TIM 806 Lecture #10 (4/30/15)

Agenda

1) Roadmap for the course

2) Financial Strategy

3) Project Phase II

4) Homework 3

5) Midterm Review
1. Roadmap for the Course

Course has 4 main parts

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

Remaining 5 weeks

Financial Strategy: 2-3 weeks
Integration: 1 week
Project Presentation: 1 week
Guest Speaker: 1 class

End product: Complete business plan for your Start-up

- Create a "real" version of the Start-up
- Sell the idea / business plan
- Bring to job interviews to show your skillset (portfolio)
- UCSC Entrepreneurship Showcase (Must register today)
2) Financial Strategy

The Financial Strategy for a Startup has two main parts:

1) **Cash Flow Analysis** of the Company for 3-5 years

2) **Funding Strategy** for obtaining the Cash(0) for all the costs (negative cash flows), facilities, hiring people, product development, manufacturing, marketing, etc.

**Separation Principle**

1) Do the cash flow analysis (Part 1) first, without addressing Funding (Part 2).

2) Then, create the Funding Strategy based on the cash flow analysis.

**Rationale:** We do not want Funding (or lack of funding) to influence our cash flow analysis.
3. Project Phase II

Each project group must meet with the instructor (Tyler) on Tuesday (5/5/15) during office hours (EE 2553 4-7pm) to review the Product Strategy, Market Strategy, and the Business Strategy.

Two options for turning in Phase II

1) In-class today (4/30/15)

2) At the project meeting on Tuesday (5/5/15)

Make sure your Phase II project binder includes:

- All the post work (Proposals, Phase I, etc.)
- Description of the contributions for each group member
Homework 3

Create a start-up for a mobile cleaning robot (e.g. Roomba)

- Product Strategy: design for the robot (Function + Form)

- Market Strategy: identify the customers (target market segments) for the robot and how to sell the robot to them (Marketing Mix)

- Business Strategy: how will the start-up compete with other companies in the industry/market for cleaning robots

Use Structured Problem-Solving
- Problem Definition (see above)
- Process for solving the problem (see Lecture 4)
- Execute the process
- Check work
- Conclusions

Good practice for the midterm
5. Midterm Review

HW 3: Problem 1

Conceptual Design Process (Approach):

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.

Step 5: Use the Morphological Matrix to generate several (2-8) possible design concepts.

Step 6: Create a set of selection criteria and apply them to select a design concept.
Step 1: Overall Purpose (Primary Function)
An inexpensive robot for cleaning floors in the home.

Step 2: Product Dissection
Dissect similar products (FAST)
- Roomba
- Vacuum Cleaner

Step 3: Function Structure

- Remove Dirt from Floors

  - Provide Power
  - Provide Cleaning
  - Provide Movement
  - Provide Control

  - Loose Dirt
  - Remove Dirt
  - Store Dirt

- Sense Environment
- Plan Route

- Receive Energy
- Store Energy
### Step 4: Morphological Matrix

<table>
<thead>
<tr>
<th>Sub-Function</th>
<th>SP1</th>
<th>SP2</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Provide Movement</td>
<td>ball</td>
<td>hover</td>
<td>wheels</td>
</tr>
<tr>
<td>Receive Energy</td>
<td>Solar</td>
<td>Biofuel</td>
<td>120V</td>
</tr>
<tr>
<td>Store Energy</td>
<td>battery</td>
<td>flexible bands</td>
<td>flywheel</td>
</tr>
<tr>
<td>Loosen Dirt</td>
<td>brushes</td>
<td>Ultrasonic</td>
<td>Compress air</td>
</tr>
<tr>
<td>Remove Dirt</td>
<td>suction</td>
<td>Sweeping</td>
<td>Vaporize Closer</td>
</tr>
<tr>
<td>Store Dirt</td>
<td>bag</td>
<td>bin (bagless)</td>
<td>vaporize Closer</td>
</tr>
<tr>
<td>Sense Environment</td>
<td>impact</td>
<td>sonar</td>
<td>human guide</td>
</tr>
<tr>
<td>Plan Route</td>
<td>program by random</td>
<td>human Mapping</td>
<td>3 2 1</td>
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</table>
Step 6: Selection Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Concept 1</th>
<th>Concept 2</th>
<th>Concept 3</th>
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</thead>
<tbody>
<tr>
<td>Price (Customer)</td>
<td>2</td>
<td>3-4</td>
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<tr>
<td>Technical</td>
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<td>4</td>
<td>2</td>
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<td>4</td>
<td>1-2</td>
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<td>3</td>
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<td>3</td>
<td>4</td>
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<tr>
<td>Energy Efficiency</td>
<td>14</td>
<td>17</td>
<td>13</td>
</tr>
</tbody>
</table>

(Low) 1 - 5 (High)
HW 2: Problem


Step 1: Identify the industry/market

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

Step 3: Create 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 the target cell(s)
HW3: Problem

Business (competitive) strategy process (approach):

Step 1: Create a map of the industry/market landscape
- Competitors
- New Entrants
- Substitute Products
- Buyers
- Supplier

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