



**The Cedar Electronics Limited**

MBA 628: Managerial Accounting

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THE BLUE TOPAZ

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**Problem Definition**

 Manufacturing inefficiencies in the Electronics Division (ED) since the total production cost of the RX-100 is equal to the market price. As a consequence, the current transfer price strategy allows for the cost of inefficiencies to be transmitted from the ED to the Appliance Division (AD).

**Quantitative Analysis**

* Exhibit 1 provides a revised ROI based on cash flow projections for the proposed capital investment in the ED. The new calculation takes into consideration the time value of money with a 10% cost of capital, a sales price equals to market (9$) instead of transfer price ($9.90), and accounts for positive cash flows from tax savings on depreciation. A more accurate annual average ROI is 8.5%, which is below the 10% corporate threshold (Q1a).
* Exhibit 2 shows a revised income statement for the RX-100 using market price instead of transfer price. If the RX-100 were sold at market price ($9), the ED’s revenues from RX-100 would be 9% lower, making the product RX-100 almost non-profitable (Q1a & Q2).
* From Exhibit 2, even if the AD purchased an RX equivalent externally, this would only reduce losses by $4.5M; the AD would still incur a loss of $1.45M (This number should be reflected in the exhibit. Perhaps make a new one that is the new Income statement for the division – show a before and after side by side…?. Unless the loss is due to their inability to attract talent, purchasing the RX at market price would still not make it a profitable division (Q1b). WHERE ARE THOSE NUMBERS IN EXHIBIT 2 ??? they are not, but they should be. It’s the AD’s loss (-$5,950) plus additional $4.5k = still a loss of 1.45M
* Exhibit 3 shows ED’s income statement excluding internal RX-100 sales and associated costs. If the ED would stop selling the RX-100 internally, the division would still generate profits of almost $46.5M, making it (still) a profitable division (Q1a). EXHIBIT WITH GOOD CALCULATIONS / NUMBERS? Exhibit 3 shows the numbers if they stop producing RX. Perhaps here too we could put side by side, first column current and second column without the RX)
* Exhibit 4 shows the allocation of corporate charges based on the proportion of operating profit as opposed to the proportion of net sales. If it were not for Corporate Charges allocation, the AD would be profitable (Q1b).

**Qualitative Analysis**

* Since the AD is required to purchase RX-100s from the ED at full cost plus 10%, there are no incentives for the ED to become efficient. Their best interest is to maximize volume of internal sales, regardless of efficiency (Q1b).
* Under the current transfer price strategy; the AD is subsidizing ED’s RX-100 inefficiencies. However, externally sourcing the RX alone would not make AD profitable (Q1).
* Instead of investing in additional production capacity, the ED should look into investing in improving their RX-100 manufacturing efficiency.
* Purchasing DAL to secure a captive market for the RX-100 as a response to declining market share might be a good short-term tactic, but it does not address the product’s manufacturing inefficiencies, nor is it repeatable on a large scale.
* It might be valuable to understand the reason why RX’s costs of intra-company sales sum up to $4M (8% of $49.5M). The amount seems large considering the nature of the activity. Where does the $4M come from? Comes from the Exhibit 1 in the problem (page 52), first column “Internal RX included in ED”, un the section Selling Fixed and Variable
* In ED’s investment proposal, the RD&I quality services would not be required for the additional units produced. This implies that the transfer payments from ED to RD&I would be substituted by external cash expenditures incorporated in the price of the equipment for carrying this functionality.
* Since allocation of corporate charges is based on net sales, managers have an incentive to reduce sales revenues in order to decrease their allocation of corporate charges.
* If it weren’t for corporate charges allocation, the AD would be profitable. Therefore, spinning off the division is not recommended.

**Recommendation**

* Investigate ways to improve the RX-100 manufacturing efficiencies, including reducing costs to under market price ($9) and delivering products on time. If the return on these investments is less than 10%, discontinue RX-100 production and have the AD source it externally (Q2).
* Set transfer payments from ED to AD at budgeted costs plus 10% in order to avoid transferring cost of inefficiencies from one department to the other (Q2).
* Allocate corporate charge as a percentage of the divisions’ operating profits and ensure that corporate charges are not factored in calculating managers’ bonuses, since they are out of management’s control (Q2).

