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Due Date: April 8, 2003 **E-mail:** Jeff.Pinegar@FandM.edu
Subject: Paper 3: Product Development

This is an individual assignment. You may not collaborate others while writing your paper. You are however encouraged to discuss the case, what is going on at Dell, the industry etc., as you refine your thinking, just do the final work yourself and write your paper alone.

Description:

Product Development at Dell Computer Corporation, Harvard Business Case 9-699-010 (A copy of this case is located on eDisk).

As the case explains, there is debate over which battery technology to incorporate into the new laptop platform. There are four choices (1) go with the proven technology, NiHi, (2) go with LiOn which promises high upside potential but runs the risk of failure (3a) *dual-path* – defer the decision by pursuing parallel paths and design two laptops or (3b) *over-design* – defer the decision by designing one laptop that could take either battery. Analyze the situation considering the information in this case, current trends and your previous SWOT analysis. Assume this case is set today (Dell may very well be facing this same dilemma again today with two different battery technologies). Be sure to consider both the strategic and financial implication of your decision.

Present your answer as a business letter sent to Michel Dell. State at the begin what your decision is and then explain your rational. Limit your answer to 3 pages double spaced, plus any exhibits you need. There will be a 10% deduction for each page over 3. This limitation is in place to force you to make a clear succinct argument for your position, just as you would if you were writing to Michel Dell.

Grading

- 50% of your grade will be based on the quality of your arguments (your demonstration that you understand the market/marketing implication of your decision).
- 50% of your grade will be based on the quality of your writing. You are expected to make a clear argument, free from spelling, grammatical and typographical errors, which is properly addresses to the CEO in terms of tone and temperament.

Additional Material:

- Harvard Business Case: Dell—New Horizons (9-502-022). A copy of this case is located on edisk.
- Harvard Business Case: Matching Dell (9-799-158). A copy of this case is located on edisk.
- You may consult additional business publication, such as BusinessWeek, Fortune, annual reports, etc.
- You may consult our text and other general business texts.

Financial Analysis

Option 1: NiHi

$$\begin{aligned} \text{Expected net margin} &= \$485 \text{ m} * 1 && (\text{net margin per Exhibit 8} * \text{probability of success}) \\ &= \underline{\$485 \text{ m}} \end{aligned}$$

Option 2: LiOn

$$\begin{aligned} \text{Expected net margin} &= (\$584 \text{ m} * 0.6) && (\text{net margin if LiOn works} * \text{probability of success}) \\ &+ (\$234.5 \text{ m} * 0.4) && (\text{net margin if LiOn fails} * \text{probability of failure}) \\ &= \underline{\$444.2 \text{ m}} \end{aligned}$$

Option 3: Defer Commitment

(a) Expected net margin if *dual* development paths*:

$$\begin{aligned} &= (\$594 \text{ m} * 0.6) && (\text{gross margin if LiOn works} * \text{prob. of success}) \\ &+ (\$495 \text{ m} * 0.4) && (\text{gross margin if LiOn fails} * \text{prob. of failure}) \\ &- (\$10 \text{ m} + \$2.5 \text{ m}) && (\text{development costs} + \text{cost of dual paths}) \\ &= \underline{\$541.9 \text{ m}} \end{aligned}$$

(b) Expected net margin if product is *over-designed**:

$$\begin{aligned} &= (\$594 \text{ m} * 0.6) && (\text{gross margin if LiOn works} * \text{prob. of success}) \\ &+ (\$495 \text{ m} * 0.4) && (\text{gross margin if LiOn fails} * \text{prob. of failure}) \\ &- (\$10 \text{ m} + \$11.1 \text{ m}) && (\text{development costs} + 2\% \text{ of exp. gross margins}) \\ &= \underline{\$533.3 \text{ m}} \end{aligned}$$

* (Note that remaining flexible limits the downside in option 3 to \$495 m, as opposed to the \$234.5 m above in option 2.)

Based on the above calculations, which approach should Dell choose? Because the expected net margins are so similar, one would be hard pressed to make a decision based solely on the financial considerations above. For practical purposes, therefore, quantitative calculations, while important to have performed and understood, leave us undecided between the three options. Non-

Writing Guidelines:

Other than page length, the writing guidelines are the same as last time. If you receive 5 or less on the writing portion of the last paper you are strongly encourage to use the Writing Center or a peer that can give your WRITING a critical review.