

Carnegie Mellon University in Qatar
15390 - Spring 2018

Problem Set 2

Out: January 28, 2018

Due: February 11, 2018

Problem I [16 Points]

As discussed in class, as a new venture, you have limited resources; hence, focusing those resources is essential. As a way to focus your resources, you can strategically select one market segment from your market segmentation analysis to be the first market (or what is referred to as *beachhead market*) your venture will focus on to achieve initial business success. In this problem, you will learn about the early beachhead markets selected by some 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 II [14 Points]

In 2001, *Apple* launched its iconic *iPod* brand of portable media player. The device works in conjunction with *iTunes* software that enables users to transfer music and other content from the *iPod* to a computer. The software also provides a seamless connection to *Apple's* online store so users can purchase and download content.

This potent combination of device, software, and online store quickly disrupted the music industry and gave Apple a dominant market position. Yet, Apple was not the first company to bring a portable media player to market. Competitors such as *Diamond Multimedia*, with its *Rio* brand of portable media players, were successful until they were outpaced by *Apple*.

How did *Apple* achieve such dominance? Explain.

Problem III [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: think about the Glasser's choice theory*)

Problem IV [50 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.