

Strategic Management of Technological Innovation, 6e (Schilling)
Chapter 1 Introduction

1) Investing in process innovation helps firms lower their costs.

Answer: TRUE

Difficulty: 1 Easy

Topic: The Importance of Technological Innovation

Accessibility: Keyboard Navigation

2) Flexible manufacturing technologies have made longer production runs economical and have increased the importance of production economies of scale.

Answer: FALSE

Difficulty: 1 Easy

Topic: The Importance of Technological Innovation

Accessibility: Keyboard Navigation

3) Globalization of markets has reduced the importance of innovation.

Answer: FALSE

Difficulty: 1 Easy

Topic: The Importance of Technological Innovation

Accessibility: Keyboard Navigation

4) Innovation and new technologies have led to longer product life cycles and slower product obsolescence.

Answer: FALSE

Difficulty: 1 Easy

Topic: The Importance of Technological Innovation

Accessibility: Keyboard Navigation

5) Technological innovation decreases the amount of output achievable from a given quantity of labor and capital.

Answer: FALSE

Difficulty: 1 Easy

Topic: The Impact of Technological Innovation on Society

Accessibility: Keyboard Navigation

6) Gross domestic product seldom relates to the amount of goods consumers can purchase.

Answer: FALSE

Difficulty: 1 Easy

Topic: The Impact of Technological Innovation on Society

Accessibility: Keyboard Navigation

7) Irrespective of the type of technological innovations, externalities that result from them are always positive.

Answer: FALSE

Difficulty: 1 Easy

Topic: The Impact of Technological Innovation on Society

Accessibility: Keyboard Navigation

8) Technological innovation results in complete eradication of negative externalities.

Answer: FALSE

Difficulty: 1 Easy

Topic: The Impact of Technological Innovation on Society

Accessibility: Keyboard Navigation

9) If a pharmaceutical company discharges untreated chemical waste into local water bodies of a community, it will impose a negative externality on the community members.

Answer: TRUE

Difficulty: 1 Easy

Topic: The Impact of Technological Innovation on Society

Accessibility: Keyboard Navigation

10) A firm's organizational structure and control systems seldom have an influence on the generation of innovative ideas.

Answer: FALSE

Difficulty: 1 Easy

Topic: The Impact of Technological Innovation on Society

Accessibility: Keyboard Navigation

11) Most innovative ideas do not become successful new products.

Answer: TRUE

Difficulty: 1 Easy

Topic: Innovation by Industry: The Importance of Strategy

Accessibility: Keyboard Navigation

12) The majority of effort and money invested in technological innovation comes from nonindustrial firms.

Answer: FALSE

Difficulty: 1 Easy

Topic: Innovation by Industry: The Importance of Strategy

Accessibility: Keyboard Navigation

13) The innovation process is often conceived of as a funnel because most potential new product ideas make it through the development process.

Answer: FALSE

Difficulty: 1 Easy

Topic: Innovation by Industry: The Importance of Strategy

Accessibility: Keyboard Navigation

14) According to the concept of innovation funnel, the number of successful products launched will be greater than the number of raw ideas generated.

Answer: FALSE

Difficulty: 1 Easy

Topic: Innovation by Industry: The Importance of Strategy

Accessibility: Keyboard Navigation

15) According to the concept of the innovation funnel, one new idea is usually responsible for several new products.

Answer: FALSE

Difficulty: 1 Easy

Topic: Innovation by Industry: The Importance of Strategy

Accessibility: Keyboard Navigation

16) Which of the following is an advantage of flexible manufacturing technologies?

- A) They have made shorter production runs economical.
- B) They have increased the importance of production economies of scale.
- C) They have eliminated the need for differentiation from competitors.
- D) They have reduced the importance of technological innovation in industries.

Answer: A

Difficulty: 2 Medium

Topic: The Importance of Technological Innovation

Accessibility: Keyboard Navigation

17) As a result of the rapid pace of innovation:

- A) product life cycles have become shorter.
- B) product development cycles have become significantly longer.
- C) market segmentation has reduced.
- D) product obsolescence has slowed down.

