Case 8: PCB Manufacturer (I of II)
Booz Allen – Operations, Round 1

Problem statement narrative	Guidance for interviewer and information provided upon request[1]
Our client is a firm who wants to invest in a Printed Circuit Board (PCB) manufacturer. The client wants to know whether it's going to be a good investment.	PCB is used in TVs, radios, mobile phones etc. •The industry has a lot of competition. Companies face challenges such as price pressure, consolidation, etc. •The PCB manufacturer has five plants - 1 in the Philippines, 3 in China, and 1 in the US. •The plant in the Philippines is at 100% capacity utilization for the last two years and still can't meet the demand in the Philippine market as it is the only player. •The client would be granted a 20% ownership stake in the PCB manufacturer for its investment (Valuation is currently \$160Mn – based on dcf with no predicted growth) •The PCB manufacturer would use the \$40Mn investment to increase capacity at its Philippine plant. •Each plant serves its local market. •The current capacity of each plant is 1Mn units/year. •The client wants to be comfortable that the first year ROI will be higher than 10%.

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Candidate should calculate the contribution margin

Variable Cost (per unit)	Philippine	China	US
Capacity Utilization	100%	80%	50%
Labor	$2.00	$1.00	$3.25
other costs	3.50	2.00	1.75
Price per unit	6.00	6.00	6.00
Contribution margin	0.50	3.00	1.00

(ignore the Fixed Cost)

Candidate should calculate the ROI

Investment will increase the capacity of the Philippine plant from 1Mn to 10Mn units/year.
Investment will cut the labor cost in half (due to system automation); and will reduce other costs by $1/unit.

Calculations: Original Profit = (6-2-3.5)*1Mn = $0.5Mn
New profit = (6-1-2.5)*10MM = $25Mn
Return of $40M expenditure = $24.5Mn
Return's value to Client = $24.5*20% = 4.9
ROI = 4.9/40 = 12.25% > 10%

Conclusion : It is a good investment for the client.

Other Thoughts

There might be a better alternative to expanding the plant in the Philippines. It may be cheaper to make the product in China and then ship to the Philippines. The company also might look into overcapacity issues at China and US plants. It might be an option to shut down the plant in US, make the goods in China and then ship the goods to US. However, the company should consider factors such as shut-down and transportation costs.