This next candidate is the "best practice" candidate for this particular case. It is one where actually I could not find a candidate who did this case as well as I would have liked, in order to pass a "final" round, so I ended up interviewing myself. In this particular example, I will be alternating in both roles – both as the interviewer as well as the candidate. I just want to give you that heads up. With that, let's go ahead and get started.

Interviewer: The following case involves a new client. The client is a company called Gold Chem. They are a manufacturer of a chemical used to refine gold ore. It helps gold refiners separate gold from the other materials that are typically mined with it. Typically when you pull gold out of the ground, there is a lot of dirt in it – less than 1% pure – and after using the chemicals that Gold Chem manufactures, it becomes 99.9% pure.

Currently Gold Chem is the largest producer of this particular chemical used in the gold refinery process. Recently, however, a new competitor has entered the market – a company called Mega Chemicals, which is a global chemical company that manufactures over 150 different chemicals.

They've entered the market about a year ago, and your client is deeply concerned about this new threat because Mega Chemicals, when you add up all their sales across all their product lines and all their divisions, is about 50 times larger than Gold Chem, even though Gold Chem is the leader in this particular one chemical.

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At the same time, a third company called Worldwide Limited has reached out to Gold Chem to inquire about potentially acquiring the company. The client has two key questions they would like you to answer. The first question is: given Mega Chemicals' entry into the business a year ago, what is the anticipated impact it will have on Gold Chem? Second is: should Gold Chem remain an independent company, or should they agree to meet with Worldwide Limited to potentially be acquired by them?

In answering those two questions, what factors would you consider in making your potential recommendation?

Candidate: Let me make sure I understand the situation correctly. My client is a company called Gold Chem, and they manufacture a chemical used in the gold refining process. It sounds like they are the market share leader in this business, and I understand they sell their chemical to gold refiners, as opposed to being gold refiners themselves.

There are two potential competitors. One is Mega Chem, which is a very big company that has entered the market recently, which has the CEO concerned. The second potential competitor (or company of interest, I should say) is Worldwide Limited, who is considering acquiring Gold Chem.

It looks like the two questions I'm supposed to answer are: how does Mega Chem's entry into this business ultimately impact Gold Chem? Secondly, should the company, Gold Chem, remain independent or look to be acquired? Did I understand the situation correctly?

Interviewer: Yes, that sounds right.

Candidate: Give me a few seconds here to gather my thoughts, in terms of how to proceed next. Would that be okay?

Interviewer: Sure, no problem; take your time.

Candidate: My hypothesis, just to kick things off, is that Gold Chem is strong enough to beat Mega Chem and fend off Mega Chem's entry into the marketplace, and further that Gold Chem should remain independent.

The four key areas I would like to look at, in understanding that, are: customers; the various other competitors in the market place, in addition to Gold Chem and Mega Chem; the company itself; and the products available in the marketplace. Let me explain what I'm looking for in each one, and why I'm looking for it.

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1) With respect to customers, if the hypothesis is that Gold Chem can continue to beat Mega Chem, then what I would expect to see is that in every major segment in the business that Gold Chem should— in theory, I would expect them to dominate. If I look at each segment and what each customer segment is looking for, I would hypothesize that Gold Chem is better able to meet those particular needs than Mega Chem.

   That would probably be the most critical thing. So I would say segments and buying factors would be the two most important factors to consider.

2) In terms of competitors, I would want to look at Mega Chem, as well as all the other competitors, as a group. What I would be looking for is what each group of competitors has as a capability by segment, and what they are able to offer by segment.

I guess given this is a manufacturing business, within capabilities I would say looking at the cost of their pricing strategy would be very important, as well as their cost structure. So I would be looking to understand the cost structure and pricing strategies of every major type of competitor in every major segment.

3) Then I would compare it to my third area, which is understanding the company better. I would be looking to understand the company's revenue model – which customer trend segments is it going after? What is its pricing strategy? What kind of volume is it getting out of each segment? Then I would look at the cost structure of both fixed and variable.

