Due August 14: Delivery of Case Study 2

Assignment Questions

QUESTION 1) Assuming the company (Prestige Telephone Company) demand for service will average 205 hours per month, what level of commercial sales of computer use would be necessary to break even each month?

Answer: Given that the break-even point is when the total revenue equals the fixed and variable costs of a company, we will have to apply the formulas to get to know which level of commercial sales of computer will be necessary to reach this point where no loss and no profit are resulting from the company operations:

One of the ways to possibly solve this question is to compute the BEP in dollars, for which we need to apply this formula:

BREAK EVEN POINT IN \$ = fixed costs / contribution margin ratio

BREAK EVEN POINT IN units = fixed costs / unit contribution margin

To use this formula, we will need to find out what are the fixed and variable costs, so I went to look at the Exhibit 2 (summary results of operations of the 1s quarter of 2003) and I assume that:

We have been told that Power and operations wages have a fixed and variable cost, so they are mixed costs. In order to find the variable and fixed part, we can use the High-low method, which formula is:

Change in total costs / high minus low activity level = Variable cost per unit

- **POWER:** Applying high-low method:

(1.803-1.592) / (361-316) =

211 / 45 = 4,69\$ (So this is our unit variable cost of POWER):

Now, I will compute the fixed costs of POWER:

Total costs: High: 1.803$ and low: 1.592$

<u>Variable costs:</u>

Highest level of activity: 361 x 4,69$ = 1.693,09$

lower level of activity: 316 x 4,69$ = 1.482,04$

total POWER – VARIABLE COST AT HIGH POINT: 1.803$ - 1.693,09$ = **109,9$**

total POWER – VARIABLE COST AT LOW POINT: 1.592$ - 1.482,04$ = **109,9$**

So, fixed costs of POWER ARE **109,9$**

- **OPERATIONS WAGES:** Applying high-low method:

(30.264-29.184) / (361-316) =

1080$ / 45 = **24$** (So this is our unit variable cost of OPERATIONS WAGES):

Now, I will compute the fixed costs of OPERATIONS WAGES:

Total costs: High: 30.264$- and low: 29.184$

<u>Variable costs:</u>

Highest level of activity: 361 x 24$ = 8.664$

lower level of activity: 316 x 24$ = 7.584$

total OPERATIONS WAGES – VARIABLE COST AT HIGH POINT: 30.264$ - 8.664$ =

21.600$

total OPERATIONS WAGES – VARIABLE COST AT LOW POINT: 29.184$ - 7.584$ =

21.600$

So, fixed costs of OPERATION WAGES ARE **21.600$**

SO, UNIT VARIABLE COSTS IS: 4,69$ + 24$ = **28,69$**

Fixed costs: Are the space costs (9.240$ per month); equipment costs (100.400$ per month); depreciation expenses (26.180$ per month); wages of system development, maintenance, administration and sales (32.200$); Sales promotions, as stated on the hints, it will be a fixed cost of 8000$; POWER fixed costs ;109,9$ OPERATION WAGES fixed costs 21.600$

TOTAL OF FIXED COSTS PER MONTH: 197.729,9$

So, now we are in conditions to determine what is the unit Contribution margin:

Unit selling price (in this case for commercial sales only) – unit variable costs

800$ - 28,69$ = 771,31$

Next, we compute the contribution margin ratio = **unit contribution margin / unit selling price**

715,34$/800$ = **96,41%**

Reminding that 197.729,9$ is the total fixed cost for all the production of the 3 months

BREAK EVEN POINT IN UNITS = fixed costs / unit contribution margin

197.729,9$ / 771,31$ = 256,36 hours

BREAK EVEN POINT IN $ = Fixed cost / Contribution Margin ratio

197.729,9$ / 96,41% = 205.092,73$

Taking in consideration, that Prestige Telephone Services will demand 205 hours per month, which means (205*400$ = 82.000$ revenue), the total the company will have to

make in terms of commercial sales to break even each month should be 205.092,73$ -

82.000$ = **123.092,73$ (approx.. 154 hours per month)**

(I'm not 100% sure of this last part, as in the exhibit 2, we also have income from "Other",

which I don't know what is the source, so, somehow, I believe this other revenue should

manipulate this result somewhere).

QUESTION 2) Estimate the effect on income (for the month of March) of each of the

options Rowe has suggested if Bradley estimates as follows:

1) Increasing the price to commercial customers to $1,000 per hour would reduce

   demand by 30%.

   Answer: In March, commercial sales were 138 hours/month. If demand will reduce

   to less 30%, the company would sell only 96,6 hours per month x the new price

   1.000$, the total revenue with commercial clients would be = 96.600$

   (in March the total income with commercial sales was 110.400$, so this would not

   be a good solution, if reality will confirm that by increasing the price to 1000$ for

   these customers, it will make the revenue lower down. But we will have to compute

   also the margin after deducting fixed and variable costs in order to decide which of

   the options is preferable. So, If I got the previous calculations correct:

   - As we know that fixed costs are a total of: 197.729,9$

   - And Variable costs per unit is: 28,69$

   Unit Contribution margin on this new scenario: 1000$ - 28,69$= 971,31$

   And to remember, the unit contribution margin of the actual scenario is: 800$ - 28,69$ =

   771,31$

New scenario = Q * unit contribution margin = 96,6 * 971,31$ = 93.828,55$

Actual scenario = Q * unit contribution margin = 138 * 771,31$ = 106.440,78$

Now, if we calculate the profit:

If we sell 96,6 hours at 1000$ per hour, the total revenue – (variable + fixed costs)

is:

96.600$ - ((96,6h x 28,69$) + 197.729,9$

96.600$ - (2.771,45$ + 197.729,9$) = -103.901,35$ (loss)

If we would not change anything, i.e., sell 138 h x 800$ / hour, the total revenue –

(fixed+variable costs) is:

110.400$ - ((138h*28,69$) + 197.729,9$ =

110.400$ - (3.959,22$) + 197.729,9$) = -91.289,12$ (loss)

By all these analyses, the loss would be higher if this change is applied, so I

wouldn't recommend it.

