Protecting Innovation

The question posed

Firms must decide ***whether*** and ***how*** to protect their technological innovations.

Protecting innovation helps a firm retain control over it and appropriate the rents from it.

There is a range of protection mechanisms available, each with its advantages and disadvantages.

Protection moves along a continuum ranging from wholly proprietary to wholly open.

Identify the factors a firm should consider when formulating a protection strategy.

Appropriability

Appropriability: The degree to which a firm is able to capture the rents from its innovation.

- Appropriability is determined by how easily or quickly competitors can copy the innovation.
  - Some innovations are inherently difficult to copy (tacit, socially complex, etc.).
  - Firms may also attempt to protect innovations through patents, trademarks, copyrights or trade secrets.

Patents, Trademarks and Copyrights

Patents, trademarks and copyrights each protect different things.

Patents, trademarks and copyrights all protect intellectual property.

Patents apply to **inventions**

Trademarks to **words or symbols intended to distinguish the source of a good**

Copyrights protect **original artistic or literary work**

Patents

- **Patents**: rights granted by the government that excludes others from producing, using, or selling an invention.
- Must be *useful*, *novel*, and *not be obvious*.
  - **Utility patents** protect new and useful processes, machines, manufactured items or combination of materials.
  - **Design patents** protect original and ornamental designs for manufactured items.
  - **Plant patents** protect distinct new varieties of plants.
- In 1998, many software algorithms became eligible for patent protection.

Patents

Patent Laws Around the World.

- Countries have their own laws regarding patent protection. Some treaties seek to harmonize these laws.
  - **Paris Convention for the Protection of Industrial Property**
    - Foreign nationals can apply for the same patent rights in each member country as that country's own citizens.
    - Provides right of "priority" – once inventor has applied for protection in one member country, they can (within certain time period) apply for protection in others and be treated as if they had applied on same date as first application.
  - **Patent Cooperation Treaty (P C T)**
    - Inventor can apply for patent in a single PCT receiving office and reserve right to apply in more than 150 countries for up to 2 ½ years. Establishes date of application in all member countries simultaneously. Also makes results of patent process more uniform.

Patent approval

The three tests that must be passed before patent approval is granted are

1) usefulness,

2) novelty and

3) obviousness (i.e. must not be obvious).

Patent approval

Not subject to patents are the following:

