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TOP CONSULTING INTERVIEW PREP

Casebook 2008

Ross Consulting Club

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(Source: Interview case from Bain&Company, Round 1)

Context:

The client is a large film production studio, FilmCo, which develops and distributes full-length feature films for the U.S. and international markets.

FilmCo is planning on releasing its big budget film of the year nine months from now and is considering a new release strategy. The first component of the strategy is to release the movie in heaters on the same day around the world. The second component of the strategy is to release the DVD of the movie day-and-date (meaning releasing the DVD the same day as the theater release). FilmCo is interested in knowing whether this is the best release strategy for this movie and, if not, FilmCo would then like to know what its release strategy should be.

The main question to answer is if the new strategy FilmCo is considering is better than the usual release strategy in the movie industry.
To assess this we need to see which of the releases brings more profits to FilmCo.

a. Regular Strategy: We need to estimate the revenues that could be generated and costs involved with this type of release (which is from my knowledge: theater release in the US followed by theater release internationally, DVD release internationally). In order to estimate the expected revenues, I would look at similar type of movies and their economics
b. New strategy: I would start by checking if this strategy was ever used and the results it brought. Then I would estimate the changes in revenues, costs of this strategy versus the regular one.

Finally, I believe we need to check if there are any regulation regarding international theater release and how these regulations will affect our new strategy

It comes down to deciding between two options on two dimensions:

- Releasing the DVD together with the movie or separately
- Releasing the movie in the same day globally or in first in the US and then around the world

Information provided upon request:

FilmCo has done a simultaneous global theater release, but never simultaneous with the DVD release.

Only one movie has ever been simultaneously released theatrically and through DVD, and it was by a small, independent film company.

The film is the third movie of an action series. The previous two films were produced by another studio, so we have no financial data on them.

The simultaneous theatrical and DVD release is expected to cause a 20% decrease in revenue from theater ticket sales and a 25% increase in DVD sales.

The marketing campaign for the movie is expected to be $50M, while the marketing campaign for the DVD is expected to be $5M. With the simultaneous release, no DVD marketing campaign is required. Pirating movies accounts for a 20% loss in total theater revenue. A simultaneous global theater release will cut this down by 25%.

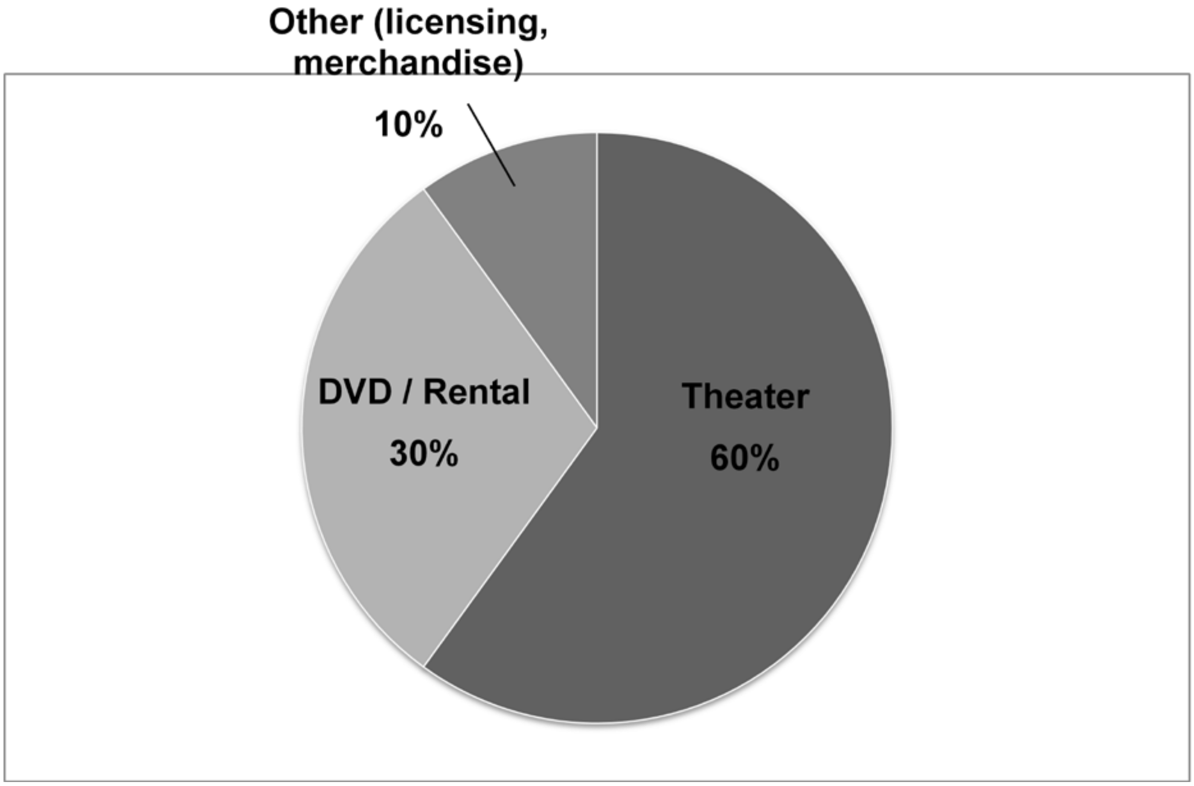
Revenue from Theatrical Releases of Big Budget Films
(last year)

	Number of Films	Gross Revenue
"Blockbuster"	4	$500M
Success	10	$250M
Breakeven	15	$100M
Failure	8	$50M

Revenue from Theatrical Releases of Third Sequels of Action Films
(last 5 years)

	Number of Films	Gross Revenue
"Blockbuster"	14	$500M
Success	3	$250M
Breakeven	2	$100M
Failure	1	$50M

Revenue Breakdown of Big Budget Films



(The interviewer should then calculate the expected revenue from the theater release and from the DVD release using second and third slides and other information that he/she gathered)

$\text{Estimated theater revenue } = \frac{\$500\text{M}*14+\$250\text{M}*3+\$100\text{M}*2+\$50\text{M}*1}{20}$ = \$400 million

Estimated DVD revenue = \$400M*30%/60% = \$200 million

(to decide between going simultaneously with the theater and DVD release versus going separately the candidate need to calculate the profits generated by the two strategies)

	Simultaneous	Separate
Theater revenue	\$400M*80%	\$400M
DVD revenue	\$200M*125%	\$200M
(Marketing cost)	\$50M	\$55M

Profit (before other common costs)	$520M	$545M

(to decide if they should go globally for the theater release or simultaneous, the candidate needs to calculate the impact on piracy)

$400M = revenue earned (80% of total possible revenue)

Unearned revenues (losses due to piracy) in the regular strategy: $400M/0.8 - $400M = $100M

Unearned revenues (losses due to piracy) in the new strategy: 75%* $100M = $75M

(A good candidate will make a recommendation)

I recommend FilmCo should do a simultaneous global theater release but a delayed DVD release because:

- Delayed DVD release would generate $25M additional revenue
- Simultaneous global theater release will save $25M by decreasing piracy

However there are some risks involved with this strategy. With global release we cannot reduce spending in case the movie fails in the US. There are also risks regarding the problems that may be caused by governments impeding or delaying the release in their respective countries.

We need to investigate further these aspects before going forward with the plan.

(Source: Mock Case Interview from Bain&Company)

Context:

Office Vending Services Inc. (OVS) is the market leader in office vending machine services. The business services provided include sales and delivery of product, restocking of machines, and repair of faulty equipment. Profits are substantially down in the business.
The CEO of Office Vending Services needs Bain to assess the root causes of the profitability decline

Good Framework:
There are many ways to go about solving this problem. Key points to bring up in a framework include:

- What is happening with OVS's revenue and costs?
    - Can ask interviewee – what do you think are the major cost buckets for a firm like OVS?
        - (examples – delivery costs, SGA, COGS, etc.)
- Customers – Are wants and needs being met?
- Competition – How is the competition doing? Are there new entrants? Big rivals? Substitutes?

Key slide take-away-s
Ex 1 – OVS revenue decreasing past 2-years; rate of decrease is increasing; Down 8% from '96 –'97; down 13% '97 – '98. (Interviewee should begin to think about what the drivers of the revenue decrease are and may ask for if a revenue breakout is available)

Ex 2 – OVS costs decreasing past 2 years; rate of cost decrease is increasing, but is not keeping pace with the rate of revenue decline; Down 4% from '96 - '97; down 7.5% '97 – '98. (Interviewee should begin to think about where the cost reductions are coming from and what the drivers are. May ask for a cost breakout for OVS.)

Ex 3 – Volume of deliveries are dropping over the past few years. What is the driver? Can have Interviewee speculate.

Ex 4 – Average price per delivery has remained stable; so revenue per delivery has not dropped.

Ex 5 – OVS is dominant player in market but has been losing market share – 20% over the past 2-years. Interviewee should be able to estimate the competitors' market size, as well as the percentage of the market OVS currently has.

- OVS Revenue: $200M (40% of market)
- Vend Int. Revenue: $130M (26% of market)
- Candy & Pop Revenue: $110M (22% of market)
- Other Revenue: $60M (12% of market)

It is also important for the interviewee to see that Vend has grown the fastest at 40%. It will be important to understand how Vend has grown – what does Vend do well that has allowed them to be so successful over the past few years?

Ex 6 – Should see what attributes are important to customers and how OVS ranks versus their competitors. The top 2 for customers (Price and Delivery Reliability) are where OVS scores the lowest. Conversely, Vend scores the highest in these two categories. Additionally, OVS scores very well in Product Variety and Machine Service/Repair, yet these are not nearly as important to customers. Interviewee should begin to make links between what has allowed Vend to grow (meeting customer needs) while OVS loses market share.

Ex 7 – Same as Ex 6, just in graphical format; same key information should be obtained.

Ex 8 – There are many take-away-s form this slide.
First, interviewee should see that OVS's COGS, SGA and Repair costs are significantly higher (roughly 100%) than the competition. Additionally, OVS's costs for delivery are in line with their competitors, despite higher market share – which would correlate to the poor customer satisfaction when it comes to delivery. This may begin to suggest that OVS could reduce costs in COGS (reduce product variety since it isn't as important to customers; get better prices if buying larger volumes of fewer products), reduce repair costs (again, not as important to customers) and reallocate some of this to delivery to increase customer satisfaction. SGA may also see a slight reduction as complexity in ordering, labor and other line items as fewer products are ordered and repairs are reduced.

Also, interviewee can calculate each firm's profit margin in order to compare them in a more direct manner.

- OVS: 200/200 = 0%
- Vend: 117/130 = 10%
- Candy: 98/110 = 11%

This clearly shows that OVS's profit margin is non-existent and that their competitors are running a more efficient operation.

Ex 9 – OVS's cost per delivery is 9.5% higher than the competition. Also, the breakout of the overall costs within each delivery differs:

- OVS's COGS and SGA per delivery are higher (roughly 70% of total delivery cost versus 50%)
- OVS's delivery bucket of the overall cost per delivery is roughly half the cost of the competition – again, not meeting customers' need and spending less than other vendors.

Ex 10 – OVS has been reducing costs across the board, but the largest reduction has come from deliveries – which is clearly impacting the overall business. The small decreases in the other large buckets, has not significantly impacted overall costs.

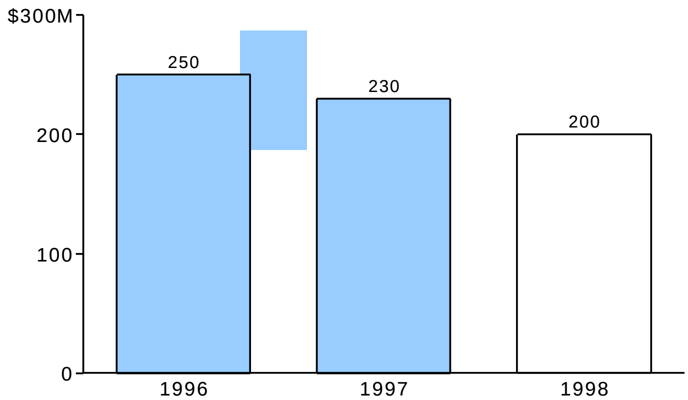
Conclusion

What is the overall issue with profitability?

- Profit margin is current 0% compared to 10% and 11% for two largest competitors
- OVS is reducing costs, but revenue is dropping faster than costs are
    - OVS has reduced costs significantly in Delivery, yet this is the most important attribute to customers
    - OVS has not reduced costs much in COGS, yet Price is very important to customers
- Not meeting customers' needs:
    - Price and Delivery are the most important but OVS scores lowest in these categories; competitors are meeting customers' needs and are stealing share away from OVS
    - OVS's spending on Product Variety and Repair are significantly higher than the industry spends and are in areas that customers do not value as much – need to reallocate and reduce
- Potential next steps:
    - Look to reduce COGS, SGA and repair costs
        - A reduction in product variety could decrease COGS through economies of scale – OVS would purchase higher volumes of fewer products, lower cost/unit
        - Reduction in variety may also reduce costs of delivery as there would be fewer products to carry in vehicles (more deliveries possible) and may reduce the time/complexity of refilling a machine
    - Increase spend on delivery to improve customer satisfaction (more research needed)
        - More drivers
        - Better vehicles
        - More efficient delivery routes

Ex 1: Office Vending Services revenue

Office Vending Services revenues

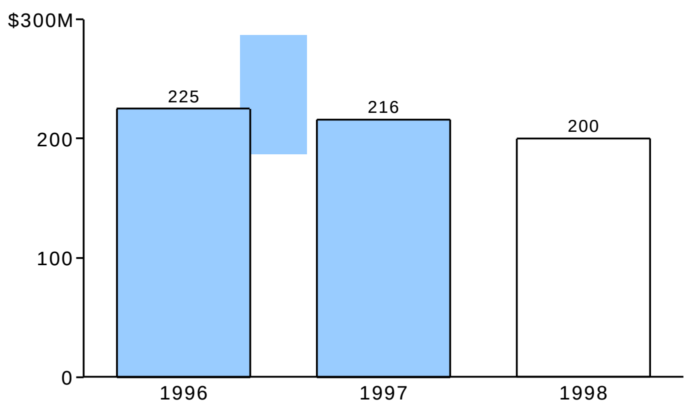


Source: Office Vending Services, Inc. Financial Statements

CHI 2

Ex 2: Office Vending Services cost

Office Vending Services costs

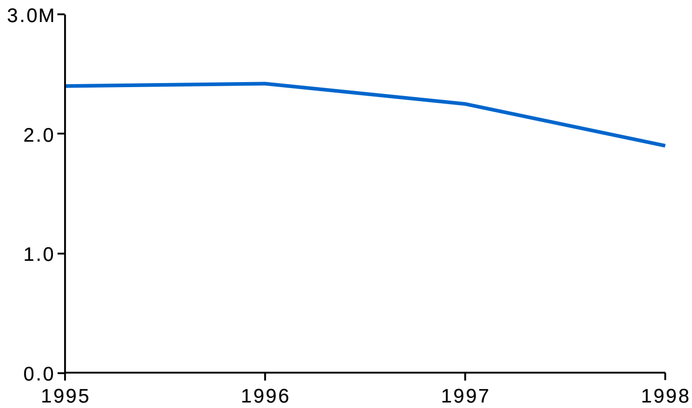


Source: Office Vending Services, Inc. Financial Statements

CHI 3

Ex 3: Office Vending Services volume sold

Volume sold (deliveries)

