TIM80C Lecture 4 (4/29/14)

Agenda

1) Estimation

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

3) Project Phase II

4) Midterm Exam

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

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

Product Strategy: planning ($, time)

Market Strategy: market sizing/segmentation ($, %)

Business Strategy: competitor size ($, market share)

Financial Strategy: cash flows ($, time)

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

Rate your estimation skills: 1-3
1 (low) - 5 (High)
Quiz: How good of an Estimator Are You?
(source: McConnel, Software Estimation)

Goal: Estimate range (low, high) to get 80% accuracy on the quiz

1) Surface temperature of the Sun (°F)
   [ 5000 , 10,000 ] High
   low

2) Total value of US currency in circulation in 2004
   [ 30B , 4T ] $720B

3) Heaviest blue whale recorded (metric tons)
   [ 17 tons , 50 tons ] 170 tons

4) Number of book titles published in the US since 1776
   [ 1M , 3M ] 22M books

5) Total volume of the Great Lakes
   [ 1x10^6 , 1x10^8 ] (x*10^7 gallons)
   6x10^15 gallons

Results: 3/5
(Most quiz takers get 1-3 answers correct on 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 to be inside your estimated range.

   Then construct the range to give you the desired accuracy.

   Higher accuracy ——> Larger range
   Lower accuracy ——> 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 to the problem.

5) Think of analogies or other ways of thinking about the problem.

Example: Heaviest blue whale

Average = 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, Business Strategy

Product strategy also includes a plan for how the start-up will develop the product.

Stages in Product Development

- Customer Needs Identification (Marketing Mix)

  - Conceptual Design (FS/FAST, MM, Selection Criteria)

  - Build and Test Prototyping
    - "Proof-of-Concept" (α prototype)
    - Prototype for Key (β prototype) Customers
    - Production Prototype (manufacturing)

- Product Release
Market Strategy: you can segment customers based on a number of different criteria.

Size/Type of the Company

Example: Cisco Systems

- Service Providers (Comcast, AT&T, Verizon)
- Enterprise (>1,000 Employees)
- Mid Sized (<250 Employees)
- Small Businesses (<250 Employees)

Geographic: Country, state, region

Example: Cisco Sales Regions

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

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 be done at multiple levels.

Example:

High-level: identify target segment

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 the life-cycle of the industry.

Most start-ups are operating in the introduction phase of the market life-cycle.

General Competitive Strategies (there are exceptions)

- Innovators/Early Adopters → Focus Strategy
- Early Adopters/Late Adopters → Differentiated Strategy
- Late Adopters/Laggards → Cost leadership
(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 or realizations for each sub-function

3) Plan for developing the product
   - See (2) on product strategy
## Midterm Exam

Course is a product (service) with 3 parts:

- **Hows** (Form)
  - Lecture: Learn tools and techniques
    - E.g., Structural Problem Solving, FAST, etc.
  - HW/Exams: Practice tools and techniques in a constrained (controlled) environment

- **WHYs** (Functions)

- **Project**: Apply tools and techniques in an unconstrained environment

*Midterm Exam is in 1 week (5/16/14)*

### Examination

Examine your knowledge:

- What areas you know well
- What areas you kind of know
- Areas you need to work
Midterm Exam Problem: create a startup in a particular industry

- **Product Strategy:** FAST, FS, MM
- **Selection Criteria**
- **Market Strategy:** Marketing Mix, Revenue Map
- **Business Strategy:** Porter's Five Forces, 2x2 Competitive Strategy Matrix

All information, market research, will be provided.

Open Notes

Industry for Midterm Exam

- Automotive: 0 1 8
- Aerospace: 1
- **Consumer Electronics:** 4 1 13
- Health Care: 1
- Energy: 4