**Module 1**

**A review of each product:**

 The first product is X5. In terms of performance customers do not worry about performance. It has been on the market for 3 years. X5 is expensive that other similar products in the category. Last year, X5 was in the growth stage of the product life cycle. When the product is in the growth stage of the product life cycle, research and development expenditure is required. The product quality must be maintained and additional features and support services need to be added. Till X5 remain in the growth stage the pricing strategy can be continued, however in the current year X5 could have entered the maturity phase of the product cycle. In such a situation the price may have to be lowered to maintain the market share. Research & development is required to identify the current stage of the product lifecycle of X5. This will help determine the distribution strategy of X% and the promotion expenditure that may be incurred.

 The second product is X6. This is a tablet computer which is on the market for two years. Since, X5 and X6 belong to the same industry we surmise that X6 is also in the growth stage of the product life cycle. The customers of X6 seek performance. This means that they are not sensitive to price. This behavior of the customers is reflected in the default prices. X5 is $285 but X6 is $430. Research and development expenditure is required to improve the performance of X6. The customers are seeking quality. Higher prices can be maintained of X6, as it is definitely in the growth phase and the customers are not price sensitive. Additional, research & development expenditure is required to improve the distribution of X6 and promotion is required to make the product know to the discerning customers. One of the key advantages Clipboard Tablet Co enjoys is that the performance of X6 is better than that of other tablets in the same category.

 The third product is X7. This is a newly introduced product. X7 is in the introduction stage of the product life cycle. The default price of X7 which is $195 also reflects its position in the product life cycle. It is the lowest price among the three products. If we run X7 with default values we get a profitability of -73% for 2012.

 During the introduction stage Clipboard company has to incur expenditure for product branding and setting performance levels. The pricing of X7 is penetration pricing that is designed to build market share. Alternately, some firms keep a high skim pricing to recover development costs. In addition, considerable costs are incurred to reach out to innovators and early adopters. Promotion costs for X7 are likely to be high. Overall the product is likely to remain unprofitable for a considerable period of time.

**Default Simulation by Joe: 2011**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Product | Price | R&D | Results | X5 | X6 | X7 |
| X5 | 265 | 33% | Marketing | 968,979 | 562,961 | 0 |
| X6 | 420 | 34% | Financial | 276,159.075 | 242,073,200 | 0 |
| X7 | 195 | 33% | Total Score:  | 291,574,881 |  |  |

**Default Simulation by Joe: 2012**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Product | Price | R&D | Results | X5 | X6 | X7 |
| X5 | 265 | 33% | Marketing | 1,647,592 | 1,288,999 | 165,586 |
| X6 | 420 | 34% | Financial | 468,563,899 | 554,269,513 | 31,461,253 |
| X7 | 195 | 33% | Total Score:  | 352,144,973 |  |  |

**Financial Review:**

 The financial review of X5 shows that profitability is increasing for X5. It has increased from 16% to 30%. In addition, the default price is $285. The fixed costs for X5 are $75, 000,000. This is relatively high. Overall even though the profitability shows that there is growth, the maturity stage could be reached since the product is already in the market for three years.

 The financial review of X6 shows that profitability for X6 has also increased from 16% to 28%. In addition, the default price is high at $430. The fixed costs of X6 are $37,500,000. When compared with X5 this is an advantage. A lower fixed cost means the contribution increases with increase in volume. X6 is in the growth stage and can maintain the higher price of $430 because its customers are performance seeking. They are not price sensitive.

 The financial review of X7 shows that profitability for X7 has started with a minus 73 percent. The default price is $195. The fixed costs are $37,500,000 and these are not covered by the revenues earned. The volume is low. When compared with other tablets X7 is likely to remain unprofitable for a considerable period of time. An increase in volume and contribution is expected only when X7 reaches the growth stage of the product life cycle.

**Default Simulation by Joe: 2013**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Product | Price | R&D | Results | X5 | X6 | X7 |
| X5 | 265 | 33% | Marketing | 2,145,622 | 2,134,931 | 237,202 |
| X6 | 420 | 34% | Financial | 611,502,211 | 918,020,206 | 46,068,385 |
| X7 | 195 | 33% | Total Score:  | 830,740,435 |  |  |

**Default Simulation by Joe 2014**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Product | Price | R&D | Results | X5 | X6 | X7 |
| X5 | 265 | 33% | Marketing | 1,853,177 | 2,364,061 | 338,448 |
| X6 | 420 | 34% | Financial | 1,016,546,240 | 528,155,442 | 64,305,057 |
| X7 | 195 | 33% | Total Score:  | 1,319,039,222 |  |  |

**Market Review:**

 New sales can be expected in case of X6. It is definitely in the growth phase. New customers can be acquired for X5 however this may be at the cost of lower prices. For X7 acquiring new customers is expensive. Cost has to be incurred to reach innovators and early adaptors. Repeat sales for X5 will be moderate. The repeat sales will depend on the price of X5 as well as performance of X5 compared to those of other competitors. Repeat sales for X6 will be high.