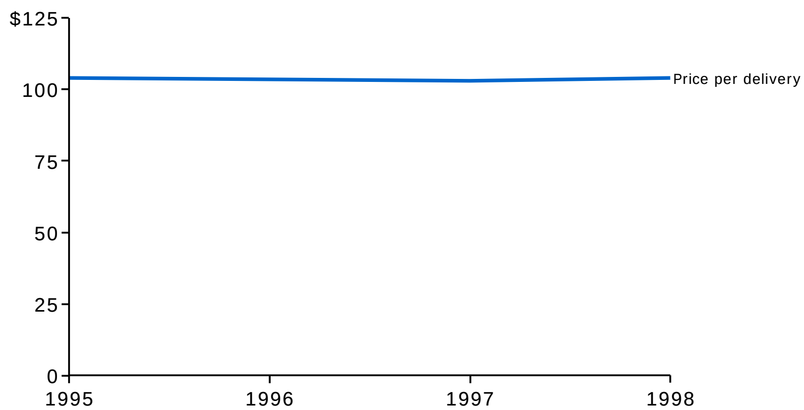


Source: Office Vending Services Financial Reports

CHI 4

Ex 4: Office Vending Services historical pricing

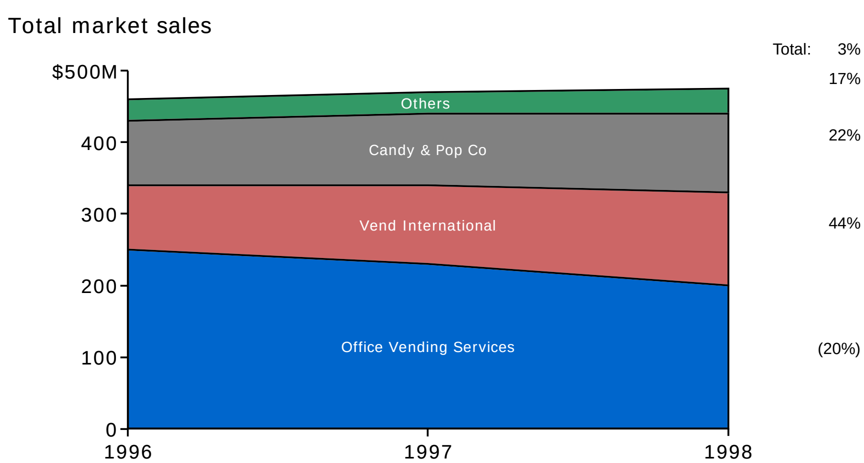
Office Vending Services average price
(per delivery)



Source: Office Vending Services Pricing Data

CHI 5

Ex 5: Office Vending Services market trend



Source: Market Research; Company Annual Reports; Office Vending Services Financials

CHI 6

Ex 6: Customer satisfaction

Attribute	Importance	Office Vending Services	Vend International	Candy & Pop Co.
Price	10	4	8	7
Product Variety/Selection	6	10	5	6
Delivery Reliability	9	5	10	8
Machine Service/Repair	3	9	4	5
Complaint Resolution	5	7	5	4

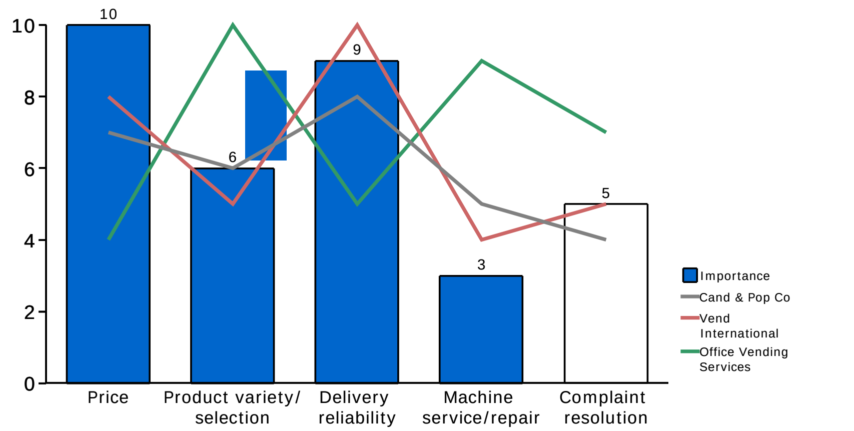
Importance/Performance: 1=Low, 10=High

Source: Bain Customer/Market Research for Office Vending Services (n=3500)

CHI 7

Ex 7: Customer satisfaction

Customer rating of importance/performance



Importance/Performance: 1=Low, 10=High

Source: Bain Customer/Market Research for Office Vending Services (n=3500)

CHI 8

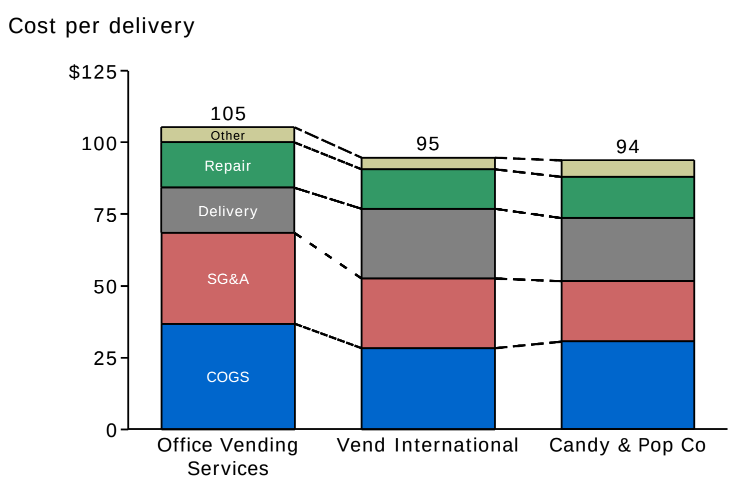
Ex 8: Competitor comparison (1998)

Competitor	Revenue	Cost of goods sold	SG&A expense	Direct labor (delivery)	Direct labor (repair)	Other costs
Office Vending Services	$200M	$70M	$60M	$30M	$30M	$10M
Vend International	$130M	$35M	$30M	$30M	$17M	$5M
Candy & Pop Co.	$110M	$32M	$22M	$23M	$15M	$6M

Source: Financial Statements & Annual Reports

CHI 9

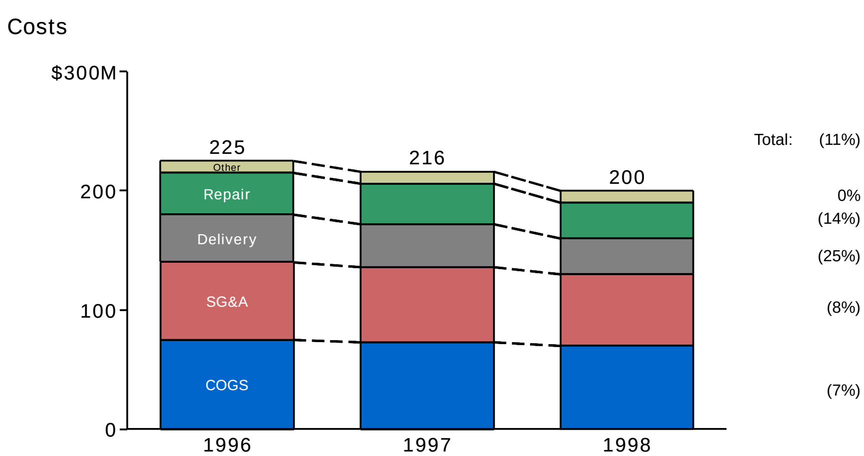
Ex 9: Office Vending Services cost per delivery (versus competitors)



Source: Financial Statements & Annual Reports

CHI 10

Ex 10: Office Vending Services cost structure (historical trend)



Source: Office Vending Services Financial Statements

CHI 11

(Source: Case Interview from McKinsey&Company, Round 1)

Context:
Our client is a retail Brokerage firm with annual revenues of $5B. They are operating throughout the US with 200 branches opened. Half of these branches are corporate and half are franchised.

Interviewer: What are the economics of this business?
A good answer will identify the followings:
In order to analyze the economics of the business I need to find more information about their revenues and costs. Then I would like to look into what competition is doing on the market, how segmented the market is and who are the consumers and what are their needs.

- On the revenue side, I need to understand where their revenues are coming from and then break it into the two components price and quantity
- On the cost side, I would like to look at the fixed and variable costs:
    - Fixed costs:
        - SG&A
        - IT system
        - Marketing
    - Variable costs:
        - Labor
        - Other cost related to commissions, fees
- Next thing that I would like to look into is what competition is doing: how many competitors do we have, are there new competitors in the market, have they stolen share from us, are they offering services that we are not
- We also need to understand how the overall market is doing: is it growing or shrinking; how segmented the market is and if there are specificities related to regions
- Further, the consumer: who are they, what do they want how our client's products meet their needs

Information to be provided upon request:

Revenues come from 2 different divisions:
- **Trading : $3B**
- **Asset Management: $2B**

Trading means that brokers do specific transactions as per their customer's requests. The revenue in this division would come from a fixed fee of $10 per transaction.
In the Asset Management division, the firm is administering the customer's money and the revenues come from a percentage from the total amount administered assets which is 1%

Costs:
Fixed costs: $1B
$800M – IT ($700M from Trading and $100M from AM)
$100M – Marketing
$100M – SG&A

Variable costs:

Trading:

- **Commission to brokers: 40% of revenues**
- **Other costs: $2 per transaction**

Asset Management:

- **Commission to brokers: 40% of revenues**
- **Fee to an outsourcing firm that is managing the assets: 0.4%**

Interviewee should now do the calculations for the profits:
Profits = Revenues – Costs

Trading division:
Revenues = $3B
Fixed Costs = $700M(IT) +$60M(Mkt.-pro rated from the revenues) + $60M(SG&A-pro rated from the revenues) = $820M
Variable costs:

Commission: 40% of the $10 fee = $4 per transaction
Other = $2 per transaction
Number of transactions = $3B / $10 = 300M

Variable costs = $6 * 300,000 = $1.8B

Asset management division:
Revenues = $2B
Fixed Costs = $100M(IT) +$40M(Mkt.-pro rated from the revenues) + $40M(SG&A-pro rated from the revenues) = $180M
Variable costs:

Commission: 40% of the $2B revenue = $800M
Fee for the outsourcing company = 0.4% of the $200B total administered assets = $800M
Total assets = $2B / 1% = $200B

Variable costs = $1.6B

Profits:
Trading profits = $3B - $1.8B - $0.82 = $380M (12.66%)
Asset Management profits = $2B - $180M - $1.6B = $220M (11%)
A good candidate will also observe that Asset Management is slightly more profitable than trading.

Interviewer: Now we are almost in an economic depression. What would happen to this firm if an economic recession would happen next year? Calculate by how much they need to increase the number of transactions/ assets managed now in order to breakeven in each division in case of recession.

In order to do that I need to know what happened with this firm at the last recession in order to try to benchmark the effects.
(if the interviewee does not ask for past recession effects ask to brainstorm on how they can estimate the effects of the incoming recession till they get to this answer)

Interviewer:
Number of transaction decreased by 50%
Assets managed decreased by 15%

For Trading:
If x = number of transaction needed now
#transaction * revenue per transaction = fixed costs + #transaction*variable cost per transaction
(50% * x) * $10 = $820M + (50% * x)*$6
x = 410M
They will need to increase the number of transaction by ~35% [(410M-300M)/300M]. I don't think this is feasible in a short period of time, especially just before a recession.

For Asset management:
If y= amounts of assets needed now
Amount of assets*% of assets = fixed costs for asset management + variable costs for asset management
(80% * y)* 1% = $180M + [(40% *1% *y*80%) + (0.4% *y*80%)]
y = $112.5B
There is no risk of becoming unprofitable in this division.

Interviewer: How can they address the risk of the recession (how can they keep the profitability at current levels)?

They can either try to increase the revenues or decrease the costs:

Increase revenues:
- Change the product mix – get more asset management business because it is more profitable
    - Advertise
    - Incentivize brokers to get more assets
    - Offer more benefits for customers coming to us instead of competition
    - Extend office locations
    - Offer new products for current customers
    - Put in place a field sales team of brokers to get more assets or trade customers either by attracting more and richer customers or by making the current ones put more money in
- Get more, richer customers
- Increase the fee per transaction or the percentage for the asset management
- Segment the market and differentiate depending on customer

Decrease costs:
- Fixed costs:
    - IT seems to be the highest: outsource it because it can also bring some other benefits like expertise from an IT firm, risk dispersion if it breaks down
    - Use cheaper systems, less qualified labor
- Variable costs:
    - Decrease the commission for brokers
    - Get the asset management in house
    - Link the commission of the brokers to the performance; create an incentive system to actually make them bring more business

(Source: Case Interview from Bain&Company, Round 1)

Context:

Game Co. currently owns four casinos in Slot City. Competitors are contemplating opening up a rival casino in Libertyville.
Game Co has hired Bain to assess the ramifications of a competitor opening a casino in Libertyville and Game Co.'s strategic options

Initial facts:

- **Currently there are no casinos in Libertyville. There are competing casinos in Slot City but they are not relevant because it is a mature market.**
- **Slot City has a 25% tax on revenue. Libertyville has a 50% tax on revenues.**

Question 1: What are the ramifications for existing revenue if a casino opens in Libertyville?
Question 2: What are Game Co's options?

