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TOP CONSULTING INTERVIEW PREP

# INSEAD CONSULTING CLUB HANDBOOK 2011



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## 10. Case examples

### 10.1 Discount retailer case (BCG)

#### Step 1: Actively listen to the case

Your client is the largest discount retailer in Canada, with 500 stores spread throughout the country. Let's call it CanadaCo. For several years running, CanadaCo has surpassed the second-largest Canadian retailer (300 stores) in both relative market share and profitability. However, the largest discount retailer in the United States, USCo, has just bought out CanadaCo's competition and is planning to convert all 300 stores to USCo stores. The CEO of CanadaCo is quite perturbed by this turn of events, and asks you the following questions: Should I be worried? How should I react? How would you advise the CEO?

#### Step 2: Establish understanding of the case

*So, the client, CanadaCo, is facing competition in Canada from a U.S. competitor. Our task is to evaluate the extent of the threat and advise the client on a strategy. Before I can advise the CEO I need some more information about the situation. First of all, I'm not sure I understand what a discount retailer is!*

A discount retailer sells a large variety of consumer goods at discounted prices, generally carrying everything from house wares and appliances to clothing. Kmart, Woolworth, and Wal-Mart are prime examples in the U.S.

#### Step 3: Set up the framework

*Oh, I see. Then I think it makes sense to structure the problem this way: First, let's understand the competition in the Canadian market and how CanadaCo has become the market leader. Then let's look at the U.S. to understand how USCo has achieved its position. At the end, we can merge the two discussions to understand whether USCo's strength in the U.S. is transferable to the Canadian market.*

That sounds fine. Let's start, then, with the Canadian discount retail market. What would you like to know?

#### Step 4: Evaluate the case using the framework

*Are CanadaCo's 500 stores close to the competition's 300 stores, or do they serve different geographic areas?*

The stores are located in similar geographic regions. In fact, you might even see a CanadaCo store on one corner, and the competition on the very next corner.

*Do CanadaCo and the competition sell a similar product mix?*

Yes. CanadaCo's stores tend to have a wider variety of brand names, but by and large, the product mix is similar.

*Are CanadaCo's prices significantly lower than the competition's?*

No. For certain items CanadaCo is less expensive, and for others the competition is less expensive, but the average price level is similar.

*Is CanadaCo more profitable just because it has more stores, or does it have higher profits per store?*

It actually has higher profits than the competition on a per-store basis.

*Well, higher profits could be the result of lower costs or higher revenues. Are the higher per-store profits due to lower costs than the competition's or the result of higher per-store sales?*

CanadaCo's cost structure isn't any lower than the competition's. Its higher per-store profits are due to higher per-store sales.

*Is that because it has bigger stores?*

No. CanadaCo's average store size is approximately the same as that of the competition.

*If they're selling similar products at similar prices in similarly-sized stores in similar locations, why are CanadaCo's per-store sales higher than the competition's?*

It's your job to figure that out!

*Is CanadaCo better managed than the competition?*

I don't know that CanadaCo as a company is necessarily better managed, but I can tell you that its management model for individual stores is significantly different.

*How so?*

The competitor's stores are centrally owned by the company, while CanadaCo uses a franchise model in which each individual store is owned and managed by a franchisee that has invested in the store and retains part of the profit.

*In that case, I would guess that the CanadaCo stores are probably better managed, since the individual storeowners have a greater incentive to maximize profit.*

You are exactly right. It turns out that CanadaCo's higher sales are due primarily to a significantly higher level of customer service. The stores are cleaner, more attractive, better stocked, and so on. The company discovered this through a series of customer surveys last year. I think you've sufficiently covered the Canadian market-let's move now to a discussion of the U.S. market.

*How many stores does USCo own in the U.S., and how many does the second-largest discount retailer own?*

USCo owns 4,000 stores and the second-largest competitor owns approximately 1,000 stores.

*Are USCo stores bigger than those of the typical discount retailer in the U.S.?*

Yes. USCo stores average 200,000 square feet, whereas the typical discount retail store is approximately 100,000 square feet.

*Those numbers suggest that USCo should be selling roughly eight times the volume of the nearest U.S. competitor!*

Close. USCo's sales are approximately \$5 billion, whereas the nearest competitor sells about \$1 billion worth of merchandise.

*I would think that sales of that size give USCo significant clout with suppliers. Does it have a lower cost of goods than the competition?*

In fact, its cost of goods is approximately 15 percent less than that of the competition.

*So it probably has lower prices.*

Right again. Its prices are on average about ten percent lower than those of the competition.

*So it seems that USCo has been so successful primarily because it has lower prices than its competitors.*

That's partly right. Its success probably also has something to do with a larger selection of products, given the larger average store size.

*How did USCo get so much bigger than the competition?*

It started by building superstores in rural markets served mainly by mom-and-pop stores and small discount retailers. USCo bet that people would be willing to buy from it, and it was

right. As it grew and developed more clout with suppliers, it began to buy out other discount retailers and convert their stores to the USCo format.

*So whenever USCo buys out a competing store, it also physically expands it?*

Not necessarily. Sometimes it does, but when I said it converts it to the USCo format, I meant that it carries the same brands at prices that are on average ten percent lower than the competition's.

*What criteria does USCo use in deciding whether it should physically expand a store it's just bought out?*

It depends on a lot of factors, such as the size of the existing store, local market competition, local real estate costs, and so on, but I don't think we need to go into that here.

*Well, I thought it might be relevant in terms of predicting what it will do with the 300 stores that it bought in Canada.*

Let's just assume that it doesn't plan to expand the Canadian stores beyond their current size.

*OK. I think I've learned enough about USCo. I'd like to ask a few questions about USCo's ability to succeed in the Canadian market. Does USCo have a strong brand name in Canada?*

No. Although members of the Canadian business community are certainly familiar with the company because of its U.S. success, the Canadian consumer is basically unaware of USCo's existence.

*Does CanadaCo carry products similar to USCo's, or does the Canadian consumer expect different products and brands than the U.S. discount retail consumer?*

The two companies carry similar products, although the CanadaCo stores lean more heavily toward Canadian suppliers.

*How much volume does CanadaCo actually sell?*

About \$750 million worth of goods annually.

*Is there any reason to think that the costs of doing business for USCo will be higher in the Canadian market?*

Can you be more specific?

*I mean, for example, are labor or leasing costs higher in Canada than in the U.S.?*

Canada does have significantly higher labor costs, and I'm not sure about the costs of leasing space. What are you driving at?

*I was thinking that if there were a higher cost of doing business in Canada, perhaps USCo would have to charge higher prices than it does in the U.S. to cover its costs.*

That's probably true, but remember, CanadaCo must also cope with the same high labor costs. Can you think of additional costs incurred by USCo's Canadian operations that would not be incurred by CanadaCo?

*USCo might incur higher distribution costs than CanadaCo because it will have to ship product from its U.S. warehouses up to Canada.*

You are partially right. CanadaCo has the advantage in distribution costs, since its network spans less geographic area and it gets more products from Canadian suppliers. However, since CanadaCo continues to get a good deal of products from the U.S., the actual advantage to CanadaCo is not great—only about two percent of overall costs.

*All this suggests that USCo will be able to retain a significant price advantage over CanadaCo's stores: if not ten percent, then at least seven to eight percent.*

I would agree with that conclusion.

#### **Step 5: Summarize and make recommendations**

*I would tell the CEO the following: In the near term, you might be safe. Your stores have a much stronger brand name in Canada than USCo's, and they seem to be well managed. However, as consumers get used to seeing prices that are consistently seven to eight percent less at USCo, they will realize that shopping at USCo means significant savings over the course of the year. Although some consumers will remain loyal out of habit or because of your high level of service, it is reasonable to expect the discount shopper to shop where prices are lowest. Moreover, over time your brand-name advantage will erode as USCo becomes more familiar to Canadian consumers. You certainly have to worry about losing significant share to USCo stores in the long term. You should probably do something about it now, before it's too late.*

Can you suggest possible strategies for CanadaCo?

*Maybe it can find ways to cut costs and make the organization more efficient, so it can keep prices low even if its cost of goods is higher.*

Anything else?

*It might consider instituting something like a frequent shopper program, where consumers accumulate points that entitle them to future discounts on merchandise.*

What might be a potential problem with that?

*Well, it might not be that cost-effective, since it would be rewarding a significant number of shoppers who would have continued to shop there anyway.*

Any other suggestions?

*CanadaCo might want to prepare a marketing or advertising campaign that highlights its high level of service. It might even institute a CanadaCo Service Guarantee that surpasses any guarantees offered by USCo.*

Assuming the only way to keep customers is through competitive pricing, is there anything CanadaCo can do to appear competitive to the consumer?

*It might want to consider offering fewer product lines, so that it can consolidate its buying power and negotiate prices with suppliers that are competitive with USCo's. It might lose some customers who want the variety of products that USCo has, but it may be able to retain the customer who is buying a limited array of items and is just looking for the best price.*

All of your suggestions are interesting, and you would want to analyze the advantages and disadvantages of each in more detail before making any recommendations to the CEO.

### **Additional Case Questions**

By the time you've gone through the case interview example and the interactive case you probably will have developed a good idea of what a case interview is all about. The best way to prepare for a case interview is to practice a few. Ask a friend or career counselor to give you a case using the sample business problems below.

1. A German luxury car manufacturer is interested in entering the sport-utility vehicle market (for example, Jeep Cherokee) after noticing that the market has grown dramatically worldwide in the past two years. How would you advise the manufacturer? What does it need to know before making an entry decision? If it chooses to enter, what might a viable strategy be?

2. A North American manufacturer/retailer of high-end glassware experienced a dramatic decline in same-store sales at its retail outlets last year. How would you begin to assess the reasons for the decline? Using your analysis as a basis, what strategy would you recommend for the manufacturer?

3. A large public utility formerly had a monopoly in the British electricity market. Now that the market has been deregulated, small power-generation companies have already captured a five percent share from the utility by offering to provide large businesses in the U.K. with their own in-house power-generation capabilities. The CEO of the utility wants to understand whether this trend will continue and how she can prevent further loss of share. How would you answer her question?



4. A U.S.-based pharmaceutical company that focuses on discovering, developing, and selling drugs for the treatment of cancer has been experiencing flat growth and is interested in expanding into new businesses. In view of the growth and profitability of stand-alone cancer treatment centers in the U.S., the company is considering establishing and operating similar centers in China. This would be the company's first foray into the cancer treatment center business. How would you evaluate the attractiveness of the opportunity?

5. The Swiss Ski Association has been petitioned by an international snowboarding club to permit snowboarding on the ski slopes within its jurisdiction. (Assume that the association currently forbids snowboarding on all Swiss ski slopes.) If the association is interested in maximizing profits, how should it respond to the petition? What factors would the answer depend upon?

## 10.2 Medical software industry case (BCG)

### Step 1: Actively listen to the case

Your client is GenCo, a large, international, diversified company with a health care division that produces a wide variety of medical instruments and related services. Five years ago, it expanded into the health care software industry by purchasing MedCount, which markets administrative systems to large U.S. hospitals. These systems are designed primarily for back-office functions; they are not designed for managing patients or providing other physician and technical support. Since it was purchased, the software division has failed to deliver the growth needed to justify the multiple GenCo paid for it. GenCo feels it has already squeezed margins as much as possible, and now is looking for new sales opportunities. MedCount turned to BCG to help identify potential ways to increase revenues. How would you approach this problem?

### Step 2: Establish your understanding of the case

*First, let me make sure I understand the problem. The parent company produces medical devices and services, but before the acquisition was not involved in health care software. The company it purchased, MedCount, sells only administrative systems software to large hospitals. It is now looking for opportunities to increase revenues.*

That is correct.

*Could I take a moment to jot down a few thoughts?*

Sure, that would be fine.

### Step 3: Set up the framework

*I would suggest using the following framework: First, I'd want to understand the market size and growth rates for MedCount's market and related software markets. Next, I would like to explore the competition and their market shares. Third, I would like to examine customer*

*requirements and then, given those external conditions, look at the division's capabilities to understand how well prepared it is to meet the needs of the marketplace.*

That sounds fine. So what do you want to know about the market?

