
<b>Customer Segments</b>	<ul style="list-style-type: none"><li>▪ The industry is consumer-oriented and, due to the spectrum of products, its markets are generally segmented into different income, demographics and age</li></ul>	
<b>Channels</b>	<ul style="list-style-type: none"><li>▪ Department Stores/Big box retailers</li><li>▪ Discount retailers</li><li>▪ E-commerce</li></ul>	<ul style="list-style-type: none"><li>▪ Demographic retailers</li><li>▪ Shopping malls</li><li>▪ Subscription boxes and services</li></ul>
<b>Risk</b>	<ul style="list-style-type: none"><li>▪ Changes in disposable income</li><li>▪ Demand and supply issues</li><li>▪ Overstock</li></ul>	<ul style="list-style-type: none"><li>▪ Easy entry invites competition</li><li>▪ Tariffs and trade disruptions</li></ul>
<b>Key Economic Drivers</b>	<ul style="list-style-type: none"><li>▪ Consumer Confidence index</li><li>▪ Per capita disposable income</li><li>▪ International Export/Import</li></ul>	<ul style="list-style-type: none"><li>▪ Gross Domestic product/inflation</li><li>▪ Households &gt; 100,000 income(luxury goods)</li><li>▪ Commodity prices(e.g : gold price for jewelry)</li></ul>

# Telecommunications

Key Ideas	Revenue Streams	Cost Drivers
<ul style="list-style-type: none"><li>▪ Deregulation led to spur of new companies</li><li>▪ Bottlenecks: High capital, scarce operating skills and management experience</li><li>▪ Shift from telephones to internet based services for mobile</li><li>▪ Bundling of services</li></ul>	<ul style="list-style-type: none"><li>▪ Voice calls</li><li>▪ Additional lines/family plans</li><li>▪ Text and image communication</li><li>▪ Data subscriptions</li><li>▪ Accessories</li><li>▪ Additional add-ins (e.g. spam blocking)</li></ul>	<ul style="list-style-type: none"><li>▪ Infrastructure and line maintenance (5G investments)</li><li>▪ Labor</li><li>▪ Marketing and advertising</li></ul>
<b>Customer Segments</b>	<ul style="list-style-type: none"><li>▪ Residential and Small Business (Price sensitive)</li><li>▪ Large multinationals (Price insensitive)</li></ul>	
<b>Channels</b>	<ul style="list-style-type: none"><li>▪ Retail stores - carriers and mass retailers</li><li>▪ Online</li></ul>	
<b>Risk</b>	<ul style="list-style-type: none"><li>▪ Rapid development of technology</li><li>▪ High exit barriers</li><li>▪ Systems not reusable across industries</li></ul>	<ul style="list-style-type: none"><li>▪ New low-cost entrants driving prices down</li><li>▪ Cord cutting</li></ul>
<b>Key Economic Drivers</b>	<ul style="list-style-type: none"><li>▪ Investment in rising technology services</li><li>▪ Number of subscriptions to additional services</li><li>▪ Number of broadband and mobile internet connections</li></ul>	

# Utilities

Key Ideas	Revenue Streams	Cost Drivers
<ul style="list-style-type: none"><li>▪ Increase in energy consumption</li><li>▪ High investment costs and regulations</li><li>▪ Industry structure disintegrating into smaller supplier segments</li><li>▪ Seasonality</li><li>▪ Gov. incentives for sustainable initiatives</li><li>▪ Bundling services w/renewable</li></ul>	<ul style="list-style-type: none"><li>▪ Transmitted electricity: base load and intermittent electricity</li><li>▪ Base load (95% of industry)</li><li>▪ Coal, natural gas, nuclear, other</li><li>▪ Intermittent: renewable energy</li></ul>	<ul style="list-style-type: none"><li>▪ Purchased power accounts (nearly half of total costs)</li><li>▪ Infrastructure</li><li>▪ Wages</li><li>▪ Marketing</li><li>▪ Maintenance contracts</li></ul>
<b>Customer Segments</b>	<ul style="list-style-type: none"><li>▪ Commercial and Industrial</li><li>▪ Residential</li></ul>	
<b>Channels</b>	<ul style="list-style-type: none"><li>▪ Transmission lines/pipelines</li><li>▪ Upstream electricity generators</li></ul>	
<b>Risk</b>	<ul style="list-style-type: none"><li>▪ Clean energy threatens the future of traditional power generation methods</li><li>▪ Seasonal demand leads to uncertain estimates</li><li>▪ Energy efficient appliances decrease consumption</li></ul>	
<b>Key Economic Drivers</b>	<ul style="list-style-type: none"><li>▪ Economies of scale</li><li>▪ Industrial production index</li><li>▪ Climate/seasonality</li></ul>	

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# Case 1: American Bank ATM Dilemma

Financial Services | Profitability Improvement



# Case 1: American Bank ATM Dilemma

Financial Services | Profitability Improvement



## Case Prompt

Our client, American Bank, is a national retail bank operating in the US. ATMs have traditionally been a profitable channel, but the bank has started seeing declining operating profits from its ATMs. The CEO has hired your firm to help her analyze the reasons for this decline and solutions to improve usage.

How would you approach this problem?

## Interviewer Guidance

This is an interviewee led case. Throughout the case, let the interviewee ask for specific data points before presenting exhibits.

You should gauge the interviewee's potential for going granular into the problem.

## Concepts Tested

Graph reading, Setting up calculations, Brainstorming

# Case 1: American Bank ATM Dilemma

Financial Services | Profitability Improvement



## Clarifying Information

- Profits have been declining over the last 5 years
- ATMs contribute to 12% of the bank's revenues.
- ATMs operated in the US only
- 12000 ATMs – no change in number of ATMs or operating structure in the last 5 years (2013 – 2018)
- The bank operates the ATMs itself or through vendors - three operating structures:
  - Bank owned and operated
  - Bank owned and vendor operated
  - Vendor owned and operated (Bank gets commission on transactions)
- Up to 5 competitors observed in vicinity of any ATM
- Any person (Own bank customers and other bank customers) can use any American Bank ATM

## Possible Framework

Problem: Declining profitability of ATMs

- Revenues falling –
  - Average transaction (txn) price falling
    - Overall txn prices decreased
    - Transaction mix towards cheaper txns
  - Fewer customers using ATMs
    - Decrease in overall volume of customers
    - Higher revenue customers (Own customers) not using
    - Customers moving to competition / substitutes such as online banking
  - No newer sources of revenue from ATMs introduced apart from core transaction revenues
- Costs increasing –
  - Avg variable cost of operating increased:
    - Avg cost of operating ATMs increased
    - Shift towards expensive operated ATMs
  - Fixed costs increased:
    - Cost of purchasing new ATMs increased

# Case 1: American Bank ATM Dilemma

Financial Services | Profitability Improvement



## Interviewer Guidance for case flow

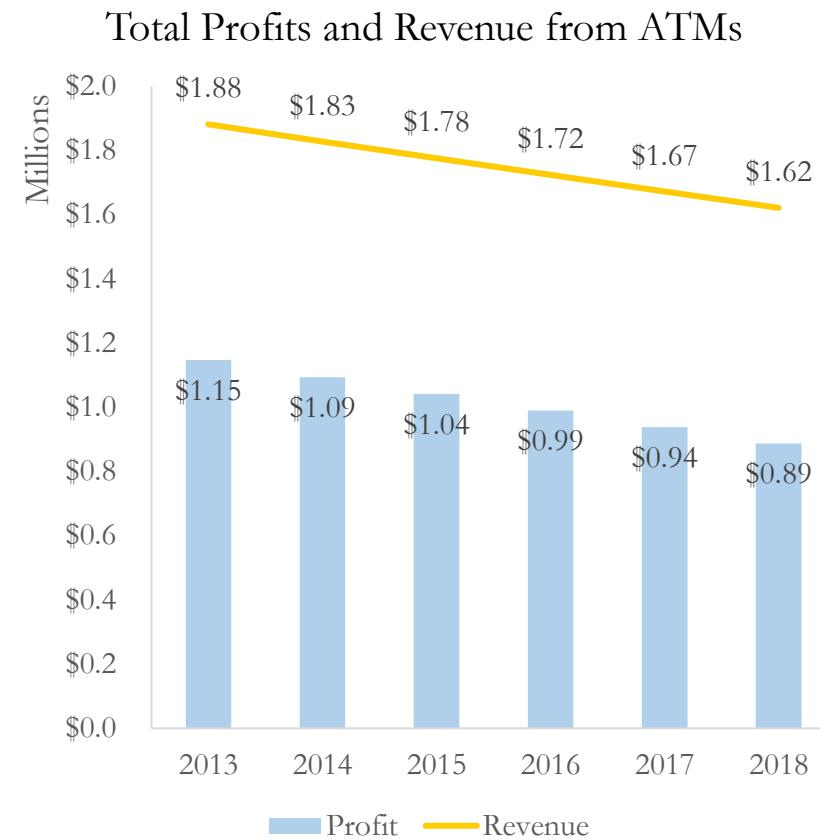
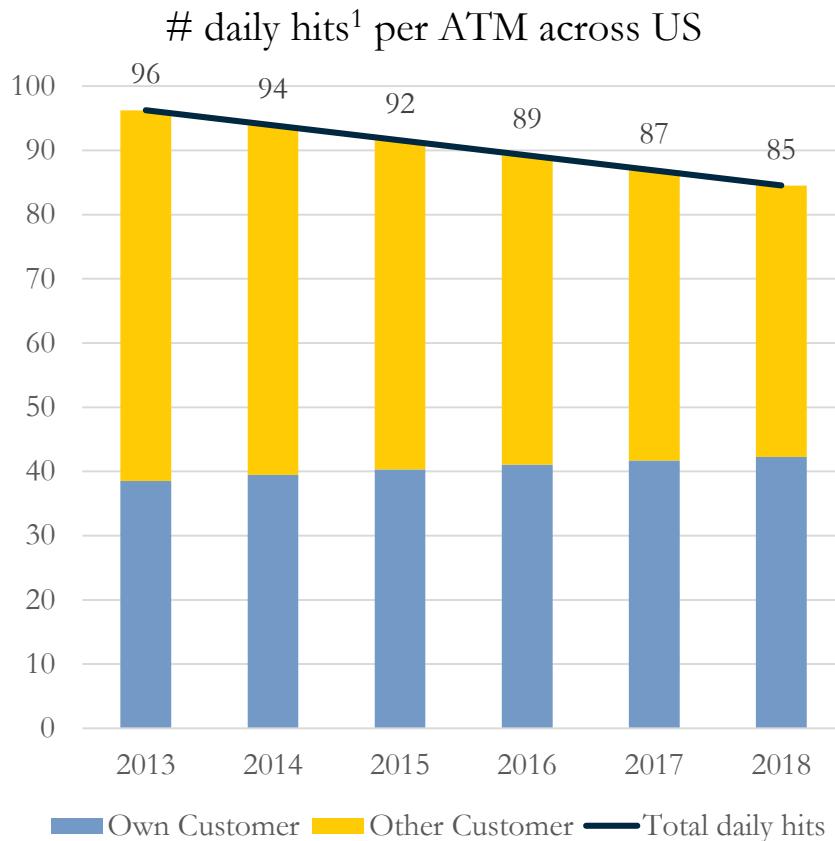
Drive Insight/Calculations →	Candidate Data Request →	Exhibit
Framework →	Profitability numbers →	1
Ex.1: Revenue problem →	Revenue breakdown →	2 and 3
Ex. 2 and 3: Northeast and West-Pacific facing problems. Both vendor-operated heavy →	Reasons and breakdown for fall in hits for vendor operated ATMs →	4 and 5
Ex. 4 and 5: Calculate extra possible hits in vendor ATMs →	Revenue earned per hit →	6
Ex. 6: Calculate extra revenue		
Ex 6: Brainstorm with candidate for other areas of improvement → drive insight for \$0.5 extra in “other” customers and financial transactions each →	Improve ratio of “other” and fin. transactions by benchmarking →	6A
Ex: 6A: Calculate additional revenue potential by taking best-case competitor scenarios		
Give interviewer led question on breakeven (optional)		
Ask for final recommendation		

# Case 1: American Bank ATM Dilemma

Financial Services | Profitability Improvement



## Exhibit 1 – American Bank ATM usage, profits and revenues in last 5 years



Note: Own customers are customers of American Bank, while Other customers are not customers of American Bank

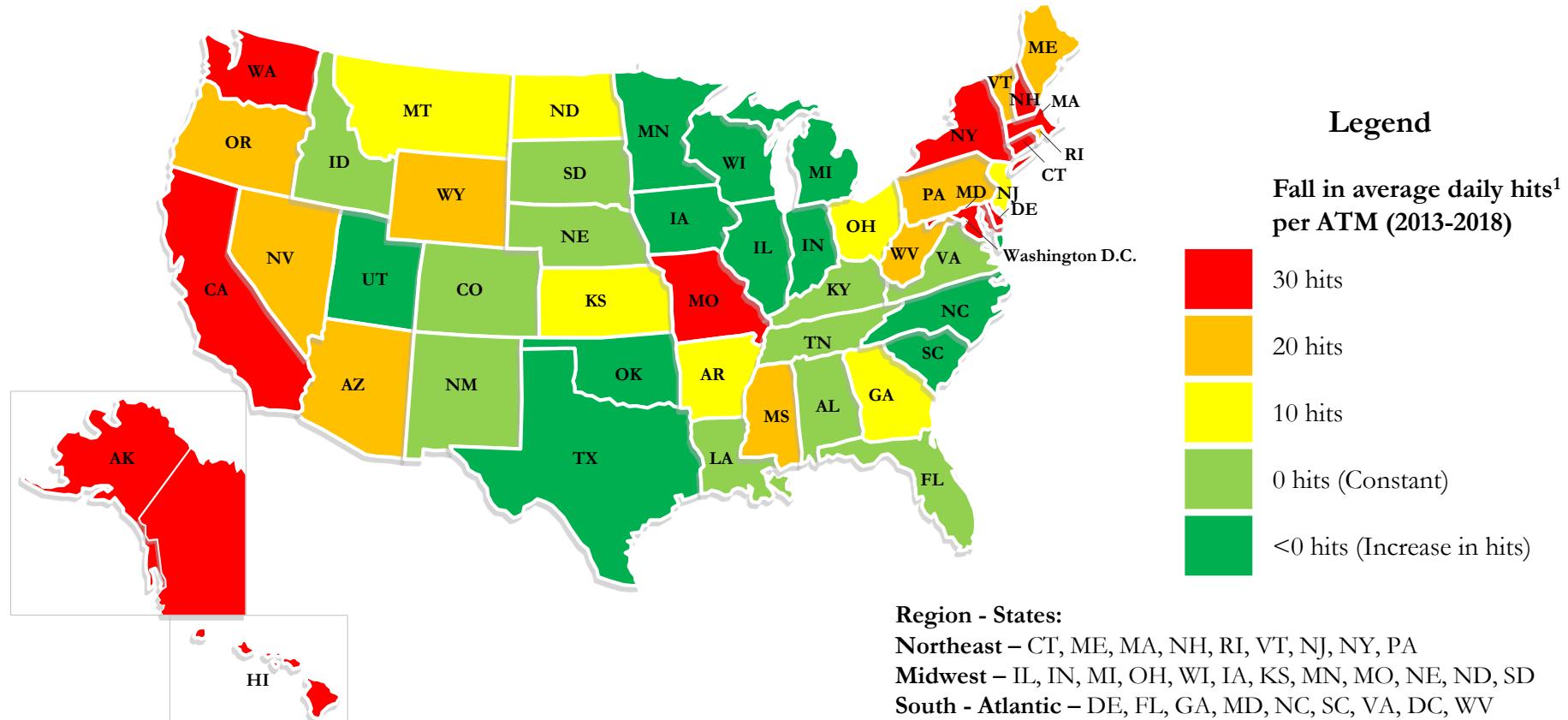
1. hits = number of unique times an ATM was used (the word hits is used interchangeably with the word transactions)

# Case 1: American Bank ATM Dilemma

Financial Services | Profitability Improvement



## Exhibit 2 – American Bank ATM fall in hits across US (2018)



1. hits = number of unique times an ATM was used

# Case 1: American Bank ATM Dilemma

Financial Services | Profitability Improvement



## Exhibit 3 – Operating costs for American Bank ATMs (2018)

Region	Operating Structure		
	BO-BO	BO-VO	VO-VO
	# ATMs		
Northeast	250	750	1000
Midwest	1000	800	200
South - Atlantic	1500	250	250
South - Central	1500	350	150
West - Mountain	1200	500	300
West - Pacific	0	500	1500
Daily Operating Cost to bank per ATM (\$)			
Operating Cost	\$100	\$60	\$0

### Operating Structure:

BO-BO = Bank Owned, Bank Operated

BO-VO = Bank Owned, Vendor Operated

VO-VO = Vendor Owned, Vendor Operated

Owner pays rent, utilities

Operator pays for maintenance, cash mgmt.

