CASE 14:
ELECTRIC CAR MANUFACTURER GROWTH

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Firm Style	Interview Round
McKinsey	1 / 2

Case Question:

Our client is a start-up electric vehicle manufacturer that has built a prototype all-electric vehicle and is interested in mass-producing it for the U.S. market. We have been hired to help them think about this opportunity

Clarifying Questions & Answers

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

Question	Answer
What type of vehicle(s) has the client developed?	It is a light-duty all-electric truck. They have manufactured 3 identical prototype vehicles to date.
What are the client's existing manufacturing capabilities?	Minimal. The current manufacturing facility is little more than a large R&D lab.
Where does the client hope to sell their vehicles?	In the U.S. market. Nationwide.
	Cont'd on next slide

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Clarifying Questions & Answers

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

Question	Answer
4. How many vehicles does the client want to produce in Year 1 of manufacturing?	150,000 vehicles in Year 1.
5. How much will the vehicle retail for?	Pricing has not been determined yet, but will likely be in the $35k-$50k range.

Question 1

How would you think about the potential market for this vehicle in the U.S. (i.e. market segments)?

Strong Answer

Breakdown of different customer segments in the U.S. auto industry (i.e. luxury, hybrid, vehicle class (SUV, sedan), etc).
Candidate should recognize that the potential market for the vehicle will depend on the price, its physical characteristics (i.e. amount of cargo/passenger space), range of the vehicle, choice and availability of distribution.

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Weak Answer

A weak answer will contain only one or two examples of different dimensions that consumers use to purchase vehicles. Candidate should expect to get pushed for "what else" if your answer is too thin.

Question 2

How many employees will be required to build the desired first year production run of 150,000 vehicles? The following information is known about the production process:

- The vehicle requires approximately 600 unique assembly steps.
- Each assembly step takes approximately 30 seconds.

Strong Plan

Student needs to ask some clarifying questions:

- How many hours per day (week) would the average employee work?
  - 10 (50)
- How many weeks per year does an average employee work?
  - 50

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Weak Answer

Candidate makes assumptions without clarifying with the interviewer.

Calculations

Number of employees needed = 150,000 vehicles x 5 hours per vehicle/(2500 hours per employee per year) = 300 employee

Question 3

What options should the client consider for scaling up manufacturing to mass-produce the vehicle? What are the pros and cons of each option?

This question seeks to test a candidate's depth of thinking. A good answer will be logical, structured and will discuss drivers.

Strong Answer

A strong answer will discuss the pros and cons of various manufacturing options. For example they could build a manufacturing facility in the U.S., build a manufacturing facility in a low-cost SE Asian country, or outsource production (under contract/joint venture) in the U.S. or overseas. Items to be addressed include labor costs, shipping, quality (actual or perceived), regulation, public reaction, proximity to suppliers, etc.

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Weak Answer

A weak answer will cover only one or two areas addressed above. Having at least three pros and three cons for each option covered is advisable.

Question 4

Assume that the client has decided to build a manufacturing facility in the United States, what are some strategies that they could use to reduce costs. Discuss the trade-offs of each approach. **Note: This question is designed to evaluate the candidate's breath of thinking.**

Strong Answer

There are many different ways to address this question. The "most-right" answer is to consider the trade-off between more automated technology and more manual labor. The automated technology will require a substantial initial investment and high fixed costs but will reduce the direct labor (variable) costs. Less automation will mean lower upfront and fixed costs but higher variable costs. Other potential answers include choice of location (right to work state vs. union), engineering optimization (reduce the number of steps vs. vehicle customization), etc.

Weak Answer

A weak answer will not address multiple cost-savings approaches and the trade-off involved with each one.

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Question 5

What would you advise the CEO to do regarding the decision to mass-produce an electric vehicle next year?

Strong Answer

There is no single right answer. Some additional insights that have not already been covered by previous questions include: advising the client to consider licensing/selling the technology to a major auto-industry player with established manufacturing and distribution, forming a JV or strategic alliance with an established player, launching a pilot program to work out kinks in the technology and gauge market reaction. A good recommendation will have a decisive approach with supporting argument and address the risks and ways to mitigate risks of the recommended approach as well as next steps.

Weak Answer

A weak recommendation brings nothing new to the conversation. Simply recapping some of the items uncovered in previous questions is not a strong recommendation