#### **Step 4: Evaluate the case using the framework**

*Well, the first hurdle would be to identify the markets the company would be interested in. Besides administration systems, what other types of medical software systems do large hospitals purchase?*

There are many software systems, but for the sake of time, the team focused on three primary markets: administration systems, patient administration, and physician support systems.

*What do those systems do?*

Patient administration includes systems like admissions and tracking. Physician support systems are more specialized, for individual physician procedures.

*I would like to know how large each market is and how fast each is growing. I would use secondary sources such as press releases, analyst reports, and published market studies, to obtain this information.*

Great! That is what we did during the market study. Our information revealed the following market sizes and growth rates.

	Administrati on	Patient administration	Physician support
Market size (\$M)	1,500	1,000	1,200
Growth rate	5%	5%	12%

*From a size and growth perspective, physician support systems look like a very attractive market. I'd like to know a little about the customers themselves. The client is currently targeting large hospitals. Approximately what percentage of the market do they represent?*

We were unable to get an exact breakdown, but we know that these hospitals make up the vast majority of the total medical software market.

*That would make sense, since the more sophisticated procedures at a hospital might necessitate more advanced software solutions. I know that there have been a lot of changes in the industry as a result of managed care. I don't know much about the industry, so I would want to look at market studies and press clippings to get a better sense of the hospital market in general and any technology or software trends more specifically.*

Okay. Let's say that you did that and were presented with this summary of market trends:

- Consolidation in the industry, with three to four large hospital networks dominating 45 percent of the market
- Cost controls instituted, particularly as these large hospital networks acquire smaller hospitals (centralization of functions being a key cost issue)
- Many hospitals seeking to consolidate their vendor base
- With regard to technology, many hospitals upgrading their older systems

*If hospitals are consolidating vendors, perhaps our client has an advantage in being part of a larger medical company. Maybe the client could also gain some advantages by expanding into other software segments. Are the people responsible for purchasing software at the hospital the same for all three segments?*

Like all things, it differs by hospital, but the larger hospital networks have tried to consolidate their purchasing not only within but also across hospitals.

*Is the decision maker for medical software the same as for medical instrumentation and devices?*

In some cases, the head of purchasing influences both decisions, but the person who makes the final choice is different. Software decisions are usually made by the hospital IT function and those for instrumentation by the medical staff.

*I think I have a pretty good understanding of the market for now. Let's look at competition next. We could identify all the competitors and build up the market shares using a combination of public data and estimates.*

Well, let's assume that you don't have an infinite amount of time to look at all the competitors. You can only look at the top five competitors in each market. You are given the following data:

Administration Systems	Sales (\$M)	Growth (%)
MedCount	700	4%
HCS Software Systems	100	7%
Morningside Software	80	3%
Admin Systems Solutions	70	2%
HTI Software	50	15%
Patient Administration	Sales (\$M)	Growth (%)
HTI	300	5%
Registration Software Solutions	240	4%
Signup Software	60	3%
HCS Software Systems	30	16%
Patient Software	20	-1%
Physician Support	Sales (\$M)	Growth (%)
HCS Software Systems	150	16%
Physician Support Systems	100	11%
Medical Technology Inc	25	18%
HTI	20	32%
MedSys	5	15%

*Very interesting. The first thing I would note from the data is that the market concentrations are very different. In administrative systems, the top five competitors control 66 percent of the market and in patient administration, they control 65 percent. But in the physician support market, they control only 25 percent.*

*I would want to know what gross margins look like in each of these markets as well. I might turn to analyst reports and look at competitors' financial statements to deduce whether they are making money in each market.*

Gross margins vary, of course, but the analyst reports have margins of 25 to 30 percent for administrative systems and for patient administration. For physician support, the margins tend to be higher, more like 45 to 50 percent.

*I see that two competitors, HTI and HCS Software Systems, have very large revenue growth in all three sectors, although they each dominate one. I would want to look at their financials, annual reports, and press releases to find out a bit more about their strategy in each of these areas.*

You'd find that they recently entered these non-core markets. Why might they have done that?

*Perhaps, like our client, each had a strong position in its own segment, HTI in patient administration and HCS Software Systems in physician support. Maybe they too decided to branch out into the other segments to find additional growth.*

That is a very good hypothesis. Let's say there is evidence in the sources you consult that supports your assertion.

*Well, if that were true, these two companies could be a threat not only in the other two segments, but also in our client's segment, administrative systems. It looks as if the client is slowly losing market share in its segment, since it is growing more slowly than its market.*

Good observation.

*The market and competitor trends could also suggest that the client may want to enter these other markets. In particular, the physician support market looks attractive; given it has high growth and lack of a dominant competitor. The higher gross margins may provide attractive returns on the necessary investment in software development. However, the patient administration market may also be attractive. Although it is more concentrated and offers lower margins than physician support, the client may be able to enter this segment with a smaller up-front investment. Given the trend toward upgrading existing computer systems, it may be important for MedCount to have a product offering in each of the three market segments. That should not be too difficult, since the company is already in the software industry.*

Perhaps, but you should think a little more closely about these types of software. Are all software systems alike?

*Well, let me think about that for a moment. I suspect patient administration would have relatively low entry barriers. From your earlier description, these systems appear to be pretty basic, dealing primarily with admissions and patient tracking. However, the entry barriers in physician support might be higher, since these systems are more complex and there are probably multiple systems for the various physician procedures. I guess it would be harder to get into those types of systems.*

That would make sense.

*Since the company might want to go into only some of the segments, I would want to know how important it is to have products in all three segments. Do we know if the competitors are marketing their products as a bundle?*

How might you find that out?

*Since it would be difficult to talk to a competitor directly, I would probably target a competitor's customer, particularly one that just converted from our client's software.*

Let's say you get an interview with a customer that recently switched to HTI. You discover that the competitor was offering it a better pricing deal and service for software products in all three segments.

*How were MedCount's software and service perceived in relation to those of competitors?*

The customer thought that its administrative systems were adequate, "the old standby," but not stellar.

*Were there any other key reasons it switched from MedCount's system?*

When it decided to upgrade its systems, it tried to contact MedCount, but could never get a representative to describe its options.

*Interesting. How did HTI perform?*

The HTI representative had heard that the company was considering switching software vendors and provided a sales representative to pitch HTI's administrative product the next day.

*It definitely sounds as if there was a problem with the sales function and that customer relations need to be improved, particularly for the larger hospital chains. There also seems to be an advantage from both a marketing and sales perspective in having multiple software products. I would want to confirm those views by doing further interviews. Let's say further interviews support those assumptions.*

*Since we have already looked at the external conditions, I would like to move on to the client itself. I'd like to know more about its marketing and selling organization as well as its software development skills.*

*So far, we know that our client offers administrative software and that there may be a problem with sales and marketing. Could you tell me a little about the marketing department?*

The marketing department is organized regionally. Teams are assigned to hospitals within each state or geographic region, such as New England.

*That could explain some of the problems with MedCount's marketing and sales. If hospital purchasing is centralized, the marketing organization may be outdated. Does the company have any teams dedicated to the four or five biggest hospital networks?*

No, there are no dedicated teams. They talked about doing that for a while, but it conflicted with the regional structure it had in place.

*With regard to software, does the company feel it has any strengths or weaknesses?*

It feels that their administrative product is very strong ("best of breed") and is the dominant technology. Also, the product is modular in design, which allows for easier upgrades. Although the company has never branched out into other market segments, the software developers believe that certain modules could be used to build the foundation for other administrative software programs. The company feels customer support is also an area in which it excels.

#### **Step 5: Summarize and make recommendations**

*Let's start with our client's market. The client dominates the administrative software market, which is fairly large but growing slowly, and the company appears to be slowly losing market share. Patient administration is also growing relatively slowly. Both markets are relatively concentrated and appear to offer lower margins than physician support. The physician support market is large and less concentrated, and could potentially provide higher margins, but would require a larger investment. The hospital market itself is becoming more concentrated and is pushing to consolidate vendors. The purchasing agent is often the same for the three types of software.*

*Looking at our client's competitors, two, HTI and HCS Software Systems, appear to be particularly threatening. Each has a dominant position in one segment and is branching out into other areas. They appear to be marketing their products and services as a bundle and are using service as a key point of differentiation.*

*The client offers only one type of system and appears to have some weaknesses in its marketing organization, particularly in marketing to the larger hospital networks, which offer the most promising market opportunities.*

How would you recommend proceeding?

*The first priority should be to fix the marketing organization, particularly for the large hospital networks. MedCount will have trouble expanding into new markets if it can't defend its current position and shore up its existing customer relationships. There should be a team dedicated to each of the major chains. The client should also look at improving customer tracking so that it is clear when its customers are going to upgrade. There should also be clear contacts so that the customer can easily keep in touch with MedCount.*

*Next, I would recommend that the client explore entering the other market segments by leveraging its dominant position in administrative systems. At first glance, patient administration does not appear to be very attractive, with slow growth, low margins, and large, dominant competitors. There appears to be some advantage, however, in having products across the product range. I would recommend that we interview some of MedCount's existing customers to better understand their needs and future IT requirements. If the customer base is interested in one software provider for both back-office administration and patient administration functions, this segment looks promising.*

*If the client does decide to enter this market, it should look at the lowest-cost method of entry, either developing a product internally or acquiring a competitor. The modular design of its existing administrative software suggests internal development of the patient administration product may be the way to go, but we would need a more thorough comparison of the internal development and acquisition options, including both cost and time to market. I think that physician support offers our client an exciting growth opportunity, given its high margins, high growth, and fragmented competition. I would definitely think about an acquisition strategy, since the client may lack the technical capabilities to enter this specialized market. I would recommend going for one of the larger companies, as that would give the client a stronger position. Smaller companies would probably not offer an important enough position in the market. More research would be needed, however, for us to better understand the intricacies of the market and each potential acquisition.*

Those are very interesting conclusions. Thank you.



## 10.3 Jet fighter manufacturing case (BCG)

### Step 1: Actively listen to the case

Your client is a U.S. defense contractor that manufactures the Mohawk Light Fighter Jet for the British Royal Air Force. The company has produced the \$20 million fighter jet for the past 12 years. The British government has decided to put the contract out to bid, however, and to win the program, the client's purchasing agents have estimated, the company will need to cut its costs by 5 percent. It has asked BCG to help it reduce costs.

### Step 1: Establish understanding of the case

*Let me first clarify the question. The client manufactures a \$20 million jet and, because of competitive forces, has to reduce its cost by 5 percent. Is BCG's role also to verify the purchasing department's estimate?*

No, you can assume that the purchasing estimate is correct. BCG's role is to find the cost savings to meet that estimate.

*Could I take a few minutes to think about the case?*

Sure, please do so.

### Step 2: Set up the framework

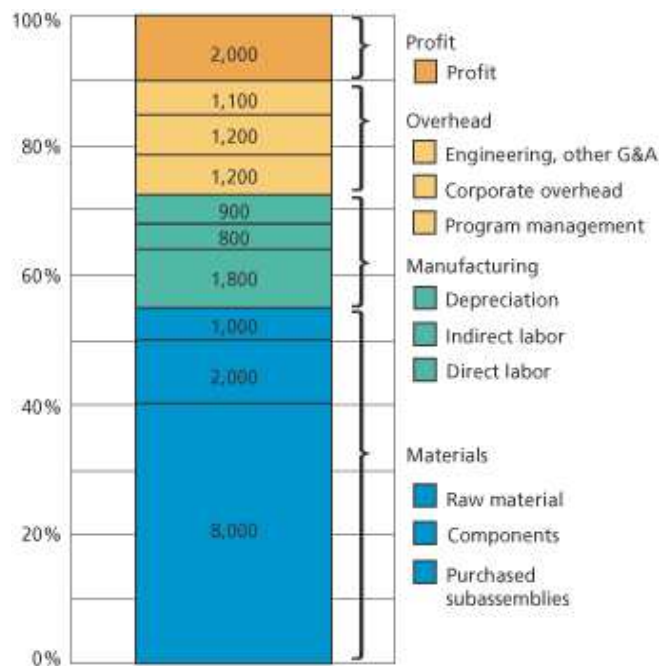
*First, I would like to understand the cost structure of the jet to see what we should look at first. Next, I would like to look at major factors driving the costs we are targeting. Finally, I would like to explore potential ideas to reduce cost.*

That sounds like a very logical approach. Let's proceed.