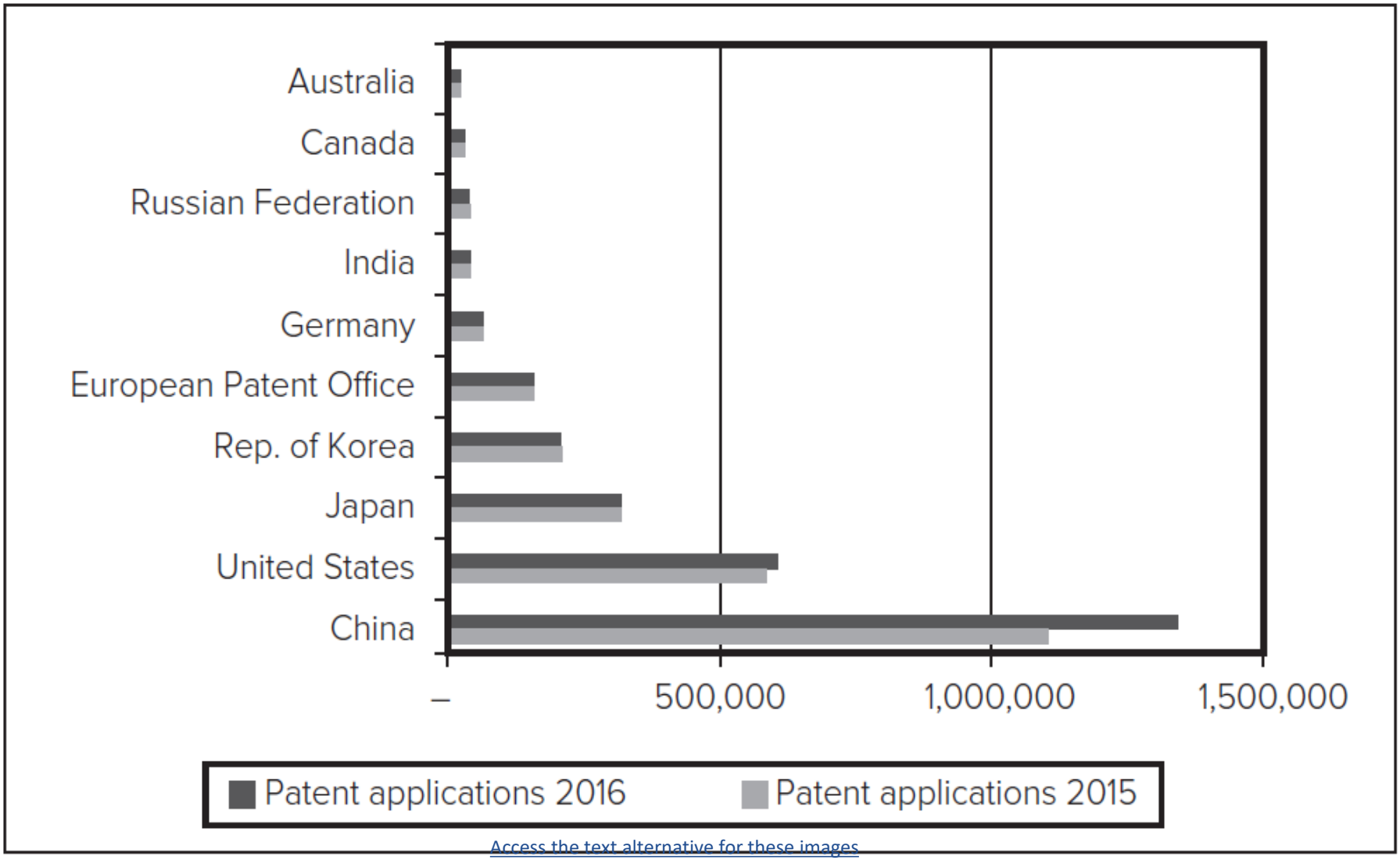
- the **discovery of scientific principles** pertaining to natural laws;
- **substitution of one material for another**
- **changing the size** of an existing device,
- making something more **portable**,
- substituting **equivalent elements**,
- altering the **shape** of an item,
- **printed materials**.

Patent applications

- The process of **applying for a patent** requires the **submission of drawings** and/or **explanation of use** and a **description of the manufacture** and **differentiating element.**
- Submission of materials is followed by a **review by a patent examiner** and a **publication period** that gives others the right to challenge the patent. If all tests are passed and the request is unchallenged the patent is granted.

Patents

The number of patent applications is growing around the world, but nowhere faster than China (see Figure 9.1)



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Patents

Patent Strategies.

- It is typical to assume that an inventor seeks a patent because they desire to make and sell the invention themselves.
- However, inventors and firms may monetize patents in a range of different ways, including licensing the technology to others, or selling the patent rights to another firm that can better utilize the technology.
- Sometimes firms seek patents just to limit the options of competitors, or to earn revenues through aggressive patent lawsuits.
- These actions are sometimes referred to as **"patent trolling."**
  - Apple claims to be the #1 target for patent trolls, having faced nearly 100 lawsuits between 2011 and 2014.

Patents

Dense webs of “patent thickets” can make it hard for firms to compete, and stifle innovation.

- Firms sometimes buy bundles of patents just to create a “war chest” to defend themselves from lawsuits by offering a credible threat of retaliation.
- For example, in 2011, the bankrupt Nortel auctioned off its massive patent portfolio. A consortium called Rockstar Bidco that included Microsoft, Apple, R I M, Sony, and Ericsson, won the auction for $4.5 billion, beating out Google which bid $4.4 billion. Google subsequently bought 1,030 IBM patents that covered a range of technologies. These patents were not necessary for Google's business directly; rather they provided a retaliation threat to others that might attack them through patent suits.

Trademarks

Trademarks and Service Marks: a word, phrase, symbol, design, or other indicator that is used to distinguish the source of goods form one party from goods of another (for example, Nike "swoosh" symbol).

- Rights to trademark are established in legitimate use of mark; do not require registration.
- However, marks must be registered before suit can be brought over use of the mark.
- Registration can also be used to establish international rights over trademark.

Two treaties simplify registration of trademarks in multiple countries: **Madrid Agreement Concerning the International Registration of Marks**, and the **Madrid Protocol**. Countries that adhere to either or both are in **Madrid Union** (85 members).

Copyrights

Copyright: a form of protection granted to works of authorship.

