CASE 16:
BIG TRUCK COMPANY

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Firm Style	Interview Round
McKinsey	2

Case Question:

The client, Big Truck Co., is a large, US based manufacturer of heavy duty trucks, also known as semi-trucks. They make two types of vehicles, semi-trucks designed for pulling trailers and trucks or chassis' used for cement trucks, waste haulers, etc. The company has three marquees (brands), all of which manufacturer vehicles for both types of vehicles. The three brands are the result of acquisitions done in the past five years. The company is profitable, but profit margins have been declining slightly over the last few years. Additionally, the market is forecasting a significant market decline in the next few years, which brings great concern to the management of the company.

Clarifying Questions & Answers

Provide the following answers only if the interviewee asks the corresponding questions.

Question	Answer
How large is the company in terms of revenue?	$30 billion
Can we clarify that the objective is to preserve profitability as the market declines?	Yes
Does the company sell into international markets?	Yes

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Framework / Structure

Question 1: The CEO has hired McKinsey to help the company better understand their position and to look for solutions for the coming years. How would you structure the problem for the CEO?

- ***Sample "Poor" Answer:*** I would want to examine the revenue, starting with volume and then looking at price. Second, I would want to look at costs, better understanding the variable and fixed costs.
- ***Sample "Good" Answer:*** This is clearly a profitability question. In order to understand this problem, we need to examine the cost structure of the business and determine where we can be flexible in an ensuing economic downturn. Additionally, we may want to understand ways of adding to our top line. Starting with the revenue, I would want to better understand the product mix. Perhaps there is opportunity to upsell for better profitability. Second, I would want to understand our sales model (dealership, wholesale, fleet, etc.). On the cost side of the equation, I would want to examine any additional synergies we could achieve from our recent acquisitions. We could also look at our fixed costs and overhead and determine if new investments may be worth it to save costs in the long run. Finally, I would want to look at the variable costs and see if we can reduce our labor or input costs on a per truck basis.
- ***Sample "Great" Answer***: [A great answer would include all the elements of a good answer, plus the following additional ideas.] From a revenue standpoint, analysis of our three marquees would be useful. Perhaps we are cannibalizing our own brands and need to consider a drastic reorganization. Additional, analyzing the competitive marketplace could provide significant information on how we can achieve better profitability. Within costs, operational efficiencies and lean processes could be a way to achieve costs savings. One thing to watch out for, however, is regulatory changes, most likely emissions rules, that could dramatically change our costs. We should be cognizant of this and other external factors in everything we consider.

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Question 1 (cont'd):

Color Commentary: While a profitability framework does work well in this case, the specific bullets beneath revenue and costs should truly address this company in particular and the issues it will face. Here is a potential framework that will serve the interviewee well in this case:

How do we preserve profitability for Big Truck Co.?

Revenue	Costs	External
> Product mix (Semis vs. Chassis, or Marquees) > Cannabilization across Marquees > Styling of vehicles > Sales model (Dealership, wholesale, Fleet, etc.) > Competitors >Market volumes	> Synergies across Marquees > Labor/union costs > Input/commodity costs > Operational efficiences (Lean, Six Sigma, etc.) > Fixed overhead (SG&A) > Fixed manufacturing (age of facilities, etc.)	> Regulatory changes > Market substitutes (Rail, air, water, etc.)

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Calculations

Question 2: The team decided to take a closer look at the costs of producing a particular line of trucks. Take a look at Exhibit 1. What is the potential savings for Big Truck Co. were we to be best in industry in regard to our cost structure?

Calculation:	= Total Cost / Truck x [In-House % x (Comp B Cost / Big Truck Cost) + Outsourced % x (Comp A Cost / Big Truck Cost)]
	= $40,000 x [30% x (80/100) + 70% x (80/120)]
	$ 30,400
Savings	$ 9,600
% Savings	24.00%
Annual Volume	5,000
Total Annual Savings	$48,000,000

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Question 2 (cont'd):
The interviewee should be told to leave the Manufacturing Mix constant in the calculations.