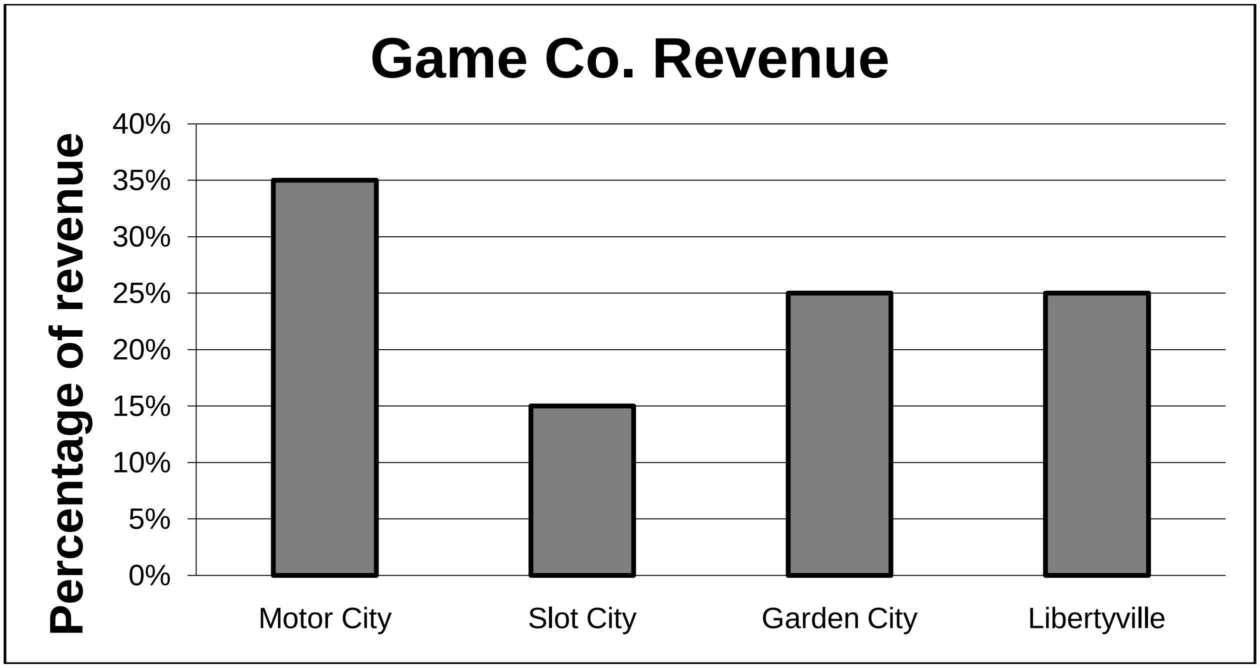
For Question 1:
In order to assess the implications of a new casino in Libertyville on Game Co we need to understand:

- Revenues: What are the revenues of Game Co and where this revenue comes from (type of services, etc)
- Geographic location: where is Libertyville located in relation to Slot City. Where are the revenues from Slot City coming from geographically
- Customers: Who are the customers of Game Co and how this customers may consider going to competition in Libertyville; how many are they and how many they can lose to competition

Interviewer *(information provided only on request):*
Game Co. revenues are $1.2B
Majority of revenues come from 4 cities: Slot City, Libertyville, Garden City, Motor City (show slide)
Garden City and Motor City are nearby, approximately 1 hr from Slot City. They are both ~2 hr. from Libertyville. Libertyville is ~ 1hr from Slot City. There are no casinos in Motor City or Garden City due to city regulations
Customer base is 1.8 million per year.

(customer segmentation is a key insight)
(do not let the candidate become bogged down into calculating costs and estimating profits)

Charts given upon request:



Customer segmentation

	% of Revenue	Revenue $MM	Customers (000s)	Revenue / Customer
Plug & Chug	40%	480	1000	480
Vacationers	50%	600	600	1000
Experiencers	10%	120	200	600

Psychographic segmentation of Game Co. customers

Plug and Chuggers: **Hard Core gamblers who only want to gamble and care most about convenience (assume casino payouts are identical across the board)**
Vacationers: **want to "get away" and leave the area for a week or weekend**
Experiencers: **want to live the casino experience (lights, shows, action, etc.) and are interested in the casino itself and what it has to offer**
Other information given upon request:

All customers are evenly distributed across cities

Conversion information:(before giving this information ask the candidate for his/her opinions)
Plug and Chuggers will shun Slot City for the new, closer casino (100% conversion)
Vacationers want to get away so would not go to the Libertyville casino (0% conversion)
Experiencers may to may not go somewhere else – a range of answers is accepted but assume 50% for the calculations

Important: assume the additional drive time from MC or GC to LV will deter any significant number of those customers from defecting to Libertyville

Q1 calculations and insights:

Calculations (Don't give interviewer)

Customers	Revenue	Percentage of Rev stolen by Libertyville	% lost to new casino	Total revenue lost ($MM)
Plug & Chug	480	25%	100%	120
Vacationers	600	25%	0%	0
Experiencers	120	25%	50%	15
	(Rev)	X (Libertyville Rev. Share)	X (Conversion) =	Revenue Lost

Rev Lost if Competitor Opens a rival Casino => $135 M

New Tax Rate	50%
Old Tax Rate	-25%
Delta Tax Rate	25%

Rev lost to taxes **135M x 25% = 33.75M**
if Game Co. Builds a Casino in Libertyville

Synthesis
A competitor's casino will reduce overall revenues by $ 135 M If Game Co. builds a casino in Libertyville, it will steal share from itself and lose 33.75M in revenue. Better to lose 33.75 than 135 M!!

For Question 2:
The options that Game Co has are:

- Do nothing
- Open a casino in Libertyville

(Candidate should understand that it is more desirable to cannibalize within the company than to allow outside competitors to steal the revenue)

Recommendation:

Game Co should open a new casino in Libertyville. The new casino will only affect the customers in Libertyville due to the geographic area. The customers depending on the segment will react very differently to the opening and all these needs to be assessed. However there are some risks associated: competitor opens the casino first and gets the 1st mover advantage by opening their casino earlier and there may be high costs of construction / operation of the new casino.

Bonus question:
How can Game Co. make up for the lost revenues?

Possible answers can include:

- Charge an entrance fee
- Eliminates amenities (e.g. free drinks)
- Increase other revenue streams (food, hotel, etc.)
- Stimulate new customer demand through:
  - Loyalty programs
  - Promotional give away-s / Increased marketing
  - Targeting customers in cities near Libertyville but far from Slot City or vice versa
- Steal share from existing casinos in Slot City through similar means as listed above

FUN FACT: Based on a real case with Slot City = Atlantic City, Libertyville = Philadelphia, Motor City = New York, Garden City = New Jersey

(Source: Case Interview from The Boston Consulting Group, Round 2)

Context:
PlastiCo currently sells thin lamination film used to make advertisements and signs (think ads on the side of the city busses, buildings or billboards) – sold in all manners of colors and finishes (matte, gloss, shiny, etc)
PlastiCo currently sells its material in the USA at 10cents / sq. ft.
A European competitor has just finished building a lamination factory in Los Angeles and is approaching our customers and offering to sell them product at 9cents /sq. ft.

PlastiCo hired BCG to help them figure out if they should match the competitor's price.

Establishing the case and asking for more information
So our client is facing competition in the US from a European manufacturer. Our task is to evaluate this threat and advice our customer on a strategy to match or not match the competitor's price, Before that I need some more information on what are the products our customer sells and who are the customers of our client.

Interviewer:
This plastic film is manufactured in giant rolls and cannot be economically transported by air and cannot survive the harsh conditions of shipment by sea.
Currently the majority of sales are to independent regional suppliers. The reminder of sales is shipped directly to major accounts (major Ad Companies, Home Dept., etc).

A good structure should include the following:
There are two options for our client: matching the competitor's price or not.
For assessing the feasibility of each of the options, I want to investigate the following areas:

- the profits in both cases and the long term implications of either approach
  - In order to do that, we need to look at the revenues and costs. We need to analyze the type of products our customer sells and at what price. Then we need to assess the variable costs along with the fixed costs
- the market:
  - market size;
  - the market share of our customer and how much of it would be threatened by the European competitor

Interviewer: (information given only when requested)

Market size = 1 billion sq. ft.
Current market share = 100% - *Interviewee should immediately realize that it is a Monopoly*

This lamination film is essentially a commodity *(the candidate should immediately know that it means that the customers are sensitive to price and would switch to a cheaper version)*

The new competing plant has only capacity to produce 250 million sq. ft. per year (25% of the market)

75% of PlastiCo's products can be manufactured by the competitor with no discernable difference. *The candidate should realize that 25% of the products are differentiated products b/c it uses high tech coating process that prevents colors from fading.*

Additional candidate insights:

Because it is a Monopoly, our client should attempt to price as high as possible to consume all customer's willingness to pay.

Our client should concentrate on the 25% of the product that cannot be copied:

- Increase the price of these specialty items
- Without substitutes, higher margins here can offset the lost revenue on the other 75% of the products

Do we have any information about the profit margins, so we can estimate the profits?

Interviewer should show the following slide:

Profit Margins

(Per 1000 sq feet)

Revenue	100	$
COGS	65	$
Profit	35	$

Profit Margin for existing plastic film manufacturing operations

Sample solution calculation:

Do not match price:
Market share lost: 25%
Profit loss= $0.035/sq. ft. * 250M sq. ft. = 8.75M
We made the assumption of 100% conversion to the competition

Long term implications: This situation leaves PlastiCo open to further mkt. erosion if competitor increases capacity. Margins can also be eroded due to loss of scale (not a good long term solution)

Match Price:
Profit loss: 1c/sq. ft. on every sale
= 1,000M sq. ft * $0.01 = $10M
We made the assumption that no market share will be lost (which is not necessarily true)

Long term implications: it is more expensive in the short run but defends the market position

Bonus questions: how much market share would need to be lost before it would cost more (in the short term) to match the 9c/sq ft. price?
Solution:
1,000M * $0.035 * (x%) = $10M
X = 28.57%

Recommendation:

PlastiCo must match prices to stave off possible market share decline of 25% in the first year and potentially more if competition expands its existing plant. The remaining 25% of products should retain their high prices and perhaps even raise them to maximize producer surplus. There are some risks though as even with the price match, they can lose some market share.

(Source: Case Interview from Bain, Round 2)

Context:

The client is a small drug manufacturer, DevCo, based in the United States. DevCo currently has one drug on the market sold mainly in the United States, but has also sold to a lesser degree in the U.K. and Germany.
DevCo is looking to increase its presence in Europe and is considering expanding into Poland, Spain, and France, specifically.
DevCo is interested in knowing which country it should expand into and what the criteria should be for choosing a country.

I would need some more information before going further. First I would like to know what the drug our client sells is and what it is used for. Second, I would like to know why its presence in UK and Germany is low and why the company is considering Poland, Spain and France and no other country.

A good structure will include the following elements:
To assess which country they should expand into I would like to investigate:

- The market for the product our company is selling in each of the countries (market size, profitability, growth).
- competition and understand how fragmented the market is, what is the share for our customer and for competition, what is the likely reaction of competition to our launch
- Potential regulation regarding the introduction of a new drug

The final answer will be given by the answer to the question regarding which of the countries is going to bring more profits to the client.

Information provided upon request:

The drug is an anti-clotting drug used during angioplasties, a type of heart surgery.

In Europe, when a patient has heart problems, they have one of three options:
(1) open-heart surgery (a very invasive surgery)
(2) angioplasty (a less invasive surgery)
(3) over-the-counter or prescription medicine

DevCo has a lesser presence in the U.K. and Germany because they only recently entered those markets
DevCo is considering entering Poland, Spain, and France because those countries have the next 3 largest populations in Europe behind the U.K. and Germany
DevCo only wants to enter 1 country and intends to stay in that country for at least 5 years.

Buying decisions are made by the physician and the insurance companies and patient have little input.

(when the interviewer asks for the number of angioplasties, before showing the slide, ask to brainstorm:)

Question: How can we determine number of angioplasties per country?
Possible answers:

- Government registries
- World Health Organization
- Call Hospitals
- Use comparable countries to estimate proportion of surgeries to population of country

(when the interviewer asks for the market shares, after showing the slide, ask to brainstorm:)
Question: What can be causing the varying market share for PharmaCo and Kitzer?
Possible answers:

- First Mover's advantage
- Varying advertising spending
- Local connections
- Varying perception of doctors of which surgery is high and low risk

General Information on DevCo and Each of its competitors to be given upon request:
PharmaCo:

- **Drug used in high risk surgeries (~40% of surgeries)**
- **Price $400 / drug**

Kiltzer Inc.:

- **Drug used in low risk surgeries (~40% of surgeries)**
- **Price $400 / drug**

Mork&Co:

- **Drug used in very high risk surgeries (~10% of surgeries)**
- **Price $2,000 / drug**

DevCo

- **Drug used for high and low risk surgeries**
- **Claims less blood clothing**
- **Price $400 / drug**

Other information given upon request:

Time to market differs by country:
Poland: 0-2 years
Spain: 0 years
France: 6 months

Distribution available, but costs are controlled by country:
Poland: 5% of revenue
Spain: 0% of revenue
France: 10% of revenue

