Case #1: Alkaline Ash

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Industry:	**Chemicals Manufacturing**
Case Type:	**Growth / Investment**
Firm:	**BCG**

Concepts Tested	Math	Structure	Creativity
• Market analysis • Mental math • Extracting insights from exhibits	**Medium**	**Medium**	**Easy**

Problem Statement Narrative

ChemCo, a U.S.-based manufacturer of chemical products, has come to your firm asking for advice on whether to make an investment. It would like to increase its production capacity for alkaline ash from one million to two million metric tons by 2020, with a total investment cost of $20M.

*Alkaline ash is a chemical product that is commonly used in construction and electronics manufacturing.

Case Notes

This is an interviewee led case, based on analysis of exhibits. Instead of asking upfront questions, interviewer gives interviewees exhibits based on interviewee's questions. Interviewee should lead discussion of exhibits to reach conclusion.

Sample Framework

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Guidance for Interviewer

This is an interviewee-led case. Please hand each exhibit to the interviewee as that information is requested, and then wait for the person to share insight or ask questions.

This case is based on current and future projections of the supply and demand of alkaline ash.

Clarification Answers if Asked

All necessary information is provided in the exhibits.

Sample Framework

Please see the next page.

Framework / Potential Areas for Analysis

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Market Demand

1. **Current and expected demand** for alkaline ash in:
   - the construction industry?
   - the electronics industry?
   - other industries?

Market Supply

1. **Current and expected supply** for alkaline ash in:
   - the construction industry?
   - the electronics industry?
   - other industries?
2. Is there expected to be a **competitive response** if ChemCo expands its capacity?

Incremental Revenues

- What is ChemCo's **current market share**, and how has this trended over time?
- How much **additional market share** is ChemCo expected to capture if it expands capacity?
- What is the **price** now, and how will that change as capacity increases?

Incremental Costs

- **Capital expense** of adding capacity; only the $20M investment?
- Additional **fixed costs**, such as managers
- Ongoing **variable costs**, and how this varies at different production levels
- **Opportunity costs**; are there more attractive investments available?

Exhibit #1

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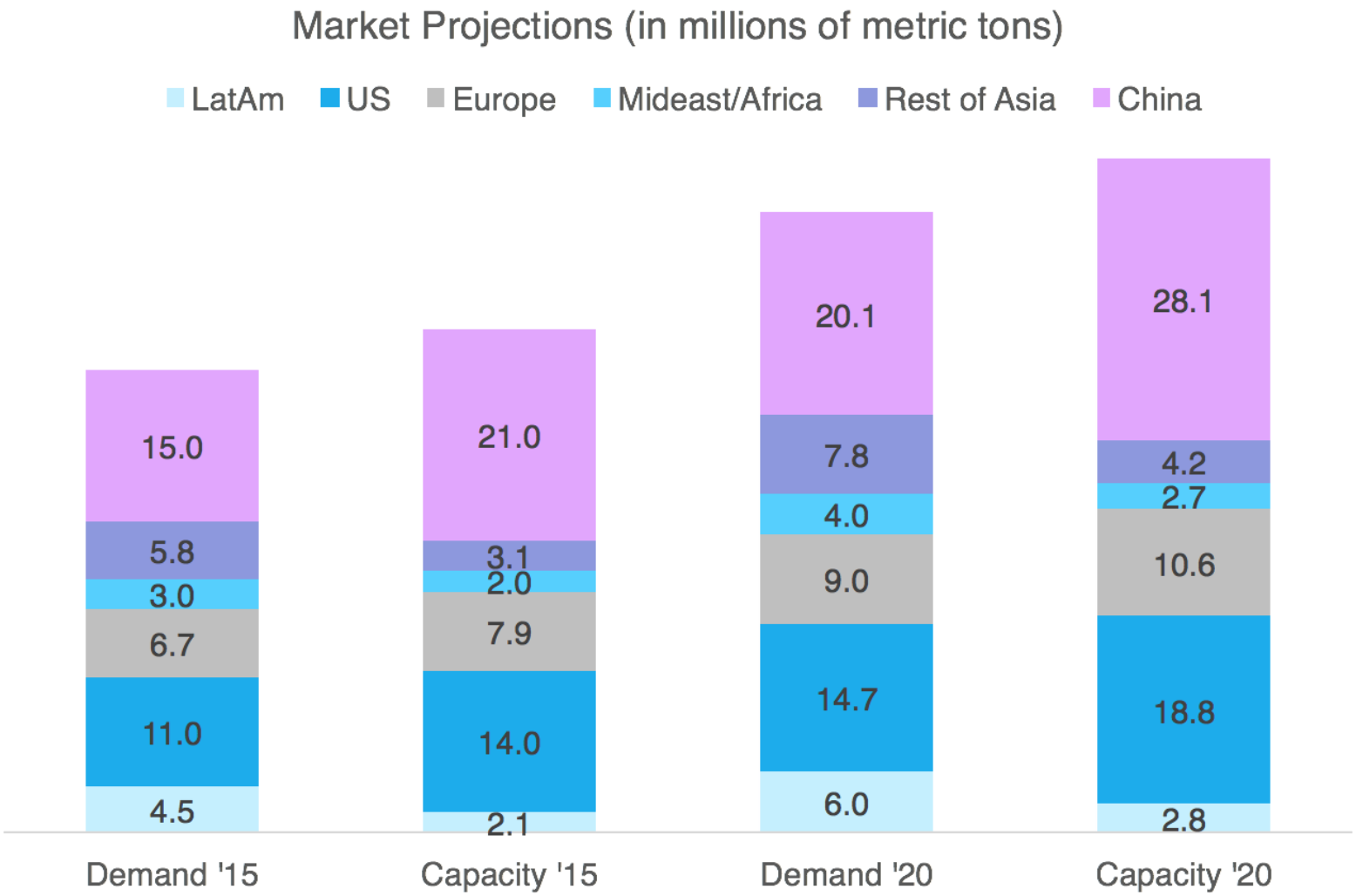