4) Finally, more for clarification than anything else, I would look at the product areas within this business. It sounded like there was one major chemical in this business. If that is true, then I probably wouldn't look further at products. But I would want to know if there are multiple segments, if they differ, and whether any company has an advantage.

   If it is just the one product, I want to confirm that…I wonder if there is any differentiation amongst the products, or if this is truly a commodity. If it is a commodity, I wouldn't look at it further. But if there is some point of differentiation, then I would look and examine products a little more carefully.

   My hypothesis is that Gold Chem has the lower, has the more efficient cost structure. So perhaps, certainly lower variable costs if not fixed costs as well.

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And provided I can compare that to similar data I get from competitors, and that would give me enough information to test whether Gold Chem really can beat Mega Chem and remain independent.

Here my opening structure as the candidate was I would say sufficient, not phenomenal, and could have been a little more concise. By the way, I should mention when I interview myself, I literally interview myself, and so I'm not going off of a script or anything. I literally would say what I would say as an interviewer and then literally change modes in my brain and try to answer it like a candidate. So sometimes, actually quite often, what I say is really just what comes to mind and it's not always 100% perfect. So here is a perfect example of that. But I think it also shows that you don't have to be 100% perfect to pass one of these.

I'll point out the areas where I think I fell short, and here it was not being quite concise enough in the structure, in terms of using too many words to get my point across.

Interviewer: Okay, that seems to make sense. One of the areas you mentioned was the capabilities of the various competitors. I think you mentioned their pricing strategy and their cost structure. I'm curious why that would be important, and how would that potentially impact your conclusion?

> Here as the interviewer, what I'm testing for is making sure that the candidate has a rationale for the structure they want to use to test their hypothesis. So if the candidate says, "I need these four pieces of information or four general areas to test my hypothesis," I'm going to ask, "Why do you need Area 1? What are you planning to get for it? If the answer is yes, what does that mean for your hypothesis? If the answer is no, what does it mean for your hypothesis? Or if the number you're looking for is high or low, what does that mean for your hypothesis?" What I'm looking for is an answer, and hopefully a good one. Not a "what do you mean?" I'm looking for a thoughtful answer. The question here is to test if there was thoughtfulness that went behind what the candidate had said.

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Candidate: I think given that Mega Chem is such a large company, with potential for very high economies of scale, you would really hope that Gold Chem would have a superior cost structure somehow, or some sort of proprietary asset that they can control that the new entrant cannot.

So in analyzing Mega Chem and the other competitors as a group, I want to verify that. What is the pricing strategy for these various companies? What are their cost structures? And in particular, how does that cost structure compare with the cost structure of Gold Chem?

If things are what I hope they are, then I would expect that the cost structure for Gold Chem would be more favorable and attractive than Mega Chem, which would then allow it to survive and thrive independently, and fend off Mega Chem as a long-term serious threat.

Interviewer: That seems to make a lot of sense. Why don't we look further at the cost structure differences between Mega Chem and the company – Gold Chem – since that was one of the areas you mentioned would be important? What do you think would be the key cost components for those two companies in a business like this? In particular, what do you think their variable cost components are?

Candidate: Could you give me one minute to organize my thoughts?

Interviewer: Sure, no problem.

Candidate: In answer to the question of what are the key cost components in a business like this, I would group the costs into different kinds of costs – one is fixed costs, the other is variable costs. And on the fixed cost side, we're looking at manufacturing of equipment – I imagine that would be a pretty big cost. Real estate, in terms of both land as well as the physical facility – I imagine the manufacturing process takes up a fair amount of space. Then overhead labor, so labor more in the corporate office – HR, legal, that kind of labor.

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On the variable side, I would say the major cost components would be the manufacturing labor, so people working the actual manufacturing line; the raw materials; transportation; and maybe sales and marketing costs, but I might put that in the fixed side… let me move that to the fixed side.

Those are probably the major cost components I would see in a business like this.