Government restrictions: none in any of the countries

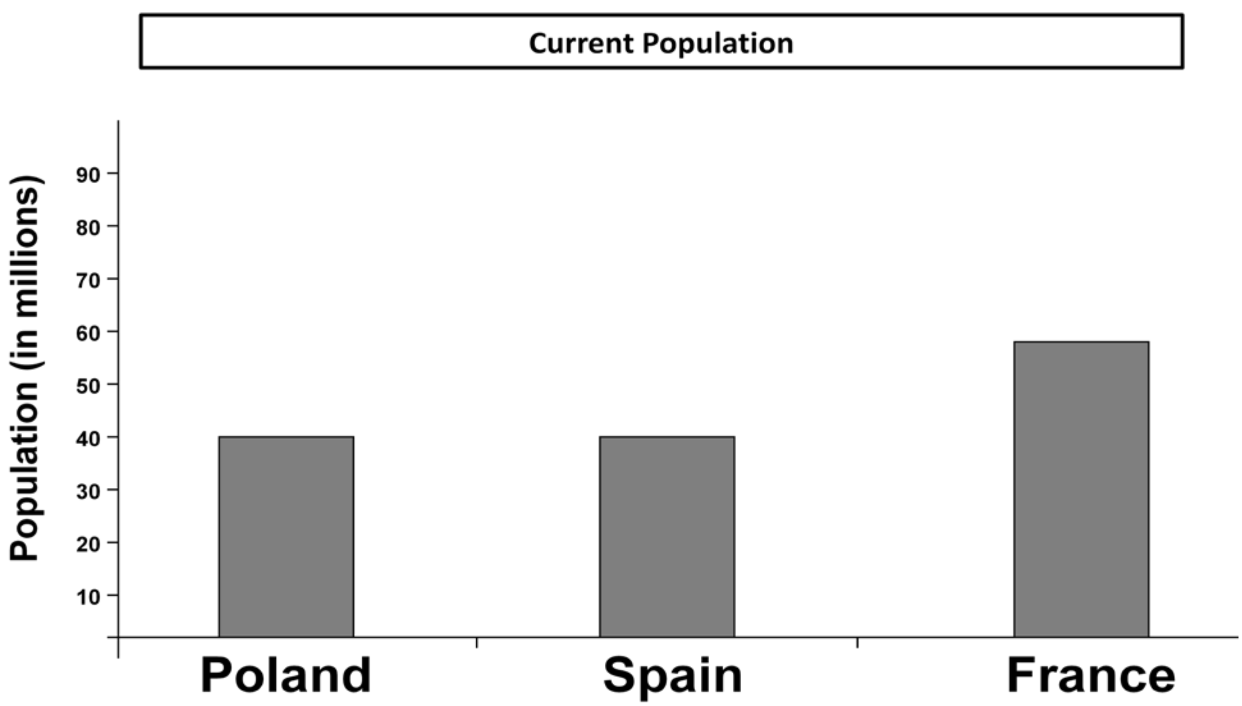
Solution Guide (the table will help take a decision):

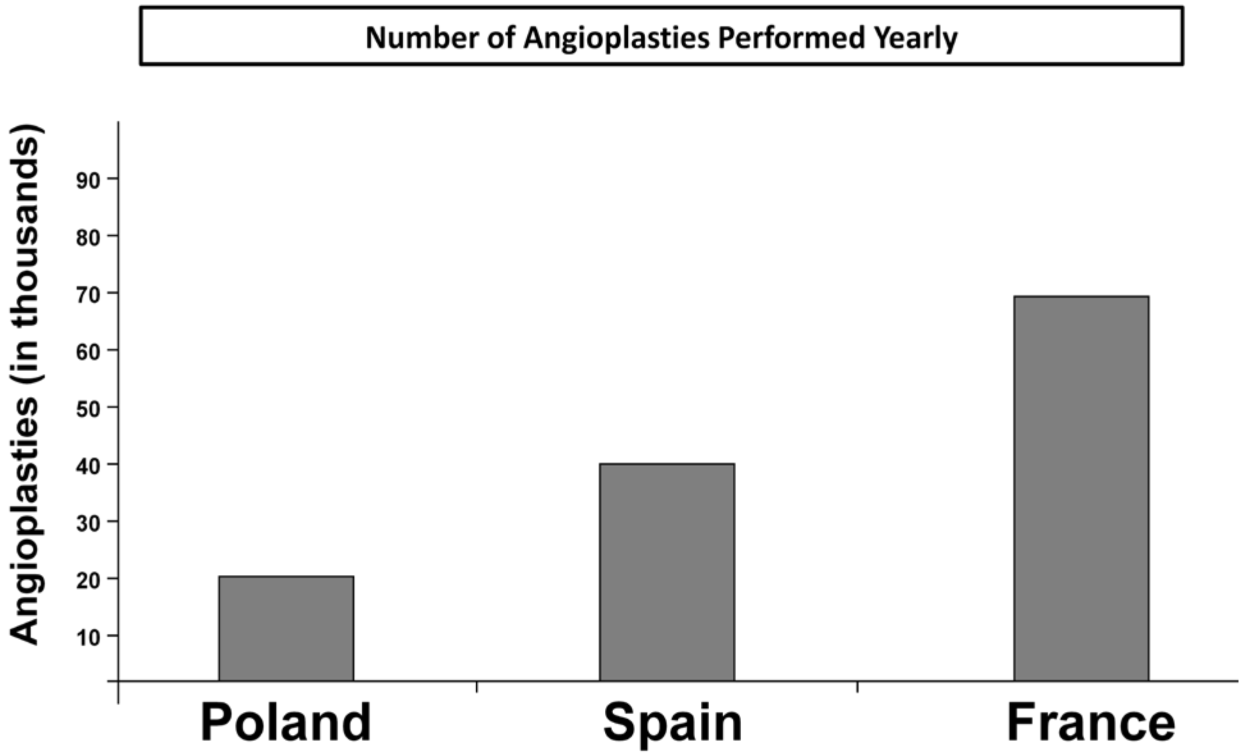
	France	Spain	Poland
Market size	70M	40M	20M
Market growth	-5%	0%	+10% per year
Competitive environment	2 main competitors having equal shares	One dominant competitor	One dominant competitor
Distribution	10% of revenue	No cost	5% of revenue
Time to market	6 months	Immediately	0-2 years

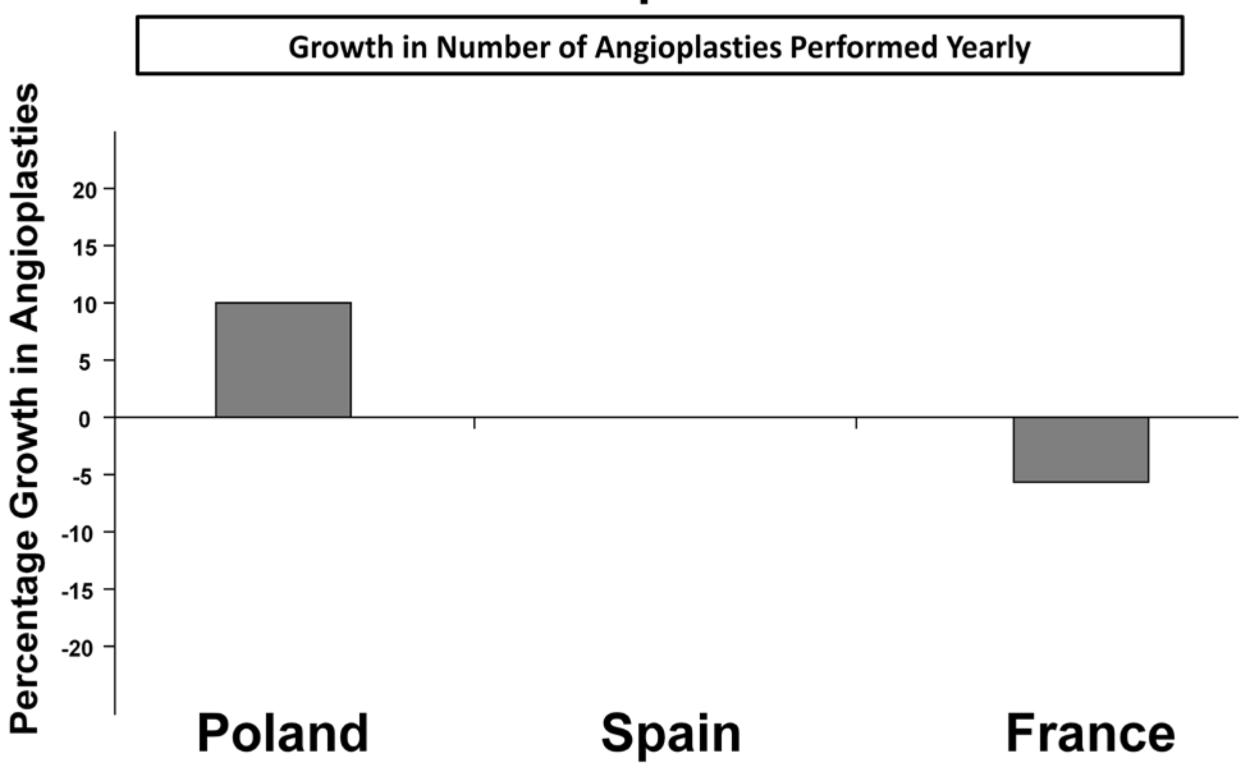
(A good interviewer will come up with a recommendation)
I recommend they enter France. With 70K angioplasties per year, even with the decrease every year, it will still be the best option for the next 5 years. No other competitor has leverage in the French market. Entering the market will take 6 months, so they can begin selling it very fast. In this time they should start to develop relationships with physicians and secure distribution channels.

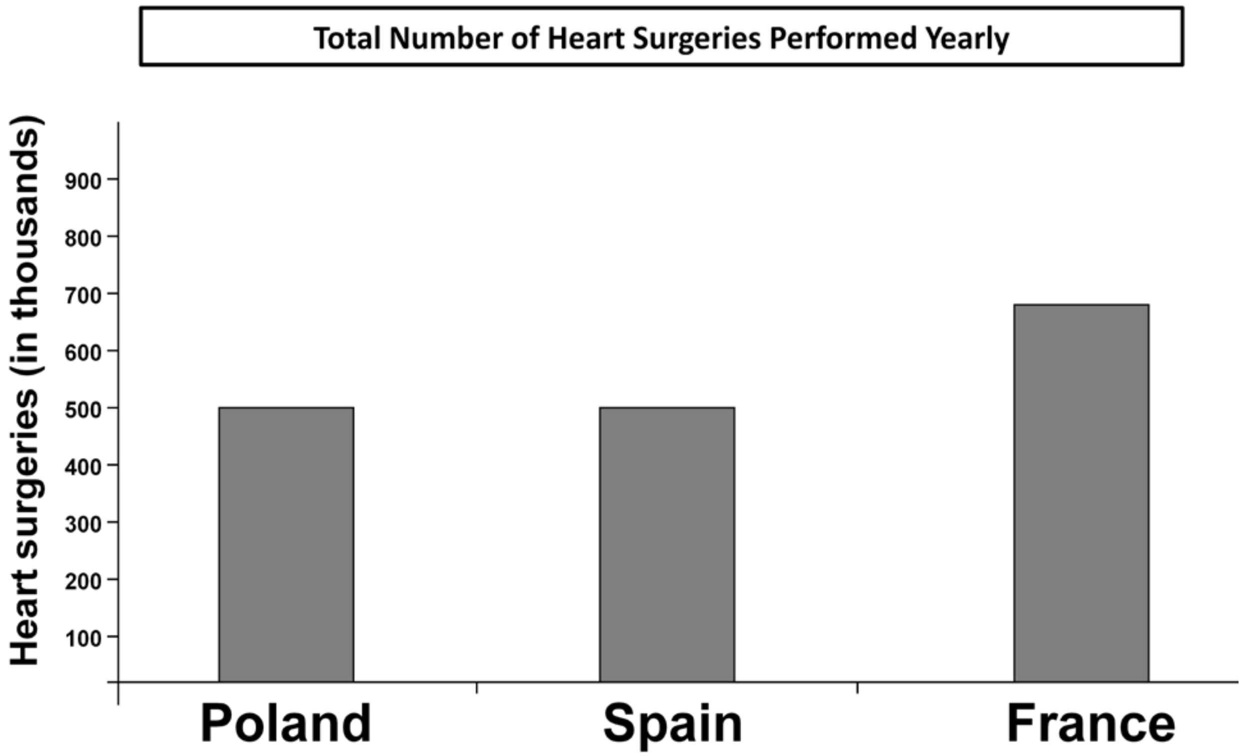
(Either France or Spain is a good answer as long as the candidate supports it)

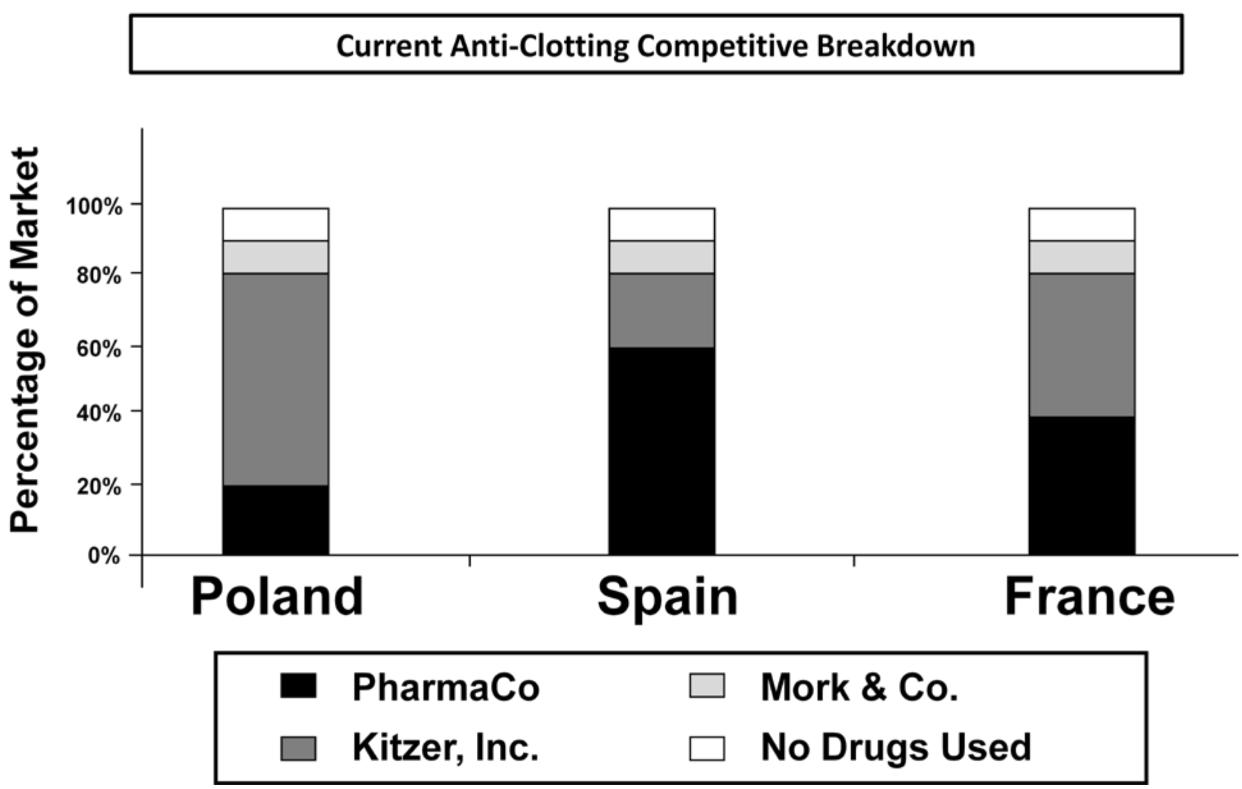
Charts to be given upon request:




Number of Angioplasties Performed Yearly
Angioplasties (in thousands)
90
80
70
60
50
40
30
20
10
Poland
Spain
France


Growth in Number of Angioplasties Performed Yearly
Percentage Growth in Angioplasties
20
15
10
5
0
-5
-10
-15
-20
Poland
Spain
France


Total Number of Heart Surgeries Performed Yearly
Heart surgeries (in thousands)
900
800
700
600
500
400
300
200
100
Poland
Spain
France


Current Anti-Clotting Competitive Breakdown
Percentage of Market
100%
80%
60%
40%
20%
0%
Poland
Spain
France
PharmaCo
Mork & Co.
Kitzer, Inc.
No Drugs Used

(Source: Mock Case Interview from The Boston Consulting Group)

Context:

Our client is a fast food chain; they hired us to analyze their idea of implementing a new promotion: a frequent diner program similar to the airplane ones:

- **for every $1 spend - 1 point**
- **for every 20 points – a free movie ticket**

A good structure will include the following elements:
We need to understand if the implementation of the program will bring additional profits to the company. In order to do it, we need to investigate the followings:

- Additional revenues coming from the implementation of the program (they can come from additional customers, additional spending from a customer each time they visit the store, more visits per year from one customer)
- Additional costs necessary to implement the program (operational costs regarding the program, additional costs generated by additional meals sold, cost of the movie tickets)
- Competition and how they would respond to the implementation of the program by our client; It seems like a very easy program to implement, so it might be very easy to copy by competitors.
- consumers and how they will respond to the new promotion or more important what their needs are because while we are spending energy implementing this program competitors might address other needs of the consumers that might be more likely to determine them to move to competition.