- Copyright prohibits others from:
  - Reproducing the work in copies or phonorecords.
  - Preparing derivative works based on the work.
  - Distributing copies or phonorecords for sale, rental, or lease.
  - Performing the work publicly.
  - Displaying the work publicly.

- However, “doctrine of fair use” stipulates that others can typically use copyrighted material for purposes such as criticism, new reporting, teaching research, etc.
- Copyright for works created after 1978 have protection for author’s life plus 70 years.

Copyrights

Copyright Protection Around the World.

- Copyright law varies from country to country.
- However, the **Berne Union for the Protection of Literary and Artistic Property** ("Berne Convention") specifies a minimum level of protection for member countries.
- Berne convention also eliminates differential rights to citizens versus foreign nationals.

Trade Secrets

Trade Secret: information that belongs to a business that is generally unknown to others.

- Firm can protect proprietary product or process as trade secret without disclosing detailed information that would be required in patent.
- Enables broad class of assets and activities to be protectable.
- To qualify:
  - Information must not be generally known or ascertainable.
  - Information must offer a distinctive advantage to the firm that is contingent upon its secrecy.
  - Trade secret holder must exercise reasonable measures to protect its secrecy.

The Effectiveness and Use of Protection Mechanisms

In some industries, legal protection mechanisms are more effective than others.

- For example, in pharmaceutical patents are powerful; in electronics they provide little protection.

It is notoriously difficult to protect manufacturing processes and techniques.

In some situations, diffusing a technology may be more valuable than protecting it.

However, once control is relinquished it is difficult to reclaim.

Theory In Action

IBM and the Attack of the Clones.

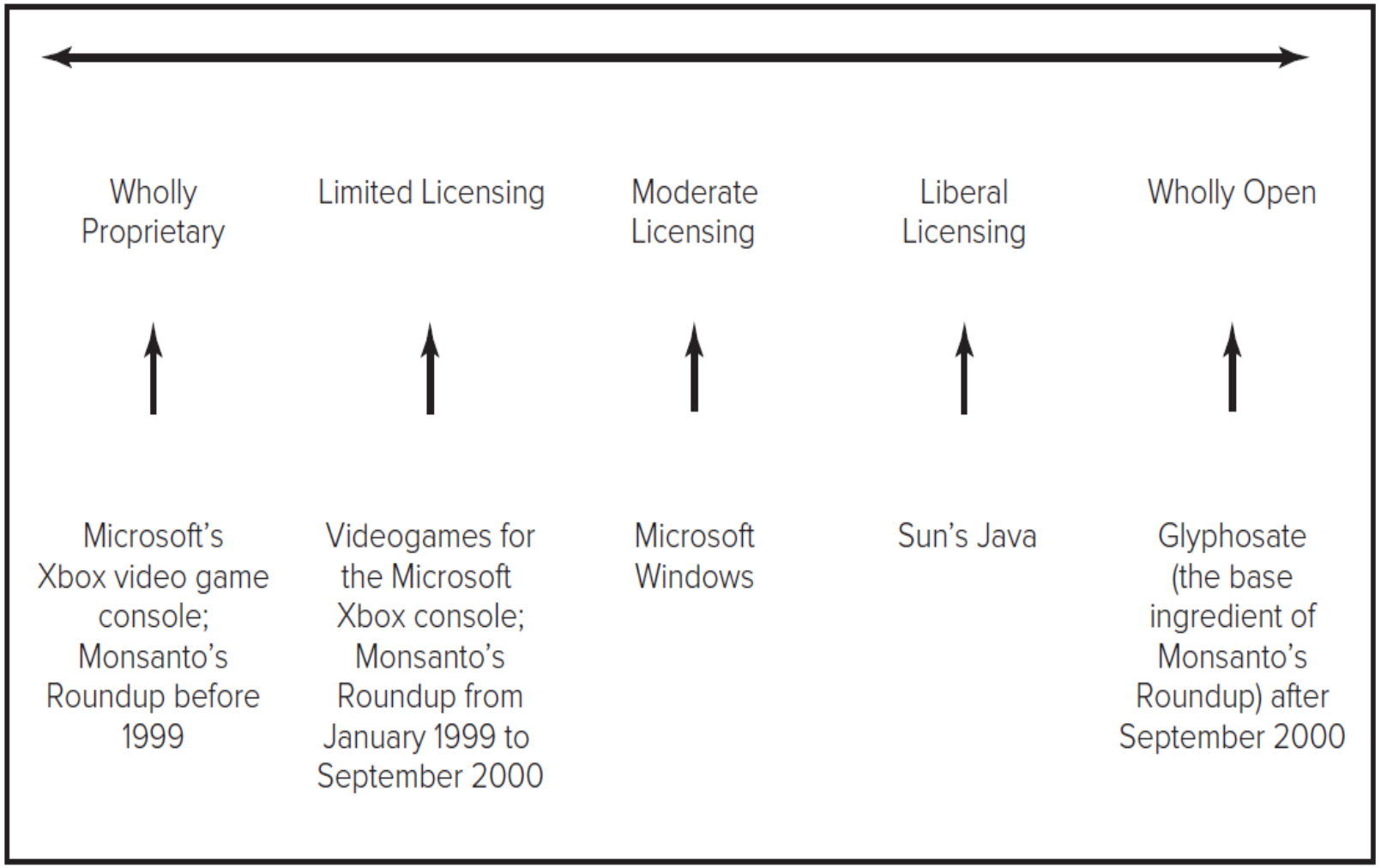
- In 1980, IBM was in a hurry to introduce a personal computer (PC). It used off-the-shelf components such as Intel microprocessors an operating system from Microsoft, MS DOS.
- It believed that its proprietary basic input/output system (BIOS) (which was covered by copyright) would protect the computer from being copied.
- However, Compaq was able to reverse engineer the BIOS in a matter of months without violating the copyright, and quickly introduced a computer that behaved like an IBM computer in every way. Compaq sold a record-breaking 47,000 IBM-compatible computers its first year, and other clones were quick to follow.

