

Zhou case



BMGT524-1900-Global Operations Management 1) Develop an inventory plan to help ZBC. We will use EOQ Formula in order to derive some data for estimates. Annual demand = $D = 439$ Cost of Bicycle at whole sale (C) = $0.60 \times 170 = \$102$ Carrying cost (H) = 12% of cost = $102 \times .12 = 12.24$ Ordering cost (S) = $\$65$ per order Lead time = 4 weeks Re order point = ROP = daily demand \times lead time (days) = $439/365 \times 28 = 33.67$ EOQ Formula Order quantity $Q = \sqrt{2DS / H} = \sqrt{(2 \times 439 \times 65 / 102 \times .12)} = \sqrt{4662.58} = 68.28$ Number of orders per year = $D/Q = 439/68.28 = 6.42$ Apx. 7 orders Expected time between orders = $365/7 = 52$ days Their annual demand is 439 Units as forecasted in 2008. Based on that numbers and using the EOQ formula we can recommend them ordering at least 65 bicycles per order and place 7 orders a year in order to meet the minimum demands. I would recommend that they should have inventory planned at least little more than their forecast to meet spikes in demand and stop losing the revenue due to low inventory. They can just order about 10 to 15 percent of the annual demand at the buffer stock and even though they have a reorder point defined. This could be adjusted based on the actual sales numbers since the orders are divided in seven of the total needs. 2. Discuss ROPs and total costs. Re order point ROP is demand over the lead time. ROP = daily demand \times lead time (days) = $439/365 \times 28 = 33.67$ Total costs analysis will be as following Annual material cost = $102 \times 439 = \$44778$ Annual order cost = # of orders $\times S = 7 \times 65 = \455 Annual holding cost = $(Q/2) H = 34.14 \times 0.12 \times 102 = 417.87$ Total annual cost = Annual material cost + Annual order cost + Annual holding cost = $44778 + 455 + 417.87 = \$45650$ The reorder point I have used the daily demand to get more accurate measure of the point. The total annual cost is the sum of all the

cost involved. I have not added the cost of the safety stock since we have not considered any safety stock. I would recommend safety stock of 10 % of the total demand. i. e 44 units. It may not be a significant amount of investment but it will ensure the stability of the stock and will stop loss of revenue. 3) How can you address demand that is not at the level of the planning horizon? Maintaining safety stock will ensure excess supply and will stop loss of revenue if the demand is higher than anticipated. There might be some times when the demand may not meet the anticipation and in those cases we can adjust the number of order or the interval to meet with the demand in different segment of seasons. There may be a seasonal element to demand like in summer there are more bikes are sold than winter as the table shows the demand in may is very high and we need to adjust ordering patterns to match that peaks. A multi dimensional analysis of the case that considers other factors than annual demand only will be helpful in reducing the holding cost and meeting the demands.