### Region - States:

**Northeast** – CT, ME, MA, NH, RI, VT, NJ, NY, PA

**Midwest** – IL, IN, MI, OH, WI, IA, KS, MN, MO, NE, ND, SD

**South - Atlantic** – DE, FL, GA, MD, NC, SC, VA, DC, WV

**South - Central** – AL, KY, MS, TN, AR, LA, OK, TX

**West - Mountain** – AZ, CO, ID, MT, NV, NM, UT, WY

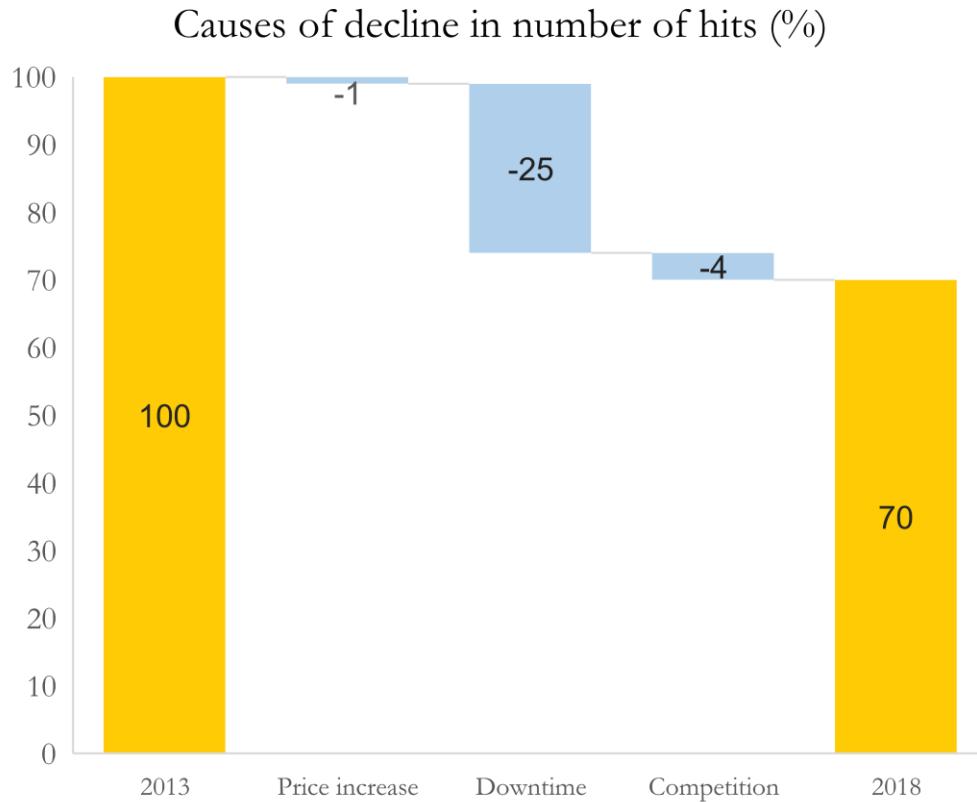
**West - Pacific** – AK, CA, HI, OR, WA

# Case 1: American Bank ATM Dilemma

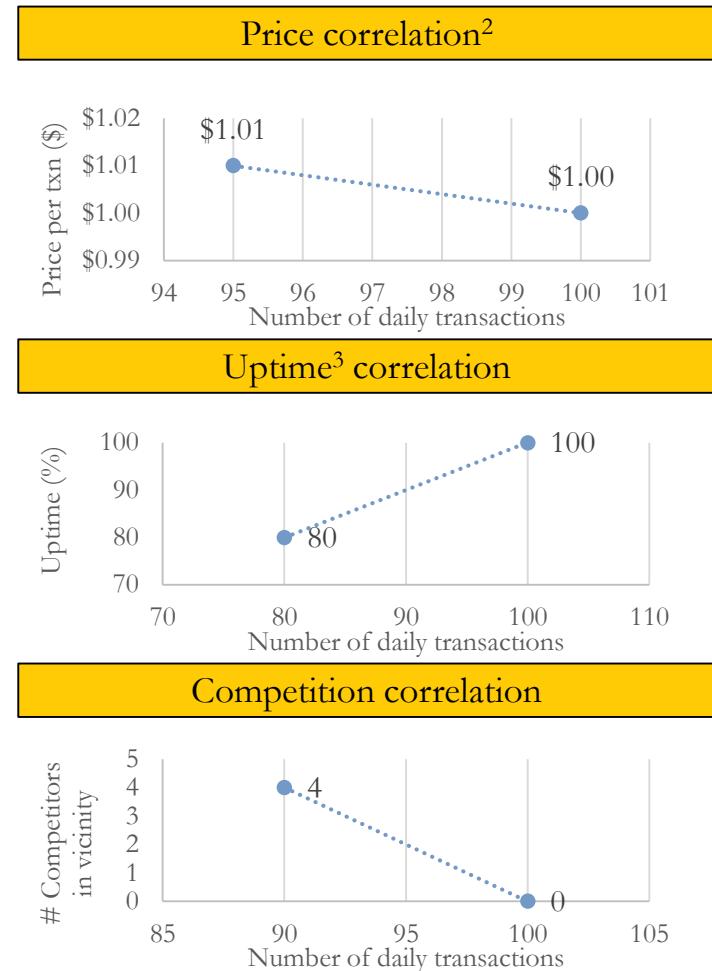
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## Exhibit 4 – Reasons for reduction in hits in vendor operated<sup>1</sup> ATMs



1. Vendor operated ATMs are ATMs where operations are outsourced to a vendor
2. American Bank cannot reduce transaction prices further from current levels
3. Uptime is the % of time the ATM is functional; Downtime = 100% - Uptime

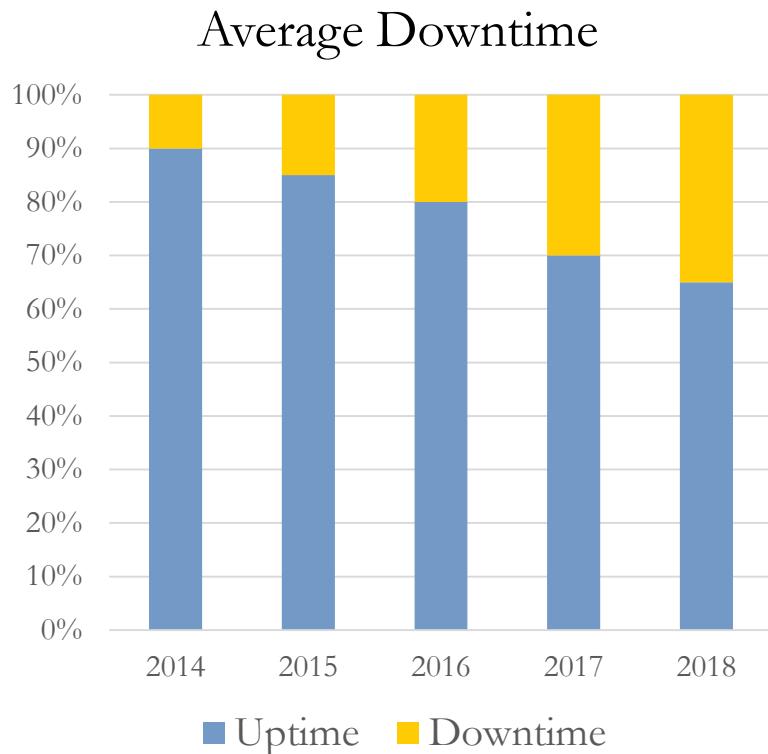


# Case 1: American Bank ATM Dilemma

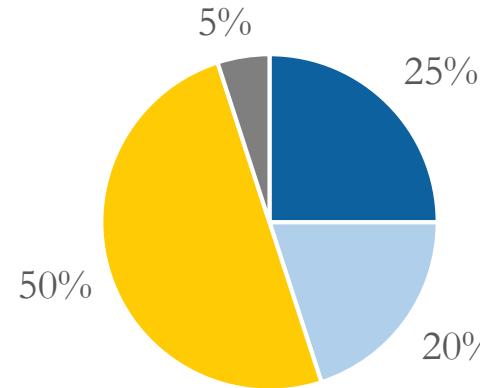
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## Exhibit 5 – Downtime pattern and causes in vendor operated<sup>1</sup> ATMs



### Downtime Causes (2018)



- Cash-out (Operator)
- Power outage (Owner)
- Machine tech problems (Operator)
- Other technical issues (Operator)

1. Vendor operated ATMs are ATMs where operations are outsourced to a vendor (a vendor is the operator)

**Note:** Cash-out = Amount of time the ATM is out of cash to dispense ; Power outage = Amount of time the ATM does not have electricity to run

**Note:** (Operator) = Operator responsibility ; (Owner) = Owner responsibility

# Case 1: American Bank ATM Dilemma

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## Exhibit 6 – Revenues from ATMs (2018)

Customer Type	Operating Structure					
	BO-BO		BO-VO		VO-VO	
	Fin.	Non-fin.	Fin.	Non-fin.	Fin.	Non-fin.
	Revenue for American Bank from each hit <sup>2</sup>					
American Bank (Own) customer <sup>1</sup>	\$2.0	\$1.5	\$1.5	\$1.0	\$1.0	\$0.5
Other customer	\$2.5	\$2.0	\$2.0	\$1.5	\$1.5	\$1.0
Own : Other Ratio	1 : 1					
Region	# Average Daily Hits (Own + Other)					
Northeast	12	10	12	8	8	12
Midwest	127	173	97	73	48	62
South - Atlantic	43	57	22	48	56	34
South - Central	35	55	35	20	15	40
West - Mountain	32	48	21	16	19	11
West - Pacific	0	0	18	2	6	14

### Operating Structure:

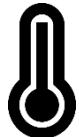
BO-BO = Bank Owned, Bank Operated | BO-VO = Bank Owned, Vendor Operated | VO-VO = Vendor Owned, Vendor Operated

**Transaction type:** Fin. = Financial transactions | Non-fin. = Non financial transactions

1. While American Bank does not charge its own customers, revenue is calculated as estimated savings because customer is not using the branch
2. For vendor-operated ATMs, revenue for American Bank is calculated after deducting vendor commissions on transactions

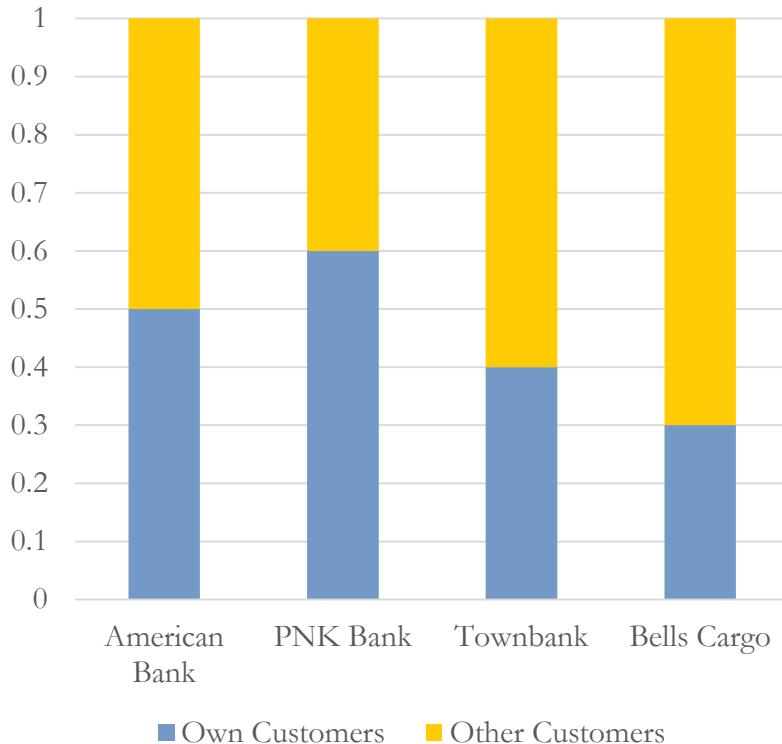
# Case 1: American Bank ATM Dilemma

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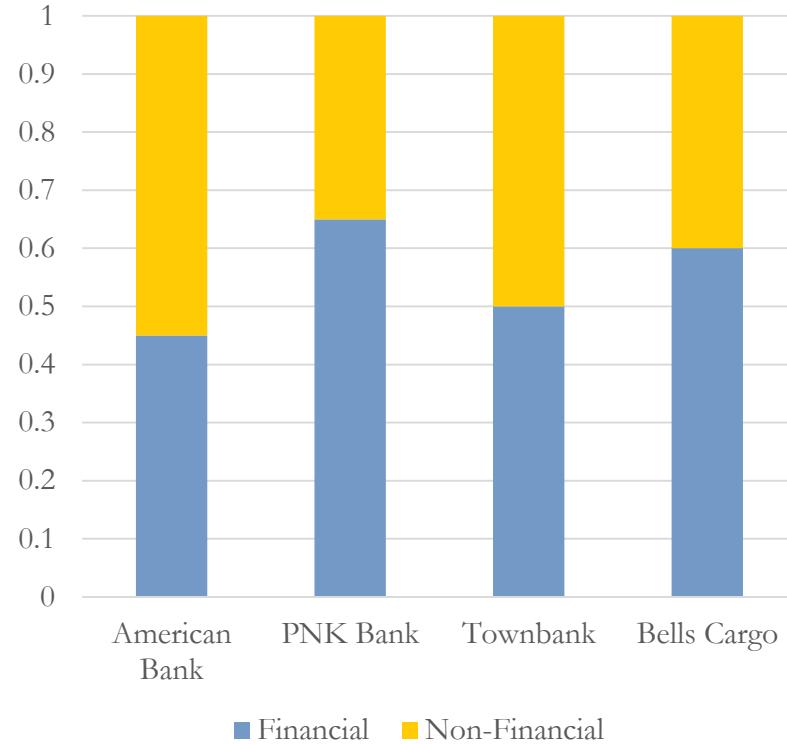


## Exhibit 6A – Metrics comparison with competition (2018)

Proportion of Own : Other customers



Proportion of Fin : Non-Fin transactions



# Case 1: American Bank ATM Dilemma

Financial Services | Profitability Improvement



## Exhibit 1 Insights

1. Hits (txns) falling – main problem for exploration
2. Other customers smaller portion of transactions
3. Costs are constant across all 5 years

## Exhibit 2 Insights

1. Maximum decline in average daily ATM hits in 2 regions - Northeast and West-Pacific

## Exhibit 3 Insights

1. Northeast and West-pacific have high vendor operated ATMs =>
2. Problem with Vendor Operated ATMs (BO-VO and VO-VO)

## Exhibit 4 Insights

1. Downtime major reason
2. Price increase is not helpful due to high demand elasticity
3. Competitors not affecting transactions

## Exhibit 5 Insights

1. Downtime increased by 25% in last 5 years
2. Operator contributing to 80% of downtime issues
3. Vendor management and contracts to be explored

## Exhibit 6/6A Insights

1. Ex.6 - \$0.5 more revenue from other customers
2. Ex.6 - \$0.5 more revenue from financial txns
3. Ex.6A – competition better at both metrics

# Case 1: American Bank ATM Dilemma

Financial Services | Profitability Improvement



## Ideas for profitability improvement and revenue potential (1)

1. Manage vendors in **Northeast and West-Pacific regions** to eliminate downtime:

- Vendor management will increase uptime by  $80\% \text{ (% operator responsibility)} * 25\% \text{ (uptime increase)} = 20\%$
- 20% increase in uptime -> Increase in 20 transactions (hits) per ATM in both regions for –VO ATMs
- 20 additional daily hits to be allocated proportionally to financial and non-financial transactions:

Region	Given info - Operating Structure (# hits)				Calculation - Allocation of 20 new hits			
	BO-VO		VO-VO		BO-VO		VO-VO	
	Fin.	Non-Fin.	Fin.	Non-Fin.	Fin.	Non-Fin.	Fin.	Non-Fin.
Northeast	12	8	8	12	12	8	8	12
West - Pacific	18	2	6	14	18	2	6	14
Avg Rev. / hit	\$1.75	\$1.25	\$1.25	\$0.75	\$1.75	\$1.25	\$1.25	\$0.75

- Calculating additional revenue from new hits –
  - Northeast (BO-VO) increase =  $[12 \text{ (Fin)} * \$1.75 + 8 \text{ (Non-Fin)} * \$1.25] * 750 \text{ ATMs} = \$23,250$
  - Northeast (VO-VO) increase =  $[8 \text{ (Fin)} * \$1.25 + 12 \text{ (Non-Fin)} * \$0.75] * 1000 \text{ ATMs} = \$19,000$
  - West-Pacific (BO-VO) increase =  $[18 \text{ (Fin)} * \$1.75 + 2 \text{ (Non-Fin)} * \$1.25] * 500 \text{ ATMs} = \$17,000$
  - West-Pacific (VO-VO) increase =  $[6 \text{ (Fin)} * \$1.25 + 14 \text{ (Non-Fin)} * \$0.75] * 1500 \text{ ATMs} = \$27,000$
- Total increase in revenue (and therefore profits) =  $\$23,250 + \$19,000 + \$17,000 + \$27,000 = \$86,250$

# Case 1: American Bank ATM Dilemma

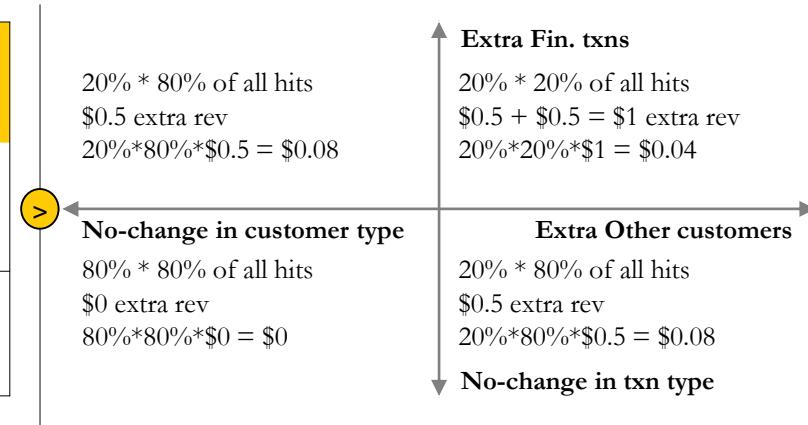
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## Ideas for profitability improvement and revenue potential (2)

2. Increase proportion of other customers using ATMs to Bells Cargo levels and proportion of financial transactions to PNK bank levels

Bank	Refer Exhibit	% Fin txns	% Other Customers
American Bank	6A	45%	50%
Best-in-class competitor	6A	65%	70%
Improvement potential	-	20%	20%
Extra revenue per txn	6	\$0.5	\$0.5



- Additional average revenue per hit from new financial and “other” customer transactions =>

$$= \$0.04 + \$0.08 + \$0.00 + \$0.08 = \$0.2$$

(Easier method:  $20\% * \$0.5 + 20\% * \$0.5 = \$0.2$ )

- Total Additional revenue potential =  $\$0.2 * (85 \text{ hits} \{ \text{Exhibit 1} \} * 12000 \text{ ATMs} \{ \text{Exhibit 4} \}) = \$204,000$