### Step 3: Evaluate the case using the framework

*Because the time for the interview is limited, I think we should try to identify those areas most responsible for the cost of the jet.*

Time is limited on real projects as well, so I think that would be a good idea! You have the following cost information for the jet. How would you interpret it?



*The major cost driver for the jet appears to be purchased materials. Within manufacturing, direct labor is a fairly large component of cost, as are program management and corporate overhead within overhead. I think we would want to concentrate most on materials, however, since that's where most of the costs can be found.*

That sounds like a good place to start. Where would you look within materials?

*I see that materials are broken down into purchased subassemblies, components, and raw materials. I understand what raw materials would be, but what would be the difference between components and subassemblies?*

A subassembly functions on its own. An example is the pilot night vision system. A component is a smaller part, such as a part of the engine.

*I know that governmental agencies often have very strict guidelines about purchasing that could affect the cost of materials.*

For the sake of this case, you can assume that the British Ministry of Defense, MOD, allows "commercial off-the-shelf" purchases, which means that the client is free to purchase from whomever it wants, as long as it can ensure that the parts meet MOD quality guidelines.

*I see that purchased subassemblies comprise more than 70 percent of materials. How many suppliers are there for these subassemblies?*

There are seven suppliers of major subassemblies that go into the fighter jet.

*That seems like a relatively small number. Are there more suppliers that are qualified to do this type of work?*

The manufacture of these parts requires a substantial investment in R&D, engineering, and infrastructure. It would be very costly for new suppliers to make the required investment, particularly if the client is trying to reduce the price it pays to the subassembly manufacturers.

*Since there are only a few subassembly suppliers, and the investment hurdle would preclude bringing in competing manufacturers, it would be difficult to reduce the price paid. Perhaps we should look elsewhere for savings.*

But remember, if your client loses the contract, it will lose its customer unless it is teamed with the competing bidder. Even then, if the competitor is underbidding your client, there will be even less room for it to profit.

*Perhaps it would have an incentive to reduce its costs in order to maintain the contract. Are the majority of its costs in materials as well?*

How could you find that out?

*I would want to interview the purchasing and engineering personnel of the different subcontractors in order to understand their cost structures. If we had a better understanding of their economics, our client might be able to reduce cost across the board, allowing it to compete more effectively for the contract without killing everyone's margins.*

Let's say that purchased materials average approximately 70 percent of the price paid to most of the manufacturers.

*If the cost of subassemblies represents 40 percent of the jet cost and 70 percent of that is purchased materials, total purchased materials would be approximately 28 percent of the cost for subassemblies. Purchases of raw materials and components represent another 15 percent, for a total of around 43 percent of the cost of the jet. If our client could reduce the cost of raw materials by 20 percent, it could reduce the cost of the jet by more than 8 percent, more than enough to offset the 5 percent reduction it would need to win the contract.*

That sounds reasonable, but 20 percent is a very lofty goal. How would you go about doing that?

*First, I would look at the number of suppliers. Are there a large number of suppliers to the subassembly manufacturers?*

The client estimates that there are approximately 125 suppliers of raw materials and components among the manufacturers of the subassemblies and itself.

*Well, that sounds like a large number of suppliers. Of course, they could be providing very specialized materials to the subassembly manufacturers. Are these suppliers providing customized or more commodity products?*

About 80 percent of these products are commodities, such as sheet metal and wire harnesses. Even some of the electronics, such as printed wire boards and circuitry, are fairly generic.

*That sounds promising, but I would need to know whether these commodities are interchangeable, so that our client could concentrate spending with fewer suppliers. Are there many commonalities among the parts used by the different subassembly manufacturers? We could talk to their engineers and look at the designs and bills of material to determine how much overlap there is.*

Let's say that you did this and discovered that approximately 30 percent of the cost of raw materials is from similar materials used across the subassembly manufacturers.

*It seems safe to assume that the client would need more commonality to be successful in concentrating its purchasing and reducing costs. Do the engineers believe that the percentage of overlap could be increased if the designs were modified?*

They believe they could increase that percentage substantially, particularly with basic materials such as screws and sheet metal, but also in other more customized areas.

*That's great news, but we would still need to know whether the subcontractors are using the same suppliers. We could analyze the number of suppliers for each of the areas of overlap.*

Good suggestion. Although there are some common suppliers, the analysis indicates that the subassembly manufacturers tend to use different suppliers.

## **Step 5: Summarize and make recommendations**

*Our client needs to reduce costs by 5 percent. The largest area of opportunity appears to be in purchased materials, the majority of which comprise subassemblies manufactured by seven subcontractors. By looking at its purchases in total, the client can target approximately 40 percent of costs. To achieve the 5 percent cost reduction, it would need to reduce costs by 15 to 20 percent. It could try to do that by increasing commonality in the design of the subassemblies and components and by shifting volume to a smaller number of suppliers.*

Considering that the majority of the raw materials and components are purchased commodities, do you think the 15-20 percent cost reduction is achievable?

*Well, I know that commodities typically have lower margins than more customized products. I suspect it may be challenging to hit the client's savings target by focusing only on these purchases. But since raw materials and components represent about 40 percent of costs and there is an opportunity to concentrate purchasing, I think we should start here.*

Where else could you look for savings?

*If I look back at the cost data on the jet, direct labor is another large cost component. As a contingency, we could look into that area as well. I've read that other companies use outsourcing to lower their manufacturing costs-perhaps our client could do the same. For example, it might want to increase its use of purchased subassemblies and reduce the amount of direct manufacturing it does. Of course this would work only if it could drive direct labor costs below the offsetting cost of these subassemblies. The client will be working closely with the subassembly suppliers to implement its purchasing initiative. This may give it an opportunity to explore the suppliers' capabilities at the same time.*

That's an interesting suggestion. How would you recommend the company pursue both of the initiatives you have discussed?

*I would look first to combine purchases across the subassembly suppliers with our client's purchases. I suspect that the client and the subassembly suppliers will need to share a great deal of information, including engineering drawings and specifications, with potential suppliers of the raw materials and components. The Internet could prove to be a very effective medium for forming a single "virtual" purchasing department to consolidate both the flow of information and purchase orders across the companies. Our client might also want to use a bidding system for those materials that are true commodities.*

*Next, I would turn to the engineering departments and form cross-company teams to look for areas in which to increase commonality of design. At the same time, those teams could explore opportunities to use more purchased subassemblies and decrease the client's direct labor costs.*

That sounds great, and is very similar to a project we did. I would caution you, however, to examine the upfront costs involved in your recommendations, both for the redesign and for the implementation of the purchasing system, before going ahead.

## 10.4 Gas retail case (BCG)

### Client

Your client is the major operator (monopolist) in one of the largest European gas market. His business includes two major activities:

- Gas sales to households and firms (gas bought from large producers in Russia, Norway, Algeria...)

- Gas transportation from the national border, where it is delivered by the producer, to the end consumers. This implies the existence of a large ensemble of infrastructures: transportation network, distribution network, storage equipment, methane terminals...

Let's discuss the challenges on the natural gas market after market liberalization in Europe.

### Situation

Concretely, the market's deregulation means

- The end of the monopoly for the gas sales; the arrival of new competitors

- The preservation of the monopoly on transportation, but under the surveillance of an independent authority that guarantees equal access to all competitors

Your client is at the head of the purchases/sales department. He is in the following situation:

- Today, company market share is 100%

- At a certain point in the next years the market will at once be opened to competition (which is a simplified way of putting it since in reality there will be stages)

### Client's question

About the gas sale activity that will be opened to competition

- What will be the level of competitive intensity at opening?

- What actors are likely to become my competitors?

### Evaluate the case

According to you, how many and what types of competitors are likely to enter the market? (Structure)

*I believe I would need to evaluate the market attractiveness (market growth, profitability/margin, risks) and the entry barriers (gas availability, brand). I would need to ask the following questions:*

- What are the rules of the game/key success factors (access to suppliers, customer intimacy, cost advantages, branding ...)?*

- How are other players positioned to enter the market?*

- What are their competitive advantages thanks to synergies with other activities (electricity, services ...)?*

Let us focus on the gas retail sale activity's attractiveness. There are three dimensions you should consider: the natural gas market's growth potential, the profitability of this activity and the risks associated with it.

Let us start with the market's growth potential. What are the market's growth levers? (Structure)

*I would differentiate between firms and households. The key levers by client type would be:*

*Households: network penetration, share of gas vs. other energies; consumption of gas/household (climate, isolation ...)*

*Firms: same as households, plus industry growth, productivity, competitiveness with other energy forms*

Given the market's main growth levers for the firms' segment and for the households' segment, do you think that the market will strongly grow, stagnate, or decrease? (Judgment)

*For the households, I would forecast???? the rise of penetration (network extension) but, overall, I think the consumption will decrease due to global warming and to better built houses. For the firms, I think it will decrease, especially in industries that consume a lot of gas (general price and risk issues).*

So what is your conclusion? (Synthesis, So what)

*I think there will be weak or inexistent growth. A new entrant will have to take clients from the major player.*

Can you imagine what a gas retailer's cost structure is? (turnover = 100)? (Synthesis, Structure)

*I believe it would include the energy itself (cost of goods – gas), the infrastructure cost and sales and marketing costs (commercial).*

Here is a simplified cost structure: gas – 50%, infrastructures – 40%, commercial costs – 7% and the margin is around 3%. What cost advantage can a new entrant expect to build for each one of these costs? (Judgment)

*Most probably, there is a small opportunity of differentiation through costs:*

*Gas is sourced at comparable prices*

*Infrastructure prices are identical for all competitors*

*New entrants have to invest rather more in marketing*

*New entrants are not expected to have a productivity lever and only have a small pricing lever.*

*I would have to check these assumptions.*

Let us put ourselves in the shoes of a household client whose yearly gas invoice amounts to € 500. What is the price reduction potential for a new entrant? Can you give a rough estimate? (Judgment, Rigor)

*If I assume I can reduce commercial/marketing costs by 33% ( $500 \times 7\% \times 33\% = 11.55$ ) and I allow a 50% lower margin ( $500 \times 3\% \times 50\% = 7.5$ ), then a new competitor can reduce the gas price around € 15–20/year ( $11.55+7.5=19$ ). This might allow it to compete with the established client. Marketing costs can be reduced if the new entrant is already established in other energy markets and benefits from scale and known brand name.*

What can we conclude on a new entrant's margin level? (Synthesis)

*Margin will necessarily have to be weak or inexistent to attract clients and draw away from established player.*

Let us now consider the risks borne by our retailer. In order to simplify, let us focus on what is called the climatic risk. The sales volumes will vary a lot depending on the year, whether the winter is cold or not. During a "warm" year, let's suppose that the heating volumes decrease by 10%, that the cost of supply/gas are totally variable, that the commercial costs are totally fixed, that the infrastructure costs are partly flexible, at 70%. What will be our gas retailer's margin? (Structure, Rigor)

*I am basing my analysis on the sales and cost structure of a normal year (turnover = 100). Then I calculate the value of each cost block for a warm year, also the margin and compare with the margin in a normal year.*

	<i>Cold vs. warm</i>
Sales:	100 vs. 90 (-10%)
<hr/>	
Gas:	50 vs. 45 (-10%)
Infrastructure:	40 vs. 38.8 (30% of 40 is variable, makes 12, 10% reduction makes 1.2)
Commercial:	7 stay 7
Total cost:	97 vs. 90.8
Margin:	3 vs. -0.8

*In a warm year, it is more expensive to sell gas, so it is a high risk business.*