The Effectiveness and Use of Protection Mechanisms

Wholly Proprietary Systems versus Wholly Open Systems.

- Wholly proprietary systems may be legally produced or augmented only by their developers.
- Wholly open system may be freely accessed, augmented and distributed by anyone.
- Many technologies lie somewhere between these extremes.

The Effectiveness and Use of Protection Mechanisms



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The Effectiveness and Use of Protection Mechanisms

Advantages of Protection.

- Proprietary systems offer greater rent appropriability.
- Rents can be used to invest in further development, promotion, and distribution.
- Give the firm control over the evolution of the technology and complements.

Advantages of Diffusion.

- May accrue more rapid adoptions if produced and promoted by multiple firms.
- Technology might be improved by other firms (though external development poses its own risks).

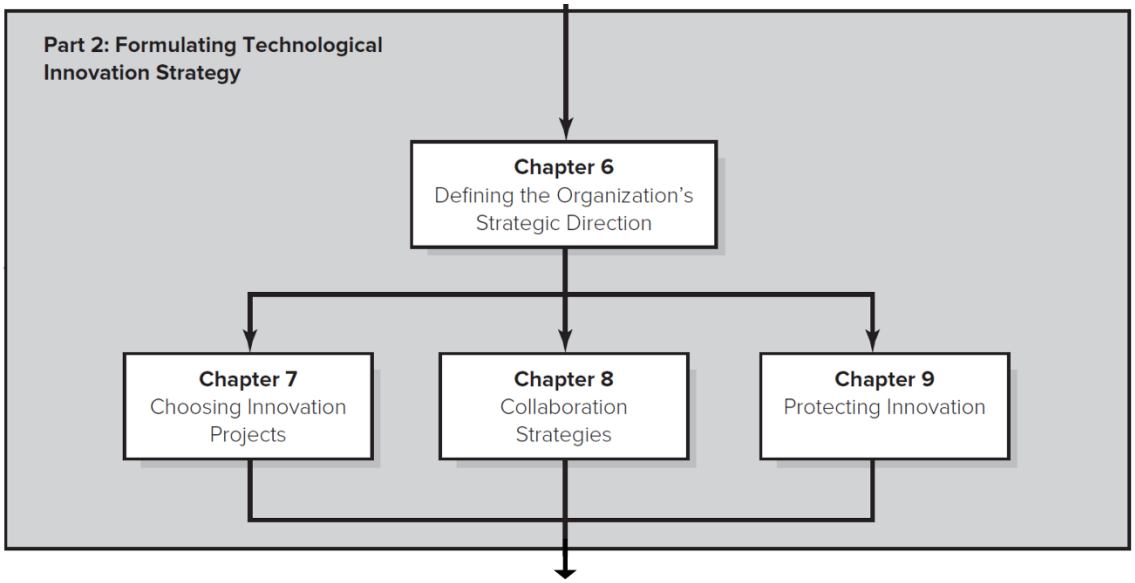
Discussion Questions

1. What are the differences between patents, copyrights, and trademarks?
2. Consider a firm that is considering marketing its innovation in multiple countries. What factors should this firm consider in formulating its protection strategy?
3. When will trade secrets be more useful than patents, copyrights or trademarks?
4. Can you identify a situation in which none of the legal protection mechanisms discussed (patents, copyrights, trademarks, trade secrets) will prove useful?