- ***Sample "Good" Answer***: If I understand this correctly, we are basically indexing the costs of both manufactured goods and outsourced parts against that of our competitors. Given that, it looks like we could save 20% in our in-house manufacturing ((100-80)/100) if we had the same cost levels as competitor B. On the outsourced parts, it looks like we could save ~33% ((120-80)/120 if we matched the pricing competitor A is achieving. Given we know our product mix, we know how much of the $40,000 is being spent on both areas. I can then calculate the new cost at the "best in the business" cost structure. [Performs calculations]. It appears that we can save approximately $9,600/truck or 24% of our original cost on a blended basis.

- ***Sample "Great" Answer:*** [Same initial answer as above.] While this savings is great, I want to better understand the savings to the company. Do we know how many units are manufacturing in this product line a year [answer of 5000 units given]. Given that, it appears we could save $48 million dollars a year. For a $30 billion company, that is about 15 basis points of operating margin before accounting for taxes.

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Question 2 (cont'd):

Color Commentary: The candidate will likely struggle with understanding how to calculate the savings as the indexing is an odd way of thinking about the market. Be prepared to nudge the interviewee to keep the product mix constant. Additionally, many interviewees may use 80%/100% for the outsourced parts, instead of 80%/120%. Watch for this and guide the interviewee toward a better answer. Obviously, the great answer brings in the context to the company as a whole and truly seeks to understand the impact of the savings.

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Question 3: The team decided to take a closer look at the costs of producing a particular line of trucks. Take a look at Exhibit 1. What is the potential savings for Big Truck Co. were we to be best in industry in regard to our cost structure?

- ***Sample "Great" Answer:*** If we structure this out, I think we can come up with multiple ideas as to how we can remove costs for this system. Let's look at it this way:

  In-House Manufacturing
  - Lean/Six Sigma evaluation, continuous improvement
  - Labor evaluation – are we union? What can we change?
  - Commodities/inputs – LT contracts?
  - Facilities – are they old/new? Can we upgrade? Are we at capacity? Are the flexible?

  Supplied Parts (Outsourced)
  - Can we improve our contracts?
  - Is our delivery/distribution poor and costing us additional dollars.
  - Are we scaling properly across our marquees? Can we leverage the volume/standardize parts?

  Other
  - Can we improve by changing the mix of outsource versus manufactured parts?
  - Can we vertically integrate? Buy suppliers?

- ***Sample "Good" Answer:*** [The interviewee will list a number of the items listed in the great answer, but will lack completeness and structure in comparison.]

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Question 3 (cont'd):

Color Commentary: A great answer will really go through this problem in a structured way. Additionally, each answer should be listed as a conversation with the interviewer. Ask outright about some of the ideas. Perhaps they have been tried already. The interviewer can engage as much as desired in this question guiding the interviewee to specific ideas if desired.

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Question 4: The team also identified another area that it thinks there is potential for savings. The company has a significant used truck business and has contractual obligations to purchase trucks back form customers who bought them new. Take a look at Exhibit 2. What analysis can you do from this data? What is the potential for Big Truck Co.?

Outline of Calculations:

Expected cost of buy backs

= Buy back price x trucks in program

= $25,000 x 20,000

$ 500,000,000

Expected value of trucks in program

= (trucks x % year 1 x valuation year 1) + (trucks x % year 2 x valuation year 2)
+ (trucks x % year 3 x valuation year 3)

=(20,000 x 50% x $20,000) + (20,000 x 25% x $15,000) + (20,000 x 25% x $20,000)

$ 375,000,000

Expected Loss

$ (125,000,000)

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Question 4 (cont'd):

- *Sample "Good" Answer:* After analyzing this program, it is clear that we are mispricing the trucks intended to be bought back. We are offering to buy trucks at $25,000, but at no point in the next three years are the trucks worth that much. While this may be a good program and offer us other profits as part of a used truck business, we are taking a large loss with this program. Based on the calculations, we are projected to lose $125 million dollars and I suspect we are selling trucks under these same contracts every day, only further exacerbating the problem.

- *Sample "Great" Answer:* [After answering the good answer, additional points like this could be made]. Although it seems obvious that we should seek to change these practices, I would want to better understand why we are in the position that we are in. Is there an advantage to selling at a loss because it translates into larger profits in our used truck business? Does this create goodwill with our customers and draw them to buy more new vehicles at a greater margin? Understanding these issues more fully would better help me understand how to create a positive solution in regard to this issue.