 Since, the performance of X6 is better than that of competitors, there will be full repeat sales. Since, X7 is newly introduced; there are not repeat sales for X7. The first product that will reach market saturation is X5. This can occur in 2012 or 2013. When this happens X5 can face declining sales. Market saturation will also be reached for X6 when it reaches the maturity stage. This will occur after X5 reaches its maturity stage. This can occur in 2014 or in 2015.

Default Simulation by Joe: 2015

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Product | Price | R&D | Results | X5 | X6 | X7 |
| X5 | 265 | 33% | Marketing | 963,776 | 1,118,142 | 479,827 |
| X6 | 420 | 34% | Financial | 274,676,048 | 480,801,048 | 91,167,056 |
| X7 | 195 | 33% | Total Score:  | 1,513,237,527 |  |  |

**Alternate Strategy:**

 The alternate strategy for four year 2012 -2015 having the objective of increasing the total score will be to increase the R&D expenditure of X5 and X6 during the first two years. This will lead to higher sales of both these products.

 During the third and fourth year, I will increase the research and development expenditure of X6. The purpose is to get the highest possible profits from X5 and X6. The strategy will be first increase the price of X6. The price of X6 can be increased because the demand for X6 is inelastic. If performance is maintained or enhanced, the price of X6 can be increased without the danger of reducing the revenue. In fact both the total revenue and profits from X6 will increase with moderate increases in price. In case of X5 the strategy will be to maintain the price till total revenues begin to decline. Since, the customer is price conscious, a moderate increase in prices can lead to a decline in total revenues. The moment X5 revenues decline, the prices of X5 will be decreased to protect the market share.

 The profitability figures show that if the research and development expenditures are increased for X5 and X6, there will be an increase in the revenues and profits. During the years 2012 and 2013 the research and development expenditure for X5 will be maintained at the same level as for X6. During the years 2014 and 2015 the research and development expenditure for X6 will be increased to higher levels than X5.

 It is expected that during 2014 and 2015, X5 will face a market shakeout. Serious declines in revenues of X5 can be expected during these two years. The main purpose for developing X7 would be future growth and profits. What strategies we are using now is to address the profit (or score) during the period 2012 to 2015. During this period having X7 can mean loss eating into the profits made by X6 and X5.

 If our focus is limited to the years for which the simulation is run in my opinion the best option would be to eliminate X7. This will reduce the loss making product for the period and help us achieve higher scored. The decision to eliminate X7 depends on the priorities of Sally Smothers. If she does not mind eliminating X7 you can go ahead with its elimination. The elimination of X7 is an intelligent and informed product development and pricing decision. Since, the period of time allotted to us is four years, and our target is to maximize the score, X7 is a hurdle. The volumes are low, there is loss incurred, and costs are high. Even if one X7 is made, the fixed cost of $37,500,000 will be incurred lead to losses for Clipboard. One strategy for X7 can be to reduce the research & development expenditure for X7 the other alternative is to discontinue X7. Only if the explicit objective is given to develop new products for period beyond 2012, X7 is a drain on the earnings of Clipboard Tablet Company.

**Module 2**

**Scenario Continuation from Module 1:**

 The strategy given is that the R&D expenditure of X5 and X6 is increased during the first two years. The price of X6 can be increased as its demand is inelastic can be increased. In case of X5 the strategy is to maintain the price till total revenues begin to decline. With a decline in the revenues of X5 there will be a decrease in the price of X5.

During 2012 and 2013 the R&D expenditure for X5 and X6 will be maintained. Finally, during the years 2014 and 2015 the R&D expenditure for X5 will be reduced and the R&D expenditure for X6 will be increased. Since there is no special instruction from Sally relating to developing new products and our frame of reference is four years, X7 will be eliminated. Since the strategy says that X7 is a drain on the earnings of Clipboard will eliminate X7.

**Year 2012**

 During the year 2012 we implement the strategy. The pricing of X5 is $270. The price has been increased slightly because the introduction says that X5 is in the growth phase. This price is also supported by the R&D expenditure of 50%. It is expected that R&D expenditure will lead to the development of better features and perfection of the product. The pricing of X6 is $460. The price has been increased because the customers are not sensitive to the price X6 also X6 is in the growth phase of the product life cycle and the number of potential customers is likely to be far higher than the current customers of X6.