Exhibit #1 - Analysis

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The candidate should examine the relationship between demand and capacity in the different markets; interviewer can lead interviewee towards discussion of demand and capacity if she/he does not do so her/him self. If the interviewee asks, the units for this exhibit are in metric tons.

Conclusions from Exhibit 1:

1. In reviewing this exhibit, candidate should note that in the U.S., Europe, and China, **capacity outstrips demand**, and will continue to do so in 2020.

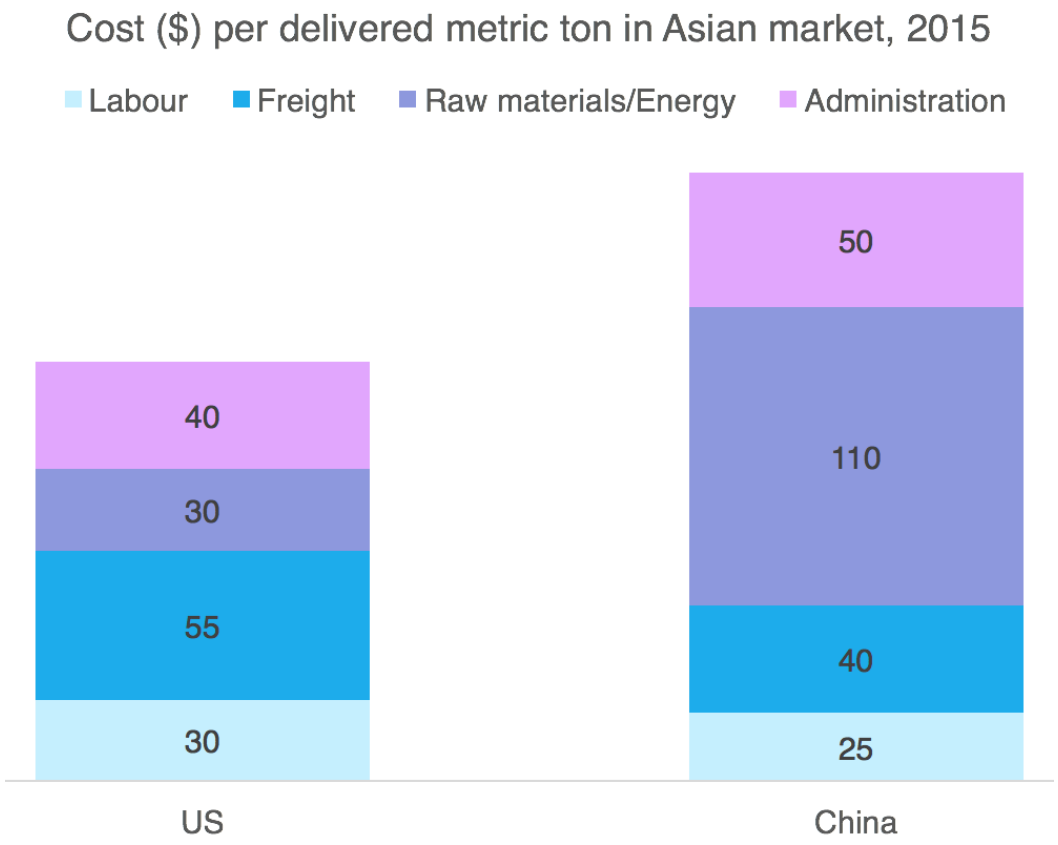
2. By contrast**, LatAm, Mideast/Africa, and Rest of Asia** all **have higher demand than capacity**.