Total revenue increase = (1) + (2) =  $\$86,250 + \$204,000 = \$290,250$

Since there are no cost implications, total profit increase potential from both ideas =  **$\$290,250$**

# Case 1: American Bank ATM Dilemma

Financial Services | Profitability Improvement



**Interviewer question: What is the average break-even number of daily hits?**

**Calculation:**

- Interviewer to ask interviewee to assume both financial : non-financial transactions and own : other customer ratios as 1:1 for simplicity in calculations
- Interviewee must identify that this only applies to bank-owned ATMs, since operating costs to American bank for vendor-owned ATMs is \$0.
- **BO-BO Breakeven** =  $\$100 \text{ (cost)} / [0.5*0.5*(\$1.5+\$2+\$2+\$2.5)]$  (avg. rev. per hit) = **50 hits**
- **BO-VO Breakeven** =  $\$60 \text{ (cost)} / [0.5*0.5*(\$1.0+\$1.5+\$1.5+\$2.0)]$  (avg. rev. per hit) = **40 hits**

**Follow-on question ->** What can we do with loss making ATMs? (after all tries of improving hits):

- Add other transaction types to ATM (functionalities such as check deposit, cash deposit, etc.)
- Allocate intangible revenues to ATMs in prime locations (marketing of bank, etc.)
- Negotiate operating costs with vendor (if vendor operated)
- Relocate ATM to better spot
- Shut down ATM / Sell off ATM to vendor

# Case 1: American Bank ATM Dilemma

Financial Services | Profitability Improvement



Recommendations	Risks	Next Steps
<p><b>Two recommendations to increase revenue (and profits):</b></p> <ol style="list-style-type: none"><li>1. Improve vendor management practices and look into vendor contract structures in Northeast and West-Pacific regions<ul style="list-style-type: none"><li>- Impact of <b>\$86,250</b></li></ul></li><li>2. Increase proportion of financial and other customer transactions to best-in-class competitor levels<ul style="list-style-type: none"><li>- Impact of <b>\$204,000</b></li></ul></li></ol> <p>Total revenue (and profit) potential = <b>\$290,250</b></p>	<p><b>Risks include:</b></p> <ol style="list-style-type: none"><li>1. Costs to manage vendors and change transaction types (marketing, etc.) can be very high</li><li>2. More ATM usage might lead to branch employees going out of work resulting in the need for firing of employees</li><li>3. Investment in ATMs may reduce attention on channels such as online banking which are growing more rapidly</li></ol>	<p><b>American Bank should:</b></p> <ol style="list-style-type: none"><li>1. Start looking into vendor contract structures in Northeast and West-Pacific regions</li><li>2. Identify loss-making ATMs and take appropriate action</li><li>3. Study customer usage patterns to improve transaction mix</li></ol>

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# Case 2: Harrison Energy EV Goals

Power & Utilities | Market Entry



# Case 2: Harrison Energy EV Goals

Power & Utilities | Market Entry



## Case Prompt

Our client, Harrison Energy, is one of the largest power & utilities companies in the US. You are in the year 2018, and the CEO sees electric vehicles as an attractive market and wants to enter the space. She needs help understanding how and when to enter the market, and the associated ROI. She has hired your firm to help formulate a strategy.

## Interviewer Guidance

This is an interviewee led case. Brainstorm with interviewee to answer the following questions:

1. What factors will you consider to formulate a market entry strategy? (framework)
2. When should we enter the market? (Hand Exhibit 1).
3. Which parts of the value chain should we enter and how? (Hand Exhibit 2). Brainstorm to lead interviewee to ask for Exhibit 3.
4. What other considerations should the client have to prioritize market entry?

## Concepts Tested

Problem structuring, Brainstorming, Graph reading

# Case 2: Harrison Energy EV Goals

Power & Utilities | Market Entry



## Clarifying Information

- Goal/objective is to be present in a new market and add more sources of revenue and eventually profits.
- Scope limited to the US market only
- Client is not currently involved in the EV market
- Client wants to know when to enter the market
- Harrison Energy does not know where in the EV value chain it wants to play
- Harrison Energy wants to break-even on any investment in 5 years

## Possible Framework

Problem: Enter electric vehicle market

- Market –
  - Market size across EV components
  - Growth rate
  - Maturity of EV market (Is tech still developing?)
  - Competitors and market share
  - Regulations / policies in EV space
- Financials –
  - Potential revenue (market size, share)
  - Potential costs (set up, operations)
- Proposition –
  - Value chain components of EV
  - Synergies with current business
  - Customer segments – individual vehicle owners / business owners
  - Supplier concentration (how difficult is it to provide product/services?)
- Entry strategy (for different value chain elements) –
  - Merge/Acquire smaller players
  - Build from scratch (in-house/outsourced)

# Case 2: Harrison Energy EV Goals

Power & Utilities | Market Entry



## Brainstorm when to enter the EV Market

The EV market will be best to enter when:

- A. Internal Readiness
  - i. Harrison Energy has developed capabilities in the segments it wants to enter
  - ii. Harrison Energy has been able to raise the capital needed to enter the market (internal cash or external debt or equity)
- B. External Readiness
  - i. The costs of owning EV vehicles is lower than that of regular (ICE<sup>1</sup>) vehicles
  - ii. There is adequate infrastructure such as charging stations, maintenance services for electric vehicle models
  - iii. Large companies such as Harrison Energy would prefer to enter in the growth phase vs. introduction phase (in the market maturity curve)

Once the interviewee arrives at these points, say that external readiness is the bottleneck and **hand Exhibit 1** to calculate the right time to enter the market.

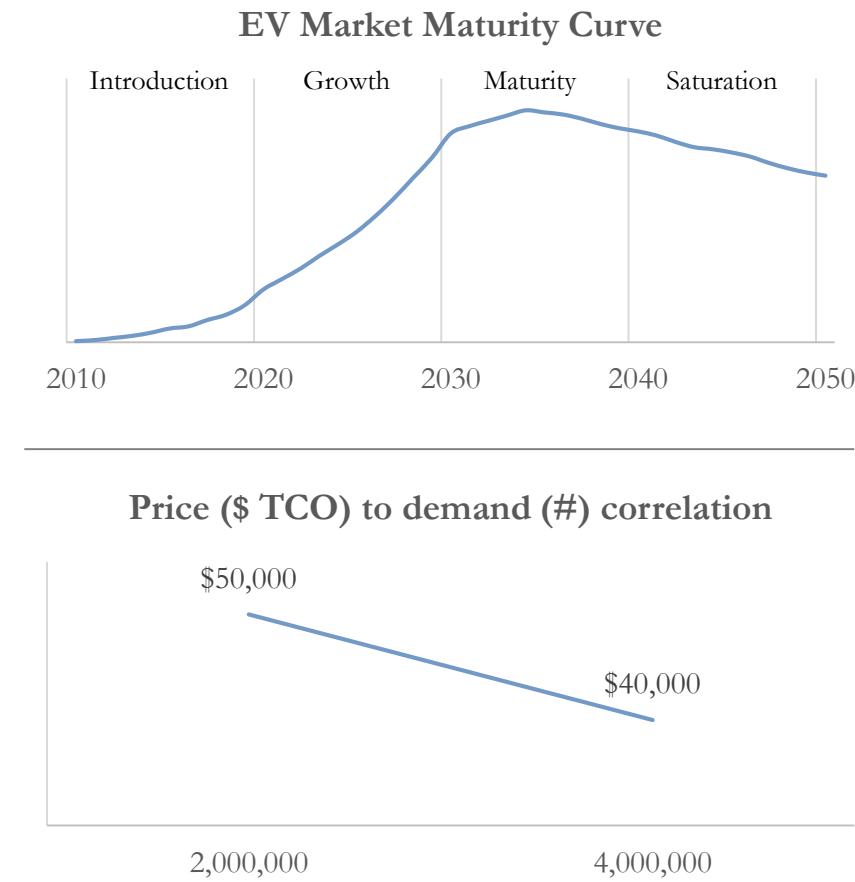
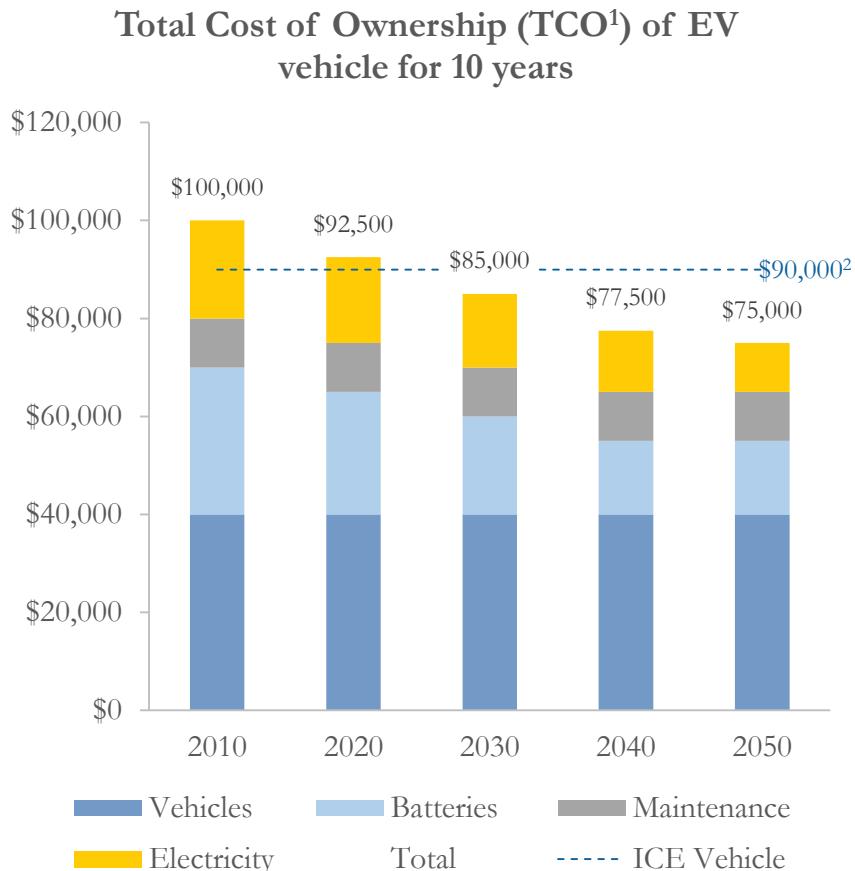
1. ICE vehicle = Internal Combustion Engine vehicle (most commonly found type of vehicle today)

# Case 2: Harrison Energy EV Goals

Power & Utilities | Market Entry



## Exhibit 1 – Market maturity and Total Cost of Ownership



1. Total Cost of Ownership (TCO) includes all costs of owning, running and maintaining a vehicle (includes vehicle cost, fuel/electricity cost, maintenance)

2. ICE vehicle = Internal Combustion Engine vehicle (most commonly found type of vehicle today)

# Case 2: Harrison Energy EV Goals

Power & Utilities | Market Entry



## Calculations / Working for when to enter EV Market

**Time of entry:**

Exhibit 1: TCO of ICE vehicle - \$90,000. TCO of EV in 2020 is \$92,500 and in 2030 is \$85,000.

**The demand will spike when total cost of owning an EV is less than the total cost of owning an ICE vehicle.**

Doing a quick linear regression, TCO of EV = \$90,000 in 2023, and goes further down after that.

**Calculation:**

$$2020 + (\$92,500 - \$90,000) / (\$92,500 - \$85,000) * (2030 - 2020)$$

$$\Rightarrow 2020 + (\$2,500 / \$7,500) * 10$$

$$\Rightarrow 2020 + 10/3$$

$$\Rightarrow 2023$$

This is when demand will spike and is the best time for entry. 2023 is 5 years from current date (2018).

Comparing with maturity curve, we see that 2023 lies in the growth phase and is the best time to enter the market.

The TCO – demand correlation curve also supports a high price elasticity, implying that it is best to enter when the price is lower and the demand is high.

# Case 2: Harrison Energy EV Goals

Power & Utilities | Market Entry



## Interviewer Guidance for segment / proposition selection

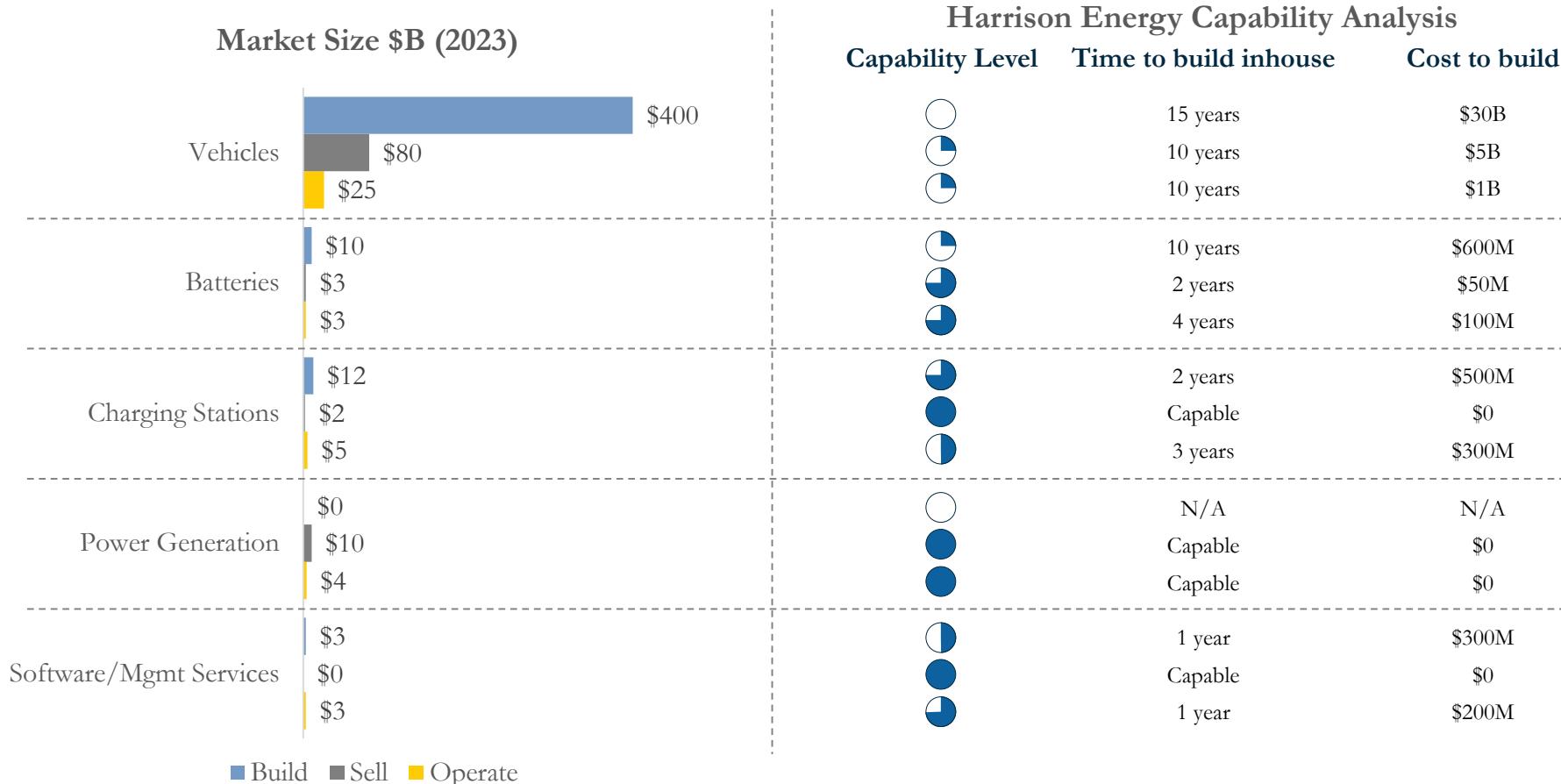
- Brainstorm with interviewee on next steps -> drive interviewee to think about which segment of the market should Harrison Energy enter. Hand Exhibit 2.
- After calculations on Exhibit 2, ask interviewee about other options for non-feasible value chain elements. Once interviewee arrives at the conclusion that Harrison Energy could acquire other players, hand Exhibit 3.

# Case 2: Harrison Energy EV Goals

Power & Utilities | Market Entry



## Exhibit 2 – Harrison Energy Capability Analysis



**Note:** Assume that in the best-case scenario, Harrison Energy can capture 10% market share and make 10% EBITDA margins on each value chain item. Harrison Energy wants a 5 year payback period on any investment. Assume stagnant market from entry to 5-year period for calculations.

# Case 2: Harrison Energy EV Goals

Power & Utilities | Market Entry



## Exhibit 3 – Options for acquisition

Component	Value Chain	Brand Alignment	Option #1 (cheaper)		Option #2 (faster)	
			Cost (\$)	Time (years)	Cost (\$)	Time (years)
Vehicles	Build	<span style="color:red;">●</span>	\$20B	10	\$40B	5
	Sell		\$6B	8	\$8B	6
	Operate		\$1.1B	7	\$1.2B	5
Batteries	Build	<span style="color:yellow;">●</span>	\$400M	8	\$550M	5
	Sell		\$100M	3	\$150M	1
	Operate		\$50M	7	\$150M	2
Charging Stations	Build	<span style="color:green;">●</span>	\$400M	4	\$800M	1
	Sell					
	Operate		\$200M	4	\$400M	2
Power Generation	Build	<span style="color:green;">●</span>				
	Sell					
	Operate					
Software / Mgmt. Services	Build	<span style="color:yellow;">●</span>	\$100M	3	\$200M	2
	Sell					
	Operate		\$100M	3	\$200M	2

● Low | ● Medium | ● High

**Note:** Assume that in the best-case scenario, Harrison Energy can capture 10% market share and make 10% EBITDA margins on each value chain item. Harrison Energy wants a 5 year payback period on any investment. Assume stagnant market from entry to 5-year period for calculations.