Interviewer: Why would something like materials cost be important in your analysis? What do you think it would tell you?

Candidate: The big question here is: given that Mega Chem is such a big company, it probably has a fair amount of purchasing power and economies of scale or efficiencies in manufacturing. So if the hypothesis is that Gold Chem can beat Mega Chem, you would like to see some sort of advantage in the cost structure, if not across the entire cost structure.

For example, if Gold Chem were able to procure materials less expensively or have access to lower cost labor somehow, something along those lines – those would be favorable indicators supporting the hypothesis that Gold Chem can beat Mega Chem.

Interviewer: What is your hypothesis here and do you have any initial thoughts, based on what you've seen so far?

Candidate: Well to reiterate, my hypothesis is that Gold Chem can beat Mega Chem, despite its enormous size and buying power and manufacturing capacity. So what I would be looking for here is some sort of advantage in the cost structure that Gold Chem has that Mega Chem either cannot have or cannot easily acquire.

Interviewer: Great, so let's move on, go ahead and refer to Exhibits 1 and 2. Why don't you take a few minutes to look at them, and in particular, keep the following question in mind as you do: I'm looking to better understand what observations or insights or counterintuitive conclusions you've noticed in Exhibits 1 and 2.

Candidate: Great, is it okay if I take a few minutes to take a look?

Interviewer: Sure, no problem.

Candidate: A couple of observations. This looks to be just shy of a billion dollar market. It looks like on a variable cost basis, Gold Chem has the advantage, I believe, across the board. They have $1,000 cost advantage on raw materials on a per ton basis, and they have a $50 per ton transportation advantage.

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So it looks like since Gold Chem has four times the annual production volume, they are realizing the economies of scale with cost efficiency – mostly in the raw materials, and a very slight one in the transportation side.

Interviewer: Great. Now I would like you to look at Exhibit 3 and familiarize yourself with it, and then I have some scenarios I would like you to analyze. First, I have some additional assumptions I want to give you verbally. So take Exhibit 3 and make a few notes if you want to, and then you can go ahead and jump into this particular analysis.

Candidate: Okay, sure go ahead.

Interviewer: In this following analysis, I would like you to make three assumptions. One is: assume market volume remains constant at 80,000 tons.

Candidate: Okay.

Interviewer: Second assumption is that Mega Chem can increase its production from 10,000 tons to 40,000 tons.

Candidate: Okay, so Mega Chem can grow about four-fold to 40,000 tons.

Interviewer: The third assumption is that for every 10,000 tons that Mega Chem increases, then Gold Chem volume decreases by 5,000 tons. So the question is: if Mega Chem reaches a peak production of 40,000 tons, or when it does that, what would each company's variable cost per ton be?

Candidate: Can I take a minute to read this exhibit to make sure I understand it before we proceed?

Interviewer: Sure, no problem.

Candidate: I think I see what is going on here. It sounds like as Mega Chem gets bigger, it gets more efficient, and we have the assumptions around how much more

efficient it gets. Then on the Gold Chem side, as the volume decreases, it gets less efficient. So some of its costs, particularly manufacturing, seem to go up and the transportation costs go up as well.

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As a candidate, what I'm doing here is thinking out loud – hopefully in a logical way. That is something that is very much encouraged, especially if you tend to think in a logical way. If you're thinking in a very illogical way, it's probably better to be silent about it. But if you're thinking in a logical way, it's useful to think out loud so that the interviewer can understand what your mental approach is, which is usually very useful for them.

Candidate: I think I understand the situation. What was the question again that you wanted me to answer?

Interviewer: The question is: if Mega Chem – or when Mega Chem – reaches 40,000 tons of production, what does each company's variable cost structure look like?

Candidate: So the question is: what happens to each company's cost structure as Mega Chem goes from 10,000 tons of production to 40,000 tons? I'm going to draw a line down the middle of my page here. I have Mega Chem on my left and Gold Chem on my right, and what I want to look at first off is production. I'm going to replicate this table, Exhibit 2 – so we have production, we have raw materials, we have manufacturing and we have transportation, and then the total cost.