Answer: A

Difficulty: 1 Easy

Topic: The Importance of Technological Innovation

Accessibility: Keyboard Navigation

18) Mark is the CFO of a company that manufactures air conditioners and refrigerators. The management wants to diversify its list of product offerings and therefore has asked the board of members and senior management to suggest a project plan. One of their suggestions was to manufacture smart televisions. Mark believes that if the company invests in this new project plan, it will not be able to make sustainable profits for long. Which of the following statements supports Mark's argument?

- A) Market segmentation is minimal for the consumer electronics market.
- B) The rate of product obsolescence is the lowest for televisions when compared with other consumer electronics and large home appliances.
- C) The time between the television's introduction in the market and its replacement with a next-generation television is 12 to 24 months.
- D) The product life cycle for televisions in the market is extremely long, about 10 to 12 years.

Answer: C

Difficulty: 3 Hard

Topic: The Importance of Technological Innovation

Accessibility: Keyboard Navigation

19) Virtual Inc., a manufacturing company, has recently entered the cell phone industry. This industry is characterized by rapid technological innovations. Which of the following is most likely to be true of Virtual Inc.?

- A) The life cycle of its cell phones will be long.
- B) It will face rapid product obsolescence.
- C) It will face low market segmentation in the cell phone industry.
- D) It will have a lower need for product differentiation.

Answer: B

Difficulty: 3 Hard

Topic: The Importance of Technological Innovation

Accessibility: Keyboard Navigation

20) The _____ of an economy is its total annual output as measured by its final purchase price.

- A) balance of payment
- B) gross domestic product
- C) cash reserve ratio
- D) net national income

Answer: B

Difficulty: 1 Easy

Topic: The Impact of Technological Innovation on Society

Accessibility: Keyboard Navigation

21) Which of the following is true of technological innovations?

- A) Technological innovations help increase a country's gross domestic product.
- B) Technological innovations decrease the amount of output achievable from a given quantity of labor and capital.
- C) Technological innovations slow down product obsolescence and lengthen product development cycles.
- D) Technological innovations increase production costs and reduce product differentiation.

Answer: A

Difficulty: 2 Medium

Topic: The Impact of Technological Innovation on Society

Accessibility: Keyboard Navigation

22) If a country's GDP stands at \$4,867 billion, the country's _____ will be worth \$4,867 billion.

- A) total annual output
- B) investment on technological innovation
- C) savings with the World Bank
- D) negative variance in budget

Answer: A

Difficulty: 1 Easy

Topic: The Impact of Technological Innovation on Society

Accessibility: Keyboard Navigation

23) The Solow Residual refers to the:

- A) obsolete products left in a market because of accelerated product life cycles.
- B) less developed nations of the world being left behind because of their obsolete technology.
- C) increased amount of output achievable from a given quantity of labor and capital because of technological innovation.
- D) process of dumping goods in developing and underdeveloped countries at a price lower than the home-market price.

Answer: C

Difficulty: 2 Medium

Topic: The Impact of Technological Innovation on Society

Accessibility: Keyboard Navigation

24) _____ refer to the costs (or benefits) of technological innovations that are borne by individuals other than those responsible for creating them.

- A) Externalities
- B) Innovation funnels
- C) Opportunity costs
- D) Cultural lags

Answer: A

Difficulty: 1 Easy

Topic: The Impact of Technological Innovation on Society

Accessibility: Keyboard Navigation

25) Alex Richards is the owner of a pesticide manufacturing company. He is aware of the risks that the residents of a nearby community will face because of the liquid pollutants released from the manufacturing unit. In order to counter the risks, he decides to invest in a plan that will create positive externality. Which of the following plans should Alex invest in to accomplish his mission?

- A) Setting up a shopping complex near the community
- B) Setting up a water treatment plant in the vicinity
- C) Setting up a couple more pesticide manufacturing companies in the vicinity
- D) Setting up a basketball court for the children who reside in the community

Answer: B

Difficulty: 3 Hard

Topic: The Impact of Technological Innovation on Society

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26) Kroters Inc., a detergent manufacturing company, has built a new manufacturing plant on the outskirts of Woodsville. Since a majority of the population of Woodsville depend on agriculture for their livelihood, the management of Kroters decides to invest in a project that will most likely create a positive externality for the community members. Which of the following project plans is likely to help achieve positive externality?