# Case 2: Harrison Energy EV Goals

Power & Utilities | Market Entry



## Calculations / Working for where and how to enter the EV Market

1. First, calculate the expected annual profits from each value chain element ( $\text{Mkt size} * 10\% * 10\%$ )
2. Calculate maximum cost budget considering 5 year payback period (Expected profits \* 5)
3. Next, filter value chain elements where we can build capabilities in less than 5 years (time of market entry)
4. Finally, decide mode of entry [own vs acquire (Option 1 vs 2)] that satisfies all criteria.
5. Recognize that vehicles have poor brand alignment and are not a good entry option. Also, it could be a good idea to enter Batteries – Build even though it slightly exceeds the cost budget, to provide a holistic Batteries service

Component	Value Chain Element	Market size 2023 (\$)	Exp. Profit 2023 (\$)	Budget [Profit*5] (\$)	Best cost with <=5 year	Time (years)	Mode of entry	Brand Alignment	Enter?
Vehicles	Build	\$400B	\$4B	\$20B	\$40B	5	Acquire (Op#2)	Low	No
	Sell	\$80B	\$800M	\$4B	-	-	-	Low	No
	Operate	\$25B	\$250M	\$1.3B	\$1.2B	5	Acquire (Op#2)	Low	No
Batteries	Build	\$10B	\$100M	\$500M	\$550M	5	Acquire (Op#2)	Medium	Yes
	Sell	\$3B	\$30M	\$150M	\$50M	3	Build	Medium	Yes
	Operate	\$3B	\$30M	\$150M	\$100M	4	Build	Medium	Yes
Charging Stations	Build	\$12B	\$120M	\$600M	\$400M	4	Acquire (Op#1)	High	Yes
	Sell	\$2B	\$20M	\$100M	Already Capable			High	Yes
	Operate	\$5B	\$50M	\$250M	Already Capable			High	Yes
Power Generation	Build	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Sell	\$10B	\$100M	\$500M	Already Capable			High	Yes
	Operate	\$4B	\$40M	\$200M	Already Capable			High	Yes
Software / Mgmt. Services	Build	\$3B	\$30M	\$150M	\$100M	3	Acquire (Op#1)	Medium	Yes
	Sell	\$0.0B	\$0M	\$0M	Already capable			Medium	Yes
	Operate	\$3B	\$30M	\$150M	\$100M	3	Acquire (Op#1)	Medium	Yes
<b>Total (for Yes's)</b>		<b>\$55B</b>	<b>\$550M</b>	<b>\$2750M</b>	<b>\$1300M</b>				

# Case 2: Harrison Energy EV Goals

Power & Utilities | Market Entry



## Brainstorm other considerations/prioritizations to enter the EV market

1. **Target customer segments** – go after business/industrial customers who are working towards electrifying their fleets (for sustainability) first (e.g.: UPS, PepsiCo, etc.)
2. **Geographies to enter** – Power & utility companies typically operate as monopolies in few states. Entering their own states first makes most sense.
3. **Regulations** – Tax incentives, rebates by government to encourage switch to electric vehicles (govt. promoting sustainability)
4. **Competition** – Cost/Product advantage of Harrison Energy over specialized players in each value chain element
  - Established customer base (easier marketing / lower marketing costs)
  - Leverage existing manufacturing and distribution network to scale easily (easier scaling)
  - Better supplier relations (higher bargaining power)
  - Better customer usage understanding (more targeted propositions)
  - Better government relations (can work with government authorities to leverage incentives in EV market)

# Case 2: Harrison Energy EV Goals

Power & Utilities | Market Entry



## Recommendations

### Recommendation:

Harrison Energy should enter the EV market **after 5 years in all value chains except vehicles** because of poor ROI and brand alignment.

Expected annual profit w/o capability building costs = \$550M (in 2023 dollars)

Harrison has existing capabilities in 5 value chain elements, can build in 2 and acquire competitors in 6 (3 op#1 and 3 op#2) with <5 year payback period

## Risks

### Risks include:

1. Outsourcing may not add the right amount of capabilities needed (little scope for further innovation)
2. Suppliers / acquisition targets may have high bargaining power which may result in longer timelines and costs than expected
3. Overlooking vehicles, which is the largest value chain element

## Next Steps

### Harrison Energy should:

1. Start negotiations with suppliers / acquisition targets
2. Identify customer segments to pilot existing capabilities
3. Create new organization structure / hire consultants to execute EV project

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# Case 3: Bailey Brothers Bancorp

Financial Services | Profitability Improvement



# Case 3: Bailey Brothers Bancorp

Financial Services | Profitability Improvement



## Case Prompt

Our client, Bailey Brothers, is a retail bank with several branches in Ann Arbor, Michigan. Their main competitor is Potter & Co., a regional bank that also operates in and around the Ann Arbor area. The CEO of Bailey Brothers, George Bailey, would like us to recommend ways to improve overall profitability in the face of an increasingly modernized industry.

### Information provided upon request:

- Bailey Brothers and Potter both offer checking, savings, and retirement accounts, as well as mortgages and auto loans, CDs, and investment accounts.
- Bailey Brothers and Potter both have well developed mobile apps and online capabilities.
- Bailey Brothers has eight equally sized branches, has been in Washtenaw County for several decades, and is not considering expanding its footprint at this time.
- George would like to bring his profit margin to that of Potter's within two years.

### Concepts Tested

Graph reading, Setting up calculations, Brainstorming

# Case 3: Bailey Brothers Bancorp

Financial Services | Profitability Improvement



## Interviewer Guidance

**Exhibits:** Candidate may ask for data specifically, but feel free to dump all the exhibits on them at once without context to allow the candidate to work through it on their own.

**Exhibit 1:** Given that the target is to match profit margin, the candidate should recognize that the exact number is given by the graph. A strong candidate will also note that the two firms were similar until recent years.

**Exhibit 2:** Candidate should identify that A) Online access is increasing, and B) In-person, branch interaction is not displayed here but can be implied to be dropping as online interaction rises. 2018 data indicates that 85% of customers to interact with BB primarily through online means, so it can be inferred that only 15% primarily use a physical branch.

**Exhibit 3:** Each line-item for Potter is exactly 8X that of Bailey Brothers, with the exception of branch expenses. Since branch interaction is falling, the cost-saving solution would be to reduce the number of branches in the Bailey Brothers footprint. A reduction in branches from 8 (annual cost of \$12M) to 4 (annual cost of \$6M) will bring Bailey in line with Potter in relative expenses and therefore profit (which a good candidate will notice), however if the candidate begins to calculate the new margin, let them.

# Case 3: Bailey Brothers Bancorp

Financial Services | Profitability Improvement



## Framework

A solid framework would include both revenue (new product offerings, pricing, account size, etc.) and cost (salaries, marketing, client acquisition expense) buckets. Bonus points if the candidate recognizes that a bank likely won't have variable costs in the same way a CPG or industrial company will. After sufficient brainstorming of profitability factors, guide the candidate toward costs as this will be the focus of the case.

## Recalculated Income Statement

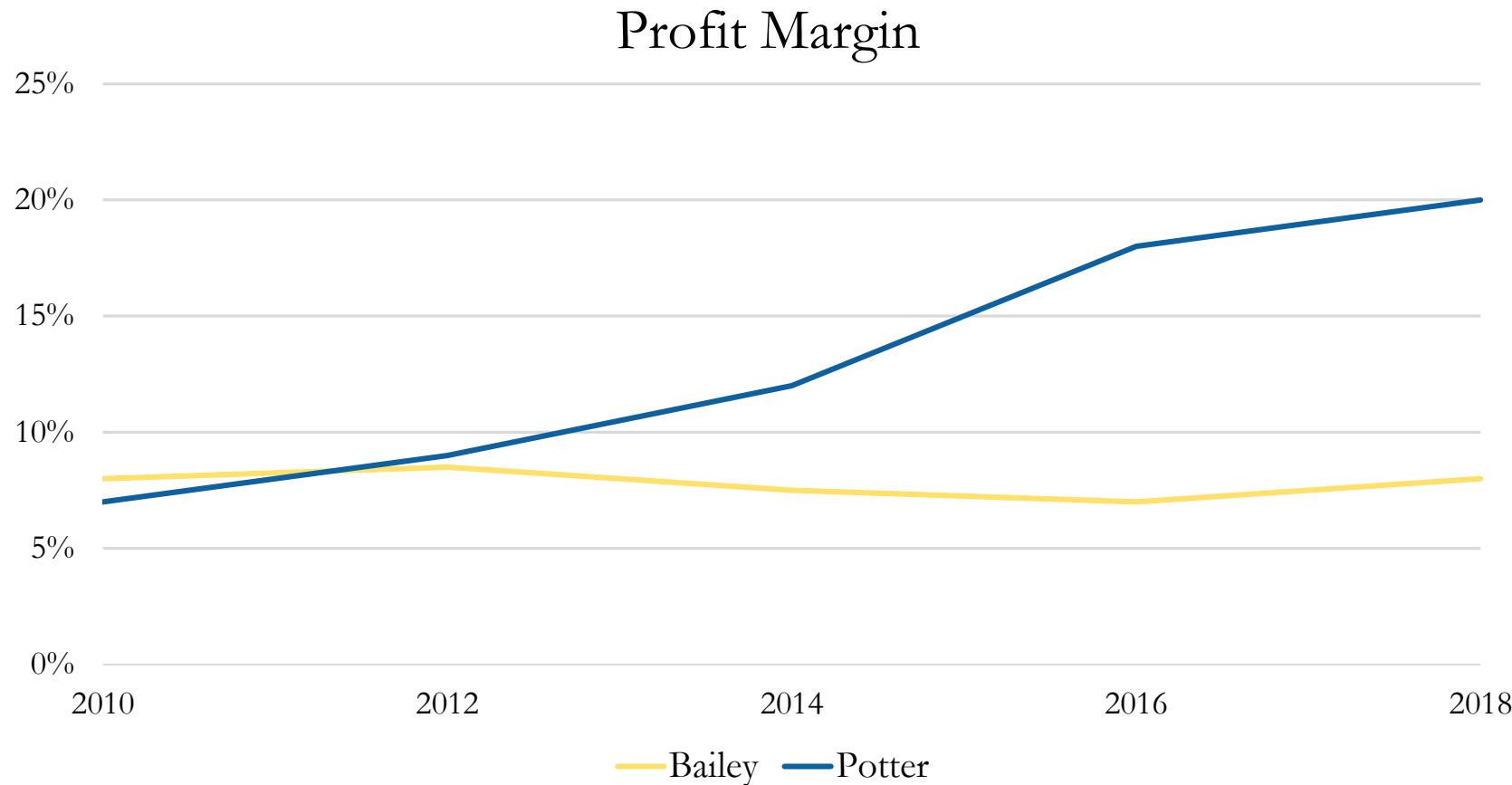
Revenue	\$50
Salaries and Wages	\$20
Branch Expenses	\$6
Marketing	\$8
Website/App	\$6
Total Operating Expenses	\$46
<i>Profit Margin</i>	20%
EBITDA	\$10

# Case 3: Bailey Brothers Bancorp

Financial Services | Profitability Improvement



## Exhibit 1



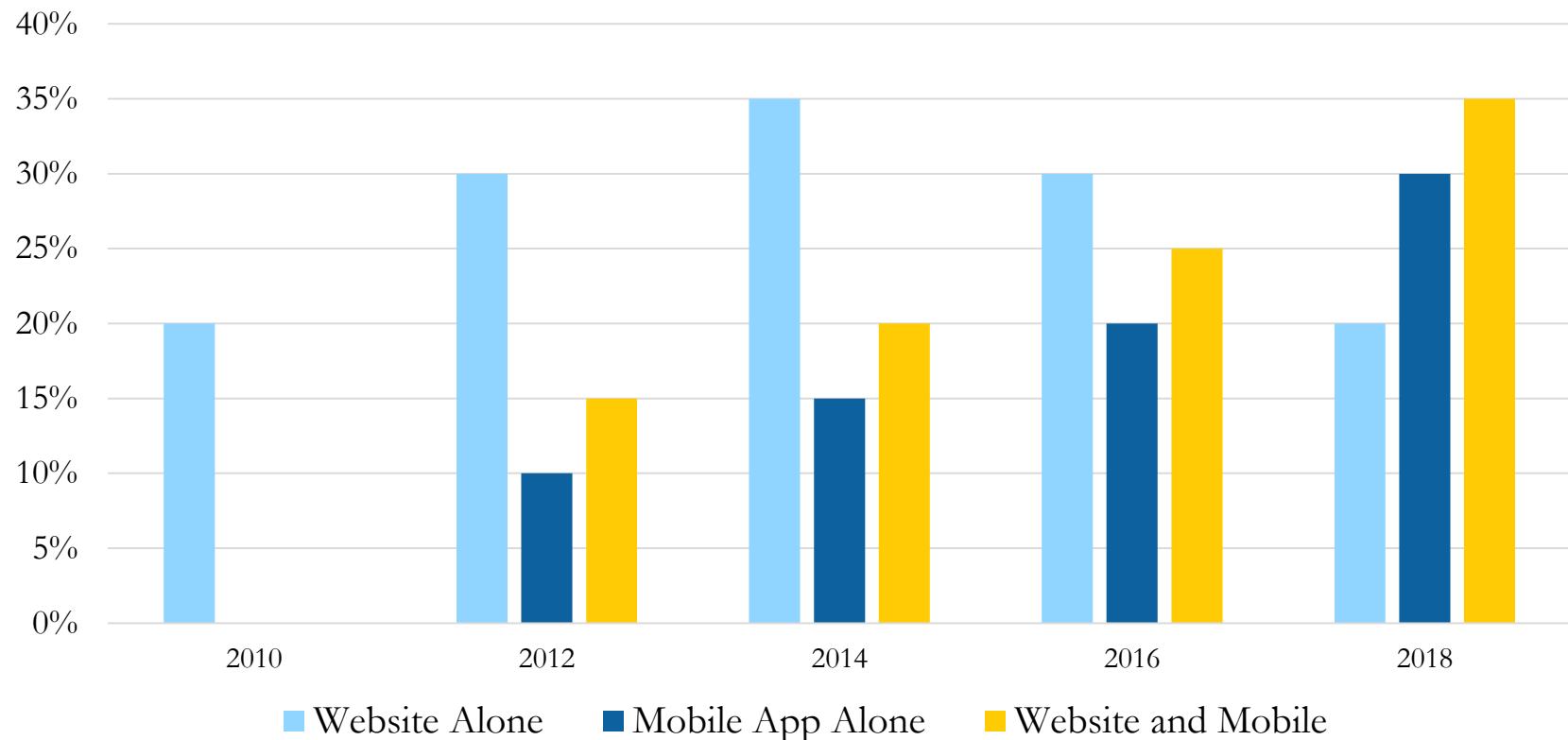
# Case 3: Bailey Brothers Bancorp

Financial Services | Profitability Improvement



## Exhibit 2

### Primary Point of Contact for BB Clients



# Case 3: Bailey Brothers Bancorp

Financial Services | Profitability Improvement



## Exhibit 3

### Income Statements, FY18 (MM)

	Potter & Co	Bailey Brothers
Revenue	\$400	\$50
Salaries and Wages	\$160	\$20
Branch Expenses	\$48	\$12
Marketing	\$64	\$8
Website/App	\$48	\$6
Total Operating Expenses	\$320	\$46
EBITDA	\$80	\$4

# Case 3: Bailey Brothers Bancorp

Financial Services | Profitability Improvement



## Recommendations

### Recommendation:

Bailey Brothers should close 4 of its 8 branches. The brick and mortar presence is no longer necessary and the cost savings will boost margins from 8% to 20%.

## Risks

### Risks include:

1. Loss of remaining clientele that doesn't use online resources
2. Possibility of longer term leases on branch properties that can't be exited immediately
3. PR/morale erosion from layoffs of employees working at branches

## Next Steps

### Bailey Brothers Bancorp should:

1. Further analysis into which branches to close to minimize customer impact
2. Exploration of leasing contracts and/or selling property assets
3. Campaign to educate remaining 15% of offline customers in online capabilities
4. Retraining (or buying out/shifting location of) branch employees



# Case 4: Orange Bank Co

Financial Services | M&A

# Case 4: Orange Bank Co

Financial Services | M&A



## Case Prompt

Our client, an Amsterdam based retail bank, has seen exceptional growth in the last 5 years. They are involved in commercial banking, investment banking and wealth management. Currently, they are looking to acquire another bank in Europe. The CEO of Bank Co has hired our firm to help identify an ideal acquisition target.

## Interviewer Guidance

This is a typical McKinsey style case. After the prompt, let the interviewee ask clarifying questions and then begin testing the interviewee's capability of creating a structure to solve the problem. After that, move onto the other questions as listed below. This case is about comparing various acquisition targets from a financial and non-financial synergies standpoint.

## Concepts Tested

Graph reading, Setting up calculations, Brainstorming

# Case 4: Orange Bank Co

Financial Services | M&A



## Clarifying Information

- There is no metric for the client to measure success
- The rationale of the acquisition is to expand outside Amsterdam
- They are open to acquiring organizations with same/different financial products
- Size of Bank:
  - Customers: 600K
  - Assets Under Management: \$10B

## Possible Framework

1. **Market Attractiveness**
  - Market size
  - Market growth
  - Consumer trends
2. **Financial Attractiveness**
  - Revenue
  - Cost – FC and VC
3. **Synergies**
  - Product
  - Consumer
  - Other Costs
4. **Risks**
  - Brand Erosion
  - Culture
  - Regulatory

# Case 4: Orange Bank Co

Financial Services | M&A



## Exhibit Insights & Brainstorming

**Initial Insights:** The candidate should start with at least some of these:

- We are looking at the variety of sizes – from smaller than us to bigger than us
- There is a visible trend that smaller the firm, higher the number of average products sold/ customer
- Average profitability/ customer doesn't follow a particular trend so there are some differences in the way these firms operate

Please drive the candidate to at least 2 of the above insights then ask deep dive questions regarding each of these questions:

**Question 1:** What do you think are the advantages and disadvantages of acquiring these firms based on size? **Expected answers:**

- Acquiring a smaller firm will be easier to manage vs. larger
- Difference in financial capital required
- Market perception would vary
- Larger firm would enable faster market entry
- Any other logical reason is also acceptable

# Case 4: Orange Bank Co

Financial Services | M&A



## Exhibit Insights & Brainstorming

**Question 2:** Why do you think the average products sold differ? **Expected answers:**

- Better customization at smaller size
- Larger company might have higher number of products covering large customer segments
- Better customer service/ salesforce
- Better products
- Any other logical reason is also acceptable

**Question 3:** Why does the profitability differ? **Expected answers:**

- Higher price per product
- Better costs (ask the candidate to split costs)
- Better talent productivity
- Better financial management
- Better overhead management
- Any other logical reason is also acceptable

# Case 4: Orange Bank Co

Financial Services | M&A



## Questions

**Question 4:** Ask the customer based on the data they have – if you have to choose one bank to acquire – which one are you inclined towards? Any answer is acceptable with a sound logic.

