



MTI—Its Importance Now and In the Future

by Sophia



WHAT'S COVERED

In this lesson, you will learn about management of technology and innovation (MTI), and why it is crucial. Specifically, this lesson will cover:

1. Management of Technology and Innovation (MTI)

1a. Management of Technology

1b. Management of Innovation

1. Management of Technology and Innovation (MTI)

Management of technology and innovation is critical to the organization. Because of innovations and new technologies, we have historically seen the emergence of innovative organizational structures and new ways of performing work. For example, the Industrial Revolution ushered in the functional structure for organizations. As business moved from small craft businesses like blacksmiths to railroads, there was a need to introduce a more complex business structure. Today, we see the innovations in information technology changing structures to more network-based with people being able to work remotely.

Technology:

The processes within the organization that help to convert inputs into outputs as well as the supporting evaluation and control mechanisms.

Innovation:

The addition of “newness” to product and processes within the firm and within the environment. Invention, new-product development, and improvement of process methodologies are all examples of innovation.



BIG IDEA

The changes in structure are innovations in the technology of how work is accomplished; the innovations brought on by the invention of new products influence the technology we use and how we use it.

1a. Management of Technology

Technology can be defined in a number of ways. The basic purpose of a system (such as an organization) is to convert inputs into outputs. Therefore, we will define organizational technology as the processes within the organization that help to convert inputs into outputs as well as the supporting evaluation and control mechanisms.



KEY CONCEPT

The **management of technology** involves the planning, implementation, evaluation, and control of the organization's resources and capabilities in order to create value and competitive advantage.

This involves managing:

1. Technology strategy—the logic of how technology will be used and what role technology will have in the organization. For example, will innovation (i.e., first-to-market strategies) be the focus, or will the firm want to do things better to obtain market share and value (let others take the initial risks)?

2. Technology forecasting—the use of tools to study the environment for potential technological changes that can both positively and negatively affect the firm’s value proposition. Digitization of a variety of products such as watches and cameras provided great opportunities for some firms and caused others to go bankrupt. Forecasting (or at least keeping an eye on the changes in technology) is very important in management of technology.
3. Technology roadmapping—the process of taking an innovation or technology and trying to build more value by looking for ways to use the technology in different markets and places.
4. Technology project portfolios—the use of portfolio techniques in development and use of technology enhances the potential value of technologies being developed and the technologies that are currently part of a firm’s portfolio. Disney was a leading producer of animated films. However, Disney did not stop there—the portfolio of characters in the films are now marketed as products and displayed in Disney theme parks, and Disney very carefully manages the availability of the animated films.



TERMS TO KNOW

Technology

The branch of knowledge that deals with the creation and use of technical means and the application of this knowledge for practical ends.

Management of Technology

The planning, implementation, evaluation, and control of the organization’s resources and capabilities in order to create value and competitive advantage.

1b. Management of Innovation

Innovation activities are an important subset of technology activities. Innovation includes “newness” in the development and use of products and/or processes within a firm and within an industry. Invention, new product development, and process improvement methods are all examples of innovation. **Management of innovation** includes both change management and managing organizational processes that encourage innovation. The management of innovation is more than just planning new products, services, brand extensions, or technology inventions—it is about imagining, mobilizing, and competing in new ways. For the organization, innovation management involves setting up systems and processes that allow newness that adds value to emerge.



DID YOU KNOW

Some firms, like Google and 3M, give some employees time during the workweek to work on their own ideas with the hope of sparking new ideas that will add value. Google News and 3M Post-it Notes are products that emerged from this practice.

In order to manage innovation processes successfully, the firm must undertake several activities:

1. *Casting a wide net* while trying to keep up with potential changes in the firm, the market, the competition, etc., is crucial. Eastman Kodak was the dominant U.S. camera manufacturer. On several occasions in their history they missed opportunities to take advantage of innovations in their product line—they did not cast their net out. Land, the founder of Polaroid, went to Kodak with his invention of instant photographs—Kodak said no. Kodak did not see smartphones as a potential competitor until it was too late. Kodak was especially

vulnerable because the firm was a late entrant into the digital camera market. As a result of failure to cast a wide net in keeping up with trends and innovations, Kodak went bankrupt.

2. *Creating newness* with existing products can expand the portfolio of value of a product. 3M has done this with all kinds of tape and with different formats and forms of Post-it Notes. Asking, “How else can the product be altered or used?” is critical to developing platforms of products.
3. *Creating a culture open to newness* is critical to cultivating ideas. If the leadership of the firm is open to ideas from all over the organization, then the firm will be more innovative. Some large firms such as Texas Instruments encourage employees to start new businesses if TI does not want to keep a product in house. Often, TI is the first investor and customer of these small firms.
4. *Communicating knowledge* throughout the firm is important. This knowledge can be positive and negative at first glance. For Post-it Notes, the glue used emerged from the laboratory efforts to create a stronger glue to compete with Elmer’s Super Glue. Obviously, the outcome did not meet the original goal, but the communication of the new formula’s characteristics—tacky and leaves no residue—triggered other uses.
5. *Changing with courage* is necessary if a firm is going to manage innovation and stay competitive. Too often firms get comfortable with where they are, narrow their focus in studying the environment, and focus on building strength in their current market. This leads to **strategic inertia**—not innovating and losing customers and market share to more innovative companies. Just as Kodak failed to change, so did IBM—famously, the CEO of IBM was quoted as saying, “Who wants a computer on their desk?” as IBM continued manufacturing mainframes while desktops and then laptops were emerging.



TERMS TO KNOW

Innovation

Invention, new product development, and process improvement methods are all examples of innovation.

Management of Innovation

Includes both change management and managing organizational processes that encourage innovation.



REFLECT

1. How are management of technology and management of innovation similar? How are they different?
2. How can firms create value through good management of technology and innovation?



SUMMARY

In this lesson, you learned that **management of technology and innovation (MTI)** is critical to the organization. You learned that the **management of technology** involves the planning, implementation, evaluation, and control of the organization’s resources and capabilities in order to create value and competitive advantage; this involves managing technology strategy, technology forecasting, technology roadmapping, and technology project portfolios. You also learned that **management of innovation**—such as invention, new product development, and process improvement methods—

includes both change management and managing organizational processes that encourage innovation. In order to manage innovation processes successfully, an organization must cast a wide net, create newness, create a culture open to newness, communicate knowledge, and change with courage.

Best of luck in your learning!

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