What can we deduce from this risk calculation? (Judgment)

*The climatic risk is too high to justify the small margin in a normal year.*

Your first meeting with your client is tomorrow morning. What can you tell him/her to answer his/her question based on the analyses that we have just done together? (Synthesis)



*Well, the market is not that attractive and new entrants are a weak threat.*

Finally, it looks like our major player does not have to worry; the gas retailer activity's attractiveness is so weak that one would have to be stupid to venture in it at its opening! But why would it be a big mistake to tell our client not to worry? (Creativity)

*We are not working on the right strategic segment: the gas retail sale segment is not independent of the electricity sale and services, as soon as the monopoly disappears. We have been influenced by the client's historical view.*

In fact there is a bias in our reasoning from the start. What is it? (Creativity)

*We have looked at the gas market on a stand-alone basis. But we need to take into account that the rules of the game might change and that other energy providers might enter the market. Those providers might offer additional products to the gas client: electricity, oil, services or other products.*

Are there other levers that would enable a player to enter the gas market in a profitable way? (Creativity)

*By offering other energy products or services and products, there can be synergies with the gas supply:*

*Channel diffusion/delivery costs*

*Margins from other services can cover production risk*

*On the other hand, there could be cost synergies on the commercialization:*

*Client back-offices could combine gas and electricity sales*

*Brand and client acquisition*

Who could the other new players in the gas market be? (Judgment)

*Potential new players that bring additional value to the client could be major electricity firms, major oil producers and/or major retailers. For the electricity firms, synergies would be mainly based on the commercialization cost synergies, also for retailers. For the oil producers, there are synergies on the supply side.*

What can we finally say to our client? (Judgment)

*The threat is real; the firm's traditional strategic vision must be questioned due to the emergence of the new market conditions and rules of the game. Examples of dangerous players are large power firms, oil producers if they don't have more profitable investments to make and a partnership between a large European energy player and a large retailer.*

## 10.5 Consumer ADSL services cases (BCG)

### The situation is as follows:

ADSL is a technology that enables the implementation of broadband Internet services via the existing telephony infrastructure. This telephony infrastructure is owned by the incumbent telecom operator in Norway. As in most European countries, the regulator has ruled that new entrants may offer ADSL services, using the existing incumbent-owned telephony infrastructure via MDF access. This means, the new entrant can hire the copper wire from the incumbent operator but has to purchase its own ADSL equipment.

The technical set-up that a new entrant would need in order to establish an ADSL connection basically consists of three elements: MDF access (copper wire), ADSL equipment, Internet uplink capacity (fiber access connecting the ADSL equipment to the Internet).

The costs involved in establishing the technical set-up are given (amounts have been converted to Euros):

- MDF access tariff is EUR 12 per line per month, set by the regulator

- Required investments for the ADSL equipment is EUR 120,000 per location, depreciation period of 5 years. For simplicity reasons we assume linear depreciation with no interest costs. In total, there are 250 locations where ADSL equipment could be installed, covering all households in Norway

- Internet uplink capacity is commercially available. Depending on the required end-user speed, costs are on average EUR 2 per end-user per month

- For simplicity reasons, we assume that the consumer ADSL modem is client-owned.

The case interview starts with an open question to test the candidate's ability to apply structure to a problem while a lot of information is still unknown.

Interviewer: Suppose you wanted to assess if a new entrant can run a profitable business in offering consumer ADSL services, how would you approach this?

*Candidate: Let's see, since we are considering a new entrant, who has initially no customers, the company will at first generate loss, and gradually will become more profitable as the number of customers increases. I could make some assumptions on the pace at which the customer base will grow, but rather than making this too complex at the beginning, I would start by calculating some sort of break-even point. I mean, if we never reach break-even, this idea will certainly not fly.*

The structure is the basis for the entire case. A good structure should enable the candidate to systematically solve the case, to set up some easy calculations to verify initial hypotheses, and navigate back and forth through the case. Now, the interviewer asks the candidate to do some easy calculations to see if he/she can apply the structure. This way the interviewer tests if the candidate can combine the elements to a useful outcome (Synthesis), how comfortable the candidate is in doing some basic calculations and if he/she applies sanity checks to the outcome (Rigor).

I: Sounds good, how would you calculate the break-even point?

*C: Hmmm, we know all the costs, but we don't know the revenue, which would be price times number of customers. So I could assume a price and then calculate the number of customers we need. Subsequently, I would need to check if the required number of customers would be a reasonable number. Do we know anything about the price?*

I: We know that the incumbent charges on average EUR 20 per month.

*C: OK, let's assume we could also ask EUR 20 to start with. Later we may need to reconsider this and see if we need to lower the price in order to become more competitive. So let's see if we can calculate this... hmmm, wait, I see we have a lot of information on technical costs, but I don't see anything on personnel costs, is this correct?*

I: Well spotted, we also need an organization and a small marketing budget. The new entrant has done some pre-work and has calculated that an annual budget of EUR 4.8 million would be sufficient to cover the entire country.

*C: OK, then I can calculate the break-even point. Per customer, the new entrant earns EUR 20, of which it uses EUR 14 to cover the expenses for MDF access and the Internet uplink. That means he has EUR 6 per customer per month to cover all other costs. We write off the ADSL equipment in 5 years, so that's EUR 2,000 per month per location. For 250 locations that's EUR 500,000 per month. In addition, we have to cover the organizational costs, which is EUR 400,000 per month. So for break-even we need  $\text{EUR } 900,000 / \text{EUR } 6 = 150,000$  customers.*

After the basic set-up of the case, the interviewer assesses the candidate's ability to make some basic assumptions in order to get to the next level (Judgment) and play around a little bit with that to see if the candidate can really see through the drivers of the case (Synthesis).

I: OK, so what do you think, is that a realistic number to achieve? Let me add that we have roughly 2 million households in Norway.

*C: Hmmm, let's see...at first sight, 150,000 out of 2 million does not seem impossible, but I would like to know a bit more about the market. For instance: is there a lot of growth in the market? How many competitors are there? Can you tell me a bit more about that?*

I: Yes, at the time of this situation, the incumbent operator was still the only provider of ADSL services in Norway, but others have considered entering the market, just as we are doing now. The distribution was as follows: 20% of the households had ADSL services, 20% used Broadband via cable, 50% still used dial-up and 10% had no Internet. We know that these percentages were established in 5 years time. That is: 5 years before no broadband Internet existed. We have no data from in-between years.

*C: OK... so that's a fast growing market. I would say we start focusing on acquiring new customers from the group that is currently using dial-up, since this is the largest group and since it is probably easier to acquire new customers than to persuade customers from our competitors to switch. Now, if we would take a situation for instance 5 years later and if we assume that by then the market has grown again with roughly the same amount, the ADSL market increases from 20% to 40%, which means 400,000 new households will subscribe to ADSL. We would be competing for these clients, against the incumbent operator, and maybe some other new entrants as you mentioned. So... let's say the incumbent operator gets at least a 50% share of that, since it has a strong presence in the market already. Let's assume we would be competing against 1 or 2 other competitors, which means we could get 17–25% share of the new customers, or ~70,000–100,000 in total. So it seems that it won't be possible to reach break-even from new customers only. We could also have a look at the existing customers, both ADSL and cable customers. But then I would need to know how likely it is that they would switch?*

**I:** OK, that is something you may want to investigate. But what would be your upfront judgment on this?"

*C: I can imagine that customers would want to switch if they are very unsatisfied with the current service, or if the new entrant would offer a much lower price. Do we know anything about customer satisfaction?*

**I:** Most customers are very satisfied, the service is very reliable.

*C: OK, so let's look at lowering the price. For instance a 10% discount.... Hmm... but that would mean we also would need more customers to reach break-even. A 10% discount means we drop from EUR 20 to EUR 18 contributing EUR 4 per customer instead of EUR 6 to the fixed costs. So we would need 225,000 customers in this case. Even if we could get a greater share from new customers, I still think it would be unrealistic to assume we could persuade a large number of customers to switch for a EUR 2 discount, particularly if they are satisfied with the current service. In addition, there's the risk that our competitors would lower their prices too. Concluding, I would say this is a risky business to step into.*

When the basics of the case have been cracked, the interviewer would finally test if the candidate is able to assess the problem from different angles and if he/she can come up with alternative solutions (Creativity). If the case runs smoothly and there's time left, the candidate can even quantify part of these alternative solutions.

**I:** I agree. The way we have been looking at it, the business case looks very challenging indeed. But let's spend a minute to see if we can come up with some creative ideas here. Could you think of some ideas that would make this business case more attractive?

*C: I was struck by the negative effect a slight price decrease has. So, I was thinking: could we somehow increase the price? Of course, this can only be justified by offering better service. Would it be possible to increase the speed, for instance?*

I: Yes, technically this would be possible. You would need to make sure that you buy enough capacity on the Internet uplink. Let's assume the speed you can offer is directly proportional to the capacity you buy and the costs associated with it.

*C: OK, so doubling the speed would increase the cost per subscriber by EUR 2 per month, while we could probably charge a much higher tariff, maybe EUR 30 or so. If we could diversify our offering, and if part of the customers subscribe to the premium packages, this would certainly improve the case. Furthermore, I am considering offering additional services, like telephony or even video services if that's possible. Of course we would need to make a separate business case for that, but since EUR 12 out of the 20 we charge is spent on MDF access, any other service we can offer, which re-uses this asset, would greatly improve the case. I mean, we would spread our largest cost component across multiple services.*

I: OK, sounds like these ideas are worth investigating. Anything else you can think of?

*C: What about starting in a limited number of regions, instead of covering the entire country from the start? Is the number of customers per location equal across the country?*

I: Good point! The area of each region is more or less the same, which means...

*C: You have a huge variation in the number of households per location. If we pick the high density areas, for instance the Oslo area, plus some other larger cities, we can perhaps reach 50% of the households through, I don't know, maybe only 20% of the locations and thus only 20% of the ADSL equipment cost. That would make a difference.*

I: You're absolutely right, and you know, looking back this is exactly what new entrants have done when entering the ADSL market: start in high density areas, offer higher speeds at premium prices, in particular to small and medium-sized enterprises, and – at a later stage – expand the service by offering additional services.

## 10.6 Call center case (BCG)

### The case interview

There is a company, let's say a travel agency, that sets up a centralized call center where all incoming phone calls from all branches are diverted to. Shortly after setting up the call center, the travel agency is virtually unreachable because of the large amount of phone calls received.

Before answering any questions, the candidate should check if he/she completely understands the problem stated. The candidate can ask additional questions if the problem is not completely clear.

The first question tests the candidate's creativity and ability to come up with more than one idea, at the same time it tests the use of a structure, which helps coming up with more ideas. First, the candidate should think of main causes, and then specify these main causes in more detailed possibilities.

Interviewer: What could cause the overload of the call center?