Information provided upon request:

No of locations: 500
No of customers: 20,000
The price of a meal: $4
Current margin: 50%

Cost of a movie ticket $1 (ask first the candidate about their opinion on how much it would cost)
The redemption percentage of the movie tickets = 50%
They will only pay for the redeemed tickets.

They have 2 customer segments:

- **frequent customer : 40% and come to the stores 30 times / year**
- **occasional customer : 60% and come to the stores 9 times / year**

The program will increase the number of visits:
- by 6/year for the frequent customer
- by 3/year for the occasional customer

Enrollment:
- 20% of the frequent customers will join the program
- 5% of the occasional customers will join the program

Solution:

Additional revenue coming from the implementation of the program:

	Number of customers	Additional revenue
Frequent customers:	20%*8,000 = 1,600	1,600*6times/yr*$4=$38,400
Occasional customers:	5%*12,000 = 600	600*3times/yr*$4 = $7,200
Total additional revenue		$45,600

Additional costs = additional costs of the extra meals sold + cost of the movie tickets
= 50% * $45,600 + 50% * (36*1,600*4 +12*600*4) / 20
= $35,760

Additional profits from the program = $45,600 - $35,760 = $9,840

(a good candidate will make a recommendation)

I recommend they should go further with the program as it provides the company ~ $10,000 additional profits. However, there are some risks involved that needs to be investigated before the actual implementation like:

- Implementation costs (cards, staff to help people signing up, handling the movie tickets, filling reports, etc.)
- Longer waiting lines due to the additional tasks
- If margins decrease the program becomes unprofitable (ex 30%)

We would need to investigate these aspects before going further with the implementation

(Source: Case Interview case from Bain&Company, Round 1)

Context:

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

Q1. How would you go about defining the parameters for decision?

Q2. Where should they setup the plant based on that analysis?

(A good structure should include the following elements)

1. ***Export control restrictions*** between the US and FR & BR; this is important because if the transfer of technology is disallowed, then the only option is to setup the plant in the United States
2. ***Financial analysis*** of operating up the plant in different locations
   a. *Costs (FC, VC)*
   b. *Revenues that accrue from sales*
   c. *Where are the profits?*
3. ***Customers***
   a. *Where are they based?*
   b. *Need to be close to the customer for design inputs*
4. ***Suppliers***
   a. *Spare Parts*
   b. *Raw materials*
5. ***Logistics***
   a. *What's it going to take to get the product to the customer?*
6. ***Manpower*** (availability of skilled managers, technicians)

(Provide the interviewee with the information she/he asks for, but don't volunteer any information. The case itself isn't very hard, but the critical thinking around how a country might alter purchases based on country of origin is a thought that good interviewees will bring up. The other key aspect is the interviewee's ability to capture data and not get lost in it.)

Data to provide the interviewee, but only upon specific request

Company Information

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

Cost Information

- **Initial plant setup costs are $500M (US), $2B (BR), $3B (FR)**
- **Fixed Costs are $100M annually in all three countries**
- **Variable costs are $15M (US), $20M (BR), $25M (FR)**

Market Size and Revenue Information

- **Defense Budget for next 5 years: $100B (US), $15B (BR), $10B (FR)**
- **% of Defense Budget to be spent on our helicopters over the next 5 years**

	Purchases by US Dept of Defense	***Purchases by BR Dept of Defense***	***Purchases by FR Dept of Defense***
Plant in the US	**20% of budget**	**0%**	**0%**
Plant in BR	**20% of budget**	**50% of budget**	**0%**
Plant in FR	**20% of budget**	**0%**	**50% of budget**

Sales information

The helicopter sell for $100M a piece, but if they are imported into the US, then the US Govt. require them to be certified and the certification process costs $15M per chopper.

SOLUTION:

	United States	Brazil	France
Costs (5 years)			
Initial Setup	$500M	$2B	$3B
Annual Fixed costs	$100M x 5	$100M x 5	$100M x 5
Variable costs	$15M/ chopper	$20M/ chopper	$25M/ chopper
TOTAL COSTS (over 5 years)	500M + 500M + (# of units) x ($15M)	2B + 500M + {(# of US bound units) x ($20M + $15M} + (# of BR bound units) x ($20M)}	No need to calculate since revenues is lower and costs are higher than Brazil, so ignore.
Revenues (5 years)			
US	$20B	$20B	$20B
BR	0	50% x 15B = $7.5B	0
FR	0	0	50% x $10B = $5B
TOTAL REVENUE (over 5 years)	$20B	$27.5B	$25B

<u>If plant in US</u>
US revenues over 5 years = 20% of 100B = 20B
# of choppers = $20B / $100M = 200 helicopters
Total Cost = 500M + 500M + (200) x ($15M) = $4B
PROFIT = $16B

<u>If plant in BR</u>
US revenues over 5 years = 20% of 100B = 20B
BR revenues over 5 years = 50% of 15B = 7.5B
# of US-bound choppers = $20B / $100M = 200 helicopters
# of BR-bound choppers = $7.5B / $100M = 75 helicopters
TOTAL COST = 2B + 500M + {(# of US bound units) x ($20M + $15M} +
{(# of BR bound units) x ($20M)}
= 2B + 500M + (200) (35M) + (75) (20M)
= 2B + 500M + 7B + 1500M
= $11B
PROFIT = $16.5B

Having the plant in Brazil will give us profits higher than the US by $500M

(A good candidate will come up with a recommendation)

Based on the financials, Brazil appears to be a more attractive candidate for setting up the new plant because:

- our profits over 5 years will be higher by $500M
- we won't be entirely dependent on one single country (US) for sales

However, we need to also explore the following:

- what is the potential for selling choppers outside of these 3 countries to the worldwide market
- what will labor reaction at our existing plants be if we off shore production to Brazil
- are US relations with Brazil likely to be cordial over the next 5 years for us to benefit from export control laws and sales to both nations

(<u>Case writers tip</u>: This case is not overly complicated, but allows for the opportunity to bring in your own knowledge from reading about companies in the Defense space. E.g. The issues with EADS and Airbus reference labor relations and plant locations in France can be a point of discussion for bonus point.)

(Source: Case Interview from McKinsey&Company, Round 2)

Context:

Our client is an electronic warehouse selling all kinds of electronics and home appliances. It was founded in 1990 and currently owns 375 stores located in all major cities across the US.
They have a healthy profit margin and represent a major player in the electronics retail market, but the CEO hired us to help them grow even quicker.
Recently they opened a number of smaller conceptual stores and these stores are less profitable than the regular ones.
We have the task to help them grow aggressively while maintaining the profitability.

Interviewer: What are the key areas to investigate in order to determine why the new stores are not profitable?

A good answer will identify the followings:
I would like to look into the following areas:

- Revenues:
    - Type of products sold in these stores
    - Assortment
    - Number of customers entering these stores
    - Type of customers(income levels, family status, etc) and how the assortment in the stores meets their needs
- Costs:
    - As related to the volume sold (mainly fixed costs)
    - Labor costs; maybe higher trained personnel
    - Distribution costs(from suppliers to the store)
- Competition:
    - What is the presence of competition in the area
    - What kind of stores the competition has in the area
- Other:
    - Number of hours open
    - Type of stores
    - Location of the stores
    - What are the customer's needs and how our client manages to met them

Interviewer: How many stores do they need to open in order to secure a 20% market share in 5 years?

Information to be provided upon request:

Current electronic Retail Market = $150B
Current Market Share = 10%
Electronic Retail Market in 5 years = $200B
Aggressive growth would mean achieving 20% market share in the next 5 years.

(for simplicity of the calculation take into account that the current stores are all of the same revenue size and the future ones will have the same average revenues; the candidate should realize that this calculation would be different if that was not being considered)

Current state:
Market = $150B
Market share = 10%

- ⇒ Revenue = 10% * $150B = $15B
- ⇒ Revenue per store = $15B/ 375 = $40M

In 5 years:

Market = $200B
Market share = 20%

- ⇒ Revenue = 20% * $200B = $40B

- ⇒ Growth needed in revenues = $40B- $15B = $25B
- ⇒ No of stores needed = $25B / $40M = 625 (but new stores will be only specialized that have lower revenue)

Interviewer: Is their current strategy a successful one?
A good candidate will realize that the result is not feasible (they have 375 stores from 1990 – 18 years)

Interviewer: How can they achieve their objectives?

Possible options:

- Open only the old type of stores
- Choose locations with a specific type of inhabitants (income, family status, hobbies, etc)
- Introduce new products and use the customer database to sell them
- Implement marketing campaigns, loyalty cards
- Make contracts with schools, institutions, hotels, etc
- Become a distributor for small electronics stores
- Raise prices on non price-sensitive products
- Acquire/merge with a competitor
- Get into other channels like online sales, door to door sales
- Start selling services (repairs, installations, etc)

(Source: Case Interview from McKinsey&Company, Round 1)

Context:

Our client is a grocery chain having 200 stores spread all over US. They have been enjoying good profits and great results, though in the last 2 years they have seen a slowdown in the growth of the market share and the profits and same store sales have gone down.
As a matter of fact, Wal-Mart has opened a store exactly 2 years ago and 3 more in the past two years in the client geography.
Our client also started, 5 years ago, to open smaller stores closer to where there is a high density of people.
We have the task to help them overcome their current issues.

Interviewer: What can be the reasons behind their low performance lately?

Elements to be discussed in the brainstorming session:

Market share decrease can be coming from several reasons:
- decrease in revenues due to customers spending less in our store and more in other stores,
- customers moving from our stores to another stores,
- an increase in the market size that is not captured by our client

Profit decrease can come either from revenue decrease or from cost increase
Decreased revenues due to:
- Competition: need to assess the entry of new competitors of significant investments from the existing ones that might have stolen the consumers from our stores
- Change in consumer needs that were not spotted by ous client and have affected the traffic in the store(e.g.: focus on organic products, need for additional services to be provided by the store, etc)
- Change in pricing(specifically increase) that might have decrease the spending of the consumers or determined them to go to another competitor
- Change in the assortment of the store that might have determined some loyal customers to look for those products in another place
- Change in the promotions that the client used to have(e.g. reduction of promotions, elimination of loyalty programs, etc)

Increased costs due to:
- Opening of new smaller stores have a lot bigger costs per unit sold than the old stores
- A reduction in prices that provides lower profitability
- A change in the mix of products sold (e.g. now the customer is selling more low margin products)

Interviewer: How can they address the threat of Wal-Mart and the other competitors?
Information to be provided upon request:
- **Wal-Mart carries 75% of the grocery items our client has at much lower prices**
- **Studies have showed that consumers perceive the prices in our client store as being higher than both the ones in Wal-Mart and the ones in another close competitor**

- **The reality is that they are 20% higher than the ones in Wal-Mart and equal to the ones in the other competitor**

I do not think the Wal-Mart is a real threat based on the number of stores that they have yet (3 as opposed to 200 of our client). But Wal-Mart can become a real threat once they expand.
Then it is very important to differentiate versus Wal-Mart. Our client will not be able to compete on low prices with Wal-Mart but they can perform a market research and identify other needs that customers have and Wal-Mart cannot provide and work on those attributes.

As for the other competitors, our client has to work on building its pricing image. There is clearly a problem coming from the fact that they are perceived more expensive than the next competitor. Maybe their prices are not following a good pricing strategy. They should probably conduct a price sensitiveness analysis in order to properly identify the products that should have low prices and the ones that can carry higher margins.

Interviewer: As a strategy to overcome their problems they decided to reduce the prices by 15%. Based on the information below how many new stores should they open in the next 2 years to break even?