**Exhibits**

**Exhibit 1 – ROI based on Cash Flow Projections**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **0** | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
| **CAPEX** |  $(15 000 000) |   |   |   |   |   |   |   |
| **Depreciation** |   |  $(1 071 429) |  $(2 142 857) |  $(2 142 857) |  $(2 142 857) |  $(2 142 857) |  $(2 142 857) |  $(2 142 857) |
| **40% Tax saving** |   |  $428 571  |  $857 143  |  $857 143  |  $857 143  |  $857 143  |  $857 143  |  $857 143  |
| **CM for 1.5M units** |   |  $1 605 000  |  $1 605 000  |  $1 605 000  |  $1 605 000  |  $1 605 000  |  $1 605 000  |  $1 605 000  |
| **Total Cash Flow** |  $(15 000 000) |  $2 033 571  |  $2 462 143  |  $2 462 143  |  $2 462 143  |  $2 462 143  |  $2 462 143  |  $2 462 143  |
|  |   |   |   |   |   |   |   |   |
| **Value at Y0 (10%CC)** |  $(15 000 000) |  $1 848 701  |  $2 034 829  |  $1 849 844  |  $1 681 677  |  $1 528 797  |  $1 389 815  |  $1 263 469  |
| **Total CFs @ T0** |  $11 597 132  |   |   |   |   |   |   |   |
| **NPV** |  $(3 402 868) |   |   |   |   |   |   |   |
| **ROI over 7 years** | **77%** |   |   |   |   |   |   |   |
| **Annual ROI** | **8,5%** |   |   |   |   |   |   |   |

**Exhibit 2 – Revised Income Statement for Cedar Electronics Division using Market Price ($9.00)**

|  |
| --- |
| **Cedar Electronics Division** |
|  |   |
| **REVENUES** |   |
| Revenue from Internal Sales |  $49 500  |
| Adjusted sales (at $9 instead or $9.90) |  $45 000  |
| Total Cost of Goods Sold |  $37 700  |
| **Total Revenues** |  **$7 300**  |
|  |  |
| **EXPENSES** |   |
| Administration |  $825  |
| Selling |  $4 000  |
| Corporate (Adjusted since allocated based on % of sales) |  $2 250  |
| **Total Expenses** |  **$7 075**  |
|   |   |
| **DIVISIONAL PROFIT** |  **$225**  |
|   |   |
| **Difference in Sales Value** |  **$(4 500)** |
| **Difference in Sales Value (%)** | **-9,09%** |

**Exhibit 3 – ED’s income statement excluding internal sales and associated costs of RX-100**

|  |
| --- |
| **Cedar Electronics Division** |
|  |   |
| **REVENUES** |   |
| Revenue from External Sales |  $363 000  |
| Total Cost of Goods Sold |  $259 940  |
| **Total Revenues** |  **$103 060**  |
|  |  |
| **EXPENSES** |   |
| Administration |  $6 676  |
| Selling |  $31 755  |
| Corporate Charge(Adjusted since allocated based on % of sales) |  $18 150  |
| **Total Expenses** |  **$56 581**  |
|   |   |
| **DIVISIONAL PROFIT** |  **$46 479**  |

**Exhibit 4 – Allocation of Corporate Charges based on the proportion of operating profit**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Electronics Division** | **Appliance Division** | **RD&I Division** | **TOTAL** |
| **Operating Profit (OP)** |  $132 860  |  $35 197  |  $13 579  |  **$181 636**  |
| **Current Corporate Charges** |  $20 625  |  $16 045  |  $2 600  |  **$39 270**  |
| **Corp. Charges Based on OP** |  $28 725  |  $7 610  |  $2 936  |  **$39 270**  |
| **Differences in Divisional Profits** |  $(8 100) |  $8 435  |  $(336) |  **$0**  |
| **Current Divisional Profits** |  $68 979  |  $(5 950) |  $6 269  |  **$69 298**  |
| **New Divisional Profits** |  $60 879  |  $2 485  |  $5 933  |  **$69 298**  |