**Question 5:** If the # of customers for Bank Co is 600K and the average profitability is \$160. What would be our increased profitability if we acquire Bank A vs. Bank B vs. Bank C? Assume there are no synergies.

## Calculation

**Bank Co profitability:**  $\$600K * \$160 = \$96M$

Bank A profitability:  $\$600K * \$100 = \$60M$

Bank B profitability:  $\$800K * \$90 = \$72M$

Bank C profitability:  $\$300K * \$75 = \$22.5M$

## Increase in profitability

Bank Co. + Bank A:  $(\$96M + \$60M) / (600K + 600K) = \sim \$130/\text{customer}$

Bank Co. + Bank B:  $(\$96M + \$72M) / (600K + 800K) = \sim \$120/\text{customer}$

Bank Co. + Bank C:  $(\$96M + \$22.5M) / (600K + 300K) = \sim \$130/\text{customer}$

**Thus Bank A or Bank C gives us the same profitability**

# Case 4: Orange Bank Co

Financial Services | M&A



## Questions

**Question 6:** Now that Bank A and Bank C are giving us the same profitability – what other factors will you look at to decide between them?

## Risks

Regulations will need to be verified in the new geography to understand its impact on the bank operations

Integration of culture will need to be worked on

Brand perception will need to be considered if the target bank's current reputation is not good

## Answer: Synergies & Risks

### Synergies

#### Financial synergies

- Increase in revenue: ease of capturing customers, different products might present cross-sell/up-sell opportunities, price increase possible in case of monopoly, etc.
- Reduction in cost: consolidation of branches, better management of finances, consolidation of labor, less overheads

#### Non-financial synergies

- Specialization sharing: If there are differences in specialization, these could be leveraged such as customer service, product innovation etc.
- Process optimization: Larger processes present an optimization opportunity
- Brand presence: Bank Co will become a multi-national bank leading to increase in stock price

Any other logical reason is acceptable

# Case 4: Orange Bank Co

Financial Services | M&A



Exhibit 1: Number of Customers - 600

Acquisition Target	Total # of customers	Average products sold/ customer	Average profitability/ customer
Bank A	600K	4.3	\$100
Bank B	800K	3.4	\$90
Bank C	300K	6.1	\$75

\*All targets are located in Luxembourg

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# Case 5: ShopOn

Retail | Profitability Improvement



# Case 5: ShopOn

Retail | Profitability Improvement



## Case Prompt

Our client, a US based e-commerce company, ShopOn, has seen a rise in customer returns over the last few quarters. Even though its revenue and market share have been increasing every quarter, the CEO is concerned that customer returns will start impacting the margins soon. The CEO of ShopOn wants your help to identify the reasons behind the high rate of returns and create a mitigation strategy.

## Interviewer Guidance

This is a typical McKinsey style case. After the prompt, let interviewee ask clarifying questions and then begin with testing the interviewee's ability to build a framework for an industry with high growth and disruption. After that, move onto exhibits, followed by a brainstorm question. The case has a lot of exhibits and the interviewee will have to identify reasons for rising customer returns and recommendations from those.

## Concepts Tested

Graph reading, Setting up calculations, Brainstorming

# Case 5: ShopOn

Retail | Profitability Improvement



## Clarifying Information

- Customer returns refer to products returned by customers post-delivery and not order cancellations before delivery.
- The return period for any ShopOn product is 30 days from the day of delivery.
- Even though new competitors keep entering the market, there has been no new competitor in the last few quarters that could bring about any significant change to ShopOn. ShopOn is ranked #3 in the e-commerce space
- ShopOn holds 50% of the product inventory in its warehouses and 50% is a marketplace for sellers.
- The mitigation strategy should focus on both short-term (next 1-3 quarters) and long-term action items (next 2-3 years)
- No investment guidance has been provided.

## Case & Exhibit Guidance

1. After the interviewee prepares and explains the framework, the interviewer will prompt the interviewee to move forward with Exhibits, which cover the most important reason for increase in return % i.e. change in product mix.
2. After the interviewee has answered the math question, the interviewer will lead the interviewee to brainstorming.
3. Finally, the interviewer will prompt for a recommendation.

# Case 5: ShopOn

Retail | Profitability Improvement



## Possible Framework

1. Change in product mix
2. Product issues
  - Apparels - Size/fit/color
  - Electronics – Damaged/malfunctioning/perceived defect
  - Household – Damaged/color/size
  - Food – expired/seal broken
3. Pricing issues
  - Better price available elsewhere
  - Better price available on ShopOn now
4. Delivery issues
  - Product arrived late
  - Wrong product delivered
  - Shipping box damaged

## Possible Framework

5. Others
  - Inaccurate website description
  - No longer needed
  - Bought by mistake
  - Desirable product was out of stock then and now it is back in stock
  - Fraudulent behavior by customers i.e. used the product and returned within the return policy

# Case 5: ShopOn

Retail | Profitability Improvement



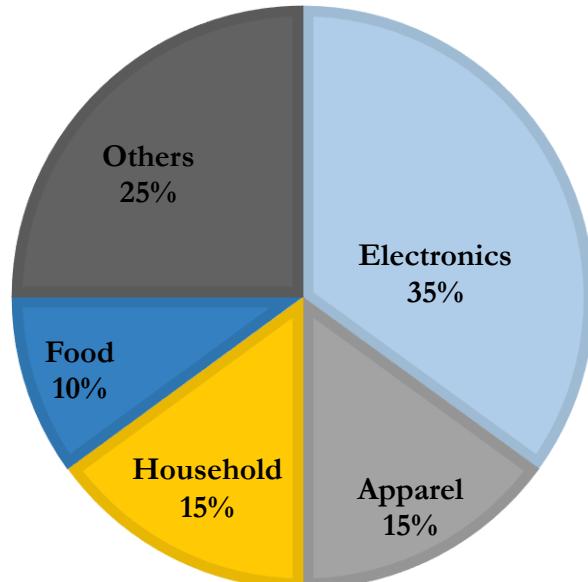
## Question 1

Looking at the below exhibits, what was the customer returns % of ShopOn in the last 2 quarters and what led to the change?

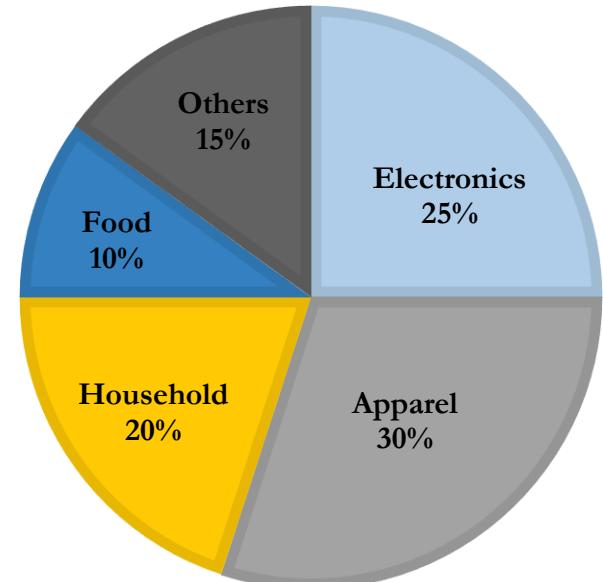
## Exhibits

Product Category	Returns %
Electronics	2%
Apparel	5%
Household	4%
Food	2%
Others	3%

% UNITS SOLD Q1



% UNITS SOLD Q2



# Case 5: ShopOn

## Retail | Profitability Improvement



### Solution

Qtr. 1	% Units Sold	Returns %	Total Returns	Qtr. 2	% Units Sold	Returns %	Total Returns
Electronics	35%	2%	0.70%	Electronics	25%	2%	0.50%
Apparel	15%	5%	.75%	Apparel	30%	5%	1.50%
Household	15%	4%	0.60%	Household	20%	4%	0.80%
Food	10%	2%	0.2%	Food	10%	2%	0.20%
Other	25%	3%	0.75%	Other	15%	3%	0.45%
Total			3%	Total			3.45%

The reason for change in the return % is the change in product mix. More units of Apparel and Household are being sold that have a return % higher than that of the company average.

# Case 5: ShopOn

Retail | Profitability Improvement



## Brainstorming Question

Question: Now that we know that the apparel business is leading to the increased returns %, on analyzing further we found that a large number of products had quality issues and hence were being returned by the customer. What are the various costs that are involved with a return in the apparel business and how can we reduce those?

## Solution

### Ways to reduce costs:

- Customer to re-package before returning the order
- Customer to be provided with sellers address to ship returns directly
- Customer to be charged if the original product is not returned within 30 days
- Supplier contracts to be changed so that they bear COGS in case of returns
- Improve warehouse processes to ensure customers are always sent the correct order

### Return without replacement:

- Shipping & Inventory holding cost
- Re-packaging if product is not damaged
- Shipping cost to seller if product is damaged
- COGS

### Return with replacement product:

- Shipping cost
- Inventory holding cost
- Product cost if original product not returned
- Shipping cost to seller if product is damaged
- COGS

# Case 5: ShopOn

Retail | Profitability Improvement



## Recommendations

### Recommendation:

1. Reduce the returns % of apparels business by delisting products with poor rating
2. Reduce the returns % of apparels business by onboarding verified sellers and blacklisting sellers with poor reviews
3. Reduce the return costs by asking the customer to check the product at the time of delivery

## Risks

### Risks include:

1. ShopOn can lose market share to a competitor, especially in the apparel business
2. ShopOn might become unpopular among sellers
3. Customers might not be available/comfortable to open the product at the time of delivery

## Next Steps

### ShopOn should:

1. Cost benefit analysis of penalizing customers & suppliers
2. Competition's seller agreements to be reviewed, so as to not be the unpopular choice with sellers
3. Specifications on the website to be modified in case of recurring issues
4. Feedback and Blacklisting process for sellers with recurring issues
5. Automated system to alert both ShopOn and sellers if product rating is below a threshold



# Case 6: Ferris Wheel

Entertainment | New Investment Analysis

# Case 6: Ferris Wheel

Industry: Entertainment | New Investment Analysis



## Case Prompt

A friend of mine is super rich and is always looking into interesting investment opportunities. To raise funds for renovation, Ferris Wheel management in Chicago is considering inviting bids from High Net Worth Individuals (HNIs) to let them run the Wheel for a whole year, 7 years later.

As a fan of Chicago and the Wheel, my friend wants to bid on this opportunity and wants to know how to go thinking about this.

## Interviewer Guidance

- Level: Easy, Round 1 Case
- Interviewee led case
- No charts/graphs

## Concepts Tested

Brainstorming, Setting up calculations, Math

# Case 6: Ferris Wheel

Industry: Entertainment | New Investment Analysis



## Clarifying Information

- Desired ROI : 10%
- If the bid is won, the friend would be CEO of the company and run the operations
- The friend also has some interesting investments in the food and beverage space
- No funding limitations

## Interviewer Guidance

- After framework development, let the candidate drive the case but course correct if necessary:
  1. Brainstorm and calculate revenues
  2. Brainstorm costs
  3. Calculate margin, discount for NPV and maximum Bid amount
  4. Recommendation to friend

## Good Framework

- Good framework could include:
  - Revenue analysis
    - Ticket sales
    - Other revenues
  - Cost analysis
    - Salaries
    - Marketing
    - Rent, Energy and Maintenance
    - Insurance
  - Other aspects
    - Capabilities to operate
    - Risks of not knowing 7-year future
    - Synergies from F&B businesses
    - Funding for bid amount
    - Opportunity cost

# Case 6: Ferris Wheel

Industry: Entertainment | New Investment Analysis



## Brainstorm and calculate revenues

1. Ask candidate to brainstorm how we'd calculate ticket revenues
  - Should settle on Price of tickets, capacity of the wheel, # of days ride operates, # of hours a day
2. Ask candidate how they would think about pricing the tickets?
  - Good factors to consider would be peak pricing on holidays and weekends
  - Seasonal variation due to being in Chicago – less footfall in winter, heavy crowds in summer
  - Push the candidate for more pricing ideas (combined packages, multi-ride pass, corporate rates)
3. Finally ask the candidates what are some other/alternate revenues that could be earning?
  - Good answers would include Food & Beverage, photo memories, private cabins, memorabilia, advertising partnerships, synergy benefits etc.

## Interviewer Guidance

1. This section to entirely facilitate brainstorming for the candidates
2. Creativity in pricing and alternate revenue streams is encouraged (can also be drawn from candidates personal experiences)
3. Can push candidates with the “What else?”

# Case 6: Ferris Wheel

Industry: Entertainment | New Investment Analysis



## Ticket Sale Revenue Calculation

1. Provide the candidate these numbers to run the calculations:
  - Runs 52 weeks, 11 hours/day, capacity: 200 people/hour, \$15 tickets (weekend 30% premium)
  - Utilization: Spring/Summer/Fall weekdays (80%) and weekends (100%) | Winter weekdays (50%) and weekends (75%)
  - Other revenues + synergy benefits : \$4.5M
2. Good candidate will lay out the math in a 2 by 2 matrix (Summer & Winter, Weekend & Weekday)
3. If a candidate does 2 buckets of calculation quickly – you can give them revenues from other 2 buckets

		Assume 26 weeks each (it's Chicago after all)	
		Spring/Summer/Fall	Winter
Weekday	$- \# \text{ of days} = 26 \text{ weeks} * 5 = 130 \text{ days}$		
	$- \# \text{ of hours working} = 130 \text{ days} * 11 = 1430 \text{ hours}$	$- \text{Utilization (80\%)} = 1144 \text{ hours}$	$- \# \text{ of days} = 26 \text{ weeks} * 5 = 130 \text{ days}$
Weekend	$- \text{Total People} = 1144 \text{ hours} * 200 = 228,800$	$- \text{Sales} = 228,800 * \$15/\text{ticket} = \$3.432M$	$- \# \text{ of hours working} = 130 \text{ days} * 11 = 1430 \text{ hours}$
	$- \text{Utilization (50\%)} = 715 \text{ hours}$	$- \text{Total People} = 715 \text{ hours} * 200 = 143,000$	$- \text{Sales} = 143,000 * \$15/\text{ticket} = \$2.145M$
Weekend	$- \# \text{ of days} = 26 \text{ weeks} * 2 = 52$	$- \# \text{ of hours working} = 52 \text{ days} * 11 = 572 \text{ hours}$	$- \# \text{ of days} = 26 \text{ weeks} * 2 = 52$
	$- \text{Utilization (100\%)} = 572 \text{ hours}$	$- \text{Total People} = 572 \text{ hours} * 200 = 114,400$	$- \# \text{ of hours working} = 52 \text{ days} * 11 = 572 \text{ hours}$
$- \text{Sales} = 114,400 * \$20/\text{ticket} = \$2.288M$			
$- \text{Sales} = 85,800 * \$20/\text{ticket} = \$1.716M$			

**Total from ticket sales: \$9.521M + Other \$4.5M = Total Revenues is \$14M**



# Case 6: Ferris Wheel

Industry: Entertainment | New Investment Analysis

## Brainstorm costs and calculate margin + bid amount

1. Let the candidate suggest that now let's look at the costs of running the Ferris Wheel
2. Ask candidate to brainstorm some of the those costs:
  - Good answers include: Salaries/Labor, Marketing, Rent, Energy, Maintenance, Insurance, etc.
  - Provide the candidates total costs needed for a year : \$3M
3. Good candidates would proceed to calculating margin / net income (if not, guide them to this):
  - $\text{Revenues} - \text{Costs} = \$14M - \$3M = \$11M \text{ Net Income}$
4. Good candidates would consider time value of money, since this margin would be earned 7 years later
  - Rule of 72 discounting:  $72/\text{rate of return (10\%)} = \sim 7 \text{ years to double money or NPV is half}$
  - Therefore, net income in today's value =  $\$11M/2 = \$5.5M$
  - If candidates are unaware to consider discounting or how to discount – do prompt and guide
5. Good candidates will proceed to calculate maximum bid amount for today:
  - $\text{Max bid amount for 10\% ROI} = \$5.5M/110\% = \$5M$
6. Ask candidate to make a recommendation

# Case 6: Ferris Wheel

Industry: Entertainment | New Investment Analysis



Recommendation	Risks	Next Steps
<ul style="list-style-type: none"><li>• Make a bid for a maximum amount of \$5M to ensure an ROI of 10% would be achieved for NPV of \$5.5M</li><li>• Any lower bid would increase ROI to &gt;10%</li></ul>	<p><b>Risks include:</b></p> <ol style="list-style-type: none"><li>1. These projections may not stay constant for over 7 years and we should consider possible changes in market trends / competition</li><li>2. With no prior experience in managing such a venture previously, there may be hiccups and your friend should consider hiring a CEO to run this</li><li>3. Are opportunity costs of other investments &gt;10%?</li></ol>	<p><b>Your friend should:</b></p> <ol style="list-style-type: none"><li>1. Ensure appropriate liquid funds are available to bid</li><li>2. Plan a bidding strategy to help succeed in the auction by wining it with a less than &lt;\$5M bid</li><li>3. Think of other synergy benefitting investments could be made over next few years</li></ol>

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# Case 7: 6PAQ P.E. Firm

Entertainment | Private Equity & Profitability Improvement



# Case 7: 6PAQ P.E. Firm

Entertainment | Private Equity & Profitability Improvement



## Case Prompt

Your client, 6PAQ, is a small-market P.E. firm that specializes in suburban business development.