Based on these two facts the price of X6 is increased to $460. Also, the R&D expenditure of X6 is being increased to 50%. It is expected that the additional expenditure will not only help improve the product but also identify new customers segments which are likely to buy X6. During this year following the strategy of avoiding unnecessary loss, X7 was not continued.

**Strategy based Simulation: 2012**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Product | Price | R&D | Results | X5 | X6 | X7 |
| X5 | 270 | 50% | Marketing | 2,064,017 | 1,059,527 | - |
| X6 | 460 | 50% | Financial | 557,284,699 | 487,382,302 | - |
| X7 | - | - | Advisor Remarks | X5performance compares favorably with others. | X6 in the growth phase, there are customers who have not bought it. | Total Score:388,765,674 |

When we input the price and R&D expenditure according to the strategy we get results for X5 and X6. X7 has been discontinued. The effect is that the total score after the year 2012 is better than the score of Joe. To an extent this justifies the strategy selected. Both X5 and X6 have increased showing that these are in the growth phase of the product life cycle. Even the advisor’s remarks support our strategy.

One remark is related to the quality of X7 when compared with that of competitors and the other is a remark that says that X6 is in the growth phase. These remarks justify our increase of the prices of X5 and X6.

**Year 2013**

Continuing with the strategy the price of X5 is maintained at $270. We do not know when X5 will reach the maturity phase of the product life cycle. Also the price of X6 is increased further to $470. This increase is aimed to increase the total revenues of Clipboard. The customers of X6 are not price sensitive. The R&D expenditure is maintained at 50% for both X5 and X6. We discontinue X7 for this year also.

**Strategy based Simulation: 2013**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Product | Price | R&D | Results | X5 | X6 | X7 |
| X5 | 270 | 50% | Marketing | 2,982,727 | 1,834,592 | - |
| X6 | 470 | 50% | Financial | 805,282,162 | 862,258,409 | - |
| X7 | - | - | Advisor Remarks | X5 is in the shakeout phase. | Customers willing to pay more for X6. | Total Score:967,914,367 |

This year’s results also show that the total score earned through the strategy is better than Joe’s performance. This time also the advisor’s comments match the arguments of the strategy. We had not increased the price of X5 apprehending that the maturity stage will be reached the advisor says that X5 is in the shakeout phase.

The advisor’s second comment also supports the strategy. Customers are willing to pay more for X6. This was the assumption used by the strategy when the price was increased to $470.

**Year 2014**

During this year the price of X5 is reduced but not substantially. X5 has a large fixed cost and reducing cost quickly can lead to losses. The price is reduced to $265. During this year the price of X6 is also decrease. We apprehend that the maturity phase may be reached for X6. Further the R&D expenditure for X5 has been reduced to 40% and it has been increased for X6 to 60%.

It is expected that higher R&D expenditure for X6 will attract higher profits. For this year also, X7 is discontinued.

**Strategy based Simulation 2014**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Product | Price | R&D | Results | X5 | X6 | X7 |
| X5 | 265 | 40% | Marketing | 1,208,512 | 3,429,907 | - |
| X6 | 430 | 60% | Financial | 320,255,782 | 1,474,859,911 | - |
| X7 | - | - | Advisor Remarks | Customers pay the same price for Clip products. | X6 has reached the shakeout phase. | Total Score:1,502,028,840 |

For this year also, the performance of the strategy is better than that of Joe. During this year there is a sharp decrease in the sales revenues and sales of X5. It appears that the decline stage has been reached for X5. The advisor says that our prices for X5 must be comparable with those of competitors. Further, the advisor warns that the shakeout phase has also been reached for X6.

**Year 2015:**

The strategy for X5 and X6 for 2015 is to reduce prices and protect the market share. Since the advisor has warned us that X6 has reached the shakeout phase we reduce its price to $420. Similarly, we also reduce the price of X5 to $260. The competitors of X5 will also have high fixed costs so they may have limited ability to reduce prices.

The R&D expenditure for X5 and X6 will be continued at 40% and 60%. The objective of pricing and R&D expenditure is to protect the market share of X5 and X6.

**Strategy based Simulation: 2015**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Product | Price | R&D | Results | X5 | X6 | X7 |
| X5 | 260 | 40% | Marketing | 675,659 | 1,189,284 | - |
| X6 | 420 | 60% | Financial | 174,671,364 | 499,499,335 | - |
| X7 | - | - | Advisor Remarks | Customers pay the same price for Clip products as they do for other products.  |  | Total Score:1,612,297,539 |

The final results show that the use of strategy has improved the results from what Joe achieved. Joes’ score using default inputs was $1,513,237,527 whereas the score achieved by using the strategy is $1,612,297,539. This is an improvement from the performance achieved through default settings. The advisor remarks say that during the year 2015 there was price competition in both the products. Using the alternate strategy helped achieve better results than what was achieved by using default settings.