3. The candidate should realize the **rest of Asia is particularly attractive**, since its demand is expected to grow by 2 metric tons, and its capacity is far from meeting that demand. (If the candidate focuses on LatAm, redirect her by stating that ChemCo has had bad experiences in the region before and would prefer not to engage there.)

4. Therefore, **Chinese firms**, with their large capacity and close location in Asia, will be the key competitor in reaching the lucrative Asian market.

5. A good candidate may propose a hypothesis about the cost for Chinese producers, e.g., expecting it to be lower (although that is not the case).

Exhibit #2



Expected Cost Change 2015-20

	US	China
Administration	+15%	+10%
Raw materials/Energy	-5%	+15%
Freight	+20%	+5%
Labour	+20%	+10%

Exhibit #2 - Analysis

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1. The candidate should note that **costs for U.S. firms are significantly lower than for Chinese firms**, with raw materials/energy being the driving factors. The candidate should propose an explanation, e.g., that the raw materials are from the U.S. and thus are cheaper for U.S. producers than for Chinese producers.
2. The candidate should then **calculate the production cost for 2020** by applying the percentage changes. The correct numbers are shown below:

	US	China
Administration	46	55
Raw materials/Energy	28.5	126.5
Freight	66	42
Labor	36	27.5
Total	176.5	251

3. The candidate should then determine how **much additional profit the firm will generate** from this move.
4. What is the selling price? The Chinese firms will sell as low as they can go, which means ignoring the fixed costs (administration) and selling at **$251 - $55 = $196/metric ton.**
5. Accordingly, the client can sell at a profit of **$19.5/metric ton at this price ($196 - $176.5).** The candidate knows the cost of expansion, and if asked you can clarify that it is phased as $5M per year for four years (totaling $20M). These costs will be incurred starting in 2020, the earliest that ChemCo would be able to increase its capacity.
6. The candidate should then calculate that **the profit in the first year that capacity is expanded will be $14.5M,** with greater profits down the line. Accordingly, this is a good investment.

Conclusion

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Recommendation

- ChemCo **should make** the investment.

Rationale

- The investment will be profitable in the first year that capacity is expanded, and the firm can expect additional profits down the line.

Risks

- If Chinese producers can gain access to cheaper raw materials, through new discoveries or alternate production methods, they will be more competitive.
- An economic downturn that affects demand for electronics or construction services would be detrimental.

Next Steps

- Conduct further research on where demand in the Rest of Asia market will be, and establish relationships with potential future buyers.
- Start construction process for expanding ChemCo's production facility.