One of its analysts identified two movie theaters in a small suburban area that separately or together might prove to be a good investment. Should your client, 6PAQ, purchase these movie theaters?

## Interviewer Guidance

This is an interviewer-led case, but the interviewer should gauge the candidate's ability to drive. The interviewer should assess the interviewee's potential for structuring math, making calculations easier, and bringing up relevant industry trends (e.g. Netflix, MoviePass, etc.).

## Concepts Tested

Market Sizing, Setting Up Calculations, Brainstorming

# Case 7: 6PAQ P.E. Firm

## Entertainment | Private Equity & Profitability Improvement



### Clarifying Information

- Theater Specific Info:
  - The movie theaters are somewhat dilapidated
  - Competition: None, they are the only two in the suburb and surrounding suburbs
  - Revenue Streams:
    - Tickets (tix)-movies leased through distributors
    - Concessions (cns)-purchased from distributors
- P.E. Company 6PAQ Info:
  - Portfolio: Suburban recreational facilities and entertainment (swimming pools, shopping malls, bowling alleys, laser tag facilities, etc.)
  - Objectives:
    - 6PAQ has a standard of 100% ROI for all investments
    - Sell in five years
    - Evaluate modernization project
- Industry-wide Trends from 2010-18<sup>1</sup>:
  - Ticket sales have declined by 1.18%
  - Average Ticket Price Increased by 15.46%

### Possible Framework

Problem: Improve Profitability and Investment Valuation

- Financials
  - Rev (can include ways to improve here)
    - Tickets ( $P * Q$ )
    - Concessions ( $P * Q$ )
  - Cost
    - FC- movie leases, labor, rent, taxes, electricity (HVAC), cleaning materials, insurance, maintenance
    - VC- concession costs
- Revenue Improvement Opportunities (and list of them)
- Marketing/Customer Analysis
  - Price Sensitivity Analysis
  - SKU Analysis (Concessions and Tix)
  - Gap analysis
  - Advertising/Discount Spends
- Entrance & Exit
  - Purchase Price & Exit Price
  - Valuation Methods- Multiple, NPV, Comparables
  - Buyers
- Other
  - Synergies
    - Bundle opportunities w/ portfolio companies (cross-sell)
    - Cost (back-office, increased buying power, etc)

A good candidate will consider possibility for localized monopoly, exit opportunities, synergies with existing portfolio, and innovative ways to improve revenue and decrease costs

<sup>1</sup> <https://www.the-numbers.com/market/> and individual analysis

# Case 7: 6PAQ P.E. Firm

Entertainment | Private Equity & Profitability Improvement



## Interviewer Guidance (pt. 1)

**Revenue:** The candidate should drive towards understanding revenues first. If not, guide them there. Show Exhibit 1 and explain, “We do not know revenues for Theaters A and B for certain but 6PAQ obtained this exhibit. What does it tell you?”

Key insights:

- 1) Revenue has been consistent for both Theaters and they have similar net profits
- 2) Theater A has much higher revenue
- 3) Theater A's costs are much higher as a percentage of revenue, indicating its cost structure could be improved

Once the candidate nails these insights, indicate, “6PAQ plans to send the same analyst to each theater for a month to estimate the number of yearly visitors and revenue. Neither theater offers demographic discounts (e.g. senior discounts) and the analyst cannot sit at the front of the theaters and count customers or be in multiple places at once. What instructions would you give to the analyst and how would you calculate it?”

Important Note: All numbers necessary for calculations should be provided and candidates can round to the tens of thousands \$x.xx million (*see Calculations – Revenue and Profitability by Theater pg. 88*)

- After having candidate calculate revenues, ask them to brainstorm ways to improve them (*see Ansoff Matrix in Brainstorming Guidance, pg. 89*)
- Next, tell them that you believe there are significant synergies and that total costs for theaters as a function of revenue are:   Theater A) 50%   Theater B) 20%
- Ask candidate what could be driving the difference in cost and afterwards, to calculate profitability. (*see Brainstorming Guidance, pg. 7, Revenue Calculations pg. 90*)

# Case 7: 6PAQ P.E. Firm

Entertainment | Private Equity & Profitability Improvement



## Interviewer Guidance (pt. 2)

**Modernization project:** Tell the candidate that the analyst identified an investment for both theaters he believes will significantly lift Net Income. Specifically, it will install arcades in both theaters, nicer seats, a new mobile app for ticket purchasing, and an HVAC system for Theater A which will drive down heating and AC costs. It will cost \$4m upfront. After completion one year after development begins, both theaters will generate an additional 50% revenue (in part due to monopoly pricing and improved theater quality), and Theater A's costs will decrease to what Theater B's are (due to increased buying power and lower HVAC costs) as a percentage. The theaters will continue to operate as they originally did during the year until completion. Discount rates and opportunity costs should be ignored. Should the firm undergo this project, consistent with their firm investment criteria?

*Note: This is an ROI calculation (see Calculations – ROI modernization project pg. 91)*

A **good candidate** will realize that during the first year, nothing will change about either theater while improvements are made, so they should consider the investment only for its Net Profit in Years 2-5. A good candidate would also realize that as revenues have doubled, costs have gone down, and the increase in multiple means that they will certainly be able to sell for a 100% ROI.

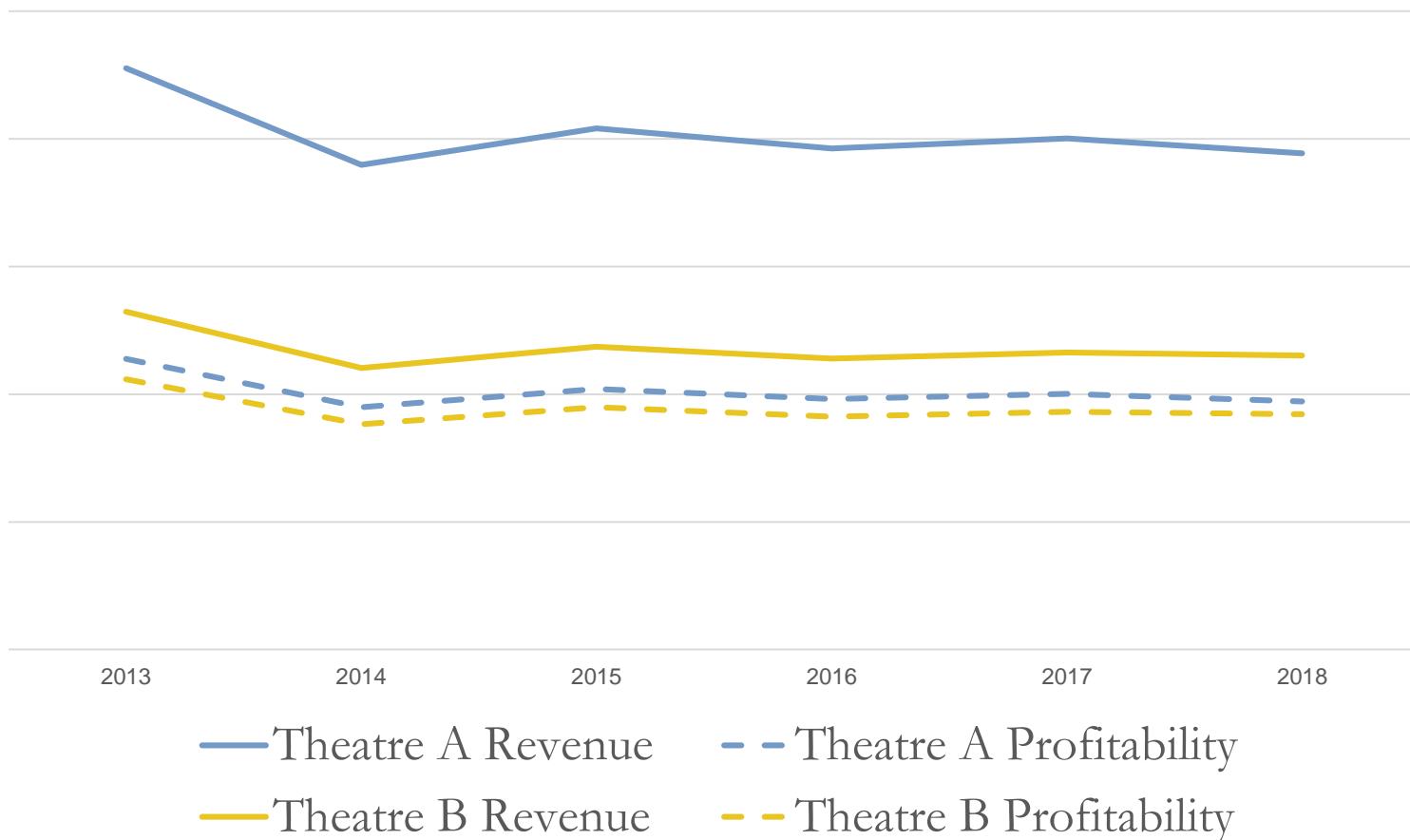
Ask the candidate to calculate whether the overall investment would clear the firm's 100% ROI hurdle, if the purchase price multiple was 5x Net Income and the exit price multiple is 6x. (*see Calculations – Overall Investment, pg. 10*). Lastly, ask for a recommendation (*see Recommendation, pg. 93*)

# Case 7: 6PAQ P.E. Firm

Entertainment | Private Equity & Profitability Improvement



## Exhibit 1 – Revenue and Profitability by Theater



# Case 7: 6PAQ P.E. Firm

Entertainment | Private Equity & Profitability Improvement



## Brainstorming Guidance

### Revenue Improvement

### Cost Drivers

	Existing Products	New Products	Cost Drivers
Existing Customers	<ul style="list-style-type: none"><li>• Alter SKUs</li><li>• Implement special/discounts (senior, students, etc)</li><li>• Increase prices (w/ new local monopoly)</li><li>• Show more movies</li><li>• Additional trailers</li></ul>	<ul style="list-style-type: none"><li>• Open alternative space (e.g. arcade)</li><li>• Charge for parking if lot owned</li><li>• New food or alcohol</li><li>• Start movie pass</li><li>• Offer premium seating</li></ul>	<ul style="list-style-type: none"><li>• Electricity/HVAC</li><li>• Movie leases</li><li>• Rent/real estate</li><li>• SKU choices</li><li>• Unionized labor</li><li>• Taxes if on larger property</li><li>• Poor relationships with distributors</li></ul>
New Customers	<ul style="list-style-type: none"><li>• Increase ad spend</li><li>• Offer theme nights or diversify customer-targeted movies (e.g. cult classics reruns)</li><li>• Open additional theater</li><li>• Cross-sell to customers of other portfolio companies</li></ul>	<ul style="list-style-type: none"><li>• Offer other types of entertainment (e.g. local plays)</li></ul>	

# Case 7: 6PAQ P.E. Firm

## Entertainment | Private Equity & Profitability Improvement



### Calculations – Revenue and Profitability by Theater

#### Tickets:

# of Screens \* # of Seats/Screen \* Avg Fill Capacity \* # of movies played per screen/month = *Total Monthly Visitors*

Theater A) 10 screens \* 80 seats per screen \* 75% average fill capacity \* 20 movies played per screen per month = **12,000 Total Monthly Visitors**

Theater B) 10 screens \* 80 seats per screen \* 50% average fill capacity \* 20 movies played per screen per month = **8,000 Total Monthly Visitors**

*Total Monthly Visitors* \* Percentage of Movies Matinee (or Premium) \* Price of Matinee (or Premium) ticket \* 12 months/year = *Total Monthly Matinee Revenue (or Premium)*

Theater A) 12,000 Total Monthly Visitors \* 90% Premium \* \$10 Premium Price \* 12 months/year = \$1.296m (round to \$1.29m)

12,000 Total Monthly Visitors \* 10% Premium \* \$5 Matinee Price \* 12 months/year = \$.072m (round to (\$.07m))

**Total Theater A Ticket Revenue = \$1.36m**

Theater B) 8,000 Total Monthly Visitors \* 80% Premium \* \$10 Premium Price \* 12 months/year = \$.768m (round to \$.77m)

8,000 Total Monthly Visitors \* 20% Premium \* \$5 Matinee Price \* 12 months/year = \$.096m (round to (\$.1m))

**Total Theater B Ticket Revenue = \$870k (round to \$870k)**

#### Concessions:

*Total Monthly Visitors* \* Average Spend Per Customer \* Percentage of Customers who buy concessions \* 12 months/year = *Total Yearly Concession Revenue*

Theater A) 12k Monthly Visitors \* \$6 Avg Cust. Spend \* 75% of Cust. Purchase Concessions \* 12 Months/year = **\$648k (round to \$650k)**

Theater B) 8k Monthly Visitors \* \$7 Avg Cust. Spend \* 75% of Cust. Purchase Concessions \* 12 Months/year = **\$504k (round to \$500k)**

#### Total Revenues:

Theater A) **1.36m+.65m=\$2.01m**

Theater B) **.87m+.5m=\$1.37m**

#### Total Costs:

50% \* 2.01m=~\$1m

20% \* 1.37m=\$.27m

#### Total Profitability:

2.01m-1m=\$1.01m (round to \$1m)

1.37m-.27m=\$1.1m

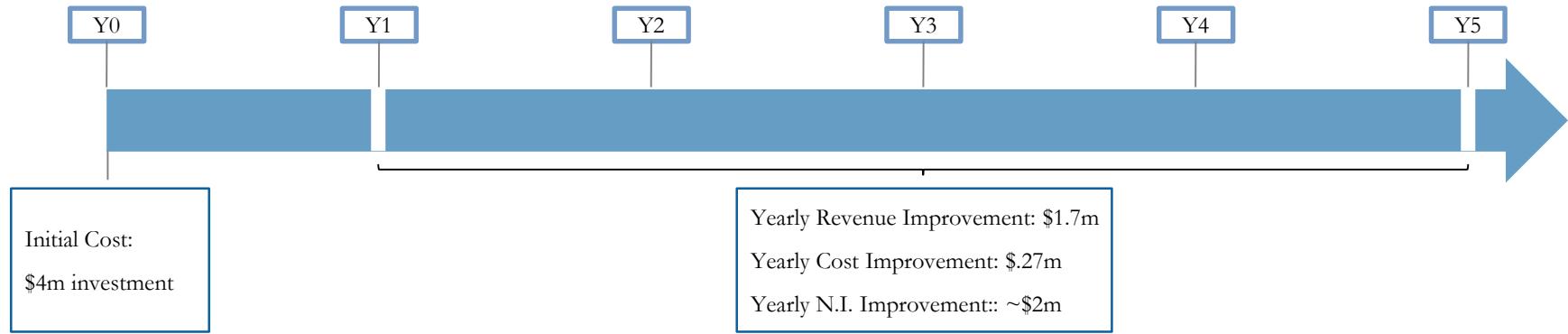
For both theaters: **\$2.1M**

# Case 7: 6PAQ P.E. Firm

Entertainment | Private Equity & Profitability Improvement



## Calculations – ROI Sub-Investment



**ROI Calculations:** Formula: Net Profit/Invested Capital

**Modernization Project:**

Incremental Profit = (Total New Profit – Total current Profit) \* Years

Incremental Profit = ((150% Current Revenue – New Costs) – (Current Revenue – Current Costs)) \* 4 Years

Incremental Profit = (\$5.07m – 20% \* (\$5.07m)) – (\$3.38m – \$1.27m)) \* 4 years

= (\$4.06m – \$2.11m) \* 4 years

~ \$2m \* 4 years = \$8m

ROI:

\$8m-\$4m / \$4m = 100%

# Case 7: 6PAQ P.E. Firm

Entertainment | Private Equity & Profitability Improvement



## Calculations – Overall Investment

### New Revenues

Current Revenues \* (1+Revenue Increase Percentage) = New Revenues

Current Revenues: \$2.01m + \$1.37m = \$3.38m

New Revenues: \$3.38m \* 150% = \$ 5.07m

### New Total Costs

New Revenues \* New Total Cost Percentage = New Total Costs (exc.

Current Costs: \$1m + \$.27m = \$1.27m

New Costs: \$5.07m \* 20% = \$1.01m

### New Net Income

New Revenues – New Total Costs = New N.I.

Total: \$5.07m-\$1.01m=\$4.06m



### Overall Investment:

Valuation =  $N.I.*N.I \text{ multiple}$

Purchase Price =  $\$2.1m * 5 = \$10.5m$

Exit Price =  $\$4.06m * 6 = \sim \$24.4m$

ROI =  $\frac{\$24.4m - \$10.5m}{\$10.5m} = 132\%$

# Case 7: 6PAQ P.E. Firm

## Entertainment | Private Equity & Profitability Improvement



### Recommendations

#### Recommendation:

6PAQ P.E. Firm should invest in both theaters and undergo the modernization project

With its new improvements and monopoly powers, it could make over 100% ROI on both the initial and modernization project

On the modernization project, 6PAQ could make a 100% ROI while on the overall theater investment, 6PAQ could make a 132% ROI

### Risks

#### Risks include:

1. Substitutes and Threats
  - New local entrants
  - Netflix and streaming services
2. Accuracy of assumptions
  - NI multiple increase
  - Improved NI from investment
  - No opportunity cost or discount rate
  - 100% ROI on modernization project leaves little room for error
3. Theater owners' unstated intent to sell

### Next Steps

#### 6PAQ should:

1. Conduct analysis:
  - Use its existing relationships in the industry to conduct intelligence gathering
  - Purchase market research reports to identify time horizon of threats trends
  - Further analyze and triangulate assumptions
2. Approach theater owners to gauge interest and initiate discussions

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# Case 8: Hamm's University

Higher Ed / Non-Profit | Profitability Improvement



# Case 8: Hamm's University

Higher Ed / Non-Profit | Profitability Improvement



## Case Prompt

Our client, Hamm's University, is a mid-size not for profit private university in the Midwest of the United States, well-known for its liquid gold colored sports uniforms. Over the last few years, Hamm's University has received less state and federal aid, leading to a negative net margin. However, other Universities near us have overcome this issue and haven't seen margin erosion. The Board of Regents has engaged our firm to help the University strengthen its position.