**References:**

http://forio.com/simulate/alikassim/tablet-development-sim-23/run/#p=page1

**Module 3**

 Cost Volume Profit method is a better tool to evaluate the impact of pricing and other costs on the profitability of the company by considering the minimum level of sales needed to avoid loss. Clipboard Tablet Company has three products that need to be evaluated for pricing and research and development expense (R&D) strategy in order to improve the overall profitability of the company. In the next paragraphs, we will explore the products performance of the company in 2012 regarding pricing and R&D expense strategies in order to improve the overall performance of the company.

 X5 and X6 are in the growth phase that means there is a need to increase the R&D expenses in order to increase additional features in the products so the demand in the market can be increased. The strategy, on the basis of CVP, is clear to increase the R&D expenditure in respect of X5 and X6 for 2012 only. If there is an increase in the demand, there will be further increase for future periods. The strategy in 2012 regarding price of the products will be different for both the products. There is no increase in the price of X5, whereas there is an increase in the price of X6 because it is not price sensitive.

 During 2012, there will be an increase in the R&D expenditure for both X5 and X6 because both are in the growth phase and can entail increased demand because of additional features before the customers. The strategy for 2013, 2014, and 2015 will be dependent on the CVP results of both the products regarding total revenue. There is a slight increase in the price of X6, whereas there is no change in the price of X5 because it is price sensitive that means increase in the price can result in reduction in the overall revenue of the company. X7 should be developed in 2012 because this product takes significant time to be profitable for the company. There is an elimination of R&D expenses and price strategy for X7 during 2012.

**Year 2012**

 The price of X5 is $285 because there is no change in the price of the product due to its price sensitivity to the customers’ demand. There is an increase in the price of X6 and the price for 2012 of the product is $470. The cost of R&D has increased by 45% of the price in order to improve the existing features of both the products. There is no strategy regarding X7 because it is ignored for this year as it results in loss to the company. The demand of product X6 is not price sensitive that means there is an increase in the demand of the quantity of X6 even with the increase in the price. The demand of the product X5 is also being increased because of additional features and perfection in order to attract more customers. During the year 2012, we implement the strategy. The pricing of X5 is $285.

 On the basis of implementation of the above stated strategy regarding product X5 and X6. It is expected that there is an increase in the overall revenue because of increase of customers for both the products. The R&D expenses for both the products enhance the reach of the product to different market segments that mean more buyers are associated with the company. The given below table will show the detailed description of the increase in revenue.

**Strategy based CVP Analysis: 2012**

|  |  |  |
| --- | --- | --- |
| Product | Price | R&D |
| X5 | 285 | 45% |
| X6 | 470 | 45% |
| X7 | - | - |

|  |  |  |
| --- | --- | --- |
| Sales units | 810,000 | 265,000 |
| Contribution margin | 81,000,000 | 41,075,000 |
| Less: Fixed costs | $75,200,000  | $37,600,000  |
| Income | $5,800,000  | $3,475,000  |
| Total income | $9,275,000  |   |

(Cafferky, 2010)

 When there is an implementation of the strategy, there is an increase in the overall profitability due to increase in the sales of the company. The product X7 is discontinued to improve the overall financial position of the company. The fixed cost is increased by $200,000 in case of product X5 and by $100,000 in case of product X6. But, it results increase in the profitability much more than the increase in the fixed costs.

 There is also a forward step to introduce X7 so that the in coming years, there can be profitability for this product to the company’s overall profitability.

 In the aforesaid paragraphs, there has been an evaluation of the impact of pricing and R&D strategy on the profitability of all the three products. Now, the next paragraphs will explore the strategies during 2013 in order to improve the performance of all the three products.

**Year 2013**

 On the basis of results of 2012, the strategy for 2013 is also increase in the R&D expense for all the three products X5, X6, and X7 with increase in price of X6 so that the overall profitability of the company can be improved. The additional expenditure of the company over R&D will provide assistance to increase the number of new customers so as to increase the revenue of the company. The price strategy for the company X5 will be no change in the price whereas increases in R&D expense by $20 that will raise the price up to $490. The price of X5 will be remaining at $285.