Sales / store	**$40M**
Stores older than 5 years	**160**
Stores opened in the last 5 years	**40**
Profit margin per store	**30%**

The sales/store for the stores opened in the last 5 years is lower than the sales from the older stores. For the simplicity of the calculation we consider the stores equal.
(This information should help the candidate assess the validity of the price reduction)

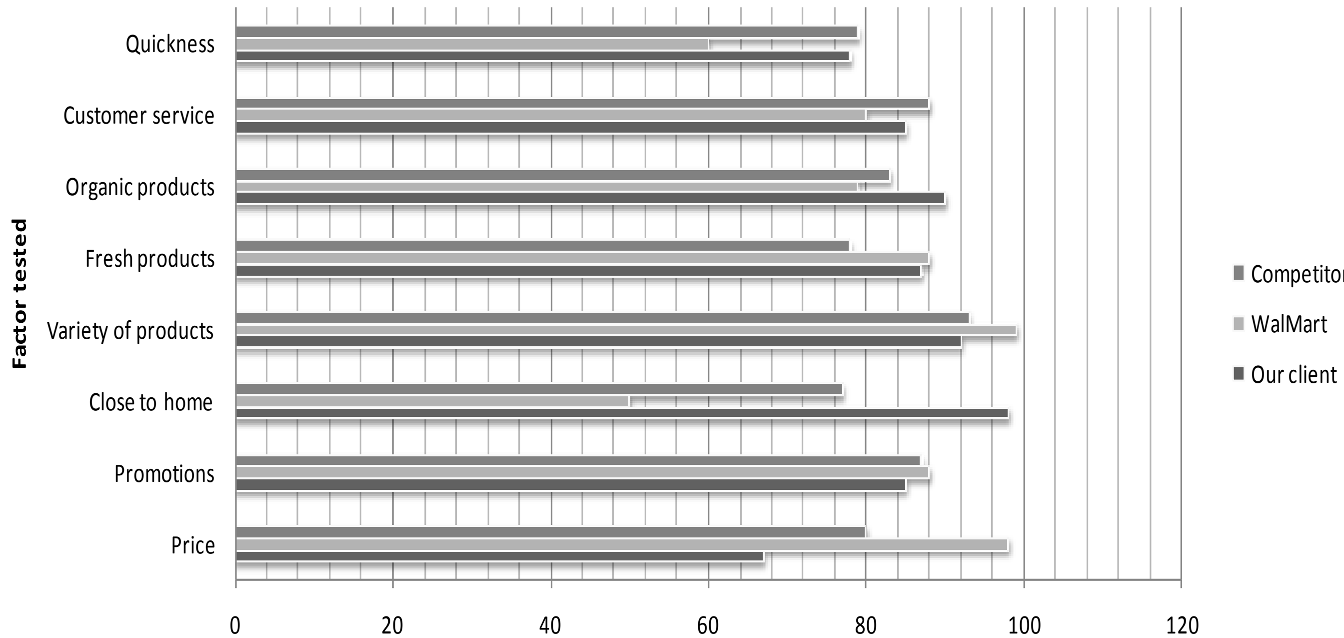
Solution:

Sales / store after the price decrease
= 85% * $40M = $34M
Profit / store:
Before price decrease: $12M
After the price decrease: $10.2M
⇒ Profit loss = $1.8M

Total profit loss = $1.8M * 200 stores = $360M

No of stores to open = $360M / $10.2 =~ 35
(The number is not feasible as they only opened 40 stores in the last 5 years and these stores are supposed to have fewer revenues than an average store)

Interviewer: They have performed another study to see the customer perception over a series of factors. Based on this information, what do you think they should do?



A good candidate will recognize that the closeness to home is the factor that they can work on as our client is a better performer than its competitors.

It looks like on the fresh/organic assortment it has an advantage but a good candidate will recognize that this advantage is easy to be copied by competitors

This should constitute a base for a recommendation for the client.

Example of recommendation:

Based on the findings so far, I think that for our client is critical to start concentrating on the attributes where it has an advantage versus competition and that are also important to consumers (closeness to home) and build its marketing campaign and future communication strategy on those identified strengths. Another current advantage is the fresh/organic assortment but because it can be easily copied, it will be difficult for the client to differentiate here. The risk is in the short term as building a new brand image is not something that can be achieved very quickly but it will be critical to help them recover the lost market share.

(Source: Case Interview from Accenture, Round 1)

Context:

The client is the CEO of a large paper company:

- **The firm has seen 2 consecutive losing quarters**
- **The industry has recently seen a trend of consolidation**
- **The industry generally has overcapacity**

What should the company do?

A good structure will include the following elements:

Company:

- What are the products they are selling and how they fit into the overall market
- What is the value chain for our client and where is the problem that causes the loss in profitability

Market for the products:

- Size of the market
- Overall growth/shrinkage of the market
- Competition: fragmented market or big competitors, what are they doing currently
- Substitutes for the products in the market

Customers:

- Who are the customers
- What are the need of these customers and how our client meets these needs

Final goal: look at the profitability and assess how much we need to increase revenues, decrease costs to become profitable.

Information provided upon request:
Products:

- **Book paper, considered their core product – 90% of the revenues**
- **Carbonless paper, used in credit card machines - 10% of the revenues**
- **Minimal cost to change manufacturing lines from one product to another**

Industry:

- **Book paper market is stagnant, firm is #2 in market, and there are 3 main players**
- **Carbonless paper market is shrinking, but profits are slightly rising, firm is #5 in market, and there are many players**

Customers:

- **Book paper customers are publishers**
- **Carbonless paper customers are large distributors**

Company:

- **Has 2 plants in Wisconsin and Pennsylvania**

Looking at the revenues coming from the two products and the situation in their respective markets, there appears to be little opportunity for improvement in revenues. Although the profit in carbonless paper is higher, the market is shrinking.

In order to look at the cost side I would like to better understand the value chain for the products.
Procurement -> Manufacturing -> Distribution -> Sales and marketing

Information provided upon request:
Procurement: Inputs are raw materials (pulp) and chemicals; the prices of both are generally rising
Manufacturing: The 2 plants are generally older and unsophisticated
Distribution: Currently, the firm uses 45% rail and 55% trucking; the price of rail is on average 50% lower; trucks are typically running ~40% empty
Sales and marketing: Firm differentiates on service level next day delivery service level (2nd day to west coast); competitors differentiate on brightness and price

(The candidate should notice that the client has little room to move on the purchase of commodities; upon further questioning, the candidate should be told that the service level is important to their customers; a manufacturing discussion is important, but should be saved for the next part. Therefore, the important point here is the wasted money in distribution.)

Based on these information there is a lot of waste in their cost structure and there are lots of ways to decrease costs:

- Purchasing the raw materials at lower costs (new contracts/ consolidate suppliers for more buying power, etc)
- New technology could help them reduce the cost of manufacturing paper
- Distribution seems to be the quickest win that can provide great savings by moving from trucking to rail and/or by making sure that trucks run at full capacity.

Interviewer: The CEO notifies you that he is considering purchasing up to 3 additional mills

- **East Coast Mill: has 2 lines that are older technology, comes with its own distribution center**
- **Mid-West Mill: has 4 lines that are state of the art, and produces its own pulp**
- **West Coast Mill: similar to East Coast Mill**

How does this affect the analysis?

Information provided upon request:

- **Prices for each mill:**
  - **East Coast $70MM**
  - **Mid-West $80MM**
  - **West Coast $60MM**
- **To update the firm's Wisconsin mill to the technology level of the Mid-West mill will cost $120MM**
- **Mid-West mill has easy access to rail and truck transportation**
  - **Firm's current WI plant has rail access only with Wisconsin Central, essentially a monopoly that charges high freight rates**
- **75% of the firm's customers lie east of the Mississippi**

Recommendation:

Good answers:
- At this point, it should be clear to the candidate that the firm's major problems lie on the cost side and that the two largest buckets that need to be addressed are raw materials and distribution; plant efficiency is also a tertiary issue
- A good candidate will suggest purchasing at a minimum the Mid-West plant for the distribution advantage and possibly the East Coast plant because of the distribution center
- The West Coast plant is a red herring

Better answers:
- Better answers would recommend purchasing the Mid-West plant and closing down the current WI plant since over-capacity is an issue
    - This enables more efficient production and better access to cheaper distribution
- The firm should set-up distribution centers to allow slower & cheaper distribution by rail but at the same time enable the maintenance of the high service level customers require
    - Any distribution centers should be geographically located near high concentrations of customers; since the plants will be in the Mid-West & PA, this would likely be in the South
- The East Coast plant should not be purchased since the real attractive piece is the distribution center, not the plant itself, and it is much cheaper to set-up distribution centers than spend $70MM on a plant

(Source: Case Interview from McKinsey&Company, Round 1)

Context:

Our client is a global pharmaceutical company that produces over the counter drugs and has its headquarter in Frankfurt, Germany.
They are thinking of acquiring another pharmaceutical company located in San Francisco, that produces nutritional drugs (for weight loss, diabetes, etc).
The CEO hired us to advise whether they should acquire the company or not.

Interviewer: What are the key areas to investigate in order to determine whether the acquisition is a good idea or not?

A good answer will identify the following:

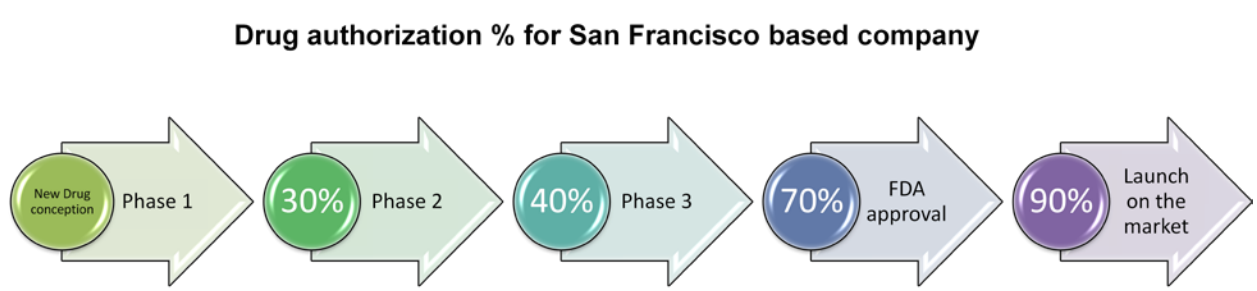
- First I would need to understand the rationale for the acquisition, that can be for:
    - acquiring resources (increase capacity, increase distribution, broaden product line, technology, human capital, R&D, brand name, customer base) or
    - cost reduction (economies of scale, economies of scope).

It is very important that the acquisition makes sense economically (positive NPV), but we also need to look into the organizational issues (will potential synergies be realized, is the firm in the position to perform the integration).
In addition, I would assess the geographic differences of the two companies under discussion.
Finally I would look into the likely response of competitors if the acquisition occurs and maybe alternatives to acquisition and compare it to the acquisition itself (other target, organic growth)

Information provided upon request:

- **Purpose of acquisition: increase profits**
- **The SF company has 4 drugs in the market**
- **Both companies are selling their products globally.**
- **The R&D department is based in the same location with the HQ**
- **Revenues from an approved drug of the San Francisco based company is $1.5M**

(show the next chart to the candidate)



Interviewer: We just discovered that we can improve the yield form phase 2 to phase 3 by investing $150K in the R&D technology.
By how much should the yield increase so as to break even?

Other information given upon request:
The present value of launching a product is $1.5M

Solution guide:
To break even, cost needs to be equal to revenue
If x = the increase in the success rate from phase 2 to phase 3 then:
$150,000 = x * 70% * 90% * $1,500,000
=> x = 15.8%
(it means that the success rate should increase by approximately 15.8%/40% = 40%)

Interviewer: What are the risks involved with this acquisition?

(The candidate should be able to recognize the different risks involved)
- the strategic rationale
- likely response of competitors if acquisition occurs
- organizational issues: different locations for the HQ, integration of the two organizations
- profitability of the acquisition (NPV calculation)
- alternatives to the acquisition

Case 13: National Magazine -easy- The Boston Consulting Group, Mock

(Source: Mock Case Interview from The Boston Consulting Group)

Context:

Our client is a national monthly magazine that wants to restructure its printing division. They currently have 2 facilities where they print their magazines and want to move to only one facility. They hired us to tell them if this is a good idea or not.

I have a question before going further with the case. What is the reason behind deciding to restructure the printing division?

Interviewer: the main reason is reduction of costs.

In order to assess the validity of their idea I would start by looking into the cost structure of the company, specifically for the printing division. I would assess both the fixed and variable costs involved. Then I would like to identify the cost savings that a consolidation would give to the company, if the company has the capability to do the consolidation both in terms of capacity or infrastructure involved by such a transition (distribution, operations, and feasibility of the move).
Finally I would like to assess the risks involved (regulations, market situation)

Information provided upon request:
Locations of the facilities: Idaho and New Jersey
Both facilities can accommodate the total number of magazines they need. They each currently print 50% of the total magazines.
Cost structure:
Total Costs = 75c/unit
Fixed costs = 35c/unit
Total number of magazines they sell per month: 1 million
Moving to one facility would save 20% of the fixed costs
The move would increase the distribution costs:

- **New Jersey : by 2c/unit**
- **Idaho: by 8c/unit**

(Interviewer should direct the candidate to answer the following question: What will be the total cost per unit after the consolidation? What facility should they keep if at all?)

Savings in the fixed costs: 20% * 35c/unit = 7c/unit
Increases in costs from distribution:
New Jersey: -2c/unit
Idaho: -8c/unit
Total savings:
New Jersey: +5c/unit
Idaho: -1c/unit
⇒ They should choose New Jersey

(If not prompted by the interviewee, the interviewer should ask the following question: What are the risks involved in moving to only one printing facility?)

Possible solution might include:

- unemployment in New Jersey
- local regulations
- operational: gas price
- delivery time
- cost of closing the other facility
- cost of materials
- Future increases in sales

A good interviewer will make a recommendation:

I suggest they close the Idaho printing facility because the New Jersey one offers them the best cost per unit. However they need to understand that there are other things to consider when taking this decision as the ones I mentioned in the risks involved.

(Source: Case Interview from Booz &Company, Round 1)

Context:

Our client is the largest European manufacturer of wind turbines (used to generate electricity by harnessing wind power). The client currently has production capability in the US and has elicited your help to determine:

1. **Where to build its manufacturing plant?**
2. **How many plants to build?**

This problem only concerns North American Operations.
Wind energy is currently growing in China and the US. By 2009, there will be capacity issues in the US.

We first need to understand the demand for wind turbines and the market share that our customer can achieve. Being a growing market I would also want to assess the market growth. This will help us understand if we need additional capacity.

Then I would continue by assessing if we actually need a plant in the US. Maybe we can import wind turbines from other locations at cheaper cost that opening a plant.