*Candidate: I believe there could be different types of reasons:*

*Caused by supply*

*Lack of call center agents (by sickness, by poor planning)*

*Poor organization of the call center (unstructured call-diverting)*

*Caused by technical difficulties*

*Calls are not transferred to the centralized call center*

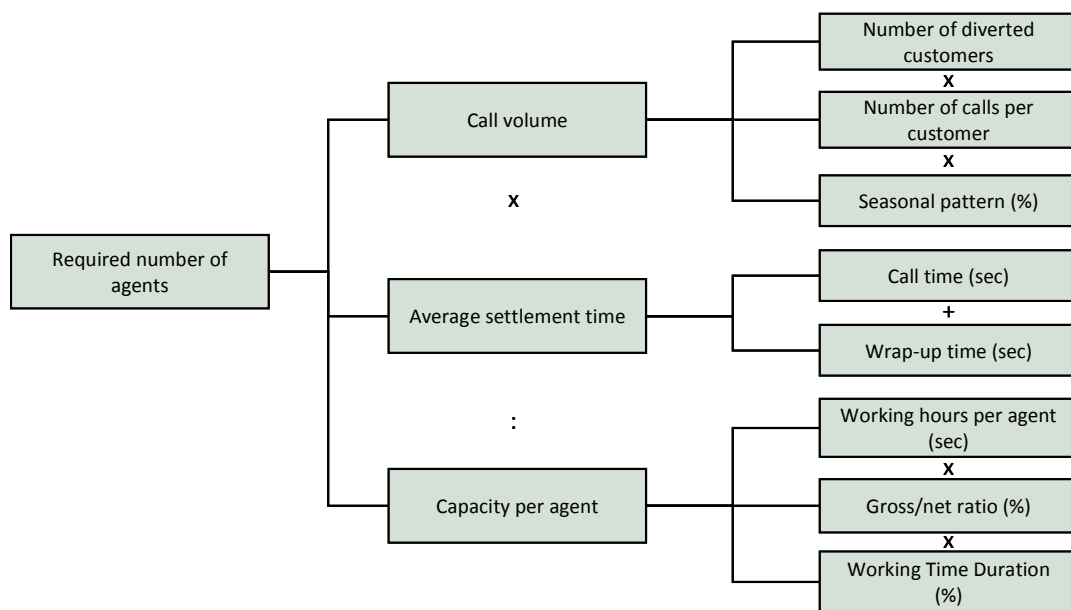
*Caused by demand*

*Peak in client demand (more calls than expected due to international affairs, high-season, bad weather...)*

I: Let us assume that the overload in the call center is not caused by technical problems or by peaks in demand, but is solely caused by the fact that the amount of required agents does not match the number of agents in the center. How would you calculate the required number of call center agents needed to fix the problem?

For this question, it is important to set up a good structure to tackle it. Not a general structure, but one tailored to this specific situation. This is one of the main things the interviewer tests with this question: can the candidate set up a good structure, tailored to the problem. Furthermore, the interviewer tests if the candidate understands the problem and has some (business) judgment (e.g. in this case: a call center agent is not productive 8 hours per day).

A possible answer could be as shown in the next figure:



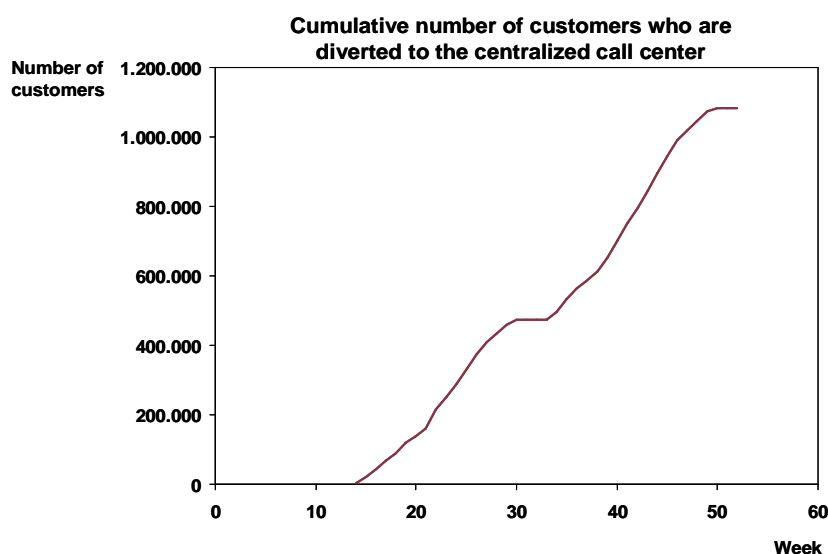
This answer first divides the required number of agents in volume of calls, average time spent on a call and capacity per agent. The next step would be to divide these three main parts into smaller parts. For the volume of calls, the first important driver is the amount of diverted customers. Furthermore, customers can call up more than once; this is called the average number of calls per customer. The third driver of the volume of calls is the seasonal pattern. The average time spent on a call is simply the duration of the call and the time needed by the agent to wrap up the call (e.g. enter information in a computer).

The capacity per agent starts of course with the working hours per agent, but an agent is not 100% productive. There are several ways to define the productivity, in this example the productivity is split up in two parts. The first is gross versus net working hours due to lunch breaks etc. The second is "working time duration", this is the percentage of the time the agent actually is busy with a phone call. An agent can be busier during prime time and less during other hours of the day.

There is now a clear structure to show what drives the amount of agents needed, and therewith a way to calculate the required amount of agents.

I: How many agents are required in week 20?

Most case interviews have some computation in them. To solve it, the candidate will have to figure out the numbers for all parts of the "driver-tree" to compute the required number of agents. There are several ways to figure out the numbers. First of all, an interviewer might give the candidate some data to start with, and he/she will have to pick out the numbers to use in the calculation. Secondly, the candidate can ask the interviewer for data, and thirdly the candidate can make assumptions using common sense. The candidate should always clearly state when he/she is making an assumption and how he/she comes up with it. In this case interview, the following data is given by the interviewer:



Note: At the moment of set-up of the call center, the graph starts with 0.



From this graph, the candidate can deduct the cumulative number of diverted customers in week 20: approximately 140.000 customers. So in week 20, there are 140.000 clients "in the database of the call center". To calculate the required number of agents, other data in the driver-tree is needed, and the candidate will have to figure it out. He/she can start off with asking the interviewer for data, but it's always best to make assumptions and test these with the interviewer. For example: "I assume that on average, a client has contact with an agent of the call center twice per year, so the average number of calls per customer is 2". And: "I wonder if there are many more calls in week 20 versus the other weeks of the year, for now I assume the seasonal pattern to be 0%". The candidate then calculates the calls' volume:  $140.000 / 52 * 2 + 0\% =$  approximately 5.400 calls in week 20.

To determine the average settlement time, the candidate can ask the interviewer for information. The interviewer may either tell the candidate to make an assumption, or give the numbers. In this case, these are given: "Monitoring talk- and wrap-up-time gave an average call time of 240 seconds and an average wrap-up-time of 60 seconds per call". This information gives the candidate the average settlement time:  $240 + 60 \text{ seconds} = 5 \text{ minutes} = 1/12 \text{ hour}$ .

The last driver is the capacity per agent. The candidate can assume that the number of hours an agent works is 40 per week. To determine the gross/net ratio, the candidate could ask the interviewer, though he/she could also easily make an assumption on own experience: "I assume that of the 8 hours worked in a day, approximately 1.5 hour is lost to lunch and other breaks. This makes the gross/net ratio ~80%  $((8-1.5)/8 = 81\%)$ . The last number to figure out is the working time duration, this is a hard number to guess without knowledge of call centers, but the candidate could still give it a try. The candidate should then ask the interviewer if the assumption is more or less right. From experience, the number is ~50%. This gives the capacity of an agent per week:  $40 * 80\% * 50\% = 16 \text{ hours per week}$ .

Now, the candidate has all numbers to calculate the amount of agents needed in week 20. The candidate should not forget to use the same units for all parts of the equation (all in seconds, hours, or weeks) and not make any unnecessary mistakes. In this case, the number of agents needed in week 20 is:  $5.400 \text{ calls} * 1/12 \text{ hours per call} / 16 \text{ hours per week} = 28.1$ , so either 28 or 29 agents are needed.

I: There are no additional trained call center agents available. What other ways can you think of to help the travel agency with its telephone problem?

It is stated that the amount of required agents does not match the number of agents in the center. However, since there are no additional trained call center agents available, the candidate has to find ways to decrease the amount of agents needed.

This question will test if the candidate really grasps the problem and if he/she uses his/her structure in the right way. Looking again at the structure, the answer is clear: There are three levers to decrease the amount of agents needed:

1. Reduce the call volume
2. Reduce the average settlement time
3. Increase the capacity per agent

To determine specific solutions, the candidate needs creativity and understanding of the problem.

On the first lever:

- Stop diverting the calls from branches to call center (and divert back)
- Insert a computer-based menu which answers the most frequently asked questions

A possible solution to the second lever is:

- Reduce the wrap-up time by monitoring it, determine the most common wrap-up actions and shorten these actions where possible. For example introduction of a computer application that helps the agents with the standard wrap-up actions such as "sending a brochure"

For the third lever, a possible solution would be:

- Align planning of agents with actual demand for agents by mobilizing more agents during peaks in client demand and less during a low. This solution can be for example achieved by stimulating the agents to work part-time.

## 10.7 Supermarket deli turnaround case (BCG)

### Questions and Facts

#### 1. Client's deli financials

See Exhibit 1

#### 2. Overall industry/ customers

Deli meat category has been flat to slightly declining recently. Prepared foods category has been growing at roughly 10% per year as people have less time to cook at home.

#### 3. Competitors

Increasing competition from deli departments of other supermarkets, discounters, etc. – e.g., expanding product lines, increasing advertising. Also competes with fast food restaurants in prepared foods category.

#### 4. Client's product mix and recent events

Mix has remained constant, with the exception of two products introduced a couple of years ago – BBQ chicken wings and “made to order” sandwiches. Both products have been a major boost to prepared foods revenue.

#### 5. Info on new products

BBQ wings are similar to the chicken wings the company already sells, although they take a little longer to fry and are tossed in BBQ sauce after frying. “Made to order” sandwiches is client's response to Subway, etc. – for two hours during lunchtime and two hours during dinnertime, one employee's sole task is to make sandwiches to order for customers.

#### 6. Financials of new products

Revenues for each product are \$40M annually. Costs are not broken down at the product level.

See Exhibit 2.

<b>SUPERMARKET DELI TURNAROUND</b>				
<b>Exhibit 1</b>				
		<b>\$M</b>		
		<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>Deli meats</b>	<b>Revenues</b>	<b>260</b>	<b>255</b>	<b>260</b>
	<b>COGS</b>	<b>160</b>	<b>155</b>	<b>160</b>
<b>Prepared foods</b>	<b>Revenues</b>	<b>360</b>	<b>400</b>	<b>440</b>
	<b>COGS</b>	<b>190</b>	<b>230</b>	<b>270</b>
<b>Overall</b>	<b>Revenues</b>	<b>620</b>	<b>655</b>	<b>700</b>
	<b>COGS</b>	<b>350</b>	<b>385</b>	<b>430</b>
	<b>Gross margin</b>	<b>270</b>	<b>270</b>	<b>270</b>

## SUPERMARKET DELI TURNAROUND

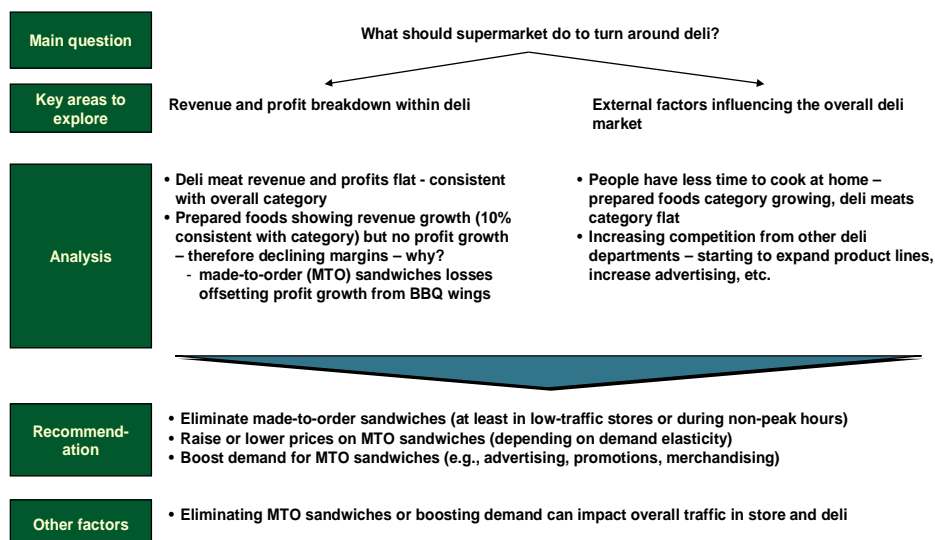
### Exhibit 2

BBQ wings		“Made-to-order” sandwiches	
Price	\$5 for 20 pieces	Price	\$4 per sandwich
Total material cost	\$0.10 per piece	Avg. sales/store	20 sandwiches per day
Prep time	15 minutes per batch of 200	Total material cost	\$2 per sandwich
Employee cost	\$20 per hour (fully loaded)	Employee cost	\$20 per hour (fully loaded)
Total COGS	\$2.50 per 20 pieces	Dedicated hours	4 hours per day
Margin	\$2.50 per 20 pieces	Revenue	\$80 per store per day
		Total COGS	\$120 per store per day
		Margin	\$(40) per store per day

Note: Boxes indicate figures that should be calculated by the interviewee

## SUPERMARKET DELI TURNAROUND

### Sample Approach



## Framework and Analysis

There are three main questions asked to the candidate:

Which part of the business is responsible for the lack of profit growth – deli meats, prepared foods, or both?