 The R&D expenses will be increased by $50,000 in case of X5 and $60,000 in case of X6. There will be spending of $45,000 in case of product X7 to improve the quality of the product. The price of product X7 will be $195, which is kept low because of penetration strategy in the market with low price of the product. There will be an increase in the R&D expenses of the product in order to increase the features and perfection of the products for the customers’ satisfaction at a high level.

**Strategy based CVP Analysis: 2013**

|  |  |  |
| --- | --- | --- |
| Product | Price | R&D |
| X5 | 285 | 25% |
| X6 | 490 | 40% |
| X7 | 195 | 30% |

|  |  |  |  |
| --- | --- | --- | --- |
| Sales units | 815,000 | 255,000 | 420,000 |
| Contribution margin | 81,500,000 | 44,625,000 | 35,700,000 |
| Less: Fixed costs | $75,250,000  | $37,660,000  | $37,545,000  |
| Income | $6,250,000  | $6,965,000  | ($1,845,000) |
| Total income | $11,370,000  |   |   |

(Cafferky, 2010).

 The financial results of the year clearly show that the overall performance of the company improved in 2013. There is a loss from X7 because of lower sales than the break even point. It is expected that there will be an improvement in performance of the product over the period of time and there will be increase in the overall profitability of the company.

So far, we have discussed the performance of all three products of the company in terms of profitability by considering pricing and R&D strategies. In the next paragraphs, there will be evaluation of the strategies in order to improve the market performance of all the three products.

**Year 2014**

 In this year, there is a change in the strategy regarding the R&D expenses in case of X5 and X6 because it is decided that there will be no increase in the R&D expenses until indication of downfall in the revenue of the products at the end of the year. However, there is an increase in the R&D expense of X7, in order to improve its position in the market, by $50,000. There is also a change regarding the strategy of pricing because in this year, the price of X5 is to be reduced by $25 and for X6, the price is to be reduced by $30.

**Strategy based CVP Analysis, 2014**

|  |  |  |
| --- | --- | --- |
| Product | Price | R&D |
| X5 | 260 | 20% |
| X6 | 460 | 40% |
| X7 | 195 | 30% |

|  |  |  |  |
| --- | --- | --- | --- |
| Sales units | 1,110,000 | 285,000 | 440,000 |
| Contribution margin | 83,250,000 | 41,325,000 | 37,400,000 |
| Less: Fixed costs | $75,250,000  | $37,660,000  | $37,595,000  |
| Income | $8,000,000  | $3,665,000  | ($195,000) |
| Total income | $11,470,000  |   |   |

(DRURY, 2013).

 On the basis of results of the year, it can be said that there is an overall improvement in the performance of the company. The strategy of not increasing the R&D expenses is workable in the case of X5 because of improved profitability performance, but is not suitable for X6 because there is a reduction in the profitability as compared to 2013. There is an improvement in the revenue of X7 that reduced loss during the year from this product.

 Therefore, the strategy for pricing and R&D expenses is a mix with positive and negative response of the market. It is expected that in the next year, X7 can earn profitability because of increasing demand among the customers through improvement in features and perfection of the product.

 In the next paragraphs, we will describe the changes in the pricing strategy and R&D strategy in order to improve the performance of X7 with X6 and X5. There will also be a discussion on the overall performance of the company in order to take further course of action regarding development of valuable strategies.

**Year 2015:**

 In this year, there is a change in R&D expenses strategy of X6 because there is a need to further improve the product in order to improve its profitability. There is no change in R&D in case of X5. The R&D expenses will be increased in case of X7 by $55,000 so that the market size can be improved for this product. There is no change in the pricing strategy because the positive attitude in the last year is observed that indicates no need to change the price of the products.

**Strategy based CVP Analysis: 2015**

|  |  |  |
| --- | --- | --- |
| Product | Price | R&D |
| X5 | 260 | 20% |
| X6 | 460 | 40% |
| X7 | 195 | 40% |
|  |  |  |
| Sales units | 1,120,000 | 283,000 | 450,000 |
| Contribution margin | 84,000,000 | 41,035,000 | 38,250,000 |
| Less: Fixed costs | $75,250,000  | $37,660,000  | $37,650,000  |
| Income | $8,750,000  | $3,375,000  | $600,000  |
| Total income | $12,725,000  |   |   |

(DRURY, 2013).

 The results of the year show that there is an improvement in the overall profitability. X5 provides improved profitability, whereas X6 is not able to improve its profitability. The product X7 is providing profitability, which is a good indication for the company to attain further improved profitability of the business in the near future. Therefore, the company can improve its profitability through further R&D expenses in case of X6 and X7 in the near future. The company is able attain break-even point in all the three products easily that means there is no risk of loss to the company in order to achieve high growth in the market.

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