In order to try to suggest a location for the plant we need to understand some of the factors that will influence this location:

- Where the supply will be coming form, taking into account infrastructure, labor, taxes, competition, shipping costs
- Where the customers are located
- What level of service we need to provide to these customers
- Is it possible to outsource manufacturing
- Where are manufacturing costs cheapest

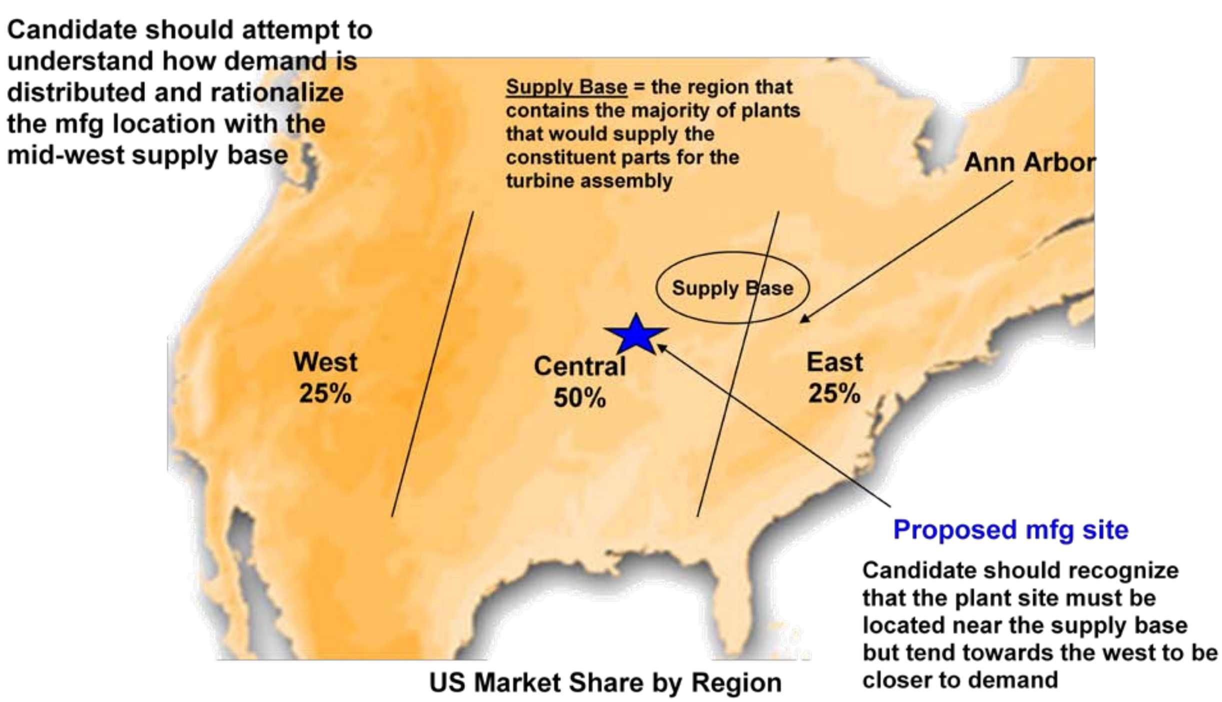
The last component that cannot be ignored is competition. We need to know how segmented the market is and how the competition is doing.
Taking into account that China is the second growing market I would also like to assess the possibility of exporting turbines to China.

Information given only if requested:
Importing turbines to the US or Asia is impractical because each weights 80 tons and there are import tariffs that add additional costs.
The plant will be online by 2010 and the expected demand for our client's products is 1,500 units.
If prompted this is 40% of the market.
Market growth for the next 5 years is 10% by volume.
There are 2 existing US manufacturers of wind turbines with one being the dominant player. There is no differentiation between the different products.

Possible structure for the solution - use to guide candidate):

Key Areas	Part & Material Supply	Manufacturing	Transport	Installation	Service
Guidance for each area (do not read verbatim)	Factors: Infrastructure, labor, tax, competition, etc Candidate should realize that the competition is competent and seek to understand from where they currently source. Competition sources from the mid – west (heavy auto supply base) Shipping costs and an integrated supplier network are most important drivers	Assembly is not terribly complex (low tech). Once the different subassemblies are in house, the mfg is simple mechanical assembly (very little welding or complex processes) All engineering design is done in Europe. Product mix – only one type of turbine is currently slated for production in the US.	Transport the finished turbines must be by rail to achieve any efficiency. Need to understand where the demand is. Building the plant closer to the areas of heavy demand will reduce transportation costs.	Customers will be required to perform their own installation. Our client provides nominal support when required but installation is not difficult.	Our client is interested primarily in making and selling turbines Routine maintenance can be performed fairly easily by any trained technician. There are numerous independent contractors that are licensed to repair the turbines (fragmented market, low barrier to entry – unattractive market)

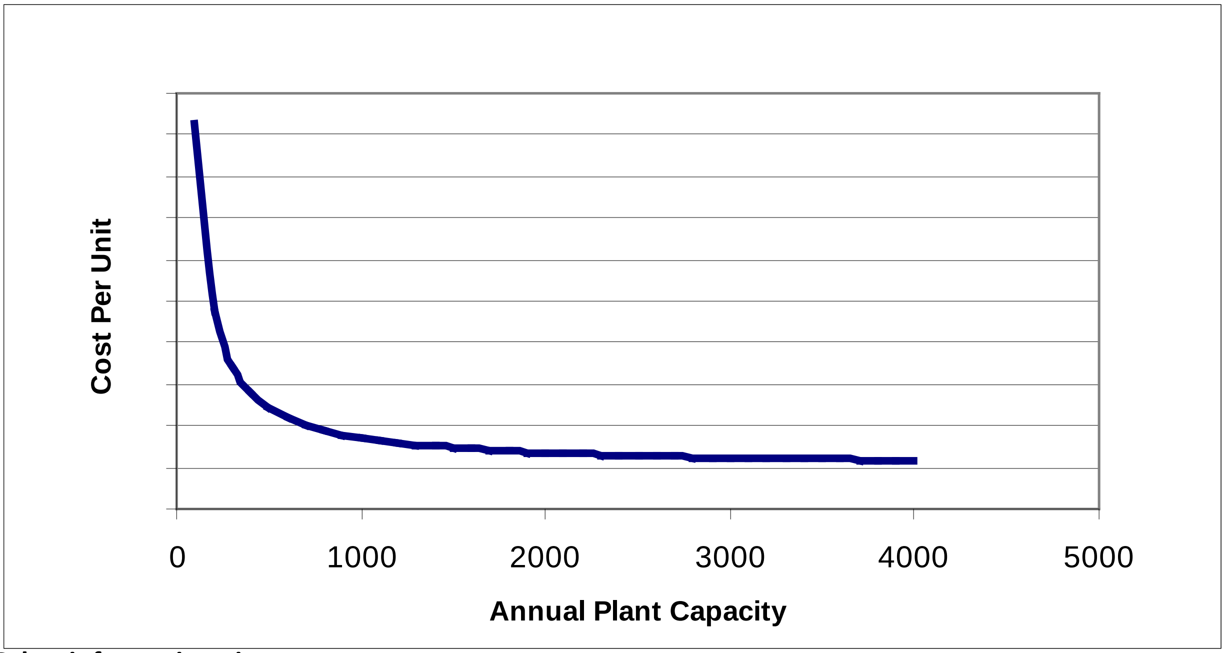
Interviewer notes (not to be given to candidate):



Economies of scale:
Candidate should immediately ask how economies of scale affect the production costs of each turbine.

Chart to be given only upon request:

Relative effect of plant scale on costs



Other information given upon request:
A 1,500 units plant would cost $40 million dollars investment ($30 million being the building). Each additional 500 units in capacity will increase the costs by $15M
If 2 plants were built, the additional operation costs would be 15M/ year. The transportation savings would be 7M per year.
Note that we cannot build a plant with a lower than 1,500 units capacity

Calculation of Future Demand Growth:

Future Demand Projection

Year	40% share	Market
2010	1,500	3,750
2011	1,650	4,125
2012	1,815	4,538
2013	1,997	4,991
2014	2,196	5,490
2015	2,416	6,039
2016	2,657	6,643
2017	2,923	7,308

*10% market share growth
* constant market share

For 3,000 units capacity(the capacity that the client will need to have by 2017 with a 10% increase in the market size and same market share):

<u>If only one plant built:</u>
Cost = $40M + $15M*3 = $85M
Note that the capacity does not have to be added from the beginning and the high capacity will decrease the cost per unit

<u>If 2 plants built:</u>
Cost = $40M*2 + ($15M-$7M)*8 years= $144M

A good candidate will make a recommendation:

With all these information my recommendation is for them to build 1 plant that should be located near but to the southwest of the mid west supply base. I suggest only one plant because the costs associated with building and operating 2 plants are higher than for only one plant. However this plant needs to be sized to accommodate the future growth (approx 100% increase by 2017 given no increase in share). Even in this case, the costs are a lot higher for having two plants over one plant. There are some other risk associated that were not taken into account here, like competition. We would need to assess the competitive response and the effect it will have on the market share.

(Source: Case Interview from Accenture, Round 2)

Context

The client is an engine manufacturer that designs and builds engines for large commercial trucks. They have designed a new engine with significant new technology and significant new content. It will meet all federal guidelines for at least 10 years.
The client has spent significant R&D money on this engine and expects to be able to charge a premium price to recoup the investment. However, the client's largest customer, representing 60% of all sales, has been complaining about quality.
Our research has shown that although our client promised their customers in terms of soot emissions less than 3k ppm, but they are currently seeing 20k ppm. (ppm=parts per million)
What is wrong and what should they do?

Ok, so in order to identify the problem we need to assess all the stages that the new product is going through from the design to the moment it is ready to be sold to the customers.

- We first need to understand what is changed in the design vs. the last model and if the new design is meeting the customer requirements.
- Then we need to look at the manufacturing process in terms of technology used, labor, if there is something that was needed to be changed and was not.
- We also need to investigate the parts supply for the product and understand if anything changed in regards to the components that we are using for the new engine.
- Last but not least I would like to see the main symptoms that customers claimed and compare them with the previous engine.

Information provided upon request:

<u>Product Design:</u> **Design process was unchanged for this engine. All testing was done the same as with historical products. However, the FMEA analysis (Failure, Modes, and Effects Analysis -Used to identify and assess the ramifications of possible product defects) was skimped on. The significant new technological components of the engine were developed according to the client's standard process.**

<u>Manufacturing:</u> **Plant uses a highly skilled and educated workforce. There is no learning curve associated with the assembly of this product.**

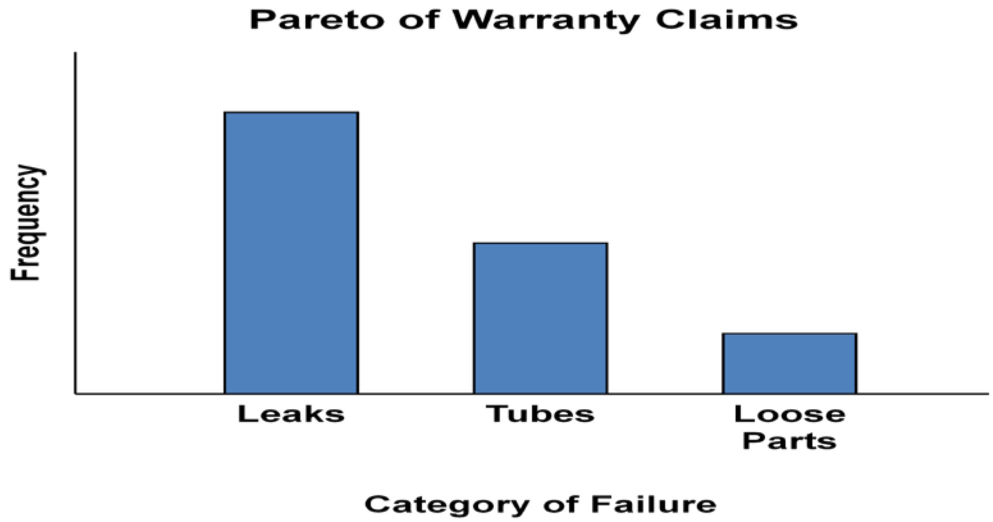
<u>Service:</u> **Client utilizes field technicians at the customer site. They are the ones reporting the warranty data to the client. They are well educated on the product.**

<u>Sub-assembly procurement:</u> **Traditionally, client used few suppliers who delivered large sub-assemblies. Now, in an effort to save costs, they have sourced many more suppliers to get the best price for each component and are choosing to do more of the assembly themselves. However, all of these suppliers are delivering products that meet the specifications delivered by engineering.**

<u>Defect Details:</u> **See next slide for Pareto detailing top warranty issues.**

<u>Customers:</u> **Customers are concern regarding the quality of emissions.**

Chart provided upon request:



From the information provided it seems that there is nothing wrong with the new technology.

Interviewer: Great. So where do you think the problem comes from?

I believe that one major change that the company made is in the base of suppliers, going from a limited number of suppliers to a bigger number of suppliers. Is the fact that they have more suppliers and are assembling the components in house a cause of the claims that we see in the warranty claim chart?

Interviewer: Yes. You are right. Although each supplier is delivering to specification, there are tolerances in these specifications.

- **Since the client is accustomed to specifying sub-assemblies, the tolerances were not tight enough for all of the individual components**
- **Therefore, the stack-up of tolerances causes the parts to have poor fit resulting in leaks and lost parts**

Ok. So the root cause for the problems is the stack-up of tolerances.

(the interviewer needs to lead the candidate to identify this problem which is the stack-up of tolerances; all the other information given initially is a red herring meant to throw the interviewee off; after the interviewee has identified the problem, no matter how much help he/she gets, they need to come up with a list of recommendations and their risks on how to solve the problem)

Interviewer: So, what do you recommend them to do now?

The company can reduce its warranty claims by increasing tolerances on procured parts, increasing end-product testing, or revising procurement agreement to order sub-assemblies. The first opportunity is more expensive but we could look at ways to minimize costs. The second will increase mfg time but would definitely decrease our warranty claims. The third option is more expensive but we could perform a cost-benefit analysis between the 1st and 3rd options.

Case 16:Tax Preparer -medium- Diamond Management Consultants, Round 1

(Source: Case Interview from Diamond, round 1)

Context:

Our client is a tax preparer working in the US. They make the most part of their revenues between January and April. They currently operate 65,000 stores, 20% of them being located in Wal-Mart supercenters.
They have been growing through franchise model for the last 15-20 years.
The CEO is concerned with the growth of the business in the recent years and wants us to investigate ways to stimulate growth through distribution footprint and same store sales.

Interviewer: What are the key areas to investigate?

