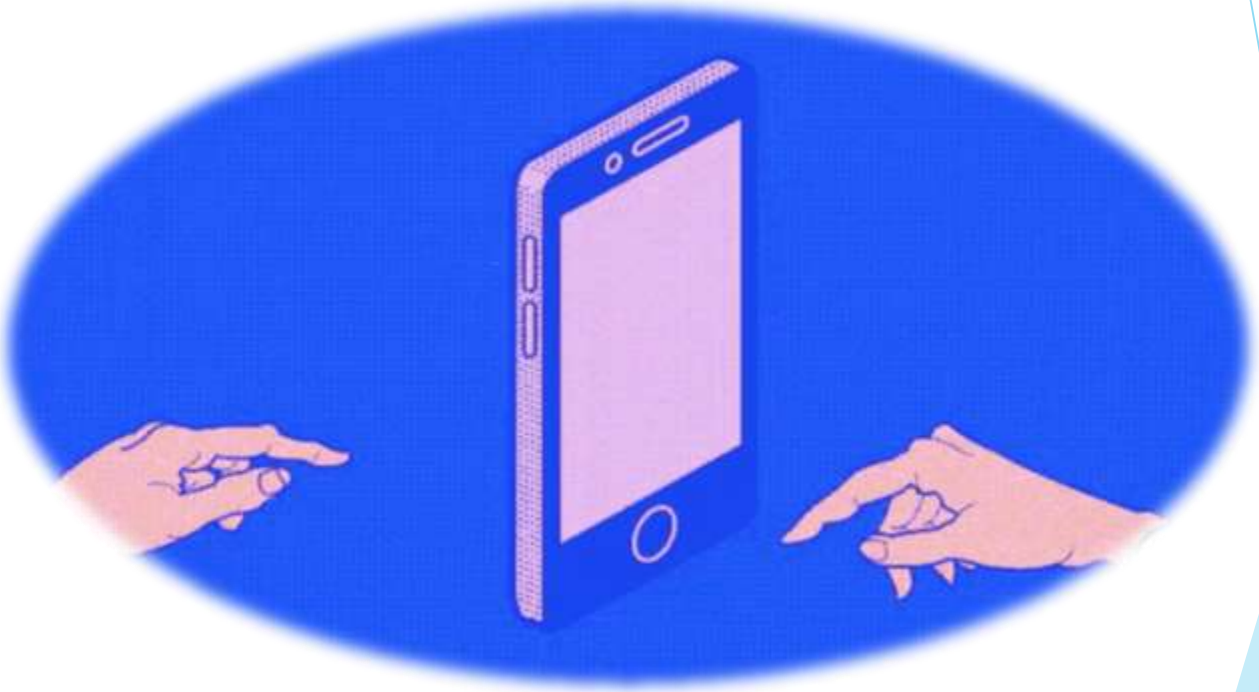
UNIT 5

Technology Management



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What is Technology ?

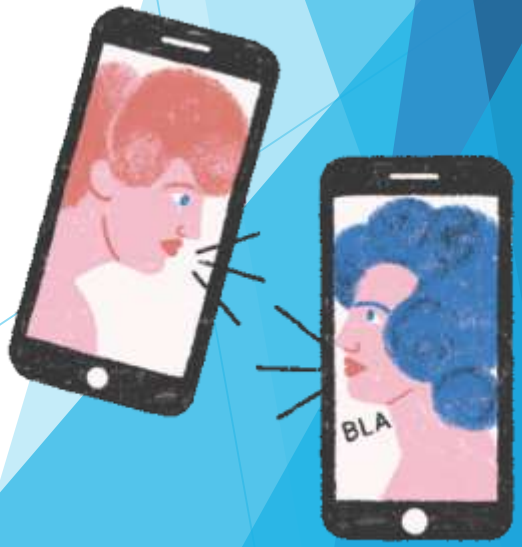
A definition of technology is:

Technology is the application of scientific knowledge for practical purposes, especially in industry, engineering, and everyday life. Technology can also mean the products or systems that result from such application, such as machines, devices, software, or tools. Technology plays a critical role in human civilization, as it enables us to create, modify, and control our environment. Technology has also led to many social, economic, and cultural changes throughout history.

