FEEDBACK TUTORIAL LETTER

2ND SEMESTER 2019

MANAGEMENT OF TECHNOLOGY
MTC821S
ASSIGNMENT 1 & 2 FEEDBACK
Dear MTC821S students

It was a pleasure meeting all of you. Your determination to learn that you have showed over the span of this semester is highly commendable. I wish you all the very best in your exams and future endeavours. Herewith find the feedback for the semester test.

Scholarly yours,

Dr Asa

Assignment 1

Multiple choice answers

1. D
2. A
3. E
4. B
5. C
6. A
7. B
8. E
9. D
10. C
Section B
Question 1

a. Firms can increase the likelihood that their technology will become the dominant design by:
   1. increasing the technologies’ standalone value to the customer (e.g. superior functionality at a competitive cost),
   2. increasing the technologies’ network externalities value by
   3. encouraging developers of complementary assets to create products for their technologies,
   4. advertising heavily to create a perception that the installed base is larger than it is or that a new product with superior capabilities will be launched soon (so that consumers do not buy a product already available),
   5. leveraging an incumbent technology’s complementary assets and installed base by making their technology compatible with the incumbent technology.

Additional 4 marks to be given for real live examples given.

b. Early entry can afford the first mover the opportunity to establish brand loyalty and technological leadership, both of which can increase its installed base. And if the market is characterized by increasing returns to adoption the first mover can garner two additional benefits from
   1) moving up the learning curve before their competitors and
   2) building an installed base that keeps increasing due to the self-reinforcing nature of network externality processes.

Entering a market late, however, can be cheaper, easier, and more certain. The late mover can avoid much of the development expense and risk borne by the early movers, and can fine-tune the product to fit customer needs (which are now more certain) better
Question 2

a. An individual’s creative ability is a function of their intellectual abilities, knowledge, style of thinking, personality, motivation, and environment. In addition, an individual with only a moderate degree of knowledge of a field might be able to produce more creative solutions than an individual with extensive knowledge of field. The most creative individuals prefer to think in novel ways of their own choosing and can discriminate between important problem and unimportant ones. The personality traits deemed most important for creativity include self-efficacy, tolerance for ambiguity, and a willingness to overcome obstacles and take reasonable risks. Intrinsic motivation has also been shown to be very important for creativity.

Innovation is, however, more than the generation of ideas. It is the implementation of those ideas into some new device or process. Evidence suggests that not all inventors are innovators. In fact, many ideas have been left on the drawing board, so to speak, or in the inventors’ garage. The entrepreneurial skills necessary to convert an idea into a new product or process are very different from the skills and thinking orientation that generated the original idea. An inventor usually will have a tendency toward introversion that may make it difficult for them to convey their ideas to others. As we saw in the Segway case the company addresses the need to incorporate both sets of skills to achieve innovation by forming teams with a mix of “ideation” and “execution” people in acknowledgement of finding all these skills in one individual.

b. Early on the decision not to invest in a new technology can be financially justified (on the surface) by the lower returns to effort earned by investing in a new technology and the large investments already made in the incumbent technology. The reasons that play the largest role in deterring a firm from investing in a new technology have less to do with the financial factors and more to do with the nature of a firm’s capabilities and the type of knowledge underlying the new technology. Firms will not adopt or delay adoption of a new technology because:
1. Their focus on improving the processes supporting the current technology has decreased their ability to identify and respond to a technological discontinuity. In other words, the firm may not know what hit them. Not that the focus on improving current processes has to result in a lack of focus on new architectures. It is however a general tendency for firms to decrease or cease to invest in the search for new architectures when they have a currently successful technology.

2. The complexity of the knowledge underlying new technologies is also part of the answer, particularly if the knowledge needed is tacit in nature. Acquiring tacit knowledge often requires learning from another person directly which can be both time consuming and costly.

3. In addition, the degree to which firms must develop new complementary resources also plays a role. If firms must make large investments in time, money, or both, in the complementary resources needed to utilize a new technology successfully adoption can be delayed.

