TIM 80C Lecture 10 4-28-16

Agenda

(1) Course Roadmap

(2) Financial Strategy

(3) Project Phase II meetings on (Tues, Wed next week)

(4) Homework 3

(5) Midterm Review
(1) Course Roadmap

Course has 4 main parts:

✓ - Product Strategy
✓ - Market Strategy
✓ - Business (Competitive) Strategy
   - Financial Strategy

5 weeks left in class:

Financial Strategy - 2-3 weeks
Integration - 1 week
Project Presentations - 1 week (10)
Guest Speaker - 1 class

* END PRODUCT FOR CLASS: COMPLETE
  Business Plan for your start-up
  - Create a "real" version of
    your start-up
  - "Sell" the idea/business plan
(2) **Financial Strategy**

There are 2 main parts to financial strategy:

1. **Cash Flow Analysis** - typically 3-5 years into the future

2. **Funding Strategy** - to obtain the cash for all the costs ("negative cash flows")
   - facilities, hiring people, product development, manufacturing, marketing, etc.

**Separation Principle**

(1) First do the cash flow analysis.

(2) Then do the Funding Strategy based on the cash flow analysis.

**Rationale:** don't let the presence or lack of funding influence the cash flow analysis.
③ Project Phase 2 - meetings will happen on Tues/Wed.

④ Homework 3
Embedding the Q in structured problem solving

Ex: ① 1

(1) Define the problem
Present a step-wise procedure for designing a new product,

(2) Plan: I will list the steps presented in Tim for

(3) Plan execution:
- Step 1
- Step 2

(4) Check work - the work is accurate.

(5) Learning / Conclusions:
This is a basic approach that can be modified as needed.
(5) Midterm Review

Doing HW 3 is good preparation for the midterm!!

HW 3 Q1

Conceptual Design Process

Step 1: State the overall objective of the new product

Step 2: Dissect existing products that are similar to the desired product

Step 3: Create a Function Structure for the new product

Step 4: Create a morphological matrix of the possible solution principles for realizing the Function Structure

(Merges steps 4 & 5 from lecture)

Step 5: Use the Morphological Matrix to generate several (2-5) possible design concepts

Step 6: Briefly describe them
Step 7: Create a set of selection criteria and apply them to select a design concept.
Step 8: Select the chosen design concept.

Q1 part 2

Step 1: Overall purpose (primary function):
An inexpensive robot for cleaning floors in the home.

Step 2: Dissection
- Roomba
- Generate a FAST Diagram

Step 3: Function Structure

- Remove dirt from floor autonomously
  - Provide power
  - Provide cleaning
  - Provide movement
  - Provide control
  - Receive energy
  - Store energy
  - Loosen dirt
  - Remove dirt
  - Store dirt
  - Sense environment
  - Plan route
  - Turn on / off
Step 4: Morphological Matrix

Sub-functions
- Provide movement
- Receive energy
- Store energy
- Loosen dirt
- Remove dirt
- Store dirt
- Turn on/off
- Sense environment
- Plan route

SP1
- Ball
- Solar
- Battery
- Suction
- Bag
- Button
- Impact
- Bumper
- Programmed

SP2
- Hover
- Biofuel
- Scrubbers
- Ultrasound
- Sweeping
- Bin (nobe)
- Motion detector
- Sensor
- Random

SP3...
- Wheels
- 120V
- Flywheel
- Compressed air
- Vaporize (Laser)
- Vaporize
- Autonomous
- Human
- Guide
- Map
- Furnish

Step 5: Design Concepts

Step 6: Brief Descriptions
### Step 7: Selection Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Concept 1</th>
<th>Concept 2</th>
<th>Concept 3</th>
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<tbody>
<tr>
<td>Price to customer</td>
<td>2</td>
<td>3-4</td>
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<tr>
<td>Technical feasibility</td>
<td>3</td>
<td>4</td>
<td>2</td>
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<tr>
<td>Performance (cleaning)</td>
<td>5</td>
<td>3</td>
<td>4</td>
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<tr>
<td>Energy efficiency</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Commercialization potential</td>
<td>3</td>
<td>4</td>
<td>1-2</td>
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1 is low or "bad"  
5 is high or "good"

### Step 8: Concept 2 is the superior design.

After class extra notes follow:

- These 8 steps differ from the 9 steps found in lecture 4 because step 4 from the lecture is left out.

Steps 4 & 5 from Lecture 4 are merged here into Step 4. For the midterm, the 8-step approach here might make more sense, but either is acceptable.

HW2 PTI Steps:


Step 1: Identify the Industry/Market

Step 2: Determine the total size & growth rate of the market

Step 3: Create a revenue map:
   - Customer Segmentation
   - Product Segmentation

Step 4: Decide which cell(s) of the revenue map to target

Step 5: Create a marketing mix for each of the targeted cells
Step 1: Create a map of the Industry/Market landscape
- competitors
- new entrants
- substitute products
- buyers
- suppliers

Step 2: Perform a Porter's Five Forces Analysis of the Industry/Market
- rivalry between competitors
- threat of new entrants
- threat of substitute products
- buyer power
- supplier power

Step 3: Place competitors on a 2x2 competitive strategy matrix

Step 4: Select a competitive strategy
- differentiated
- cost leadership
- focus