5. Describe a technological innovation not discussed in the chapter and identify where you think it lies on the control continuum between wholly proprietary and wholly open.
6. What factors do you believe influenced the choice of protection strategy used for the innovation identified above? Do you think the strategy was a good choice?

Course Overview

Part Two: Formulating Technological Innovation Strategy.

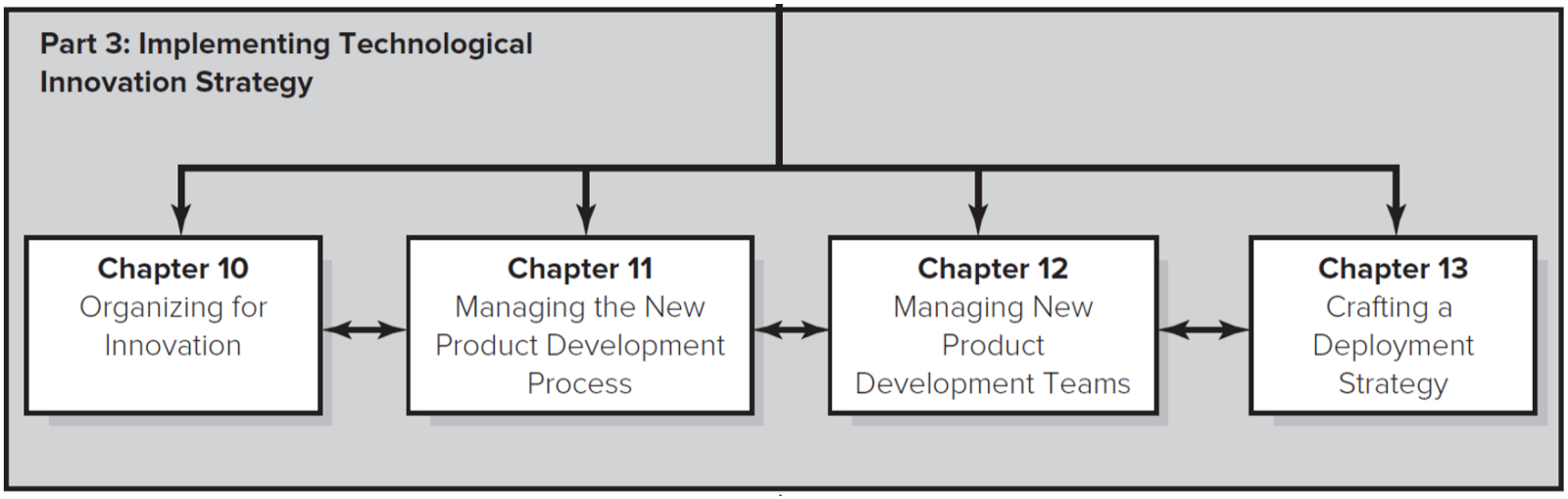
6. Defining the organization's strategic direction.
7. Choosing innovation projects.
8. Collaboration strategies.
9. Protecting innovation.



Course Overview: Part 3

Part Three: Implementing Technological Innovation Strategy.

10. Organizing for innovation.
11. Managing the new product development process.
12. Managing new product development teams.
13. Crafting a deployment strategy.



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Part Three: Implementing Technological Innovation Strategy

Structuring the firm to improve its likelihood of innovating, its effectiveness at new product development, and its speed of new product development,

Managing new product development processes to maximize fit with customer needs, while simultaneously minimizing development cycle time and controlling development costs,

Composing, structuring, and managing new product development teams to maximize new product development effectiveness,

Crafting a strategy for effectively deploying the innovation into the marketplace, including timing, licensing strategies, pricing strategies, distribution, and marketing.