Color Commentary: This problem has fairly straightforward math and shouldn't take the interviewee long to see what the potential loss would be. The great answer should not only bring to light the scale of the potential loss, but be inquisitive as to why this might be the case. A good interviewee should also guide the interviewer easily to the next question regarding potential solutions.

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Question 5: What specific steps would you take to achieve the savings identified in Exhibit 2?

- ***Sample "Good" Answer:*** My first action would be to halt the practice of these sales immediately to avoid further sales at a loss. I would then work very quickly with our sales managers to structure new contracts so we can launch the business again. I recognize this may be a key sell point for our salesman and do not want to leave them without this tool. At the same time, I would begin an analysis of how affective of a tool this business is for driving business. There may be a reason to be creating contracts that drive a small loss if it allows us to take profitable new truck sale volume from our competitors and creates greater profitability overall.

- ***Sample "Great" Answer:*** [Answer would be inclusive of the statement above]. After stopping the current unprofitable practice, understanding more appropriately how to drive sales, and creating new procedures, I would then go back to the current contracts and see how we can squeeze value out of them. We may be able to renegotiate some of the contracts finding alternate solutions that are more profitable for us. Perhaps we can break the contracts early. Perhaps we can negotiate service packages in trade for buybacks at a higher profitability level to the company. Maybe we can sell the contracts to a third party who thinks they can get more value out of them than we can. Exploring as many options as possible to increase profitability would be a worthwhile exercise.

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Question 5 (cont'd):

Color Commentary: The interviewee should very deliberately talk about things the company should do, preferably in a timeline (short, medium, and long term) format. Thinking through not only what to do going forward, but what to do about the current position is what truly makes an answer great. The interviewer should be open to using the phrase "what else?" to push the interviewer outside their comfort zone.

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Recommendation

Question 6: It appears the potential for savings is there. The CEO would like a specific recommendation as to what action he should take. Can you provide a recommendation?

- ***Sample "Good" Answer:*** After extensive analysis of both the cost of manufacturing and of the buy back program, I have identified significant savings in both areas. By modifying the buy back program, we could potentially save $125 million, keeping in mind that these obligations are unlikely to disappear entirely. As for the manufacturing, we have identified an annual savings of $48 million, again under the caveat that some upfront costs may be needed in order to realize the savings. I recommend you begin by modifying your buy back program first and then looking more closely at your manufacturing and suppliers in hopes of achieving the additional savings there as well. When modifying the buy back program, you do want to be careful not to damage relationships with your customers. However, the scale is large and needs to be addressed regardless.

- ***Sample "Great" Answer:*** [Include the above recommendation, but add the following.] Given this recommendation and the inherent risks, I would begin tomorrow with communication to your sales team to begin implementing a solution to the buy back program. Additionally, we should begin doing deep analysis on our manufacturing operations in order to identify our inefficiencies and talking with our suppliers about how to reduce costs. We should also look into the future to see if we can take some of the savings for this line of trucks and apply it across the many product lines that we sell. Additionally, given an impending downturn, we should also perform an analysis of the effects of a changed sales program as it may affect the implementation.

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Question 6 (cont'd):

Color Commentary: A good answer should have a clear, early recommendation, evidence for the recommendation, risks inherent in the changes, and clear next steps to be taken in the immediate future. Credit should also be given for noticing that an improvement to operations creates perpetual annual savings. The interviewee should be comfortable asking for a moment to synthesize their thoughts and structure an answer starting with the action, then reasons, then risks, and finally next steps.

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Exhibits

Exhibit 1 - Cost Breakdown

Manufacturing Mix	**Big Truck Co.**	**Comp A**	**Comp B**
In-House Manufacturing	70%	50%	30%
Outsourced Parts	30%	50%	70%

Parts Cost Index	**Big Truck Co.**	**Comp A**	**Comp B**
In-House Manufacturing	100	100	80
Outsourced Parts	120	80	100

Total Cost per Truck	$ 40,000		

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Exhibit 2 - Buy Back Schedule

Buy back price	$	25,000
Years till buy back		3
Trucks in buy back program		20,000
Aging of trucks		
1 year old		50%
2 years old		25%
3 years old		25%
Valuation of Trucks at Time of Buy Back		
1 year old	$	20,000
2 years old	$	15,000
3 years old	$	20,000

*Ignore time value of money for the purposes of this exercise