Case # 2: Boston Office Supplies

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Industry:	**Retail**
Case Type:	**Growth**
Firm:	**BCG**

Concepts Tested	Math	Structure	Creativity
• Turnaround strategy / growth • Entering new market • Mental Math	**Easy**	**Easy**	**Easy**

Problem Statement Narrative

Your client is an office supplies retailer in the Boston area. The client currently serves mainly large businesses. The business has been pretty flat lately, with little to no growth. Your client wants to find ways to increase growth. How would you approach this?

Case Notes

- Problem statement should lead interviewee into classic turnaround strategy / growth framework
- Case will focus on how to achieve growth for the business

Sample Framework

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Guidance for Interviewer

- Interviewee should dive right in to brainstorming ideas for growing the business (see clarification for additional information to be given)
- After interviewee lays down framework for analysis, interviewer should push interviewee towards expanding to serve Small /Medium clients (option with least amount of risk, needs least investment due to existence of distribution and sales force)

Clarification Answers if Asked

- The business currently serves large clients in the Boston area
- The client currently wants to stay in the Boston area
- The client owns its own truck fleet for distribution
- The client has its own sales force

Sample Framework

	Current Customers	New Customers
Current Products	• Offer volume discounts • Institute loyalty programs • Lower prices / offer discounts	• Expand to Small / Medium Businesses • Attract new large businesses
New Products	• R&D for new products • Offer new lines of products (ex: home / garden, electronics)	• Expand online presence • Increase advertising • Institute partnerships

Interviewee can run pros/cons analysis for different options, cost / revenue analysis, market analysis or any way to structure thought about how to evaluate the different options

Question #1

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Question #1

What could be some problems with pursuing Small/Medium Businesses?

Solution

Points for discussion

Interviewee should brainstorm in a **structured** way (e.g. two main brainstorming buckets – 1) Profitability Considerations and 2) Operational Considerations

Profitability:

- More, smaller deliveries results in higher delivery cost structure
- Competition with established players serving S/MBs

Operational:

- Less products per shipment for S/MBs
- Fewer connections with S/MBs in the area
- Changes needed in the salesforce to reach S/MBs

Additional info to be given after discussion: preliminary assessments show there is an S/MB market that is large enough for them to enter in the Boston area.

Question #2

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Question #2

Candidate should ask if we have any data about the costs of the shift to serving Small /Medium Businesses or the changes it would cause.
Give Exhibit 1 – interviewee should calculate financial viability of pursuing S/MBs

Solution

Financial analysis is **not** the main point and is quite simple:

1) Compare average sales per day and cost of salesperson
Large: $2.5K sales per salesperson, cost: $50
S/M Businesses: $2K sales per salesperson, cost: $50

OR

2) Compare sales per 4 day period
Large: $10K sales per salesperson, cost: $200
S/M Businesses: $8K sales per salesperson, cost: $200

The analysis shows that **it is more profitable to sell to large clients** (you get more sales for the same cost of sales). However, this **should not lead** to the conclusion that the client should not pursue S/M businesses – the client is complaining about flat sales growth, meaning he may have reached all potential market share. S/M Businesses are slightly less profitable, but that makes sense.

Conclusion

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Recommendation

- Expand to SMBs, but do not neglect large clients as they are more profitable

Rationale

- Taking into account that there is an addressable SMB market in the Boston area, it would be the easiest / lowest risk approach to expand the business
- Large clients are more profitable, therefore effort should be made to maintain and grow in the large client market; however cost of sales for SMBs is also relatively low

Risks

- New and existing competitors in SMB market
- Difficulty reaching clients with whom the client has never had contact before
- Potentially need to adjust logistics network to serve SMBs, which could be costly or disruptive

Next Steps

- Conduct further market research on SMB market in Boston
- Focus salesforce on obtaining leads in SMB market

Exhibit #1

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	Large	SMB
Average Sales	10K	2K
Time needed to close sale	4 days	1 day
Cost of salesperson	$50/day	$50/day

Case #3: California Parking Lot

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Industry:	**Public Services**
Case Type:	**Market Entry**
Firm:	**BCG**

Concepts Tested	Math	Structure	Creativity
• Brainstorming • Mental math • Revenue & Utilization	**Medium**	**Medium**	**Medium**

Problem Statement Narrative

Your client is a local municipality in California. The town recently built a complex of six parking lots, encircling a nearby community center and outdoor mall, which features shopping, restaurants, and some light attractions. In total there are 20,000 parking spots in these lots. Our client wants to maximize the profit it generates from the parking lots, with a focus on revenue. Help our client think through the issue - how could you think about different types of pricing structures and revenue models for the parking lots?