4. It may also be the case that firms, like individuals, also have traits that lead them to be innovators, early adopters, laggards, etc.
Assignment 2

Question 1

a. By bringing customers into the development process, the developers are more likely to stay focused on projects that meet the customer’s needs, resulting in more successful projects. Suppliers provide an additional source of information and ideas, perhaps suggesting an alternative input that can reduce costs or time to market. They can also ensure that any necessary changes are made quickly in order to minimize development time. Any time more individuals are added to a process, the cost of managing everyone increases. In this instance, however, the potential savings is likely to outweigh the costs.

b. Collaboration can take many forms and can be formed to accomplish almost any business function.
   i. Potential partners include suppliers, customers, competitors, and complementors, organizations that offer similar products in different markets or offer different products in similar markets, non-profit organizations, government organizations and universities among others.
   ii. Firms may choose to collaborate in the areas of manufacturing, services, marketing, or technology-based objectives. Collaboration for the purpose of research and development ranks high among the reasons, partners join efforts, particularly in North America.
   iii. Collaboration arrangements range from very informal alliances to highly structured joint ventures or technology exchange agreements (licensing). The most common forms of collaboration in technological innovation are strategic alliances, joint ventures, licensing, outsourcing, and collective research organizations.
      a) Strategic alliances require a significant investment in time and resources but in exchange firms gain access to capabilities not available in house, leverage their capabilities by combining their efforts with another firm, achieve innovation goals faster,
at a lower cost and with less risk. Alliances can also provide a firm with the flexibility to pursue various opportunities for innovation or access different types and scale of capabilities, important in rapidly changing markets. For example, an alliance between a large pharmaceutical company and a small biotechnology firm provides the large firm access to drug discoveries and the smaller firm benefits from the capital resources, manufacturing, and distribution capabilities of the larger firm. Categorized alliance strategies can be along two dimensions:

1. Whether the alliance pools or transfers capabilities from one firm to another,
2. Whether the alliance is between two companies or three or more companies (i.e. collective network of alliances).

To avoid the sharing of too much information with alliance members, firms need to ensure that participating employees understand the limits on the information and resources to be shared within the alliance.

b) Joint Ventures are formal alliances requiring a significant equity investment and commitment from each partner. Joint ventures usually involve the creation of a separate legal entity. For example, Invamed Pharma Incorporated, established in 2005, was formed by New Life Scientific (of the US) and InvaPharm LLC (of the Ukraine) to manufacture prescription pharmaceuticals for the US market. New Life Scientific would provide funding for the project and InvaPharma would supply technical know-how and intellectual property. Each partner received a 50% stake in the venture.

Question 2

a. Students should provide examples from their own experience. A previously provided example follows: “On-line DVD rentals are a relatively new product that enables a subscriber to create a list of films they wish to rent that are sent to them three at a time for a monthly subscription fee. The DVDs are shipped to consumers through the U.S. postal service and the borrower returns them via a prepaid envelope provided by the rental agency. The postal service is an intermediary that provides distribution. The
argument could be made that the internet is also an intermediary as it is the means by which potential customers shop for the service and communicate with the rental agency."

b. Co-location improves communication and can improve cohesion as team members develop friendships and good working relationships. Face-to-face contact provides a channel for rich communication and can enable much greater information transfer than less contact heavy means of communication. The long-term contact created by co-location also helps diminish the difficulties faced by heterogeneous teams. On the downside, team members may not wish to physically move to a new location, uprooting families and disrupting friendships. Co-location is also expensive and potentially disruptive to their original departments (because these individuals may not be easily replaced).

Virtual teams are difficult to utilize where the work requires a high degree of trust or the exchange of significant amounts of tacit knowledge. A virtual team would be difficult in the design and manufacture of helmet. The need to examine actual helmets returned from crashes or other mishaps would make it very difficult for team members to do so from geographically dispersed sites. A virtual team may work very effectively for a group assigned to develop a new lending product for a micro-lender operating on multiple continents. The team in this case may need to be centralized with the team leader responsible for all of the teams’ coordination needs and for presenting the final product to the organization.

The End