Some examples of technology are:

•A **hand axe** is one of the oldest and simplest forms of technology, used by prehistoric humans to cut, chop, or scrape various materials. Hand axes were made by striking a stone with another stone to produce a sharp edge. Hand axes are considered the first tools ever invented by humans.

•A **wheel** is a circular device that rotates on an axle and allows for easier movement of objects or vehicles. Wheels were invented in the Bronze Age, around 3500 BC, by different civilizations independently. Wheels enabled the development of more complex machines, such as carts, chariots, water wheels, and gears.



•A **printing press** is a machine that uses movable type to print multiple copies of texts or images on paper. The printing press was invented in China in the 11th century, but it was improved and popularized by Johannes Gutenberg in Germany in the 15th century. The printing press revolutionized the production and dissemination of knowledge, as it made books more affordable and accessible.

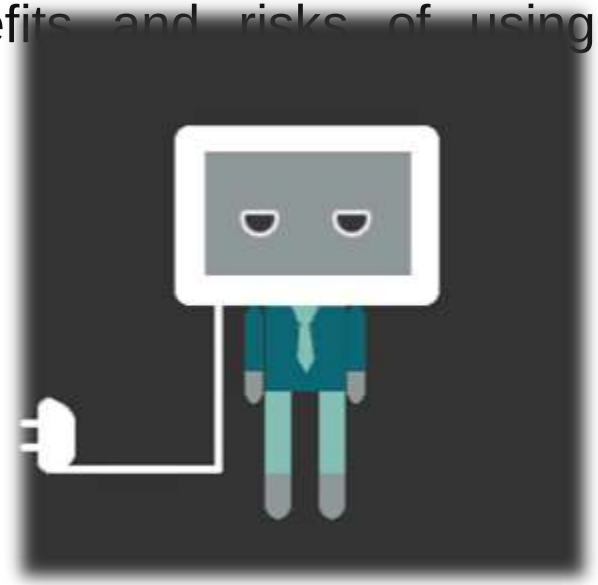
•A **telephone** is a device that allows for voice communication over long distances by converting sound waves into electrical signals and vice versa. The telephone was invented by Alexander Graham Bell in 1876, although other inventors had also contributed to its development. The telephone enabled faster and more personal communication across the world.

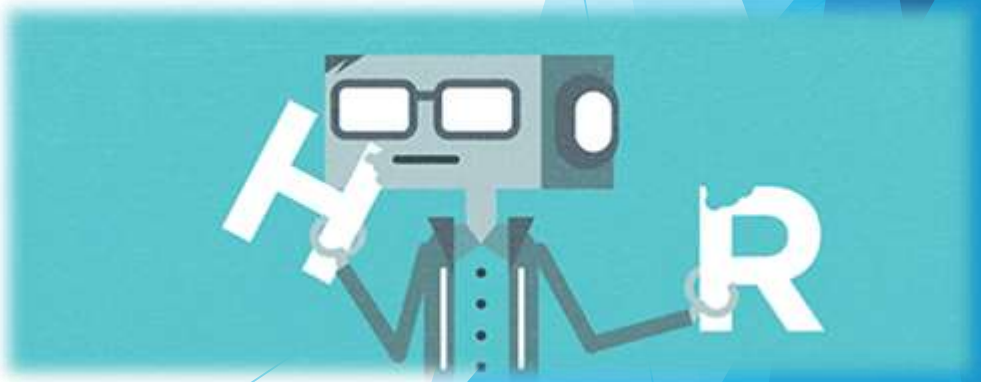
•The **Internet** is a global network of interconnected computers that use standardized protocols to exchange information and services. The Internet emerged from the research and development of the US Department of Defense in the 1960s and 1970s, but it became widely available to the public in the 1990s. The Internet has transformed various aspects of human society, such as education, commerce, entertainment, and social interaction.

These are just some of the many examples of technology that have shaped our world. Technology is constantly evolving and expanding, as humans seek new ways to solve problems and improve their lives. Technology can also have positive or negative impacts on the environment, health, culture, politics, and ethics. Therefore, it is important to understand how technology works, how it affects us, and

What is Technology Assessment ?