Is the lack of profit growth caused by flat revenues, increasing costs, or both?

What is causing the flat revenues or increasing costs (and what should the client do)?

Based on Exhibit 1, the candidate will see that gross margins for both business lines are flat. Furthermore, deli meat sales have been basically flat while prepared foods sales have been growing at 10%.

The candidate should recognize that the client's deli meat and prepared food sales have been growing at about the category averages; therefore, revenues are not the main issue here. Deli meat COGS have been more or less flat, mirroring sales. However, despite robust growth in prepared food sales, prepared food profits have been flat, implying deteriorating margins.

At this point, the candidate is asked for some potential reasons for deteriorating margins (e.g., change in product/sales mix, rising material costs, rising labor costs).

If the candidate asks about changes in product mix, the interviewer informs him/her about the BBQ chicken wings and the "made to order" sandwiches. The candidate should be suspicious at this point and ask to learn more about these products.

By doing a back-of-the-envelope analysis of product profitability (based on data in Exhibit 2), the candidate can find that BBQ wings have a 50% margin, indicating that they are not a problem. On the other hand, he/she will find that the client is losing a lot of money on the "made to order" sandwich concept.

The candidate is then asked for recommendations, which could include:

- 1) Eliminating the "made to order" sandwich
- 2) Restricting the "made to order" sandwich to busier stores or during busier times of the day (e.g., lunch hours only)
- 3) Raising or lowering prices (to either increase profit per sale or units sold – will depend on demand elasticity)
- 4) Boost demand (through increased advertising, promotions, better merchandising, etc.).

The candidate can also consider the second-order effects of eliminating the product or boosting sales (the effect on traffic in the deli and the overall store).

## 10.8 China outsourcing case (BCG)

### Problem set-up

The client is a national manufacturer of plastic consumer products that are sold in a variety of retail formats, including supermarkets, discounters, club stores, and dollar stores. The company has three main product lines: 1) freezer bags, 2) plastic plates and utensils, and 3) specialty plates and utensils.

The CEO has been reading for some time about American companies outsourcing their production overseas to low-cost countries such as China. She wonders whether this makes sense for her company as well. It worries her that none of her main competitors have established foreign production capabilities; on the other hand, this could be a tremendous opportunity to gain a competitive advantage.

We have been asked to help the client understand the benefits and risks of moving its production capabilities to China and to provide a recommendation.

### Question and Facts

All three product lines have similar cost structures and savings (see Exhibit 1)

#### 1. Freezer bags

Plastic bags are used mainly to store food items in freezers. According to customers, top purchase criterion is quality, since low quality bags will result in food spoilage. Client is #3 in category, with 200 million lbs. sold. The category leader has a strong brand and strong innovation.

#### 2. Plastic plates and utensils

Disposable plates and utensils; intended for single/limited use. According to customers, top purchase criterion is price. Client is #2 in category, with 300 million lbs. sold. Client is at cost parity with category leader but has a weaker brand.

#### 3. Specialty plates and utensils

Plastic plates and utensils produced for specific retailers, customized to their design specs. According to customers, top purchase criterion is style/design. Because many products are new and untested, demand is highly variable. Client is #1 in category, with 100 million lbs. sold. No strong competitors.

#### 4. Current client production capabilities

All products are made in a single factory in Ohio. The factory is at capacity and the company is considering building or acquiring a nearby facility.

#### 5. Chinese production options

Client has no previous experience in building and managing a factory overseas. Client has met with several Chinese manufacturing partners and has done initial product testing.

All three product lines have similar cost structures and savings (Exhibit 1).

Quality: lower quality on freezer bags, equal quality on plastic plates and utensils (both regular and specialty).

Lead time: need 3-4 weeks of additional lead time for each product line for transportation from China to U.S. distribution center.

#### 6. Chinese market, current client presence

All three categories are relatively underdeveloped but growing, dominated by local manufacturers. Client does not currently have any sales in China, although a few of their U.S. customers (e.g., Wal-Mart) do have presence there.

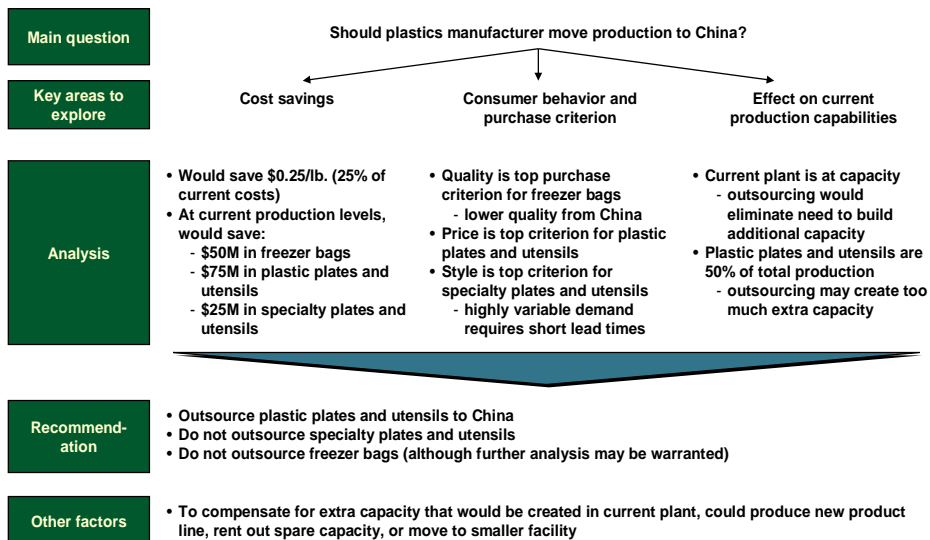
## CHINA OUTSOURCING OPPORTUNITY

### Exhibit 1

Costs	Costs in U.S. (\$/lb.)	Costs in China relative to U.S.	Costs in China (\$/lb.)
Labor	0.30	8% of wage rate 80% of productivity	
Material			
• Plastic resin	0.30	80%	
• Other material (incl. packaging)	0.20	75%	
Variable overhead	0.05	140%	
Fixed overhead	0.10	60%	
Transportation			
• China to U.S. distribution center	N/A	\$6K to ship 40K lbs.	
• U.S. distribution center to customer	0.05	Same	
Total	1.00		

## CHINA OUTSOURCING OPPORTUNITY

### Sample Approach





## Framework and Analysis

The candidate should start with a brief overview of the potential benefits and risks of outsourcing to China. The main benefit is lower costs, mostly driven by inexpensive labor. A secondary benefit is a possible springboard into the emerging Chinese (and other Asian) market. Risks include lower labor productivity, possible quality issues, longer lead times, additional transportation costs, and potential communication/coordination issues. The candidate can be asked about the ramifications of longer lead times – they include greater carrying costs, higher cycle and safety stock, greater forecast error, and less responsiveness to demand.

There are three main questions asked to the candidate:

How much cheaper is producing in China?

What do consumers value and how would outsourcing affect those criteria?

What are the client's current production capabilities and how would outsourcing part/all of their production affect the remainder?

First, the candidate should size the opportunity – is this a \$5 million or a \$500 million opportunity? By solving for the last column in Exhibit 1, the candidate will find that the client would save \$0.25/lb. (25% of current costs) by outsourcing to China. Given current production levels, the client would save \$50 million by outsourcing freezer bags, \$75 million by outsourcing plastic plates and utensils, and \$25 million by outsourcing specialty plates and utensils. Two notes: 1) costs may increase if the Chinese Yuan rises versus the dollar and 2) these estimates do not include a profit margin for the Chinese outsourcing partner.

The candidate should also recognize that cost savings alone are not sufficient to make a decision. It is important to understand how an outsourced product will affect sales. The candidate should suggest market research to understand consumer behavior.

Freezer bags: since customers' top purchase criterion is quality and outsourcing would produce lower quality bags, the candidate should raise a red flag here. A more sophisticated recommendation would be to conduct market research to see the impact on sales of the lower quality bag at lower prices – even though quality is more important than price, the magnitude of a price change may override the drop in product quality.

Plastic plates and utensils: the top purchase criterion here is price, which makes this product line an attractive outsourcing opportunity. The candidate can be asked what the client should do with the cost savings – potential recommendations include dropping price to steal share, investing to defend its position in case competitors begin outsourcing (e.g., brand, innovation, customer service), and milking the product line as a cash cow.

Specialty plates and utensils: the highly variable and unpredictable demand for these products means that shorter lead times are critical in order to adjust production quickly. Longer lead times will result in greater forecast errors, higher safety/cycle stock, and more unsold inventory and/or out-of-stocks. Therefore, specialty plates and utensils should not be outsourced.

An analysis of customer purchase behavior indicates that plastic plates and utensils should be outsourced, specialty plates and utensils should not be, and freezer bags probably should not be. The final step is to understand the impact of outsourcing on the client's current production capabilities. For example, will it lead to plant closings (resulting in closing costs and possible negative publicity)? Will it lead to underutilization of current facilities?

Since the current plant is already near capacity, moving plastic plates and utensils offshore would actually save the client from investing in new facilities. However, since that product line makes up 50% of total production (in terms of lbs.), removing it may create too much extra capacity in the current plant for the two remaining lines. To compensate, the client could produce a new product line, rent out the extra capacity, or move to a smaller plant.

## 10.9 Specialty paper sales case (BCG)

### Problem set-up

Your client is a leading manufacturer of specialty papers sold to commercial printers. The client produces self-adhesive sheeted papers that are ultimately used in a variety of labeling applications – including the labeling of consumer goods and the printing of self-adhesive signs.

Your client's operations are profitable, but the business has failed to grow over the past few years. The client would like to invest in the business and you have been asked to identify opportunities for growth.