So production is now 40,000 tons for Mega Chem, and let's see what that cost structure looks like. On a raw materials basis, that looks like it would not change. Let me just double-check all the assumptions here. It would change the manufacturing costs, transportation… but nothing in materials. Raw materials remains the same – flat at $5,000. Manufacturing cost was $4,000, and now it is transforming to: for every 10,000 ton increase in production, so we have three increments of 10,000 in terms of manufacturing costs, decreased by $200 a ton. So it is: $4,000 minus 3 x 200, which is $600. So that is $3,400 in manufacturing costs.

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Transportation costs were $1,000, minus for every 10,000 tons increase, the cost drops by $20. So 3 x 20 = 60, equals $940, so that puts us at a variable cost of $9,340 per ton for Mega Chem.

On the Gold Chem side, we need to determine production. There is an assumption… overall volume is flat for the industry as Mega Chem goes up to

40,000. For every 10,000 that Mega Chem increases production, Gold Chem loses 5,000. So basically Mega Chem is stealing some market share from Gold Chem, and some from the rest of the industry.

Since Mega Chem is going up three increments of 10,000, then we need to subtract three increments of 5,000 tons from Gold Chem's production – or roughly 15,000. So Gold Chem's new production is 40,000 minus 15,000, which should be 25,000 tons per year.

If we look at the raw materials cost, that should remain flat at $4,000. We look at manufacturing costs; it will go up. So manufacturing costs *were* $4,000 and we need to add to it, so for every 5,000 tons decrease in production for Gold Chem, manufacturing costs increase by $200 per ton. So we have three increments of 5,000 decrease in production, times $200, which is $600, and so that is the cost structure for manufacturing – $4,600 per ton.

Then when you do transportation, which *was* $950 – that will go up as well. So we have three increments of increase. We have 15,000 ton decrease in production, so for every 5,000 tons, we are going to increase transport costs by $50. And so 3 x 50 is 150, and that puts our cost structure at $1,100 per ton. I'll just double-check that.

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So the total cost is $9,700 per ton. And let me make sure I did that right. So we are seeing a differential between the two of about $360 per ton.

Interviewer: Given this information, what does it mean for the client?

Candidate: Let's see, we went from having a superior cost advantage when Mega Chem was relatively small, but as Mega Chem ramps up to its capacity, then the cost position switches. Mega Chem has the lower cost structure at maturity, compared to Gold Chem.

So a couple implications would be that Gold Chem is not going to be able to be #1 anymore, from a market share standpoint. So they will likely be #2. And in part, as market share is stolen away from them, they lose the cost efficiency advantages they have, while Mega Chem has been gaining those same cost efficiencies. So it is sort of a "double whammy," if you would. Mega Chem getting stronger and more efficient, and Gold Chem getting less efficient – both at the same time eroding Gold Chem's cost advantage in the marketplace.

I think the big takeaway is: they can't be #1; they can only be #2. And then the open questions would be: can they sustain that, or is there some way to change

that cost structure so they can be superior somehow, perhaps through an acquisition or being acquired by somebody else?

Interviewer: What other factors would you consider that might cause you to reverse your recommendation or make your conclusions stronger? What other factors would you consider before you make a final recommendation?

Candidate: Would it be okay if I take a few minutes to organize my thoughts?

Interviewer: Sure, no problem.

Candidate: There is one big factor I want to consider, and there are two different ways to do that.

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The big question I had in mind is: clearly this seems to be an "economies of scale" business, where the big are more efficient and the small are less efficient. So it sounds like in this business, from everything we've seen so far, that size matters.

The question really is: can Gold Chem get more volume somehow in order to reduce it cost structure? There seem to be two ways that come to mind, given that the demand for the industry seems flat, at 80,000 tons per year.

