

Chapter 1

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**Introduction**

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# What Is Technological Innovation?

## ➤ Innovation Vs. Invention

Invention	Innovation
Something brand-new	Something new, but not necessarily brand-new; might be a different application or modification of something already existing
Idea Generation + Problem-Solving	Idea Generation + Problem-Solving + Diffusion with values and impacts



# What Is Technological Innovation?

## ➤ Innovation

- The activity of creating something new or significantly improved; or the actual outcome itself
- The activity of developing an already invented element into a commercially useful element, which becomes accepted in a social system

## ➤ Technological innovation

- The process by which technological ideas are generated, developed, and transferred into new business products, processes and services that are used to make a profit and a marketplace advantage
- Schumpeter's creative destruction

### Five drivers of changes in economic system



Disturbance factor

Innovation factor

➔ *Creative destruction  
by entrepreneur*

# The Importance of Technological Innovation

- Technological innovation is now the single most important driver of competitive success in many industries
  - Many firms earn over 1/3 of sales on products developed within last 5 years
  - Foreign competition has put more pressure on firms to compete through innovation
    - ✓ Product innovations help firms protect margins by offering new features
    - ✓ Process innovations help make manufacturing more efficient
  - Advances in information technology have enabled faster innovation
    - ✓ Shorter product lifecycles (more rapid product obsolescence)
    - ✓ More rapid new product introductions
    - ✓ Greater market segmentation
  - Firms are forced to focus increasingly on innovation as a strategic imperative

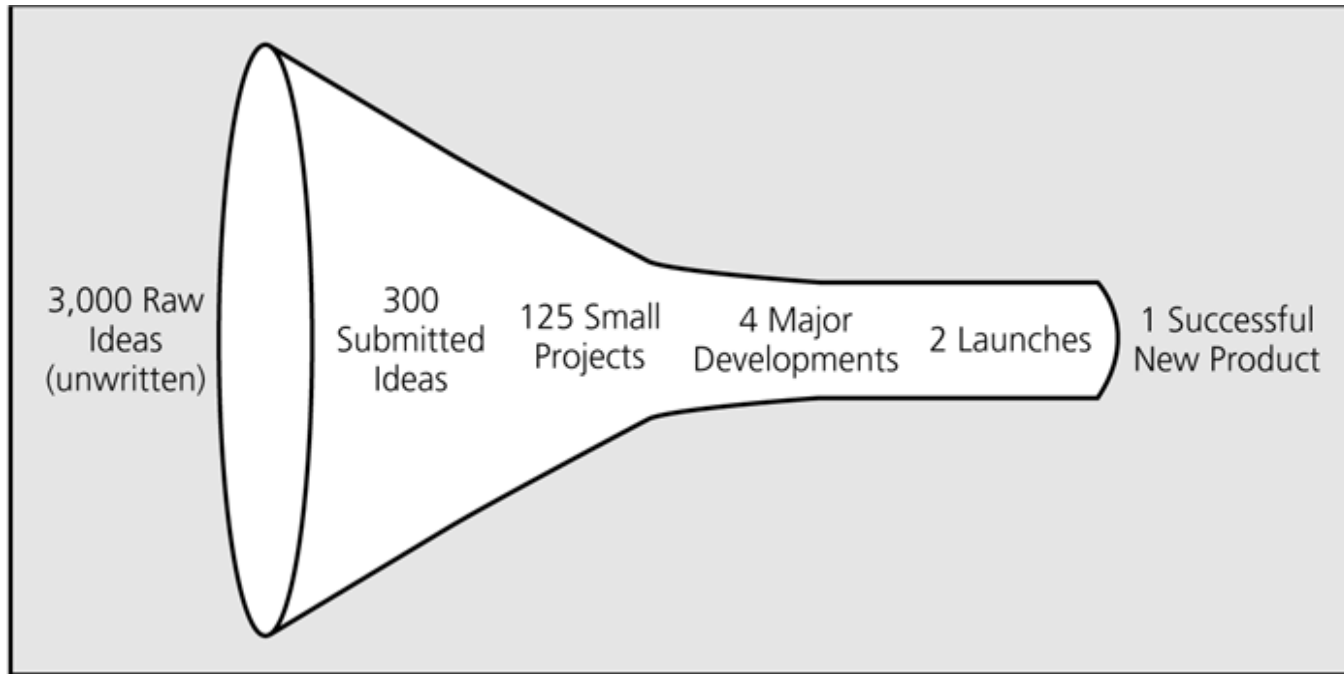
# The Impact of Technological Innovation on Society

- Innovation enables a wider range of goods and services to be delivered to people worldwide
  - More efficient food production, improved medical technologies, better transportation, etc.
  - Increases Gross Domestic Product by making labor and capital more effective and efficient
- Innovation may result in negative externalities
  - Externality: the cost or benefit that affects a party who did not choose to incur that cost or benefit
  - Negative externalities of innovation: pollution, erosion, depletion

# Innovation by Industry: The Importance of Strategy

## ➤ Innovation funnel

- Most innovative ideas do not become successful new products



# How long does new product development take?

## ➤ Study by Abbie Griffin of 116 firms found:

- Length of development cycle varies with innovativeness of project
- Incremental improvements took 8.6 months from concept to market introduction
- Next generation improvements took 22 months
- New-to-the-firm product lines took 36 months
- New-to-the-world products took 53 months



# Innovation by Industry: The Importance of Strategy

- Successful innovation requires carefully crafted strategies and implementation processes
  - Innovation projects should align with its resources and objectives
  - Organizations structure and control systems should encourage the generation of innovative ideas
  - New product development process should maximize the likelihood of projects being successful
  
- Requisites for successful innovation
  - An in-depth understanding of the dynamics of innovation (Part I)
  - A well-crafted innovation strategy (Part II)
  - Well-designed processes for implementing the innovation strategy (Part III)

# Overview of Textbook

