

BBU7031 Business Technology Strategy

Midterm Exam

QM student number: 190013448

BUPT student number: 2018212797

Class number: 2018215108

1. True or False Questions [10 marks]

One mark for each question. Please tick (using the mark ✓) your answer.

a) Flexible manufacturing technologies have increased the importance of production economies of scale.

True (✓) False ()

b) Innovation and new technology have led to longer product life cycles as better quality products are being produced.

True () False (✓)

c) Product innovation can enable process innovation.

True (✓) False ()

d) A technology's S-curve of performance improvement is unrelated to its S-curve of diffusion.

True () False (✓)

e) When a dominant design is established in an industry, manufacturers tend to turn their focus to improving efficiency.

True (✓) False ()

f) Science parks often give rise to technology clusters that have long-lasting and self-reinforcing advantages.

True (✓) False ()

g) Research suggests that most innovation is due to the discovery of something fundamentally new.

True () False (✓)

h) Collaborative research is especially important in high-technology sectors.

True (✓) False ()

i) A technology's S-curve of performance improvement is unrelated to its S-curve of diffusion.

True () False (✓)

j) Studies have revealed that innovation is a freewheeling process that is unconstrained by rules and plans.

True () False (✓)

2. Explanation of Terms [20 marks]

a) Technology innovation

Technology innovation is one type of innovation, it belongs to the technology-related innovation. It is the act of introducing a new device, method, or material for application to commercial or practical objectives, which is an economical active. Generally, it is the combination of invention and commercialization.

b) Absorptive capacity

Absorptive capacity is a firm's ability to recognize the value of new information, assimilate it, and apply it to commercial ends. It is used widely at the organizational level to analyze innovation processes and the effect of organizational learning on the creation of sustainable competitive advantage. In-house R&D may help firm build absorptive capacity that enables it to better use information obtained externally, indicating that external and internal sources are complements.

c) Discontinuous technology

Discontinuous technology creates a new invention that meets needs that were not previously supplied to consumers, generating new value and a new market. It is also known as radical innovations or disruptive innovations. For example, the invention of digital camera can be regarded as the invention of discontinuous technology. When the digital camera was invented, images could be stored virtually, without taking up space, the number of photos no longer depended on how many rolls of film you had purchased. These details are inventions of the discontinuous technology that generated new behaviors.

d) Incremental innovation

Incremental innovation is a type of innovation, it may involve only a minor change from existing practices. Generally, these low-cost improvements help further differentiate a company from the competition while building on current offerings. Take iPhone as an example, since its debut in 2007, the phone's basic design has remained largely the same, the tech giant has released a slightly upgraded version of the iPhone at a regular cadence, with improved cameras, graphics, and other features that build off of the current model.

3. Essay Questions [20 marks]

How should firms promote technological innovation activities more effectively?

Technological innovation is an economic process, which is an organic combination of innovation in technology, management, finance, and the market. It is the process of transforming technology and creativity into products and services and then producing market value.

To translate creativity into innovation, inventors are indispensable. Firms should hire inventors that have mastered the basic tools and operations of the field in which they invent. They will have not specialized solely in that field; instead, they have pursued two or three fields simultaneously, permitting them to bring different perspectives. Besides they should be curious, and more interested in problems than solutions and be capable of questioning the assumptions made in previous work in the field. In this case, if firms have these individuals as staff members, they will promote technological innovation activities.

Another vital element for firms within the process of transforming creativity into innovation is the innovation from users. Firms are supposed to attach significant importance to their users. They should meet and communicate with their users frequently and listen to their suggestions carefully, because users may alter the features of existing products, approach existing manufacturers with product design suggestions, or develop new products themselves. Take Wikipedia as an example, we all know that Wikipedia is a Web-based, free-content encyclopedia written collaboratively by nearly anyone. With the help of people all around the world, the number of articles in different sections of Wikipedia has increased dramatically. In this way, users can also be problem solvers, which helps to build a complete, accurate, and neutral encyclopedia

Moreover, Research and Development (R&D) are incredibly important in response to technological innovation in firms. Most firms consider in-house R&D to be their most important source of innovation. Research refers to both basic and applied research, basic research aims at studying the structure and properties of a topic while applied research aims at increasing understanding of a topic to meet a need. Development refers to activities that apply knowledge to produce useful devices, materials, or processes.

Last, firms should also utilize other sources of information and ideas to promote their technological innovation. This includes linkages to customers or other potential users of innovations, linkages to an external network of firms that may include competitors, complementors, and suppliers, linkages to other external sources of scientific and technical information, such as universities and government laboratories.