Case Notes

Case has a lot of brainstorming and requires interviewee to remain structured and organized throughout every step of brainstorming.

Sample Framework

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Guidance for Interviewer

- Main idea is how to best monetize the parking lot
- Framework should be based on brainstorming but remain as structured as possible

Clarification Answers if Asked

- All additional information will be given in exhibit (see question 1)

Sample Framework

Candidate can run a pros/cons analysis, cost / revenue analysis, or any type of analysis to go through the different options she/he comes up with, such as:

- Daily/Hourly vs. Monthly Passes;
- Valet and Self-Parking;
- Validation model (store "validates" parking for customers)
- Higher prices for spots nearer to the stores and lower prices for spots further away

Question #1

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Question #1

Give Exhibit 1. Have candidate walk through the Exhibit. Then ask candidate to calculate the revenue the parking lots generate per day.

Solution

Tourists / Shoppers			
	Quantity	Hours	Daily Revenue
3 Hour Tourists	4,500	13,500	27,000
5+ Hour Tourists	1,500	7,500	15,000
Total	6,000	21,000	42,000
	Quantity	Permit Revenue	Daily Revenue
Store Owners	1,000	240,000	8,000
Total Revenue:	50,000		

Question #2

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Question #2

Is there a way we could generate revenue from someone other than the people actually parking their cars?
Let candidate brainstorm here.

If we move to a store validation model, in which a store validated the ticket of any customer that bought an item, the spots taken would increase to 10,000 and the cost per validation would be $5 to the store. Assume every person parking a car would purchase an item. The number of permits would drop to 750. What would be the impact on daily revenue?

Solution

Sample Solution	
Tourist / Shopper Revenue	10,000 spots x $5 per spot = $50,000; $8,000 increase in Tourist / Shopper Revenue
Store Owner Revenue	750 permits x $240 / 30 days = $6,000; $2,000 decrease in Store Owner Revenue
Total Change in Revenue	$8,000 increase in tourist revenue - $2,000 decrease in Store Owner Revenue = $6,000 increase in revenue

Question #3

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Question #3

Do you see any risks to a validation pricing model? Do you think you're likely to run into any resistance? From which types of stores and why?

Solution

Stores with high margins and high profits per transaction (like Tiffany & Co.) would be fine with paying this $5 flat fee. Stores with low margins and low profit dollars per transaction (like an ice cream store) would likely lose money on every sale they make because all of their profits would be eaten up by the $5 validation fee.

Question #4

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Question #4

How else could you structure a validation model in order to get less pushback?

Solution

Instead of charging each store a $5 fee per validation, charge each store a validation fee that is equal to a percentage of the transaction, or a percentage of the profit on each transaction.

Question #5

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Question #5

How else could we monetize the excess parking spaces?

Solution

Concerts, street fair, roller hockey rinks, rent out the extra parking spaces to large sporting events like the U.S. open. Use it for commuter parking and have buses pick up commuters in the parking lots.

Conclusion

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Recommendation

- Move to validation model for parking lot

Rationale

- Validation model can increase revenue generated by the parking lot
- The utilization of the parking lot will increase and the municipality will enjoy a steady revenue stream from the stores

Risks

- Push back from store owners

Next Steps

- Negotiate accepted validation model with store owners
- Run analysis to find best validation model in terms of revenue vs store push-back (flat fee, percentage of transaction etc.)

Exhibit #1

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	Rate	Occupancy
Tourists / Shoppers	$2 / hour $10 maximum	30% total occupancy
		75% park for less than 5 hours, average 3 hours
		25% park for 5 hours or more
Store Owners	$240 / month	5% occupancy for permits