Technology assessment is a process of evaluating the value and impact of new or emerging technologies for practical purposes, such as industry, engineering, and everyday life. Technology assessment can help policy makers and stakeholders make informed decisions about the adoption, regulation, and ethical implications of new technologies. Technology assessment can also help users and consumers understand the benefits and risks of using different technologies.





Some of the steps involved in technology assessment are:

•**Discovery:** This step involves identifying the current technology environment, the problem to be solved, and the needs and preferences of the users and stakeholders.

•**Analysis:** This step involves comparing and contrasting different technology options, based on criteria such as functionality, performance, cost, usability, reliability, security, compatibility, and sustainability.

•**Evaluation:** This step involves assessing the potential consequences of each technology option, such as social, economic, environmental, ethical, legal, and political impacts.

•**Recommendation:** This step involves selecting the most suitable technology option, based on the analysis and evaluation results, and providing justification and evidence for the choice.

Technology assessment can be conducted by various actors, such as government agencies, research institutions, professional associations, civil society organizations, or independent experts. Technology assessment can also involve different methods and approaches, such as foresight studies, scenario planning, stakeholder consultation, participatory design, or user testing.

Technology assessment is a useful tool for anticipating and managing the challenges and opportunities of technological innovation. Technology assessment can help foster responsible and sustainable development of technology for the benefit of society. For more information on technology assessment.

What is DEVELOPMENT and UPGRADATION of Technology ?

Development and upgradation of technology are important processes for enhancing the technological capabilities and competitiveness of firms, sectors, regions, or countries. Development of technology refers to the creation of new or improved products, processes, or services that meet the needs and demands of the market or society. Upgradation of technology refers to the adoption or adaptation of existing technologies to improve the performance, quality, efficiency, or sustainability of production or service delivery.

Some examples of development and upgradation of technology are:

•**The Department of Science and Technology (DST)** in India has been supporting technology development projects in various fields, such as advanced manufacturing, waste management, biomedical devices, and device development. The DST also promotes the application of advanced technology for improving the performance and value addition to existing technology.

•**The Ministry of Micro, Small and Medium Enterprises (MSME)** in India has been implementing the MSME Champions Scheme for promoting competitiveness among MSMEs by providing financial assistance for technology upgradation and quality certification. The scheme covers various

•Technology upgrading and economic catch-up is a book that explores the patterns and determinants of technological progress and catch-up in different countries and regions. The book examines how different institutional settings, policy frameworks, and historical contexts affect the development and diffusion of technologies. The book also provides insights and lessons for policy makers and practitioners who aim to foster technological innovation and economic growth.

•Technological progress is one of the most important factors that determine the rate of economic growth. Technological progress can increase the productivity of labour, capital, and other production factors by finding new and more efficient methods to produce goods. Technological progress can also create new markets, products, and opportunities for economic development.

•**Information technology (IT)** is a sector that constantly requires development and upgradation of technology to meet the changing needs and expectations of customers and users. IT software is treated as a service under the Goods and Services Tax (GST) regime in India. GST provisions related to IT software include registration, valuation, classification, place of supply, time of supply, input tax credit, reverse charge mechanism, export of services, etc.

These are just some of the many examples of development and upgradation of technology that have shaped our world. Technology is constantly evolving and expanding, as humans seek new ways to solve problems and improve their lives. Technology can also have positive or negative impacts on the environment, health, culture, politics, and ethics. Therefore, it is important to understand how technology works, how it affects us, and how we can use it

What is Managing Technology Transfer ?

Managing technology transfer is the process of overseeing the movement of ideas, knowledge, and intellectual property from an academic setting to a commercial or industrial environment. Managing technology transfer involves various activities, such as:

•Identifying and protecting the intellectual property rights of the inventors and the institutions.

•Evaluating the market potential and feasibility of the inventions and technologies.

•Finding and negotiating with potential partners, collaborators, or licensees.

•Supporting the development and commercialization of the inventions and technologies.

•Measuring and reporting the impact and benefits of the technology transfer.

Managing technology transfer requires a combination of skills, resources, and strategies, such as:

•Having a clear and effective institutional policy on intellectual property and technology transfer.

•Establishing a dedicated technology transfer office or unit that can facilitate and coordinate the technology transfer process.