A good answer will include the followings:

- Revenues: We need to investigate where the revenues are coming from; what type of services they are offering
- Costs: what are the main buckets of costs and the value of them
- Operation mode: how do they operate the stores
- Competition: operating model; market share
- Customers: segments of customers and their needs

Provide the following information to the interviewee (no need to wait for the interviewee to ask for the data; this case is testing the ability of the candidate to handle a large amount of data)

- **Franchising practices:**
  - **they are franchising territories (currently 5,000 in US and they are present in two thirds of them; the rest are considered not to be important)**
  - **They have on average 2 stores per territory**
- **Revenues in this case come from:**
  - **$25,000 / territory**
  - **15% of the revenues**
- **Their current contract do not allow them to impose a minimum number of stores per territory to their franchisees**
- **They offer two types of services:**
  - **tax preparation**
  - **Refund anticipation loan (government gives money back after 4-6 weeks)**
- ***Revenues* come from two different services:**
  - **Tax preparation: two thirds**
  - **Refund anticipation loan: one third**
- **40% of every year's customers do not come back the next year**
- **Market share: 4% - no 3 player in the market**
- **Revenues 20% higher in the stores located in Wal-Mart**
- **Competition is operating on a corporate model (they own their stores)**
- **The number one competitor has a triple market share vs. our client**
- **Market is very fragmented**
- **No of current customers: 3.7M**

- **The customer of our client is having an income of about 30 – 35K**
- **The main competitor's customer is making 40 – 45K**
- **60% of the population is using tax preparation**

Interviewer: How can they increase their distribution footprint?

Possible options:
- Change the franchising contracts as to impose a certain number of stores
- Implement a field sales force to cover part of the territories not in the vicinity of the current stores
- Start online operations
- Start opening stores in other mass merchandisers
- Open stores in the other territories where not present
- Buy some of the competitors
- Incentivize franchisees to open more stores in their territories

Interviewer: How can they increase the same store sales?

Possible options:
- Start selling packages of both services
- Incentivize customers to recommend the services
- Start selling the services remotely
- Try to attract the other customer segment not currently present in our client's stores
- Train the franchisees on how to increase their business
- Advertise the services
- Start offering new services
- Investigate the causes of the lost customers every year and try to overcome the issue; offer an incentive to come back the next year
- Implement a field sales force attached to each store

(Source: Mock Case Interview from Bain&Company)

Context:

Your client is a U.S. state's social services agency. The agency is responsible for administering the state's social work programs.
Recently, the state legislature passed a law that will change the agency's funding structure. Previously, the agency had been funded at a fixed dollar amount. Now, under the new law, the agency will be paid according to performance, as measured by the number of interviews they conduct with state social work clients.
The agency has hired you to determine how the change will affect them and what they should do about it.

Interviewee: Before we going into the problem of the case I would like to understand how this agency is functioning, what are the activities that are performed by the agency.

Interviewer: For the purpose of simplicity, the agency's only activity is conducting interviews.

(The key to this case is figuring out how the funding change will affect the agency, then identifying the issues resulting from the change.
A strong candidate will first try to understand the agency's previous funding structure, then ask about the new funding structure, then recognize that the agency will experience a budget shortfall, then make data-driven recommendations for closing the shortfall.)

I would start by looking at the funding process and here I would like to first understand how the agency was previously funded, then I would like to look at the new funding procedure and how the change between the two is going to affect them. After identifying the effect, we can look into ways to improve the current status and other options to get funding.

Interviewee: How was the agency previously funded?

Interviewer: Previously, the agency received $50,000 per employee per year.

Interviewee: How much of that cost went to salary and how much to overhead and other costs?

Interviewer: On average $30,000 went to salary and $20,000 went to overhead

Interviewee: How many employees does the agency have?

Interviewer: Unknown. This case is on a per-employee basis.

Interviewee: How will now the agency be funded?

Interviewer: The agency will be paid $25 per interview.

Interviewee: How many interviews does each state social worker conduct per day?
Interviewer: Currently each social worker conducts an average of 5 interviews per day.

Interviewee:

250 work days per year * 5 interviews * $25 = $31,250
That is the agency continues to operate as it has been; in this case the agency will incur a $18,750 per employee per year budget shortfall

They should try to find ways to close this funding gap, either by boosting revenues (e.g. increase the number of interviews, seek other funding sources) or by cutting existing costs.

Interviewer: Sounds good.

Interviewee: Can the agency increase the number of interviews it conducts per social worker per day?

Interviewer: Under the current system, the agency could boost the number of interviews from 5 to 6 per day.

Interviewee:
250 work days/year * $25 *6 interviews per day = $37,500
This will bring the shortfall in revenues to $12,000 per employee per year

How long does it currently take to conduct an interview?

Interviewer: It takes one hour; 40 min of ehich is the interview and 20 min is follow-up data entry

Interviewee: It seems that it takes a lot of time to enter the data in the system. Is there any way to reduce this 20 min (using a better note-taking technology for ex.) ?

Interviewer: The agency has found a very inexpensive transcription software program that would allow them to cut the 20 minutes to 10

Interviewee:
10 min saved * 6 interviews per day = 60 minutes saved in a day
This will provide an extra interview per day =>
250 work days per year * 7 interviews per day * $25 = $43,750
This will bring the gap to $6,250 per employee per year

Interviewer: There is no other way to squeeze more interviews in a day.

Interviewee: What about exploring a private charitable funding?

Interviewer: the agency can garner $1,000 per employee per year from a private charitable trust

Interviewee: It still leaves us with a gap of $5,250 per employee per year. I would continue now by looking into ways to reduce costs. And I would especially look into trying to reduce overhead cost. Can the agency merge some of its facilities usage with other state agencies to reduce overhead costs?

Interviewer: Yes, the agency can consolidate its offices into other state agency buildings at a savings of $4,000 per employee per year.

Interviewee:
We are now at $1,250 gap per employee per year.
Are all social workers paid evenly? If not, maybe we can reduce the salaries of the higher paid employees.

Interviewer: No and Yes. 30% are paid only $25K/year 40% are paid $30K/year And 30% are paid $35K/year. We've determined that the agency can convert half of the workers at the highest pay grade to the lowest pay grade.

Interviewee:
So the new salary structure will be:
45% at $25K/year
40% at 30K/year
15% at $35K/year
Saving : 15% *($35K - $25K) = $1,500 per employee per year

(a good candidate will now summarize the case and will provide recommendations)

The funding change will result in a budget shortfall of $18,750 per employee per year if we continue to operate as we have been.

Here are my recommendations for closing the gap:
Closing the gap by increasing revenue:
- Without any operational changes, we can boost the number of daily interviews from 5 to 6 per employee.
- By instituting a simple transcription service we can increase that number to 7. This will increase revenues by $12,500, closing the gap to $6,250.
- Additional charitable funding will give us $1,000 per employee per yr, closing the gap to $5,250.

Closing the gap by decreasing costs:
- Consolidating our offices, facilities and overhead with other state agencies will save us $4,000 per emp per year.
- Staffing restructuring will save us an additional $1,500 per emp per year.

This will actually bring $250 additional revenue per employee per year. Some of it will pay for the new IT system.

(Source: Case Interview from McKinsey&Company, Round 2)

Context:

Our client is an asset management firm with flat revenue and profits. We have been asked to help them to remedy this condition.

Interviewer: How would you think about this problem?

A good brainstorm should include discussions on the following elements:
- Revenue
- Costs
- Regulatory environment (e.g. restrictions on fees, etc)
- Competition (currently there is increased competition in funds)
- Distribution environment (e.g. the emergence on online brokerage)

Information provided upon request:

Revenue:
- **$2 billion in revenue based on 1% management fee of $200B of assets**

Costs:
- **Overhead: $200M**
- **Money management: $800M, 50% based on assets**
- **Distribution/ brokers: $800M, 100% based on assets (i.e. 40% commission of total revenue). All sales are made through independent brokers (they also sell funds from other companies).**

Fund strategy
- **US equities**

Interviewer: At what level of assets will the fund owner begin to lose money?
(This is a question of fixed and variable costs)

Solution:

Currently our fund has a $200M in general overhead; I assume that is not going to change with asset size.
The brokers are paid purely on commission, so all of their costs are variable.
The money managers are paid 50% on commission, meaning $400mm are fixed.

Total fixed costs = $200M + $400M = $600M
At a 1% management fee, we need a minimum of $60B in assets to cover our fixed costs

Interviewer: Based on what you have found, what would you recommend to the fund manager?

- We need to look at ways to drive revenue first. We could change the incentive structure for the money managers, adjusted more to the fund's performance.
- With the brokers, we could pay them a higher commission to try to encourage them to sell our fund over another (we would have to tease out the quantity/price relationship to see if this makes sense.
- There probably is not much to gain with overhead.
- Additionally, this is a US fund only. We should consider launching an additional fund- perhaps focusing on international markets- to drive up revenues and leverage our brand.
- We are a $200B fund- we probably have a strong brand that we could use to sell more to our existing customers (i.e. new fund) and possibly bring in new customers as well.
- Look into new distribution methods
- Look into asking brokers to do cold calls
- Have the brokers in house (this will increase fixed costs but might provide better productivity)

Case 19:Acquisition Diagnostics -medium-   Siemens Management Consulting, Round 1

(Source: Interview Case from Siemens Management Consulting, Round 1)

Context:
The client is a large industrial medical supply firm (i.e. Siemens) who has made 2 simultaneous acquisitions in order to fill a void in their product portfolio in the area of diagnostics instruments.

- **Firm 1 is Bayer Diagnostics with $1.4BB in revenue per year**
- **Firm 2 is DPC with $300MM in revenue per year**

What are the things the client should consider during the post-merger integration phase of these acquisitions?

(the case is intended to be very conversational without a rigid direction; the candidate needs to demonstrate that they can think of all the important areas to consider after a post merger)

We need to start by understanding what are the products that each of the two companies are producing and how these products are going to be integrated in the mother company.

The main focus will be in trying to consolidate as many functions as possible in order to save some money and to use the distribution channels from each company to try to increase the revenues.

- We need to understand the markets in which these products are playing and look at the customer base
- I would also look at the location of the plants and the distance between these plants and the customers of the company.

Finally one other thing that needs attention is the cultural aspect of the integration. We should assess how close or different the cultures of the firms are and how easy it will be for them to integrate into one company.

Information provided upon request:

- **Products: Both firms produce automated lab testing systems that use reagents to perform routine diagnostics tests.**
    - **DPC focuses on very expensive, high quality equipment that costs around $1.5MM per machine.**
    - **Bayer sells the cheapest products in the industry at about $350k and focuses on high volume.**
    - **Bayer's machines can test for fewer conditions but has 8x the throughput of DPC's machines.**
    - **Overall, in this industry, the profits come from the reagents, not the machines (razor and blade model)**
- **Customers: Because of the price, DPC's primary customers are hospitals. Bayer sells to private practices and hospitals. Bayer has 15x as many sales agents.**
- **Geography:**
    - **DPC has 3 plants:**
        - **New Jersey produces machines**
        - **LA and Wales produce reagents**
    - **Bayer has 3 plants:**
        - **Dublin produces machines**
        - **Massachusetts and London produce reagents**

Case 19: Acquisition Diagnostics -medium- Siemens Management Consulting, Round 1

(the candidate should focus on identifying possible functions to consolidate and make sure the integration will play a very important role in the success of the integration)

Here is a sample solution:

- Procurement
    - There is likely some cost benefit in buying a larger amount of inputs to both the machines and the reagents
- Manufacturing
    - Several of the plants are in high labor cost areas
    - The manufacturing techniques are likely similar, some plants can certainly be closed if utilization is not too high
    - Topics such as total cost of manufacturing, utilization rates, and scale economies should be discussed
- Sales force
    - This is an important point; from the information given, it should be clear that the compensation structure and customer relationships for the 2 firms are very different. How should these be combined? And specifically, how can it be done without alienating the higher compensated, but likely higher performing, DPC sales force?
- Culture
    - DPC is far more entrepreneurial. They will likely be concerned about being swallowed up by the much large Bayer.

(Source: Interview Case from Accenture, Round 1)

Context:

You own a Casino and are considering unveiling a new game. The rules of the game are as follows:

- **The player pays an amount X to play the game**
- **The player than rolls a single standard 6-sided die**
- **After the 1st roll, the player is awarded the amount on the die times $1000 (i.e., if you roll a 4, you win $4000)**
- **The player then has the option to give up that prize and roll a 2nd time**
- **The player can again accept the amount on the die in thousands or choose to roll a 3rd time**
- **The maximum number of rolls is 3, and the player only gets the amount of money in thousands shown on the die on the last roll**

The goal of the case is to determine the minimum amount X that the Casino should charge to play the game

(This case has no additional information; it is simply a look at the interviewee's approach to a real options/statistical analysis problem.
Do not let the interviewee veer off into tangents about other miscellaneous concepts.
Assume that all parties act rationally, and although it is obvious the casino will charge some amount of margin above the expected value of the game, the goal is to simply find the minimum amount they would be willing to charge, which is the expected value.
It is helpful to understand the concept of "Real Options", but is not necessary to solve the case.)

Solution:

<u>1 Roll Game:</u>

$$Expected\ value\ of\ a\ single\ roll = \frac{1+2+3+4+5+6}{6} = 3.5$$

(Therefore the expected payout of a single roll is $3,500)

<u>2 Roll Game:</u>

The price of a 2 roll game will be higher than the price of a 1 roll game

We will assume a certain price P for 1 roll game and will further determine the expected value of a 2 roll game.

At P=$4,000, 1/3 of the players (those who roll a 5 or 6) will quit after the first roll. The expected payout for these players is $= \frac{5+6}{2} * \$1{,}000 = \$5{,}500$
Therefore 2/3 of the players will continue to play the 2nd roll. The expected value of their roll (which is now a single roll game), as established before is $3,500.

1/3*$5,500 +2/3*$3,500 = $4,250
The price of a 2nd roll game will be greater than $4,250

3 Roll Game:

The price of a 3 roll game will be higher than the price of a 2 roll game

We will assume a certain price P for 2 roll game and will further determine the expected value of a 3 roll game.

At P=$4,500, 1/3 of the players (those who roll a 5 or 6) will quit after the first roll. The expected payout for these players is $= \frac{5+6}{2} * \$1,000 = \$5,500$
Therefore 2/3 of the players will continue to play the 2nd roll. The expected value of their roll (which is now a single roll game), as established before is $3,500.

1/3*$5,500 +2/3*$4,500 = $4,833.33
The price of a 3rd roll game will be greater than $4,833.33

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