One is: can Gold Chem acquire the smaller players? Even with Mega Chem at a production level of 40,000 tons, and we know Gold Chem has 25,000, that means the remaining players have 15,000 tons of production. If Gold Chem were to, I guess, acquire *all* of the other competitors and consolidate the industry, and if they were able to do that before Mega Chem did, then each company's production would be even at 40,000 tons. That would be one factor to consider.

And looking at my math here (assuming these metrics hold steady), at 40,000 tons, Gold Chem's cost structure is $8,950. And Mega Chem – at a production level of 40,000 tons, their cost structure is $9,340. Now that's not a precise comparison because you don't know what the merged companies… if they would be equally efficient or not – presumably a little less efficient. But based on these numbers, if the other competitors were as efficient as Gold Chem, then Gold Chem would have the advantage, even versus Mega Chem, at 40,000 tons per year.

That advantage would probably be withered away a little bit, because those other smaller players probably are not as efficient as Gold Chem. So there is enough room there that it is possible that Gold Chem could be competitive if it acquired

all the other competitors. So that would be one potential other factor I would want to look at.

The other factor related to volume is: if Gold Chem is acquired by Worldwide Limited, can it benefit from the efficiencies and economies of scale that Worldwide Limited has?

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So by being a subsidiary of Worldwide Limited, does Gold Chem's cost structure improve overnight, either in manufacturing efficiencies or procurement or sourcing of raw materials or transportation? That would be another important factor to look at to answer that question.

Interviewer: Let's say that you run into the CEO of the company, and the CEO would like to get an update on what you've discovered in your analysis. What would you say to the CEO?

Candidate: Would it be okay if I take a few minutes to gather my thoughts?

Interviewer: Sure, no problem.

Candidate: I would say to the CEO that the impact Mega Chem will have on Gold Chem will be to shift Gold Chem from the #1 market share position, to clear #2 market share position. In addition, from a profitability standpoint given the information we have, the most likely profit position for Gold Chem would be to move from what seems to be the most profitable player (which is a little bit of an assumption) to the second most profitable player.

I think this evolution is likely to occur for three reasons. First is: all the data indicates this is an "economies of scale" business – as players get bigger, they get more cost efficient. If they were to go in reverse and get smaller, their costs go up and they become less efficient. So this is very much an economies of scale business, which is my first point.

My second point is that Mega Chem has the ability and capacity to get pretty big, up to 40,000 units of production. And as they ramp up to that level of production, they are gaining a manufacturing cost advantage or edge with that volume, which is why Mega Chem is able to climb in both market share and profitability, due to this cost efficiency related to its growing size.

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The third point is that as Mega Chem increases its volume, it is eroding Gold Chem's volume, and as an implication or secondary impact of that erosion in production volume, Gold Chem is essentially realizing a lot of manufacturing inefficiencies and transportation inefficiencies. So as Mega Chem gets bigger, it is causing Gold Chem's profitability to get worse, because it is eroding its margin.

So for this reason, I would expect that Mega Chem will become the #1 market share and profit leader in this business, and Gold Chem will unfortunately have to get used to being the #2 player.

Here on this synthesis – again to critique my own answer as a candidate – it would have been better had it been a little more concise, a little more precise. Also, I had three key points in my synthesis, which I did number. It would have been better had I said at the *beginning* of my synthesis, "I have three supporting reasons why I believe this conclusion to be true." And then say, "Reason #1, Reason #2, and Reason #3." What I did was I started jumping right into the reasons, rather than state that there are actually three of them. So it's a very subtle thing, but it's something really I should have done a little better to be that much more concise and that much more clear in the synthesis.

Candidate: In terms of the client's second question around acquisitions, an acquisition would potentially make sense if by being a subsidiary of Worldwide Limited, Gold Chem can improve any of its three major variable costs – sourcing of raw materials, manufacturing, or transportation. If they can realize an efficiency gain there, perhaps by pooling its purchasing power with all the other Worldwide Limited divisions or its manufacturing capacity combining facilities, for example, then it would make sense, and it would be worth having that discussion.

Interviewer: Thank you and I really appreciate your time in helping us out on this matter.