### Information provided upon request:

- Hamm's University is located near a city with a population size of ~450,000 in a state with a population of ~7M. A majority of students are from the same state or surrounding states
- There are 2 other private universities and a large state school within an hour of Hamm's
- Hamm's University has sports teams in the Division II league
- There are several graduate schools, with programs for Medicine, Law, Dentistry, Business, Psychology and Engineering
- Psychology & Econ departments are highly ranked in faculty prowess & research
- The Board wants to increase net income by 25M/year within 2 years (was -5M last year)

### Concepts Tested

Financial Statement Analysis, Setting up calculations, Brainstorming

# Case 8: Hamm's University

Higher Ed / Non-Profit | Profitability Improvement



## Case Guidance

### Case Guidance:

Through exhibits 1 & 2, the interviewee should note that both private schools 1 and 2 are relatively similar to our school, but private school 2 has a revenue structure that we can more easily replicate.

Reason to not replicate private school 1: Endowment and gift campaigns are difficult to replicate, especially given our lower starting endowment and less active alumni donor base. Starting a campaign to make our alumni more active can be difficult to do and wouldn't necessarily have a high success factor.

Reason to replicate private school 2: University grants for research are generally a function of how successful that school is at research and how many faculty research staff and grant writing staff they employ. Given the already prestigious nature of Hamm's University psychology department, Hamm's university should look to increase grant revenue by hiring more staff.

# Case 8: Hamm's University

Higher Ed / Non-Profit | Profitability Improvement



## Framework

A solid framework would include detail on the financials of the University and an examination of the other universities in our area. Points to consider are included below.

### Revenue

- Undergrad tuition (including R&B), by students and tuition rates
- Federal & State Aid
- Grants & Contracts
- Endowment Income
- Athletics
- Gifts (for immediate use)

### Costs

- Instruction
- Research
- Operations (+ depr)
- Scholarships
- Administration
- Materials + Supplies

### Industry

- Public
- Private
- Financial Statement Analysis
- Student body composition
- Learn from how they improved

# Exhibit 1

## YOY Statement of Activities (2017 & 2018) and KPIs

All \$ in MM	2018	2017
Total Revenue	\$545	\$580
• Net Tuition (incl. Scholarships + Room and Board)	404	350
• Federal and State Aid	65	100
• Grants and Contracts	30	80
• Endowment Income	11	15
• Athletics	21	20
• Alumni Gifts	14	15
Total Cost	\$550	\$530
• Instruction	222	200
• Research	20.5	20
• Operations	97.5	100
• Administration	112	110
• Materials + Supplies	98	100
Net Margin	\$ -5	\$ 50
Selected KPIs		
• Undergraduate attendance	13,800	13,500
• Graduate attendance	2,150	2,200
• Faculty Researchers	50	50
• Grants Awarded	85	84
• Endowment Balance	\$195M	\$200M
• Active Alumni Donors	20,000	20,000

## Exhibit 2

### Schools Comparison (2018 Data)

All \$ in MM	Public 1	Private 1	Private 2
Total Revenue	1,765	580	571
• Net Tuition (incl. Scholarships + Room and Board)	1,100	380	320
• Federal and State Aid	200	60	55
• Grants and Contracts	180	30	150
• Endowment Income	90	60	20
• Athletics	110	15	15
• Alumni Gifts	85	35	11
Total Cost	1,685	555	536
• Instruction	640	211	204
• Research	65	22	35
• Operations	311	102	92
• Administration	357	118	105
• Materials + Supplies	312	103	99
Net Margin	80	25	35
Selected KPIs			
• Undergraduate attendance	24,500	16,000	11,000
• Graduate attendance	8,000	0	2,000
• Faculty Researchers	110	50	85
• Grants Awarded	195	85	145
• Endowment Balance	\$3B	\$1.1B	\$300M
• Active Alumni Donors	100,000	35,000	18,000

# Case 8: Hamm's University

Higher Ed / Non-Profit | Profitability Improvement



## Additional Math Problem

### Addt'l Problem / Math:

The interviewee should note that research revenue is roughly \$1M per grant awarded and grants are awarded at a roughly 1.6 grants / researcher rate. Each researcher at Hamm's costs roughly \$400,000, and there is also an additional 50,000 in administration costs / researcher. Tell them to assume these are fixed numbers.

**“Assuming these numbers hold true and grants are awarded on average 1 year after application, how many faculty researchers do we need to hire to achieve our goal?”**

25M NI Goal = (Researchers to Hire) \* 1.6 \* 1M – (Researcher to Hire) \* 450K

25M NI Goal = Researchers to Hire \* 1.15M average Margin

25 / 1.15 = ~22 more faculty researchers to achieve 25M NI Goal

# Case 8: Hamm's University

Higher Ed / Non-Profit | Profitability Improvement



## Recommendations

### Recommendation:

Hamm's University should hire at least 22 more researchers to increase its NI to make up for State and Federal Aid shortfalls

## Risks

### Risks include:

1. New researcher's won't be as successful as historical
2. Total grant market isn't big enough to support receiving this much money
3. Potential dilution of brand image from hiring more researchers

## Next Steps

### Hamm's University should:

1. Potentially hire more than 22 researchers, explore space constraints at University
2. Market research on how big total Psychology grant market is and if we can increase share in that market
3. Begin setting up hiring team to start identifying which candidates to interview

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# Case 9: Allsafe

Insurance | M&A



# Case 9: Allsafe

Insurance | M&A



## Case Prompt

Our client, Allsafe, a large insurance company, provides home, auto, renter's and life insurance. Recently, Allsafe acquired a technology firm specializing in data analytics software. As part of the acquisition, Allsafe also acquired a smaller subsidiary, MarketMaven, a marketing analytics software-as-a-service firm. Our firm has been engaged a few years post-acquisition and Allsafe would like to know how to proceed with MarketMaven – AllSafe already has an acquisition offer of \$1.1B for MarketMaven and the choice is between taking the deal (i.e. divesting MarketMaven) or integrating it with AllSafe.

### Information provided upon request:

- Allsafe is a large insurance conglomerate that employs an outside marketing agency for all marketing services
- MarketMaven is small firm, but has experienced growth over the last 5 years.

### Concepts Tested

Valuation, Financial Analysis

# Case 9: Allsafe

Insurance | M&A



## Interviewer Guidance

In this case, the candidate will explore whether Allsafe should integrate or divest MarketMaven. Due to the fact that there are no synergies between Allsafe and MarketMaven, the candidate should decide that Allsafe should sell the firm. This case requires the candidate to then ask for the information necessary to value MarketMaven.

Only when the candidate asks for MarketMaven's financials should the following information be provided. The candidate will need to build out an income statement based off the following financials in order to determine the cash flows to value MarketMaven.

- 2018 Revenues: \$200M
- Cost of Revenue: 25% of Revenue
- SG&A: 40% of Gross Profit
- Depreciation + Amortization: \$5M

The candidate needs to value the firm. Have them build out an income statement to EBIT as adding in Tax and Interest make the numbers a little messy. This may not be fundamentally correct in terms of finding the FCF for the NPV, so if you want to finesse the numbers further feel free to do so.

# Case 9: Allsafe

Insurance | M&A



## Possible Framework

Problem: Integrate or Divest MarketMaven

- **Integrate**
  - Firm Synergies: MarketMaven + AllSafe
  - AllSafe capabilities -- have they been able to successfully integrate a firm in the past
  - Marketing Analytics Market
    - # of key players
    - # of customers
  - MarketMaven's position in current market
- **Divest**
  - MarketMaven's current financials
  - Potential buyers
  - Comparable firm transactions in the past
- **Risks**
  - Integration Risks
  - Divestiture Risks

## Calculated Income Statement

Revenue	\$200M
Cost of Revenue	$200*25\% = \$45M$
Gross Profit	\$155M
Operating Expenses	$155*40\%=\$60M$
EBITDA	\$95M
D+A	\$5M
<b>EBIT</b>	<b>\$90M</b>

# Case 9: Allsafe

Insurance | M&A



## Interviewer Guidance

After the candidate finds the EBIT of the MarketMaven, use that amount as the free cash flow to value the firm and brainstorm potential firm strategies. The candidate should be directed to value the firm in perpetuity with the following parameters.

- **Growth Rate:** 5% (growth will slow due to increased market competition)
- **Discount Rate:** 15%

$$NPV = FCF/r-g = 90/(15\%-5\%) = \$900M$$

The ideal insight into the NPV calculation should be that since the buy offer for MarketMaven (\$1.1B) has a \$200M premium over the NPV, it should be sold off.

**Brainstorming:** What could AllSafe use MarketMavens platform for? Examples could be:

- Track advertising and media insights in-house
- Bring all advertising efforts in-house
- Use it for Market Intelligence and PR purposes to track what is being said about AllSafe in the media

# Case 9: Allsafe

Insurance | M&A



## Recommendations

### Recommendation:

Allsafe should divest MarketMaven for a \$200M premium.

- \$900M NPV, \$1.1B deal size
- Use the cash from the sale to reinvest in programming or platforms within their firm
- Cost of integration and to keep on MarketMaven not worth it to AllSafe

## Risks

### Risks include:

1. Potential undervaluation of MarketMaven's intellectual property
2. Negative impact on Allsafe company morale if divestiture news leaks

## Next Steps

### AllSafe should:

1. Assemble internal team to begin the divestiture process
2. Engage a bank to begin the process of divesting MarketMaven
3. Build MarketMavens sell story

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# Case 10: Mega Pharma

Retail | M&A



# Case 10: Mega Pharma

Retail | M&A



## Case Prompt

Our client Mallgreens is a large pharma retail company. It wants to acquire a smaller pharmacy retailer, BrightAid. The operational footprint of the two companies looks like this:

Company	States	Stores	Employees
Mallgreens	50	5000	2000
BrightAid	13 (Coasts)	2000	1000

Mallgreens wants us to assess this acquisition, and understand potential risks.

### Information provided upon request:

- Mallgreens provides pharmacy, clinical, photography and convenience store services
- BrightAid provides pharmacy and clinical services
- The two companies have very different distribution models

### Concepts Tested

Brainstorming, Consolidation, Acquisition Strategy

# Case 10: Mega Pharma

Retail | M&A



## Framework

### 1. Synergies

- Revenue Synergies
  - Selling Power
  - Newer Locations for Photography and Convenience
- Cost Synergies
  - Buying Power with manufacturers
  - Retail footprint consolidation
  - Corporate functions & Executive team

### 2. Acquisition & Integration Costs

- People:
  - Lock-in Bonuses for Retained Employees
  - Severance Packages for Fired Employees
- Operational
  - IT
  - Marketing / Branding
- Long-term: Capital Gains Tax

### 3. Risks

- FTC: Market share too high?
- Customer, Vendor & Competitor response

# Case 10: Mega Pharma

Retail | M&A



## Brainstorming Questions

**Interviewer Guidance:** A good setup before getting into actual questions would be to brainstorm the mechanics of an acquisition. Important factors to brainstorm are:

1. The companies have different distribution models. On a high level, how can switching to either of them for the combined entity help reduce costs.
2. If the core product (pharmaceutical retail and clinical services) is the same for both companies, and the market is saturated, do cross/up-selling opportunities exist for the combined entity? If the revenue cannot be augmented, is the acquisition worth it?
3. Types of purchase: stock purchase vs. asset purchase. Pros and cons of both in the current deal.

**These are open questions and can run depending on the quality of the framework and brainstorming in the interview.**

# Case 10: Mega Pharma

Retail | M&A



## Question 1

The store footprint of both companies in selected states looks like this:

State	Mallgreens	BrightAid
CA	400	250
WA	280	65
NY	350	200
MI	280	0
IN	220	0
TX	350	180

In which states will you consolidate stores, and why?

# Case 10: Mega Pharma

Retail | M&A



## Question 1: Interviewer Guidance

Brainstorm about cost reduction from a retail location consolidation perspective. What factors will drive this consolidation?

**Answer to question (next slide):** Stores should be consolidated in California, New York and Texas. This is because both companies have a large retail footprint in both the states and therefore this is the scope for consolidation.

# Case 10: Mega Pharma

Retail | M&A



## Question 2

The client has created a summary of stores in California based on the (i) Distance from the nearest Mallgreens / BrightAid store, and (ii) Profit / Loss status. It is as follows:

Distance	Profit-making Stores	Loss-making Stores
< 0.5 mile	200	100
0.5 – 2 miles	80	60
> 2 miles	70	40

Which of these stores do you recommend that our client close? What do you recommend for the rest of the stores?

# Case 10: Mega Pharma

Retail | M&A



## Question 2: Interviewer Guidance

In retail, a key success factor is retail presence ('footprint'). Sometimes, to achieve a footprint on scale, some loss-making locations also have to be retained.

To answer this question (next slide):

- All loss making stores which are <0.5 miles from another store should be closed.
- For all loss making stores which are 0.5 – 2 miles from another store:
  - Customers should be surveyed – is brand stickiness enough to make them travel 2 miles if the current store closes
  - Can these stores be turned profitable with short to mid-term transformation measures
- For all loss making stores >2 miles, the company should invest in long term profitability transformation measures

# Case 10: Mega Pharma

Retail | M&A



## Question 3

1. What are key questions that the market regulator can raise?
2. How will you ensure that the deal and the combined entity adhere to legal requirements?

# Case 10: Mega Pharma

Retail | M&A



## Question 3: Interviewer Guidance

An important factor in understanding regulatory market share concerns in an acquisition is to understand the type of purchase:

- **Stock purchase:** the target company's stock (complete or partial) is bought from its current shareholders. All vendor, customer and employee contracts typically continue, and all assets and liabilities transfer to the acquiring entity.

A stock purchase would typically be more complicated. In this case, the acquiring company will have to commit to divesting/selling parts of the combined business after the deal to bring it below the market regulator (FTC)'s defined levels. In this case, Mallgreens can decide to sell its photography and convenience store business after the acquisition.

- **Asset purchase:** only selected assets (retail locations, manufacturing/warehousing facilities etc.) are purchased. Contracts and liabilities do not transfer.

In an asset purchase, the acquiring company can choose to buy only selected assets from the target. In this case, Mallgreens can buy only selected BrightAid stores and remain within FTC's threshold.

# Case 10: Mega Pharma

Retail | M&A



## Recommendations

### Recommendation:

Mallgreens should acquire BrightAid and:

- Close 100 loss-making stores within 0.5 miles of other Mallgreens stores
- Survey customers of 60 loss making stores within 0.5 - 2 miles of other Mallgreens stores
- Invest in long-term profitability of 40 loss-making stores more than 2 miles of other Mallgreens stores

## Risks

### Risks include:

1. Potential concerns from Market Regulators on market share of combined entity
2. Competitor and Supplier response

## Next Steps

### Mega Pharma should:

1. Start integration planning – systems, procurement, distribution being the focus areas
2. Define communication plan for customers and employees

---

# Case 11: Mike Apparel

Consumer Goods | Market Entry



# Case 11: Mike Apparel

Consumer Goods | Market Entry



## Case Prompt

Our client, Mike Apparel, is a large apparel and sporting goods company. The client is interested in entering the women's golf apparel market and is looking for guidance on whether this is a good idea.

### Information provided upon request:

- Mike makes both produces and retails the goods in its own stores
- The objective is to invest extra cash (amount undefined) in a profitable project
- Scope of the launch is the United States

### Concepts Tested

Brainstorming, Structure, Basic Quant & Financials

# Case 11: Mike Apparel

Consumer Goods | Market Entry



## Framework

### 1. Market Size

- Population of the United States
- Ratio of women
- Percentage of golf players
- Achievable market share
- Customer \$ purchases/year

A strong framework will hinge on two factors: Market Size or Revenue Potential, and the costs of the launch and ongoing operations.

Basic cost numbers available are as follows:

- **R&D (one-time):** \$255M
- **Fixed Costs (yearly):** \$5M

### 2. Costs

- R&D
- Fixed Costs
- Variable Costs
- Marketing & Advertising

### 3. Risks

- Cannibalization of existing products/shelf space

# Case 11: Mike Apparel

Consumer Goods | Market Entry



## Questions

1. What does the market size and revenue potential look like?
2. When can breakeven be achieved?

### Data Available

- **Buying Frequency, Selling Price**

Item	Buying Frequency	Selling Price
Shirt	2 / year	\$60
Hat	1 / year	\$80

- **Variable Cost to produce**

Item	Variable Cost
Shirt	\$15
Hat	\$20

# Case 11: Mike Apparel

Consumer Goods | Market Entry



## Interviewer Guidance and Solution: Question 1

**Market Sizing** (nudge the interviewee towards the following numbers)

- Population of US 300M
- Women (50%) – 150M
- ~80% people in age ranges that play golf:  $80\% * 150M = 120M$
- Golf is an affluent sport, only rich can play. Rich = 10%.  $10\% * 120M = 12M$
- Percentage of people who actually play Golf 25% (a fourth of affluent people is a reasonable assumption) = 3M
- Market Penetration (20%) = 600K

# Case 11: Mike Apparel

Consumer Goods | Market Entry



## Interviewer Guidance and Solution: Question 2

Profit potential depends on two factors – numbers of items bought and profit on each item. We already know we have 600,000 potential customers.