- A) By increasing the detergents' life cycle based on consumer demand
- B) By setting up an organic farm near Woodsville
- C) By following the Solow Residual
- D) By reducing the rate of product obsolescence for Woodsville residents

Answer: B

Difficulty: 3 Hard

Topic: The Impact of Technological Innovation on Society

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27) Silk Work Inc., a manufacturer of silk garments, is planning to replace hand weaving with some modern machines that run on fuel. Which of the following consequences of this measure can be categorized as a negative externality?

- A) Increased amount of output achievable from the given quantity of labor
- B) Increase in the quality of the silk garments
- C) Increased pollution as a result of the new technology
- D) Increased need for investment to finance the modernization

Answer: C

Difficulty: 3 Hard

Topic: The Impact of Technological Innovation on Society

Accessibility: Keyboard Navigation

28) If a business builds a park in a community, it will create a(n) _____ for the community members.

- A) social cost
- B) positive externality
- C) opportunity cost
- D) negative variance

Answer: B

Difficulty: 2 Medium

Topic: The Impact of Technological Innovation on Society

Accessibility: Keyboard Navigation

29) Which of the following statements is true of externalities?

- A) All externalities are negative in nature and seldom affect the communities surrounding the area where the business is based.
- B) Externalities are solely borne by individuals responsible for creating them.
- C) Negative externalities are completely eradicated by technological innovations.
- D) Externalities can be in the form of benefits reaped by individuals other than those who created them.

Answer: D

Difficulty: 2 Medium

Topic: The Impact of Technological Innovation on Society

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- 30) Electronic waste results from the disposal of technological goods. This is an example of:
- A) the Solow Residual.
 - B) a negative externality.
 - C) a negative variance.
 - D) the innovation funnel.

Answer: B

Difficulty: 2 Medium

Topic: The Impact of Technological Innovation on Society

Accessibility: Keyboard Navigation

- 31) The innovation process is often conceived of as a funnel because:
- A) most innovative ideas become successful new products.
 - B) it decreases the amount of output achievable from a given quantity of labor and capital.
 - C) it increases the importance of production economies of scale.
 - D) there are many potential new product ideas and only a few make it through the development process.

Answer: D

Difficulty: 2 Medium

Topic: Innovation by Industry: The Importance of Strategy

Accessibility: Keyboard Navigation

- 32) Jordan, the CEO of Early Bird Corp., believes that it is important to focus on the quantity of new product ideas generated rather than the quality of ideas generated. He encourages everyone in the company to come up with product ideas, and those that seem feasible are further developed. According to him, it takes several raw ideas to develop one successful new product. Jordan's views reflect the concept of:
- A) innovation adolescence.
 - B) innovation diffusion.
 - C) the innovation butterfly.
 - D) the innovation funnel.

Answer: D

Difficulty: 3 Hard

Topic: Innovation by Industry: The Importance of Strategy

Accessibility: Keyboard Navigation

33) Which of the following is essential for a firm's new product development process to help maximize the likelihood of projects being both technically and commercially successful?

- A) An in-depth understanding of the dynamics of innovation
- B) A generic innovation strategy that focuses on the generation of ideas rather than implementation
- C) Rapid product obsolescence
- D) Greater market segmentation

Answer: A

Difficulty: 2 Medium

Topic: Innovation by Industry: The Importance of Strategy

Accessibility: Keyboard Navigation

34) Unicorn Medicines Inc., a pharmaceutical company based in the United States, has its research and development units spread across the globe. Lately, these research and development units have not been receiving adequate financial support. Which of the following is most likely to cause such a situation?

- A) Technical innovation leads to lower market segmentation and slower product obsolescence.
- B) Most innovative ideas do not become successful new products.
- C) The product development cycle in the pharmaceutical industry is short.
- D) The cost associated with pharmaceutical research and development is low.

Answer: B

Difficulty: 3 Hard

Topic: Innovation by Industry: The Importance of Strategy

Accessibility: Keyboard Navigation

35) Walter is the new director of R&D at Good Health Inc., a pharmaceutical company. Which of the following statements by Walter would indicate that he believes in the concept of the innovation funnel?

