Moon micro

Business, Accounting

Moon Micro is a small manufacturer of servers in Santa Clara, California. Lately, the demand for servers has increased, and the company needs to find a way to capitalize on the situation. The current plant has reached a capacity of 10, 000 units. The two options to capitalize on the situation are to either expand the plant to a capacity of 20, 000 units or outsource the process to Molectron, an independent assembler. Expanding the Santa Clara plant would have an annualized fixed cost of $10, 000, 000 plus $500 labor per server. Hiring Molectron would cost $2000 per server built plus the $8000 for raw materials. Moon Micro sells its servers for $15, 000. Given the situation, Moon Micro wants to have projections for the next two years. For both years, the company estimates demand for servers to have an 80% chance of increasing 50% from the previous year, and a 20% chance of staying the same as the year before. On the other hand, Molectron's prices are fixed for the first year but have a 50% chance of increasing 20% the second year and a 50% chance of staying at the current rate.

With Moon Micro having a two-year time frame, it only makes sense to compare the increases in revenue from year one to year two. This gives the company the ability to analyze the potential gains for every situation possible rather than just following the decision tree and adding year one's revenue to year two revenue. For example, if scenario one were to occur and the company decided to have Molectron produce the servers, the company would earn $562, 500, 000. However, in order to properly compare each scenario, year one's revenue should be subtracted from year two in order to clearly see how the percentages play itself out. Through my analysis, I came up with eight different scenarios that Moon Micro could run into. The first

scenario presents Moon Micro with the largest possible profit because the demand is the greatest and the costs are lowest. However, the big negative with the possibility of demand increasing another 50% in the second year to a capacity of 22, 500 is that the plan for expanding the plant for 10, 000 more units will make capacity 20, 000. This would cause 2500 servers to produce an opportunity cost of $37, 500, 000 by not selecting Molectron to produce the servers.

This scenario makes electing Molectron to produce the servers the better option because there is no limit on capacity. The first and second scenarios are alike but differ because of the increase in price from Molectron in the second scenario. The likelihood that both scenarios occur is 32% (80%*50%*80%). Scenarios three, four, five, and six are alike because they all have an 8% chance of happening (80%*50%*20% in three and four and 20%*50%*80% in five and six). In scenarios three and four, the differences are the costs associated with the expansion of the plant and Molectron raising its prices. In scenarios five and six, the expected revenue of $75, 000, 000 stems from the difference in revenue being $150, 000, 000 in year one (10, 000*15, 000) to $225, 000, 000 in year two (15, 000*15, 000). The demand in year one falls under the 20% chance that it stays the same and then in year two it receives a 50% increase. Finally, scenarios seven and eight illustrate demand never picking up, and therefore expanding on the plant would cause the company to suffer a loss of $20, 000, 000 because of the extra fixed costs in both years (10, 000, 000 per year).

The probability that these scenarios would happen is 2% (20%*50%*20% in scenario seven and 20%*20%*50% in scenario eight). After evaluating all

eight scenarios the clear decision is to outsource the manufacturing of servers to Electron. In every scenario that was broken down and analyzed, outsourcing the work to Moletron resulted in a better net profit. Even with the possibility of prices rising in year two at Molectron, the chances of demand being at its highest and Moon Micro not being able to support demand at its fullest should be the difference-maker because the most likely situation is that demand will be very high. However, there are some factors that should be considered such as whether having Molectron manufacture the servers is a good look on the company, quality of the product that Molectron will be able to deliver, lead time, and the possibility of badcommunicationbetween the two companies since communication is an extremely important factor in supply chain management. Lead time could be important because if the demand was too high, for example, Moon Micro could have a huge problem because Molectron might not have the proper staff to keep up and have the servers shipped to Moon Micro to be checked.

There is also the possibility that the residence in Santa Clara becoming unruly because Moon Micro didn’t expand the plant which could’ve led to more jobs in the city. A giant snowball effect could occur. If Moon Micro felt like the best decision was to expand the plant, factors such as property taxes and extra plant maintenance would need to be considered. Tax rates can always rise and that leads to a variable price that could potentially be very volatile for a small manufacturing company. Some positives that could arise from outsourcing the work to Molectron to manufacture the product besides the overall net profit, is that this could free up some space in the plant at Moon Micro and possibly allowing the company to focus on another product if

they wanted to do so. If Moon Micro decided to come up with another product they would still be known as a great company that produces servers because they have Molectron focusing solely on manufacturing on servers for them.