•Developing and maintaining a network of contacts and relationships with industry, government, and other stakeholders.

•Providing incentives and support for researchers and inventors to engage in technology transfer activities.

•Promoting a culture of innovation and entrepreneurship within the institution.

Managing technology transfer can bring various benefits to the institutions, inventors, and society, such as:

•Enhancing the reputation and visibility of the institution and its research activities.

•Generating additional income and funding for the institution and its researchers.

•Creating new products, services, or solutions that address societal needs and challenges.

•Stimulating economic growth and development in the region or country.

•Fostering collaboration and knowledge exchange between academia and industry.

What is Quality control and transfer of Foreign technologies ?

Quality control and transfer of foreign technologies are two related concepts that involve the management and improvement of the quality and performance of products, processes, or services that are developed or acquired from abroad.

Quality control is the process of ensuring that the quality standards and specifications of a product, process, or service are met or exceeded. Quality control can involve various activities, such as inspection, testing, measurement, analysis, feedback, correction, and prevention. Quality control can help to reduce defects, errors, waste, and customer complaints. Quality control can also enhance customer satisfaction, loyalty, and competitiveness.

Transfer of foreign technologies is the process of acquiring and applying technologies from other countries or regions. Transfer of foreign technologies can involve various methods, such as technology introduction (TI), foreign direct investment (FDI), joint ventures, licensing agreements, or partnerships. Transfer of foreign technologies can help to access advanced knowledge, skills, equipment, or materials that are not available domestically. Transfer of foreign technologies can also foster innovation, productivity, and economic growth.

Quality control and transfer of foreign technologies are interrelated because:

•Quality control can facilitate the transfer of foreign technologies by ensuring that the imported or adapted technologies meet the local needs and standards. Quality control can also help to evaluate the effectiveness and efficiency of the transferred technologies and provide feedback for improvement.

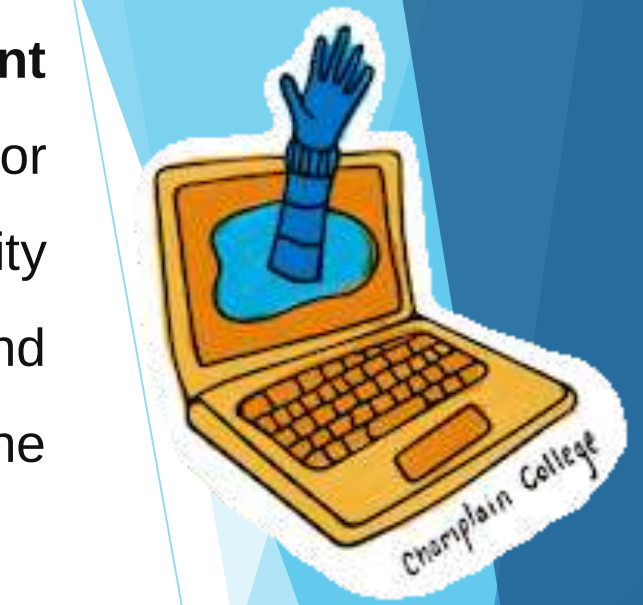
•Transfer of foreign technologies can enhance the quality control by providing access to new or improved methods, tools, or techniques for quality assurance and improvement. Transfer of foreign technologies can also help to benchmark the best practices and learn from the experiences of other countries or regions.

Some examples of quality control and transfer of foreign technologies are:

•**The Indian Space Research Organisation (ISRO)** has been involved in various technology transfer projects with foreign partners, such as France, Russia, Israel, and the United States. ISRO has also established a quality management system to ensure the reliabi ns.

•**The China National Accreditation Service for Conformity Assessment (CNAS)** is a national accreditation body that provides accreditation services for laboratories, certification bodies, inspection bodies, and other conformity assessment bodies. CNAS has adopted international standards and participated in international mutual recognition arrangements to ensure the quality and credibility of its accreditation services.

•**The European Union (EU)** has launched several initiatives to support the transfer and diffusion of clean energy technologies among its member states and beyond. The EU has also developed a framework for energy efficiency labelling and eco-design to promote the quality and sustainability of energy-related products.



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thank you


Goodbye