- A) "Innovation is a freewheeling process that is unconstrained by rules and plans."
- B) "While there are many potential new product ideas going in the wide end, very few make it through the development process."
- C) "I believe that Good Health should limit new idea generation to save time and other resources."
- D) "I believe that Good Health should allow all new ideas generated in the company to make it to the development process."

Answer: B

Difficulty: 3 Hard

Topic: Innovation by Industry: The Importance of Strategy

Accessibility: Keyboard Navigation

36) Explain the impact of computer-aided design and flexible manufacturing technologies on firms.

Answer: Computer-aided design and computer-aided manufacturing have made it easier and faster for firms to design and produce new products, while flexible manufacturing technologies have made shorter production runs economical and have reduced the importance of production economies of scale. These technologies help firms develop and produce more product variants that closely meet the needs of narrowly defined customer groups, thus achieving differentiation from competitors.

Difficulty: 2 Medium

Topic: The Importance of Technological Innovation

Accessibility: Keyboard Navigation

37) Explain how the globalization of markets affects the importance of innovation.

Answer: The increasing importance of innovation is due in part to the globalization of markets. Foreign competition has put pressure on firms to continuously innovate in order to produce differentiated products and services. Introducing new products helps firms protect their margins, while investing in process innovation helps firms lower their costs.

Difficulty: 2 Medium

Topic: The Importance of Technological Innovation

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38) What are some of the negative impacts on society because of technological innovation? How would you respond to critics of technological innovation who cite these negative impacts?

Answer: Production technologies may create pollution that is harmful to the surrounding communities; agricultural and fishing technologies can result in erosion, elimination of natural habitats, and depletion of ocean stocks; medical technologies can result in unanticipated consequences such as antibiotic-resistant strains of bacteria or moral dilemmas regarding the use of genetic modification.

However, technology is, in its purest essence, knowledge—knowledge to solve our problems and pursue our goals. Technological innovation is thus the creation of new knowledge that is applied to practical problems. Sometimes this knowledge is applied to problems hastily, without full consideration of the consequences and alternatives, but overall it will probably serve us better to have more knowledge than less. Students' answers will vary.

Difficulty: 3 Hard

Topic: The Impact of Technological Innovation on Society

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39) Why is it important for a company to have a well-defined process to strategically manage its new product development process?

Answer: In the frenetic race to innovate, many firms charge headlong into new product development without clear strategies or well-developed processes for choosing and managing projects. Such firms often initiate more projects than they can effectively support, choose projects that are a poor fit with the firm's resources and objectives, and suffer long development cycles and high project failure rates as a consequence. While innovation is popularly depicted as a freewheeling process that is unconstrained by rules and plans, study after study has revealed that successful innovators have clearly defined innovation strategies and management processes. Improving a firm's innovation success rate requires a well-crafted strategy. A firm's innovation projects should align with its resources and objectives, leveraging its core competencies and helping it achieve its strategic intent. A firm's organizational structure and control systems should encourage the generation of innovative ideas while also ensuring efficient implementation. A firm's new product development process should maximize the likelihood of projects being both technically and commercially successful. To achieve these things, a firm needs (a) an in-depth understanding of the dynamics of innovation, (b) a well-crafted innovation strategy, and (c) well-designed processes for implementing the innovation strategy.

Difficulty: 2 Medium

Topic: Innovation by Industry: The Importance of Strategy

Accessibility: Keyboard Navigation

40) Explain how an understanding of the innovation funnel might influence a company's view of research and development. How can a firm's new development process maximize the likelihood of projects being both technically and commercially successful?

Answer: If a company truly understands the innovation funnel concept, it will see the innovation process as a funnel, with many potential new product ideas going in the wide end, but very few making it through the development process. The company can then encourage its R&D department as well as the rest of the company to come up with and submit new ideas. It can also develop ways of evaluating large numbers of ideas and set up screening criteria that would help the firm decide which ideas to consider.

A firm's new product development process can maximize the likelihood of projects being both technically and commercially successful by achieving the following: (a) an in-depth understanding of the dynamics of innovation, (b) a well-crafted innovation strategy, and (c) well-designed processes for implementing the innovation strategy.

Difficulty: 2 Medium

Topic: Innovation by Industry: The Importance of Strategy

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