TIMROC Lecture 18 (8/24/14)

Agenda

1) Tommy Beckett and Bar Smith: Makesmith

2) Course Review: Skills/Lessons learned

3) Final Exam and Homework 5

4) Project Presentation

5) Product Design: TIMROC Course
Final Exam

Date: June 18, 12:00-3:00 pm

Problem: Create a start-up in the aerospace industry

- Product Strategy
- Market Strategy
- Business Strategy
- Financial Strategy (New)

Open Notes

All information, e.g., market research, will be provided.

Homework 5

Due on June 10 at the end of the exam

Finish the financial strategy for the robotic vacuum cleaner (HW4)

Good practice for final exam
4. Project Presentations

Project Presentations will be on Tuesday and Thursday of next week.

15 minutes: 10 minutes on the presentation
5 minutes for (instructor's) question

- 5 groups on Tuesday
- 5 groups on Thursday

Attendance is mandatory.

Sign up before you leave.

Email Tyler your slides on Monday 4/2/14.

Bring computers to class on Tuesday 4/3.
2) Skills / Lessons Learned

Product Design (Product strategy)

Skills:
- Product Dissection (FAST Diagrams)
- Functional Specification (Function Structure)
- Design (Morphological Matrix, Selection Criteria)

Lessons Learned:
- Explore multiple designs before selecting a single form (first idea is not usually the best)
- Separate function and form
- Start with existing products (Don't reinvent the wheel)
Market Strategy

Skills:
- Market Segmentation (Revenue MAP)
- Marketing Product to Customers (Marketing Mix)

Lessons learned:
- Market Segmentation generally involves estimation (detailed data is usually not available or very expensive)
- Market Segmentation is a good "reality check" for business goals
- Marketing Mix should be done concurrently with product design
Business (Competitive) Strategy

Skills
- Mapping the industry landscape (Porter’s Five Forces 2x2 Competitive Strategy Matrix)
- Determining a competitive strategy (2x2 Competitive Strategy Matrix)

Lessons Learned:
- Three general competitive strategies a company can use to be successful in an industry:
  - Differentiated Strategy
  - Cost Leadership
  - Focus Strategy
- Start-ups generally have a focus strategy
- A company must manage each one of the Five Forces in order to be successful in a particular industry
Financial Strategy

Skills:
- Cash flow analysis (Discounting, NPV)
- Accounting (Income Statement, Balance Sheet, Cash Flows)
- Funding (Sources of funding, ownership, dilution, valuation, Stock/Shares)

Lessons Learned:
- A company needs to have a positive NPV
- Money depreciates over time, thus must be factored into all financial decision-making
- Debt → easier to get money, higher risk
- Equity Investment → lose ownership, harder to get, lower risk
5) **Product Design: TIM80C Course**

For +10 EC on the Final Exam

**Define the Problem:** Improve the TIM80C course with respect to customer needs (students)

**Approach:**

1) **Dissect the current TIM80C course (Spring 2014) using a FAST Diagram**

2) **Create Function Structure of the course functionality desired by the customer (student)**

3) **Brainstorm alternative forms for the desired functionality and organize these alternatives using a Morphological Matrix**

4) **Generate 3-5 design concepts for TIM80C**

5) **Evaluate the design concepts with respect to customer needs using a set of appropriate selection criteria**

6) **Select a Single Concept (for Spring 2015)**