## GROWING SPECIALTY PAPER SALES

### Questions and Facts (I)

Topic	Information
Supply chain	<div style="display: flex; align-items: center; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; background-color: #2e7d32; color: white;">Raw mats</div> <div>→</div> <div style="border: 1px solid black; padding: 2px; background-color: #2e7d32; color: white;">Layering</div> <div>→</div> <div style="border: 1px solid black; padding: 2px; background-color: #2e7d32; color: white;">Sheeting</div> <div>→</div> <div style="border: 1px solid black; padding: 2px; background-color: #2e7d32; color: white;">Packaging</div> <div>→</div> <div style="border: 1px solid black; padding: 2px; background-color: #2e7d32; color: white;">Distrib.</div> </div> <ul style="list-style-type: none"> <li>• Rolls of paper</li> <li>• Adhesive</li> <li>• Non-stick liner</li> <li>• Adhesive and liner applied to rolls</li> <li>• Rolls of layered paper cut into sheets</li> <li>• The client is not capacity constrained in its manufacturing processes</li> <li>• The client's manufacturing and packaging operations are currently configured to package specialty papers in boxes</li> </ul>
Customers	<ul style="list-style-type: none"> <li>• There are approximately 24,000 commercial printers in the United States</li> <li>• Printers are roughly categorized into three groups: small, medium, and large</li> <li>• Differences among the groups are driven by the type of printing technology employed and the size of print jobs that the printers are able to serve</li> <li>• Printers prefer to receive product from the specialty paper manufacturers in different forms, primarily driven by the type of printing technology employed <ul style="list-style-type: none"> <li>- Small printers prefer to receive their specialty paper in boxes</li> <li>- Medium printers prefer cartons of specialty paper</li> <li>- Large printers prefer to receive palletized shipments of specialty paper</li> </ul> </li> </ul>
Market share	<ul style="list-style-type: none"> <li>• The client has approximately 30% market share with small printers and only 10% share with medium and large printers</li> </ul>
Client financials	<ul style="list-style-type: none"> <li>• Margins are currently acceptable but management is against cutting price to gain market share, knowing that competitors can match price cuts</li> <li>• Price and cost to serve per equivalent box are different for each customer type</li> </ul>

## GROWING SPECIALTY PAPER SALES

### Questions and Facts (II)

	All figures are per equivalent box		
	Small (boxes)	Medium (carton)	Large (pallets)
Price to printer	20.00	18.00	15.00
Materials	5.50	5.50	5.50
Coating	1.00	1.00	1.00
Sheeting	0.50	0.50	0.50
Packaging (direct costs)	3.00	2.00	1.00
Gross profit/(\$ per equivalent box)	10.00	9.00	7.00
Number of printers	20,000	3,000	1,000
Annual usage (number of equivalent boxes)	100	500	3,000
Total potential profit pool (\$)	20,000,000	13,500,000	21,000,000

## Framework and Analysis

The problem set-up indicates that the client wants to invest in this business. Investment can take many forms including expansion of manufacturing operations and capacity, expansion of customer-facing activities, and acquisition of competitors. It is interesting to note that this is currently a profitable, no-growth business for the client. Investment decisions cannot

be made unless the management team (and the candidate) understands the market conditions as well as the client's internal capabilities

This case does not lend itself well to traditional "case solution structures". A strong initial response is to list a set of internal and external factors that must be understood and evaluated. Ultimately, the candidate should decide whether investment is warranted, and if so, where.

Strong hypotheses might include:

- Assuming the client is not capacity constrained, there are likely groups of customers that represent opportunities for profitable growth

- Depending upon the current go-to-market strategy, the client may need to re-evaluate the way that it is configured to serve existing and potential customers

The client can expand its packaging operations to better serve medium or large customers, but not both. Client economics and cost to serve each customer group are shown on Exhibit 1. For simplicity, taxes and depreciation are ignored and SG&A is assumed to be fixed.

The candidate should recognize that a comprehensive solution evaluates the required investment to serve a particular market segment (packaging line, manufacturing operations, additional SG&A) against the expected return.

The candidate should evaluate the profit pool from serving medium and large customers. This should be based upon an assumption about the size of the market that the client can capture. Assuming the client can match its small printer market share, the client could capture an additional 20% of the medium or the large printer customer segment

The following is given to the candidate:

- Investment and operation of carton packaging line would cost \$675,000 per year

- Investment and operation of the palletizing line would cost \$2,300,000 per year

A logical conclusion would be that an investment in a carton packaging line would be a superior investment compared to the palletizing line

Potential conclusions:

- The carton packaging line is a less-risky investment (requires less up-front capital)

- The solution assumes a static environment. If large printers are growing in number and or usage of specialty paper, this may change the answer

- The investment in a new carton packaging line would need to be evaluated against other potential investments to understand if it is the optimal use of the client's capital

## 10.10 Oil tanker case (Booz & Co.)

### Step 1: Background and question

My grandfather has just died and left me an oil tanker. I need a valuation for tax purposes, and I have hired you to tell me what it is worth. For your information, there are 3 types of tankers in the world: small, medium, and large. Within these three classes, each tanker is identical to every other. I have just inherited a medium tanker

### Step 2: To be given as a response to student inquiries:

#### Supply-side information

	Small	Medium	Large
Number	100	100	100
Capacity	1 unit	2 units	4 units
Number of trips per year	1	1	1
Operating cost	\$50,000/trip	\$75,000/trip	\$100,000/trip

#### Demand-side information

Scenario I: fixed demand for 500 units of capacity per year (transport costs are a negligible part of total oil-cost structure, and demand is completely inelastic for purposes of this analysis).

Scenario II: fixed demand for 650 units of capacity per year (note: change demand-side scenario to this only if student correctly determines value of tanker under first scenario and if time permits).

The market is highly fragmented and therefore competitive. The discount rate is 10%.

### Step 3: Solution

Because the market is competitive, the market price will be the lowest price sufficient to cause enough capacity to enter the industry to serve the fixed demand, and the marginal unit will earn revenue just sufficient to cover its costs.

Clearly, the large tankers have the lowest cost structure, followed by the medium tankers and finally the small tankers. The large tankers can supply 400 units of oil transportation

services, the medium tankers 200 units, and the small tankers 100 units.

If demand is fixed at 500 units, then medium tankers will be the marginal capacity, and we can say directly that the market-clearing price will be just sufficient to cover the costs of operating such tankers. So my tanker has no value (or, alternatively, scrap value only).

For completeness, the market-clearing price will be \$37,500 per unit. Large tankers, all of which will be employed, will earn profits of \$50,000 per year and be worth \$500,000. Half of medium tankers will be employed at rates that just cover their costs, while the other half sit idle. Finally, small tankers will not have costs low enough to enter the market and will also be worth zero or scrap value only.

If demand is instead fixed at 650 units, the small tankers will be the marginal capacity and medium tankers will earn profits and have positive value. The equilibrium price will now rise to \$50,000 per unit. Medium tankers will earn \$25,000 per year and be worth \$250,000; large tankers will earn \$100,000 per year and be worth \$1,000,000.

#### **Step 4: Discussion**

This case is a business problem that at its core is a relatively simple problem in microeconomics.

Students need not get all the way to a numerical answer for the value of the tanker, and few should be expected to give both answers depending on demand assumptions. Nevertheless, students should first demonstrate a good conceptual framework for determining the tanker's value, and be reasonably creative about asking for the right kind of data to get at least part way to the solution.

Note that both the revenue and cost side of the problem need to be understood in order to reach a valuation.

### **10.11 Video game case (Booz & Co.)**

#### **Step 1: Background**

The CEO of a large, diversified entertainment corporation has asked a team to examine the operations of a subsidiary of his corporation that manufactures video games. Specifically, he needs to know if he should approve a \$200 million capital request for tripling the division's capacity.

#### **Step 2: Question**

You are a member of the team assigned to this project. Assume you and I are at the first team meeting. What are the critical issues we should plan to examine to determine if the industry is an attractive one for the CEO to continue to invest and why?

### **Step 3: To be given as a response to student inquiries**

The following information may be given if requested by the candidates, though the candidate should focus on identifying issues, not on obtaining more information.

#### Market share

Division is 3rd largest manufacturer of hardware in industry (10 percent market share)  
Top two producers have 40 and 35 percent market share  
Remainder is divided by small producers  
Division sell to broad range of consumers

#### Sales

Division sales have increased rapidly over last year from a relatively small base  
Current estimate is annual sales of 500,000 units  
Current estimate of industry hardware sales is 5,000,000 units annually  
Industry growth has been strong though over last few months  
Sales growth has slowed  
Division's current sales price for the basic unit is \$45 per unit  
Division remains less than 20 percent company sales  
Top two competitors also develop, manufacture and sell software/games though division sells only licensed software  
Industry growth of software continues to increase

#### Cost

Division estimates current cost is \$30 fully loaded. Requested expansion should reduce the cost by 5 to 7 percent and triple production of the hardware unit  
Top two competitors are estimated to have a 10 to 15 percent cost advantage currently  
Main costs are assembly components and labor

#### Current

Division estimates much of initial target market (young families) has now purchased the video game hardware  
No large new user segments have been identified

#### Distribution

Primarily outlets of distribution are top and electronics stores

#### Profitability

Division currently exceeds corporate return requirements, however, margins have recently been falling

#### Product

Hardware standards have been established by the industry leaders  
Product features are constantly developed (e.g., new type of remote joy stick), to appeal to segments of the market

## Step 4: Solution

Minimum Requirements: the following issues would need to be covered for candidate to have done an acceptable job:

### 1) What is future market potential?

The candidate needs to question the continuation of overall industry growth. She/he might ask about the saturation of markets, competitive products (home computers), and declining "per capita" usage.

### 2) What is the competitive outlook?

The candidate should at least recognize the need to examine competitive dynamics. Issue areas might include: concentration of market shares; control of retail channels; and R&D capabilities (rate of new product introductions, etc.).

### 3) What will be the price/volume relationships in the future?

Issues of prices need to be considered.

Better/Outstanding Answers: no bounds on creativity, but better answers would address:

#### Market Potential

- Recognize that there is a relationship between market penetration and growth in new users which, when combined, yields an industry volume estimate
- Address the shifting mix of product purchases, in this case from hardware (player unit) to software
- Seek to look at buyer behavior in key buyer segments, i.e., "fad" potential of product

#### Software

- Recognize technology standards are set by industry leaders. In this situation, the division as a secondary player will have to follow these standards
- Recognize that different distribution needs may exist for different products (in this case, hardware versus software)

#### Price/Volume Relationships

- Discuss the effect capacity additions can have on overall industry price/volume relationships and on industry price levels

#### Company Ability to Compete

- Should ask what the capacity expansion is designed to do
- Explore the cost position of the client division relative to that of other competitors
- Seek to understand reasons for poor profit performance of division



## Step 5: Discussion

The primary issue of the case is to determine if the industry is attractive and, especially, if our client's position in that industry is sustainable. The candidate should identify issues which are necessary for assessing both the industry and our client's position, but should not be expected to solve the problem.

If the candidate begins to discuss too deeply a specific issue, before having covered the key issues overall, he/she will probably be brought back to discuss the industry more broadly by questions such as "what other issues must be examined?"

If the candidate is discussing issues which seem irrelevant to the attractiveness of the industry, he/she may be asked "how will that analysis help to assess the attractiveness of the industry or our client's position?"

### 10.12 Toy manufacturer case

Your client is the third largest toy manufacturer in Europe and has come to you because their sales have been stagnant or even declining during the last few years. Sales had been rising before. Why are sales like this? How can the client improve the situation? Which elements would you like to analyze?

#### Information to be given as a response to student inquiries:

- Company is selling traditional toys
- Company segments their market into: pre-school (0-6 years, girls' toys and boys' toys)
- Highest volume products are: plastic toys, dolls and vehicles + action figures
- Industry growth has been flat
- Profit margin is ten to fifteen percent
- Production takes place in Asia
- Company has subsidiaries in main European markets, responsible for sales in these markets. The sales force visits the distributors of the toys, which are mainly supermarkets and department stores on the one hand and dedicated toy shops on the other hand
- Brand image of client is good

#### Question asked:

Suppose you are in a meeting with this client and the question arises as to how large the toy market really is in Belgium? How would you determine this?

#### Suggested answer:

Let's say that we consider mainly (for this client) the market of 0-14 year old children. There are 10 million people in Belgium, which translates into about 3 million households if you take an average of 3 people per household. Not all households have children, and some have more than one, and so I guessed that there would be about 0.5 children on average in this age category per household, so 1.5 million children.

Then I looked at the gifts they receive and started to enumerate important occasions children at that age get presents from their parents: birthday, Christmas, beginning and end of school, and maybe one more occasion, which gives 5 in total. Then I said that each time the parents would spend 50 Euros on average. So this means that each child receives toys for an amount of about 250 Euros per year. I then multiplied the 250 Euros with the 1.5 million children to find my estimate for the toy market in Belgium of about 375 million Euros.

**What would you think could be a reason of the stagnant sales of the client?**

**Suggested answer:**

The first one that comes to mind is that the client is not strong in the electronic game business, which has been the fastest growing segment over the last decade in the toy industry. The client should consider one of three options: either grow their electronics business themselves, or buy a company that already is specialized in electronic games, or else form a partnership with such a firm.

### 10.13 Pen manufacturer case (Booz & Co.)

#### **Step 1: Background**

Penco is a global leading manufacturer of writing products, with divisions in North-America, Europe and South-East Asia. Penco's global sales equals € 50 million whereas its profit amounts to € 25 million. The mayor activities of Penco's European division are within the manufacturing and sales of disposable pens.

