Entrepreneurship for Computer Science

15-390 - Spring 2019

Problem Set 2

Out: February 19, 2019

Due: March 02, 2019

Problem	Points
Beachhead Markets	10
A Taxonomy of Business Models	14
Glasser's Choice Theory and Companies	20
Blockbuster and Netflix	20
Business Models and Revenue Projections	36

Problem 1: Beachhead Markets [10 Points]

As a new venture, you have limited resources. Hence, using those resources in a focused manner is essential. One way to do this is to select one market segment from your market segmentation analysis to be the first market (or what is referred to as the *beachhead market*) your venture will focus on to achieve its initial business goals and success. In this problem, you will learn about the early beachhead markets selected by some of today's successful tech companies.

   a) What was the beachhead market of Facebook?
   b) What was the beachhead market of Pinterest?
   c) What was the beachhead market of desktop computers in businesses?
   d) What was the beachhead market for the first cell phones?

Problem 2: A Taxonomy of Business Models [14 Points]

Below is a matrix that involves some business models (along the rows of the matrix) and companies (along the columns of the matrix). Indicate the business model(s) used by each company (or a product/service of a company). A company can use more than one business model from the listed ones. As an example, we selected the business model used by Google Search Engine.

	Google Search Engine	Stripe	Amazon Prime	Amazon AWS	Slack	Stitch Fix	Rent the Runway	Dropbox
Up-Front Charge Model								
Transaction Fee Model								
Parking Meter Model								
Usage-Based Model								
Cell Phone Model								
Subscription model								
Licensing Model								
Consumable Model								
Upsell Model								

Freemium Model								
Advertising model	✔							
Reselling Model								
Franchise Model								

Problem 3: Glasser's Choice Theory and Companies [20 Points]

Choice Theory (By William Glasser) is a psychological model that explains why people behave as they do and how we can build positive relationships with the people who are important to us (research more about the theory). The theory identifies 5 basic needs, namely, *survival*, *love and belonging*, *power*, *freedom*, and *fun*.

    a) Identify 2 companies that address one or many of these 5 basic needs and discuss their specific approaches for addressing such needs.
    b) Describe the business model of each company.
    c) Discuss how the priority of the need that each company addresses influences its choice of the business model.

Problem 4: Blockbuster and Netflix [20 Points]

The "parking meter" business model is also referred to as the "penalty charges" model. This is the same model used by credit card companies and (for a while) by Blockbuster upon which they charge late fees. The problem that Blockbuster discovered is that loyal customers can become alienated by such late fees. As such, when Netflix emerged with the tagline "no late fees," Blockbuster lost significant market share and never recovered.

    a) What lessons can you draw out of approaches adopted by Blockbuster and Netflix for capturing values out of their services/products?
    b) Why would late fees impact Blockbuster dramatically but not credit card companies? Explain (*Hint*: you can approach this question from the perspective of Glasser's choice theory)

Problem 5: Business Models and Revenue Projects [36 Points]

Assume a new cloud computing company named ML4ALL starting in Qatar and offering elastic machine learning (EML) as a service. In particular, a user can pay a $10 yearly subscription fee and provision at any time an EML instance to run any machine learning algorithm (provided by EML) for a given dataset. ML4ALL charges an hourly service fee of $2 for using EML.

a) From among the business models we discussed in class, which one(s) does ML4Qatar use? Explain the pros and cons of this business model (e.g., in terms of predictability, flexibility, recurring revenue stream, etc.).

b) Develop a mathematical model that captures the business model of ML4ALL.

c) Use your developed mathematical model to compute the TAM of ML4ALL in Qatar, assuming that a maximum of 500,000 users can use its EML service in the first year, each for an average of 100 hours.

d) Conduct a sensitivity study via varying only the market share over a range of 5%, 10%, and 15% that ML4ALL can own in Qatar at its first year. Report your results in a table or plots.

e) Assume that ML4ALL can grow its market share every year by 2%, starting from a market share of 1% in the first year. Conduct revenue projections for the first 5 years of ML4ALL in Qatar.