**Therefore, profit per customer per year:**

- Shirt:  $2 * (\$60 - \$15) = \$90$
- Hat:  $\$80 - \$20 = \$60$
- **Total: \$150**

**Total Revenue Potential =  $\$150 * 600K = \$90M$**

**(-) Fixed Cost =  $\$90M - \$5M = \$85M$**

**Breakeven =  $\$255M / \$85M = 3$  years**

# Case 11: Mike Apparel

Consumer Goods | Market Entry



## Interviewer Guidance: Recommendation

**Recommendation:** Enter Market – 3 year breakeven

- \$85M annual profit, quick breakeven
- Tap new customer base – women, may have been untapped by industry before
- Women-focused product promotes diversity in sporting, also good for branding/PR

## Risks

- Bad launch may affect other products
- Some cannibalizing of standard products (e.g. non-golf specific shirts and hats)

## Next Steps

- Setup manufacturing
- Sign brand ambassador: a professional woman golfer
- Research which products to replace on shelves

# Case 11: Mike Apparel

Consumer Goods | Market Entry



## Recommendations

### Recommendation:

Enter Market – 3 year breakeven

- \$85M annual profit, quick breakeven
- Tap new customer base – women, may have been untapped by industry before
- Women-focused product promotes diversity in sporting, also good for branding/PR

## Risks

### Risks include:

1. Bad launch may affect other products
2. Some cannibalizing of standard products (e.g. non-golf specific shirts and hats)

## Next Steps

### Mike Apparel should:

1. Setup a manufacturing facility
2. Sign brand ambassador: a professional woman golfer
3. Research which products to replace on shelves

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# Case 12: PharmaDeliver

Pharma | Growth Strategy



# Case 12: PharmaDeliver

Pharma | Growth Strategy



## Case Prompt

Your client, PharmaDeliver, is a large pharmacy that provides both prescription and over the counter medications to patients. With many new entrants in the healthcare industry, the company is evaluating ways to both improve the customer experience and invest in the future. In one initiative related to this, PharmaDeliver is exploring the use of drone delivery for its' customers. The company has hired us to evaluate the potential use of drone delivery.

### Information provided upon request:

- They distribute a wide variety drugs directly to customers through both retail and home delivery channels. 80% of non-controlled prescription substances are delivered via home delivery
- The company only operates in the US
- The company wants to increase their deliveries by at least 15% and have total profits of at least \$7B per year by using drones.
- The company wants this increase in the first year

### Concepts Tested

Brainstorming, Structuring, Quant

# Case 12: PharmaDeliver

Pharma | Growth Strategy



## Framework

A good framework will include an analysis of the pharmacy market (including competitive trends, future technological advances, etc.), a breakout of how they will both increase deliveries and hit \$7B in total profit internally, and a consideration of mode of entry for using drones (merger, acquisition, partnership). Candidates should also note regulatory risk for moving into this space, since it is not a mature industry.

# Case 12: PharmaDeliver

Pharma | Growth Strategy



## Question & Exhibit 1

Calculate how many increased deliveries are possible for both M-F and the weekend, respectively.

ParmaDeliver Annual Medication Volume	
Total Medications Sold*	2.6B
Prescription Controlled Substances per year*	350M

Current Deliveries Weekly Volume Caps	M-F	Sat	Sun
Controlled Substances	100%	0%	0%
UPS	90%	10%	0%

Drone Projected Weekly Volume Caps		
M-F Daily Cap	Sat	Sun
8M	5M	6M

\*Total medications include the prescription controlled substances

\*Prescription controlled substances are not included in the home delivery %

# Case 12: PharmaDeliver

Pharma | Growth Strategy



## Answer 1

Assume 50 weeks per year. Candidate should ask for the home delivery % (80% of NON prescription controlled substances)

1. Calculate the number of home deliveries per year: (Total Medications – Prescription Controlled Substances)\* % Home Delivery of Non-Prescription Controlled Substance Medications =  $(2600 - 350) * .8 = 1.8B$
2. Calculate the weekly number of deliveries assuming 50 weeks per year.  $1.8B / 50 = 36M$
3. Calculate the number of deliveries for each of the days of the week.
  - M-F Deliveries % \* total =  $90\% * 36M = 32.4M$ ; Deliveries / # days =  $32.4M / 5 = 6.48M$
  - Sat Deliveries % \* total =  $10\% * 36M = 3.6M$
4. Find the difference for both M-F and the weekend between current and new. For M-F, multiply it by 5 and then by 50 to find the increased annual deliveries. M-F:  $8M - 6.48M = 1.52M * 5 * 50 = 380M$ ; S/S =  $10 - 3.6 = 6.4 * 50 = 320M$ . Finally, take  $320M + 380M = 700M$  and confirm that this is 15% higher than the number of deliveries currently ( $1.8B * 1.15 = 2.07B$ ). Great answers will also acknowledge that the demand increases may not match this increased capacity.

# Case 12: PharmaDeliver

Pharma | Growth Strategy



## Question & Answer 2

**Question:** Please brainstorm possible ways to expand into using drone delivery.

**Answer:** A good answer will include an analysis of exploring new clients, partnerships, or acquisitions to go into this business. Commentary on the benefits of each can lead to a great answer. A great answer will also acknowledge options other than drone delivery to possibly explore (i.e. autonomous vehicles, uber, etc.)

# Case 12: PharmaDeliver

Pharma | Growth Strategy



## Question 3

PharmaDeliver has identified a potential partner, DroneCo, for future shipments. As part of the agreement, DroneCo will take 10% of the profit for each shipment in exchange for its' services. Please calculate the annual projected profit by utilizing DroneCo to deliver all packages. Calculate the expected NPV of this using the projected profit.

**Tip for interviewer:** This profit is inclusive of all potential costs/revenues that the candidate likely covered in the framework.

# Case 12: PharmaDeliver

Pharma | Growth Strategy



## Exhibit for Question 3

Future avg profit per delivery*		
M-F Daily	Sat	Sun
\$4.44	\$3.33	\$3.33

Weekly shipment demand with increased capacity		
M-F Dailly	Sat	Sun
7M	3M	2M

\*This does not include the 10% DroneCo will take from each shipment

# Case 12: PharmaDeliver

Pharma | Growth Strategy



## Answer 3

Calculate the profit for the new deliveries.

Start by finding the projected profit for each by taking off the 10% commission for each of the breakouts.

Then multiply the profit by each of the daily and weekly projected demands to get: M-F\*5\*profit = 7M\*5\*4 = 140M, S: 3M\*3 = 9M, Sun: 2M\*3 = 6M;

Total profit per week = 155M,

Total per year = 155\*50 = \$7.75B.

Then, using a discount rate of .2, we assume perpetuity and use the formula to find:  $\$7.75B/.2 = \$38.75B$ .

# Case 12: PharmaDeliver

Pharma | Growth Strategy



## Question & Exhibit 4

We are also exploring the acquisition of a similar company, Fly Away, for \$9B. Using the new profit information, please calculate the NPV of this acquisition.

These numbers are inclusive of all post-merger synergies.

Estimated future avg profit per delivery with acquisition\*

M-F Daily	Sat	Sun
5	4	4

# Case 12: PharmaDeliver

Pharma | Growth Strategy



## Answer 4

In a similar calculation, find the profit per year projected with the acquisition.

Using this, we find  $M-F*5*\text{profit} = 7M*5*5 = 175M$ , S:  $3M*4 = 12M$ , Sun:  $2M*4 = 8M$ ;

Total profit per week = \$195M,

Total per year =  $\$195M*50 = \$9.75B$ .

Then, using a discount rate of .2, we assume perpetuity and use the formula to find:  $\$9.75B/.2 = \$48.75B$ .

Then, subtracting off the acquisition cost we find \$39.75B.

# Case 12: PharmaDeliver

Pharma | Growth Strategy



## Final Recommendation

For the final recommendation, the candidate should acknowledge that the acquisition gives us a higher NPV, but that there are some downsides to acquiring a drone company. Drone delivery is still a relatively new business, and acquiring this company could be a risky investment if regulation does not pass in Fly Away's favor.

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# Case 13: Single Cup of Coffee

Consumer Products | Market Sizing



# Case 13: Single Cup of Coffee

Consumer Products | Market Sizing



## Case Prompt

Our client is a PE firm who is considering making an investment in a coffee equipment company that services office buildings. The company makes machines that use single cups (same thing as K-Cups) and sells the pods needed to make coffee. What is the market opportunity for this investment?

## Interviewer Guidance

This is an interviewee led case. This case is about market sizing so the interviewee should lay out a clear framework on how to size the market and be creative and detailed with their assumptions. This case will be a market sizing exercise on the amount of coffee drinkers in the market and the amount of machines needed to service coffee consumption.

### Concepts Tested

Math, Market sizing, Brainstorming

# Case 13: Single Cup of Coffee

Consumer Products | Market Sizing



## Clarifying Information

- The company looks to service all office buildings nationally (U.S. only)
  - The target market are white collar professionals
- The PE shop has experience working in the beverage service market
- Price of each single pod is \$0.75 a pod
- Price of a coffee machine is \$100
- The company currently offers a machine that can only make coffee. There is a variety of coffee flavors

## Possible Framework

Problem: Estimate market size for coffee pods and machines

- How often each machine is needed
  - Estimate number of office workers
  - Avg number of workers in each office
  - How many machines per office
- or
- Estimate number of coffee drank in a day
  - Busiest periods in the day and how much coffee is being consumed in that period
  - How long it takes each cup to brew
- Number of coffee pods used each year
  - Estimate number of office workers
  - How many office workers drink coffee
  - How often each person drink coffee

# Case 13: Single Cup of Coffee

Consumer Products | Market Sizing



## Question #1

What is the market opportunity for office coffee drinkers and single pod usage?

**Information to give if requested:** Each coffee drinker drinks 1.5 cups of coffee a day; 350 working days in a year

## Recommended Answer

320m people in the U.S.	320m
Life span of 80 with an equal distribution between ages	$320m / 80 = 4m$
Avg work life is 21 - 70	$(70-21) * 4m = 196m$ people in the workforce
Eliminate teachers, blue collar workers, gov't employees etc. to get to an estimate of 40% office workers	$196m * .40 = 54.8m$ office workers Round to 55m
Estimate 60% of office workers drink coffee	$55m * .60 = 33m$ coffee drinkers
33m coffee drinkers * 1.5 cups a day	$33m * 1.5 = 49.5m$ ; Round to 50m cups of coffee per day
50m coffee per day * 350 days in a year	$50m * 350 = 1.75b$ cups of coffee a year
1.75b cups * \$0.75 a cup	$1.75b * \$0.75 = \$1.3b$

Interviewee does not have to use the above approach, as long as they use sound assumptions and get to a similar number

# Case 13: Single Cup of Coffee

Consumer Products | Market Sizing



## Question #2

Based on the amount of coffee drinkers, how many coffee machines can be sold in the market to accommodate the office workers with minimal wait time?

**Candidate should first brainstorm ideas and layout their structure. After brainstorm session, show Exhibit 1**

## Recommended Answer

**Key Questions:** When will the coffee machine be most active/how many people will be using it? **Exhibit 1**

- How much does the machine take to brew a cup of coffee? **1.5 mins**

Since the morning time frame is the busiest it should be used as a benchmark for the # of machines needed

50m cups in a day * 65% of cups	$50m * 65\% = 32.5m$ cups between 8am – 10am
60 mins in an hour/1.5 minutes to brew 1 cup	$60mins/1.5mins/cup = 40$ cups in an hour
40 cups * 2 hour span	$40*2 = 80$ cups between 8am – 10am
32.5m cups in time span/ 80 cups in time span provides how many machines are needed	$32.5m/80 = 406,250$ machines = ~400,000 machines
400k machines *\$100 a machine	$400k * \$100 = \$40m$

# Case 13: Single Cup of Coffee

Consumer Products | Market Sizing



## Exhibit 1

Busiest time in the office kitchen

Time of day	% of coffee cups
Morning	8am – 10am
Afternoon	1pm – 3pm
Evening	5pm – 7pm

# Case 13: Single Cup of Coffee

Consumer Products | Market Sizing



## Question #3

Other than selling the coffee pods and machines, what are some other ways the target company can generate revenues?

## Recommended Answer

Possible answers:

- Began to offer more than coffee with their machine (latte, hot chocolate, tea)
- Allow other companies to make pods for their machine and receive a royalty fee
- Expand to home services and to non-corporate employees
- Provide servicing for the machines

# Case 13: Single Cup of Coffee

Consumer Products | Market Sizing



## Recommendations

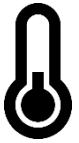
Market is attractive with combined revenue potential of \$1.34bn (\$1.3b cups, \$0.04bn machines), therefore worth investing. Also revenue upside by servicing machines or outsourcing pods.

## Risks

Market potential is driven by assumptions, which can be wrong (ex. We assumed the 1.5 cups people drink in a day will come from office coffee machine and not home or local coffee shop), we don't have a clear view of the competitive landscape in the market as well as the cost to produce and ship coffee machines and cups. Additionally, competitors could sell cups for client's machines if cup shape and size aren't patented.

## Next Steps

Examine competitors in the market, market trends (shift to teas/energy drinks/any other substitutes), and triangulate market sizing data.



# Case 14: Cheesy Situation

Food and Beverage | Growth Strategy

# Case 14: Cheesy Situation

Food & Beverage | Profitability



## Case Prompt

Our client is a cheese producer based in Vermont. Currently, they produce two types of cheese: Cheddar and Gouda. While revenues have grown, their profits have been decreasing. They have asked us to help them understand why and what they can do to increase profits.

## Interviewer Guidance

This is an interviewee led case. The case is about profitability and the candidate should lay out a clear framework to analyze revenues and costs for different products to calculate annual profits. The candidate should then brainstorm recommendations for increasing profits.

Additional info:

- The market is stable, with no major changes in competition in recent years
- They sell some cheese to wholesalers and a very small amount direct to consumer

## Concepts Tested

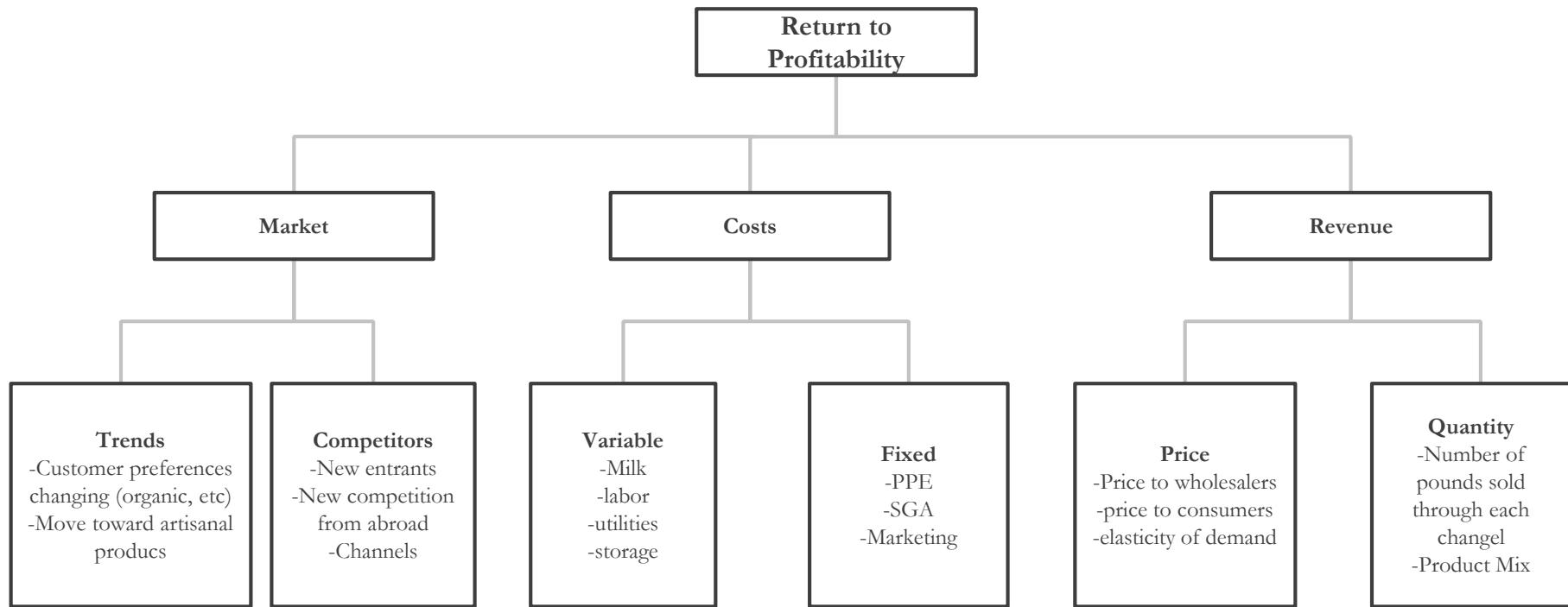
Math, Profitability, Brainstorming

# Case 14: Cheesy Situation

Food & Beverage | Profitability



## Framework



# Case 14: Cheesy Situation

Food & Beverage | Profitability



## Exhibit 1

	Cheddar	Gouda	Cost
Milk	.75 gallons	1 gallon	3.75/gallon
Labor	1.5 hours/100 lbs	2.5 hours/100 lbs	\$16/hour
Energy	.8 kwh	.5 kwh	\$.10/kwh
Time to age	1 year	6 months	
	Q4 2018	Q4 2019	Price
Lbs Cheddar Sold	6000	6500	\$8.99/lb
Lbs Gouda Sold	6000	5500	\$7.99/lb

Note: Each lb of cheese takes up one square foot while aging. Rent for the 50,000 sq. ft. warehouse is \$20,000/month

# Case 14: Cheesy Situation

Food & Beverage | Profitability



## Exhibit 1: Answers

	Cheddar (per pound)	Gouda (per pound)
Milk	\$3	\$4
Labor	\$.24	\$.40
Energy	\$.08	\$.05
Time to age	\$4.8	\$2.4
Total cost	\$8.12	\$6.85
Profit	\$.87	\$1.14
	Q4 2018	Q4 2019
Profit	\$12060	\$11925
		CHANGE
		\$(135)

# Case 14: Cheesy Situation

Food & Beverage | Profitability



## Brainstorming Question

**What can our client do to increase sales of Gouda cheese?**

Answers should be structured and MECE. Example answer:

Product: Sell a version of the cheese only aged for 3 months, saving \$1.2/lb.

Place: Sell to high end restaurants to increase brand awareness

Promotion: Run an ad at local grocery store, partner with influencers

Price: Examine price elasticity to understand effect on changes in price

# Case 14: Cheesy Situation

Food & Beverage | Profitability



## Recommendations

- Client should plan to increase sales of gouda through increased brand awareness and better product positioning

## Risks

- Risks could include decreased sales of cheddar, poor customer reception, poor ROI on advertising

## Next Steps

- Next steps could include hiring an ad agency, running promotions, changing the aging time for the cheese, etc.