#### **Step 2: Question**

Within the European region, sales are flattening and profit is decreasing. Penco's CEO has asked you to determine the cause of the decreasing profit in the European pen division, and to come forward with suggestions to bring it back up.

#### **Step 3: Set out the broader structure**

First, discuss the mayor aspects you would like to study in order to understand the decrease in profit.

[In a case interview, this step is crucial. Verify whether you understood the objective of the case and write down the main question. During the interview, take the time to determine your structure and make sure to communicate your plan clearly]

*Suggested answer*

Profit is defined by sales minus costs. Penco's decreasing profit within the European pen division is caused by flattening sales on one hand, and this could be accumulated by increasing costs on the other.

Possible causes for flattening sales

The number of pens sold is decreasing

The price per pen is decreasing

An unfavorable shift is taking place within the product mix

Possible causes for increasing costs

Increasing direct costs

Material costs

Direct wages

Increasing indirect costs

Production costs

Transportation costs

Indirect wages

Marketing & Sales costs

Overhead costs

*Excellent addition remark*

Within the cost-price of a pen, the share of indirect costs is substantial. For a great part, these indirect costs are determined by the utilization of the production capacity. When production utilization increases, the indirect costs can be distributed over a greater number of products, such that the costs per product diminishes. Therefore, we should test the hypothesis that utilization of the production capacity could be increased.

#### **Step 4: Study the means to increase sales in further detail**

Before looking into possibilities of reducing costs, let's first study the opportunities on the sales side a little more.

[In an interview, if you think you need more information, do not hesitate to ask for it. However, make sure you are asking for a specific answer. For example: "Would you want me to look at the sales of pens or would you also be interested in sales of other writing products?" The answer in this case is: "We are only interested in the sales of various kinds of pens".]

*In order to provide a delicate answer to the question, the candidate could request the following information*

What are the segments in which Penco is operational?

How aggressive is the competition within these segments?

What is the current stage of the pen market?

*Suggested answer*

I would like to identify a few possible means to increase sales:

Increase sales to existing customers: for example, attach sales of accessories *or fillings* to pen sales

- Initiate sales to new customers: for example by increasing the number of distribution channels and/or intensifying marketing
- Selectively increase the prices
- Launch new products: for example, premium pens
- Get rid of unprofitable pens within the existing product mix, such that sales will shift from unprofitable pens towards more profitable pens
- Cut a deal with retailers: for example, attach a pen to a specific notebook within their assortment

*Excellent addition remark*

The pen market is highly competitive, especially within the segment of disposable pens –in which Penco is operational. Therefore, to Penco price is extremely important. This makes the sales increase by means of an increase in prices fairly unrealistic. If we would have been looking at premium products (i.e., products with added value which customers are willing to pay for), price would be of minor importance.

**Study the launch of new products in order to increase sales in further detail**

There seem to be opportunities within the market of premium pens. In this example, we will assume fountain-pens which are produced in vast volumes, with minimum selling price € 10. Penco does not yet operate within this segment. Let's look into this in some further detail.

**1. Estimate the market for premium pens in Europe**

[This means: Provide an estimate of the number of premium pens sold per annum within Europe]

[Be prepared to be solving mathematical problems during the case. It is expected that you will do calculations without the use of a calculator. In client situations, there will often not be a calculator either. Make assumptions and round numbers such that multiplying and dividing is easier. Also, make sure to perform a sanity check after deriving an answer]

*Suggested answer*

I will start with some assumptions, and then calculate the estimated number of premium pens sold per annum within Europe:

- The number of inhabitants of Europe is 400 million
- Persons below the age of 12 do not possess premium pens
- This category represents about 15% of the European population (12/80≈15%)
- On average, 1 out of 4 persons possesses a premium pen
- On average, a premium pen is utilized over a period of 5 years

Over a period of 5 years, the number of premium pens sold in Europe is:

$400 \text{ million} * (100\% - 15\%) \text{ persons} * 0.25 \text{ pens} = 85 \text{ million premium pens.}$

This corresponds to a market of 85 million pens over 5 years /5 years = 17 million pens per annum. Let's assume the total market of premium pens within Europe equals 15 million pens. We round down because the assumed average of 1 out of 4 persons possessing a premium pen seems a bit high.

*Excellent addition remark*

Besides the direct sales of premium pens, the sales of accessories and fillings encompass essential elements of the total size of the market.

## **2. Consider entry barriers for Penco**

As Penco is not yet operational within the premium pen segment, Penco will have to enter this market as a new player. In order to determine whether launching premium pens is a successful strategy, we first have to consider the barriers to entry.

*Suggested answer*

There are a few considerations regarding barriers to entry:

Access to distribution channels

Penco holds a distribution network for the current assortment. However, in addition to these channels, premium pens are sold through distribution channels Penco does not yet have access to, such as specialty stores. Therefore, Penco will need to invest in these distribution channels.

Market consolidation in the segment of premium pens

The size of the market for premium pens is relatively small and highly consolidated by established strong brand names, such as Waterman, Mont Blanc, Cartier and Dunhill. A successful launch of a new premium brand name seems impossible unless great risks are taken by mayor investments in marketing and sales.

Access to resources

Penco is a global leading company, such that access to resources is not expected to be a problem

Image/ reputation of the brand 'Penco'

The main obstacle for Penco is the image it has a manufacturer of disposable pens. This existing image makes it extremely difficult to position itself within the market of premium pens.

In conclusion, it is difficult for Penco to launch premium pens because the market seems consolidated and dominated by strong brand names.

## **3. Consider the financial attractiveness of entering the market**

As consultant, it is important to support the advice you deliver by analyses. From the previous answers, it became clear that launching premium pens is difficult, but it could still be profitable. Would you advice the client to extend the assortment with premium pens?

*Suggested answer*

In order to derive a conclusion on the financial attractiveness of entering the market of premium pens, I will estimation Penco's possible market share, its corresponding sales and the resulting profit within premium pens:

Penco's market share within premium pens

Assume the strong brand names cover a consolidated market share of 80%

Assume Penco would indeed be able to position itself and capture a 2% market share

Penco's sales in premium pens

With its 2% market share and a market size of 15 million pens, Penco could sell 300.000 pens. With an assumed average selling price of € 20, this results in € 6 million sales.

Penco's profit in premium pens

The reason people are willing to pay more for premium pens, is the added value of a special design or a brand name.

Premium products usually have a gross profit margin of over 25% (this is the difference between the sales and fixed and variable production costs).

The costs of premium pens are mainly determined by the marketing and sales of the product, instead of the manufacturing. Penco will need to make mayor marketing & sales expenses in order to gain market share. Assuming the profit margin after the marketing & sales expenses to be about 5% results in € 300.000 annual profit.

Compared to the € 25 million total profit, this is extremely small.

In conclusion, launching premium pens is financially not attractive. It seems sensible to study further other possibilities for increasing the sales, or look into the possible means of reducing the costs.

#### **Step 5: Study the means to decrease costs in further detail**

In order to resolve Penco's main problem- that is, its decrease in profit- in the beginning we concluded that there are two sub problems we need to analyze. On one hand, it involves increasing the sales; on the other it enhances reducing the costs. In the previous analysis, we looked into the optimization of sales. We would now like to proceed and question whether we could realize a cost reduction.

#### *Suggested answer*

I will first create a cost breakdown, and then discuss the possible means to decrease those costs

Penco's main costs

Direct costs

Material costs (both for the pens and packaging)

Direct wages (wages of e.g. temporary employees)

Indirect costs

Production costs (machinery, buildings, maintenance of production lines)

Transportation costs (both inbound and outbound)

Indirect wages (supervision, administration)

Marketing & Sales costs

Overhead costs

Possible means to decrease costs

Reduce material costs

Use economies of scale

Purchase in low-wage country such as China

- Use cheaper material for e.g. packaging
- Rationalize the product / packaging design
- Reduce the complexity of products

Reduce wages

- Make use of wage differences among varying groups of employees more efficiently (replace temporary employees by contracted employees, use skilled persons only where necessary)

- Move production process to low-wage country

Reorganize the production process

- Consolidate factories

- Move production process to low-wage country

- Computerize parts of the production process

Reduce transportation, Marketing & Sales and Overhead costs

- Increase efficiency

- Make use of wage differences among varying groups of employees more efficiently

- Move production process to low-wage country

**Study the move to low-wage countries in order to reduce costs in further detail**

What will be the cost reduction when moving the production process to China?

*Suggested answer*

First, I will assume a cost structure, followed by an assumption on the incorporated differences when moving to China. Next I will use these assumptions to discuss the impact of moving to China.

I assume the following cost structure:

[This could be created with the help of the interviewer]

Direct costs

- Material costs: 50%

- Direct wages: 20%

Indirect costs

- Production costs: 20%

- Transportation costs: 5%

- Indirect wages,

- Marketing & Sales costs,

- Overhead costs: 5%

I assume wages in China are about 10% of the wages in Europe

[This could be created with the help of the interviewer]

The resulting impact of moving to China is as follows:

Impact on wages

The costs per pen attributable to direct wages will decrease by 18% ( $20\% - 10\% \times 20\%$ ). A decrease in indirect wages will imply an additional cost reduction

#### Further impact

Reduction in costs could be obtained by the local purchase of materials.

In addition, the change could be used as an opportunity to consolidate factories and better utilize production capacity. This will imply a decrease in production costs, resulting in a smaller amount of indirect costs per product and an increasing profit margin.

A disadvantage is the increase in costs due to increasing distribution costs.

It will be necessary to further investigate whether the cost reductions above offset the increase in distribution costs

### **Step 6: Summarize and make recommendations**

What is your advice to Penco's CEO?

[At the end of the interview, clearly summarize your findings and test whether the outcome answers the initial question. Never forget the main question of the case]

#### *Suggested answer*

The goal of the client was to improve the financial performance of the European pen division. The main aspects we investigated are possibilities for an increase in sales and a decrease in costs. A mayor opportunity to reduce costs is to move the production process to a low-wage country such as China- this needs to be investigated further.

#### 1. Possible means to increase sales:

Price optimization seems impossible

The pen market is highly competitive. Especially in the disposable pens' segment, price is extremely important. Therefore, it is incredible that an increase in sales could be obtained by a price increase

Launch of premium pens seems not worth the effort

We studied the possibilities to broaden the Penco's product portfolio by the launch of premium pens. It appeared not to be sensible to enter the market of premium pens, as the market seems consolidated and dominated by strong brand names.

Other means of increasing sales need further investigation

Increase sales to existing customers: for example, attach sales of accessories *or fillings* to pen sales

Initiate sales to new customers: for example by increasing the number of distribution channels and/or intensifying marketing

Launch other new products

Get rid of unprofitable pens within the existing product mix, such that sales will shift from unprofitable pens towards more profitable pens



## 2. Possible means to decrease costs:

- Move production process to a low-wage country such as China captures opportunities
  - With wages 10 times lower than in Europe, at least 18% of the product costs can be saved
  - Moreover, further reduction in costs could be obtained by the local purchase of materials

Other means of decreasing costs need further investigation

- Use economies of scale
- Rationalize products
- Consolidate factories

## 11. Conclusion

The INSEAD Consulting Club Handbook will prove useful to all INSEAD students in finding both summer internships and full-time jobs in consulting. We would welcome any feedback on improvements or general comments about the book, in order to ensure that the future editions incorporate these suggestions and build on the last one. Please email the ICC ([CLUB.INSEADConsulting@insead.edu](mailto:CLUB.INSEADConsulting@insead.edu)).

Please consider this book as one source of preparation for a career in consulting. The INSEAD Consulting Club in association with Career Services also organizes a range of useful events through the year which you would also benefit from attending if you are serious about a job in consulting. Some of these events include peer to peer mock case interview sessions, ex-consultant INSEAD students sharing 'a day in the life of a consultant' experiences and group crack the case sessions. Please make the most of these stimulating events, in addition to seeking more informal opportunities to practice cases with colleagues and friends.

All the best!!



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