The assignment requires that you run a simulation over an 18-year period, and that you analyze the outcome of the decisions you make at each decision point.

In this course, we will be using the MIT Solar Power Pricing Simulation.

Read the following introduction to the SunPower case:

The Industry Evolution Management Flight Simulator portrays the growth and competition of firms as an industry evolves. Playing the role of chief executive for one of the firms in the industry, you make key decisions involving pricing, investment and marketing in order to succeed in the marketplace.

This version of the simulator has been customized to portray the solar power industry, specifically SunPower and other manufacturers of photovoltaic panels (PVs). While historically the cost of electricity from PV panels has limited them to niche applications, there is massive potential for growth in the market if solar power could become a viable alternative to traditional sources of electricity.

In the simulator, your job is to maximize SunPower's cumulative profit over a period of eighteen years. To do this, you make pricing and investment decisions each simulated time period.

As a young company with a new innovation, you will start the game with a technology that you hope stays proprietary. In theory you can reap the benefits of technological advancements from the rest of the industry while spreading your advancements to them.

In addition, you (or your administrator) have the option of setting several other competitive and market scenarios, including the sources and rates of learning, the strength of knowledge spillovers, entry of new competitors, and external incentives that help to drive consumers towards using solar power.

You will receive periodic reports including your income statement and industry data. You need to select your strategies based on those reports, your understanding of the underlying industry structure, and your best judgment about how your competitor and customers may respond.

Though the model has been carefully calibrated and tested, it is not designed to predict the future or exactly match the history and special circumstances of SunPower. Rather, it is used to illustrate competitive dynamics important not only in the photovoltaic panel industry but in other contexts you may face. Instead of merely "beating the game," focus on understanding the underlying industry structure so you can develop robust, successful strategies.

\*\*\* Source: Sterman, J. (2014). Eclipsing the competition: The Solar PV industry simulation. Forio. Retrieved on November 23, 2014 from http://forio.com/simulation/solar-test/index.htm#page=market\_research

Be sure to review the SunPower case study, as it will provide you with background and context for the simulation: http://forio.com/simulation/solar-test/downloads/SunPower-Henderson.pdf

Then, visit the simulation here:

<http://forio.com/simulation/solar-test/index.htm#page=market_research>

At the landing page, click on “Play as an INDIVIDUAL.” Then, choose a Screen ID and click “Submit.”

Familiarize yourself with the simulation. This will require that you get an in-depth understanding of the terminology used in the simulation, as well as the pricing and cost structure of the product. As you begin this simulation (Year 1), your market share is only 2.40%. Your role with the company is to expand your company’s market share over the multi-year period of operations – while recognizing the highest possible cumulative profit. To do this, you must make favorable pricing decisions, and you must ensure that you are improving your product while simultaneously lowering unit costs. Product improvements are determined by the % of revenue allocated to process improvement (i.e., technological advancement = lower unit costs).

Should you need to brush up on financial analysis, the following presentation provides a very good overview of financial statement analysis:

<http://vrpacioli.loyola.edu/ac102/chapter17/chapter17.ppt>

Assignment

Run the simulation, entering the following data into the simulation for each of four decision points (NOTE: Do not change the assumptions displayed in the “Settings” tab):

1) Decision 1: For Years 2008-2012

a) Pricing – Manual

b) Module Price - $0.15

c) Revenue to Process Improvement – 5%

d) Years to Advance – 5 years

2) Decision 2: For Years 2013-2017

a) Pricing – Manual

b) Module Price - $0.13

c) Revenue to Process Improvement – 5%

d) Years to Advance – 5 years

3) Decision 3: For Years 2018-2022

a) Pricing – Manual

b) Module Price - $0.11

c) Revenue to Process Improvement – 5%

d) Years to Advance – 5 years

4) Decision 4: For Years 2023-2025

a) Pricing – Manual

b) Module Price - $0.09

c) Revenue to Process Improvement – 5%

d) Years to Advance – To end

At each of the four (4) decision points above, you are required to analyze the impact of your Module Price on market share and total profits. You are also required to determine how process improvements reduce unit costs over time. Be sure to copy tables and charts into your Word document to support your analysis. You may need to use Excel to edit the charts and tables. Do not use figures and tables as “space fillers” – however; use these only to support and justify your written report.

Keys to the Assignment

The key aspects of this assignment that should be covered and taken into account in preparing your 5-6 page paper include:

1) Include discussion and analysis of key metrics at the end of each decision point (e.g., among other data, be sure to include total market share, revenue, cumulative profit, consumer net price, modular price, unit cost, etc.). State clearly the specific analysis (horizontal analysis, or vertical analysis, or trend analysis) you used. As an MBA, it is your job to identify cause and effect!

2) For each decision point, be sure to include comparative tables that include what you believe to be the most important data. Don’t merely recite the data, however – instead, analyze the data!

3) Make recommendations. What would you have done differently as it relates to pricing, process improvement, or other?

\*\*\*\* NOTE: The 5-6 page requirement includes written analysis and all supporting tables, figures, and graphics. If you are unsure how to complete a financial analysis, please review the following sample report:

Gilbert O'Neil Mushure. (2014). Financial analysis report: Malaysia airlines 2007 - 2011. International Journal of Sciences : Basic and Applied Research, 14 (2), 148-153.

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