2) Reducing the price to commercial customers to $600 per hour would increase

demand by 30%.

Answer: In March, commercial sales were 138 hours/month, ad unit price 800$. If

demand will increase 30%, the company would sell 179,4 hours per month x the

new price 600$, the total revenue with commercial clients would be = 107.640$

So, if we compare it with the total income in March without any changes it was 110.400$, so this change will bring less income.

Let's look at the margins though:

- As we know that fixed costs are a total of: 197.729,9$

- And Variable costs per unit is: 28,69$

Unit Contribution margin on this new scenario: 600$ - 28,69$ = 571,31$

And to remember, the unit contribution margin of the actual scenario is: 800$ - 28,69$ = 771,31$

New scenario = Q * unit contribution margin = 179,4 * 571,31$ = 102.493,01$

Actual scenario = Q * unit contribution margin = 138 * 771,31$ = 106.440,78$

Now, if we calculate the profit:

If we sell 96,6 hours at 1000$ per hour, the total revenue – (variable + fixed costs) is:

107.640$ - ((179,4 x 28,69$) + 197.729,9$

107.640$ - (5.146,99$ + 197.729,9$) = -95.236,89$ (loss)

If we would not change anything, i.e., sell 138 h x 800$ / hour, the total revenue – (fixed + variable costs) is:

110.400$ - ((138h*28,69$) + 197.729,9$ =

110.400$ - (3.959,22$) + 197.729,9$) = -91.289,12$ (loss)

By all these analyses, the loss would still be higher if this change is applied, so I wouldn't recommend it.

3) Increased promotion would increase sales by up to 30%. Bradley is unsure how much promotion this would take. (How much could be spent and still leave Prestige Data Services with no reported loss each month if commercial hours were increased 30%?)

Answer: If increasing the sale promotions, they would sell 30% more commercial hours, that means selling 179,4 hours, instead of 138h.

Profit = total sales ((205 * 400$) + (179,4 *800$)) – (variable costs (28,69$*384,4) + fixed costs (197.729,9$) =

(82.000 + 143.520) – (11.028,44 + 197.729,9$) = 16.761,66$

So, they could increase promotions in 16.761,66$

4) Reducing operations to 16 hours on weekdays and eight hours on Saturdays would result in a loss of 20% of commercial revenue hours.

Answer: If reducing operations as it is stated above, they would sell 20% less of commercial hours, that means selling 110,4 hours, instead of 138h.

Let's look at the margins though:

- As we know that fixed costs are a total of: 197.729,9$

- And Variable costs per unit is: 28,69$

Unit Contribution margin is: 800$ - 28,69$ = 771,31$

New scenario = Q * unit contribution margin = 110,4 * 771,31$ = 85.152,624$

Actual scenario = Q * unit contribution margin = 138 * 771,31$ = 106.440,78$

Now, if we calculate the profit:

If we sell 110,4 hours at 800$ per hour, the total revenue – (variable + fixed costs)

is:

88.320$ - ((110,4 x 28,69$) + 197.729,9$

88.320$ - (3.167,38$ + 197.729,9$) = -112.577,28$ (loss)

And we know that if with the current situation in March, the profit was = -

91.289,12$ (loss)

I cannot asses how much this would change the costs structure, as we don't know

how much would the company save if they reduce the work flow as suggested. And

we needed that information, in order to get a more accurate analyses. But, with the

data we have, the loss would still be higher if this change is applied, so I wouldn't

recommend it.

QUESTION 3) Can you suggest changes in the accounting and reporting system now used

for operations of Prestige Data Services which would result in more useful information for

Rowe and Bradley?

Yes, I can suggest Prestige Data Services, to make more detailed statements, that show

exactly what costs are paid to Prestige Telephone Company, because I don't think its very

clear which costs are saved by having this "sister" company's benefits. It is also not very

well explained if those services associated to the sister company are benefiting the PDS or if those are an unnecessary burden on company costs.

I also believe that the revenues with computer use and others are not well explained, should be more detailed.

Another suggestion I would give, so that Rowe and Bradley could have a cleared picture with these statements, was to split the fixed and variable costs, for them to understand what is more important to reduce, in order to decrease the loss and to get a more realistic vision (for instance, I believe that power variable expenses are very high and this statement may not be showing the correct expenses based on the consumed hours).

NOTES and Hints:

Power has two components: fixed cost and variable cost.

Operations (wages and salaries have two components: fixed and variable.

Disregard material and corporate services from your costs analysis and classification.

Assume that sales promotion is $8,000 and it is a fixed cost.

Fixed Cost / Unit Contribution Margin = BEP in Units

Fixed Cost/ Contribution Margin Percentage = BEP in $

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