TIM80C Lecture 9 (4/28/15)

Agenda

1) Estimation

2) Remarks on Product Strategy, Market Strategy, and Business Strategy

3) Project Phase II

4) Midterm Exam

5) Work on Project (time permitting)
1. Estimation

Creating a start-up involves a great deal of uncertainty.

Product Strategy: Planning (dollars, time)

Market Strategy: Market Segmentation ($, %)

Business Strategy: Competitor sizing ($, %, more)

Financial Strategy: Cash Flows ($, time)

Being a good estimator will improve the probability that the start-up will be successful. (Estimation is also a useful life skill)

Rate/Estimate your estimation skills: 3/5

1 (Low) - 5 (High)
Quiz: How good of an Estimator are you?
(Source: McConnell, Software Estimation)

Goal: Estimate a range [low, high] in order to get 80% accuracy.

1) Surface temperature of the Sun (°F)
   \[ \left[ \frac{400,000}{\text{Low}}, \frac{10,000}{\text{high}} \right] \text{ (10,000 °F)} \]

2) Total value of US currency in circulation in 2004
   \[ \left[ \frac{20B}{\text{low}}, \frac{900B}{\text{high}} \right] \text{ ($720B)} \]

3) Heaviest blue whale recorded (Metric Tons)
   \[ \left[ \frac{50}{\text{tons}}, \frac{500}{\text{tons}} \right] \text{ (170 tons)} \]

4) Number of book titles published in the US since 1776 (in 2004)
   \[ \left[ \frac{500,000}{\text{low}}, \frac{20M}{\text{high}} \right] \text{ (22M books)} \]

5) Total volume of the Great Lakes (x 10^6 gallons)
   \[ \left[ \frac{1x10^{18}}{\text{low}}, \frac{1x10^{15}}{\text{high}} \right] \text{ (6 x 10^{18} gallons)} \]

Results: 2/5
(Typical score 1-3 on a 10 question version of the quiz)
Suggestions for Improving Estimates:

1) Always use ranges instead of point estimates.

Tightness of the range indicates how confident you are in the estimate.

Very confident → Small range
Not very confident → Large range

2) Start with the desired accuracy, i.e., how often you would like the actual value to be inside your estimated range.

Then, construct the range to give you the desired accuracy.

Higher accuracy → Larger range
Higher precision → Smaller range
3) Estimate in groups: averaging the estimates of a group will generally produce estimates that are as good or better than individual group members (Wisdom of the Crowd)

4) Use significant figures that are appropriate for the problem

5) Use analogies or other ways of thinking about the problem

Example: Heaviest Blue Whale

Average car = 1-2 tons
How many cars = ?

6) Explain the process for how you came up with the estimate. (Structured Problem-Solving)

7) Practice!
Remarks on Product Strategy, Market Strategy, and Business Strategy

**Product Strategy**: includes a plan for how the start-up will develop the product.

**Stages in Product Development**:

1) **Customer Needs Identification** (Marketing Mix)

2) **Conceptual Design** (FAST, FS, MM, SC)

3) **Build and Test Prototyping**
   - Proof of concept (α prototype)
   - Prototype for key customers (β prototype)
   - Production prototype (manufacturing)

4) **Product Release** (Supply Chain Management)
Market Strategy: You can segment customers based on a number of different criteria.

Size/Type of the Customer (Company)

Example: Cisco Systems

- Service Providers (Comcast, ATT, Verizon)
- Enterprises (> 1000 employees)
- Mid-sized businesses (< 500 employees)
- Small businesses (< 250 employees)

Geographic: Country, State, region

Example: Cisco Sales Regions

- Americas
- Europe, Middle East, Africa (EMEA)
- Asia Pacific, Japan, China
Demographics: age, gender, income, education.

Psychographic: lifestyle, personality, etc.

Behavioral: brand loyalty, sensitivity to price, use certain types of products, etc.

Identify the appropriate criteria for segmenting the market for your product.

Market segmentation can (should) be done at multiple levels.

Example: High-level: identify target segments.
          Low-level: create Marketing Mix (4Ps).

Product segmentation depends on the Industry/Market.
Business Strategy: Competitive Strategy depends on where the product lies within the context of life-cycle of the industry/market.

Sales Revenue

Time

Introduction Growth Maturity Decline

Innovators Early Adopters Late Adopters Laggards

General Competitive Strategies (There are Exceptions)

Target Customers

- Innovators/Early Adopters → Focus Strategy
- Early Adopters/Late Adopters → Differentiated Strategy
- Late Adopters/Laggards → Cost Leadership

Most start-ups are operating during the introduction phase of the Industry/Market life cycle → Focus Strategy
③ Project Phase II

Emphasis: Getting a good Product Strategy for your product

Key Steps:

1) Obtaining the correct Function Structure

2) Obtaining a good Morphological Matrix that explores the "design space" for your product

Target 5-10 solution principles for each sub-function (Use Brainstorming + Product Dissection)

3) Plan for developing the product (see ② on Product Strategy)
4. Midterm Exam

The TIM80C course is a product course with 3 parts:

← Hows (Form) (Function) Why →

Lecture: Learn tools and techniques
E.g. Structured Problem Solving, FAST, etc

HW/Exams: Practice tools and techniques in a constrained (controlled) environment

Project: Apply tools and techniques in an unconstrained environment

Midterm Exam is in 1 week (5/5/15)

Examination

Examine your knowledge
- what areas you know well
- what areas you kind of know
- what areas you need to work on
Midterm Exam Problem: Create a startup in a particular industry

- **Product Strategy**: FS, FAST, MM, SC
- **Market Strategy**: Revenue MAP, MM (4Ps)
- **Business Strategy**: Porter's Five Forces 2x2 Competitive Strategy Matrix

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

Open Notes

Industry for Midterm Exam

- **Automotive**: 10
- **Aerospace**: 0
- **Consumer Electronics**: 17
- **Energy**: 0
- **Health Care**: 6