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Introduction to Technology Management

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Abstract

Management of Technology is interdisciplinary fields that integrate science, engineering and management knowledge also with practice. Technology Management is set of management disciplines that allow organizations to manage their technological fundamentals to create competitive advantage. The main focus on technology part for manager is to create wealth. Technology management requires deep understanding of life cycles of technology, product, process and system. Technology management is also a tool to catalyze R&D. By providing R&D team in R&D organization to an increased extent, it can generate more science from existing science and more technology from existing technology. Technology management involve technological tool for national defense, national development and economic growth by resolving to make country a self-reliant, strong and technology developed country. Technology management involving those features can therefore act as a catalyst in propelling R&D programmed to achieve faster rates of technological growth.

Keywords: Technology management; Organizations; National development; Economic growth; Life cycles

Introduction

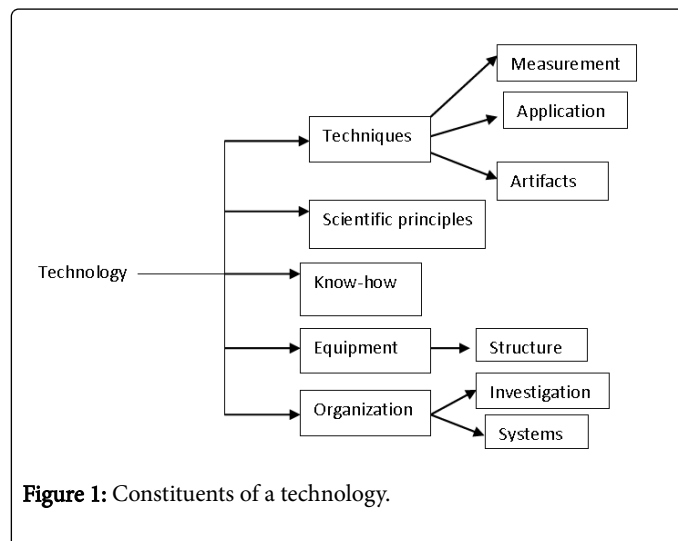Constituents of a technology are shown in Figure 1.

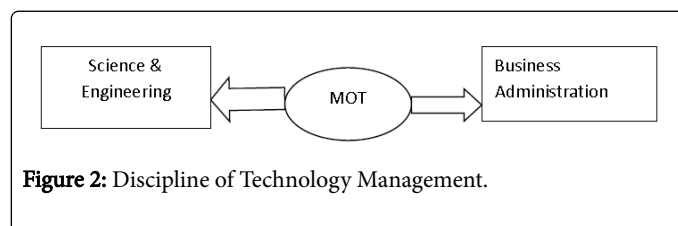**Figure 1:** Constituents of a technology.

Figure 2: Discipline of Technology Management.

Why Technology Management?

- To create wealth
- For human advantage
- Raising standard of living and quality of life
- Make faster growth of Nation and world

Nature of Technology Management

- Engineering
- Natural science
- Social science
- Industrial practice
- A business theory

Dimension of Technology Management

- National/government level (Macro Level)
- Firm/organization level (Micro level)
- Individual level (Figure 2)

Concern of Technology Management

Technology management is the answer for development of nation and growth of its economy. Therefore, it is worth-while to frame technological objectives in chosen areas by comparing ourselves with the technological progress registered by fast growing countries .we must formulate our aims and objectives in tune with philosophy and evolve the methodology to bring about radical change in technology development and technology management in all R&D organization of India (Figure 3).

Beside R&D and Engineering management, two broad class of modern management area we have a view point on technology management. The concept of technology management has come into general use without having its conceptual structure made clear.

Technology Management concerns the management of creative and strategic innovation related to business management as it concerns technology. It has 3 aspects:

1. Technology management is seen as having the purpose of revamping the management of entire corporation. It is consider together with corporate mission, goals and strategic, and is used as a means for their actualization.

2. Technology Management is conceived as a dynamic process and as a framework for debating the management of transition process. This aspect can be broken down further into (a). Managing the process of creating a new technology environment and a new market environment as global trend leader and (b). Managing the process of becoming flexibility compatible with an ever-changing management environment.

3. Innovation that concern technology is an activity that transforms a company's technological knowledge base into a new knowledge base. This can be expressed as the replacement of knowledge base.

Technology Management is not a simple or easy process because it inherit the concept of development of new and challenging product or new business ventures requires enormous management resources and a long period of time.
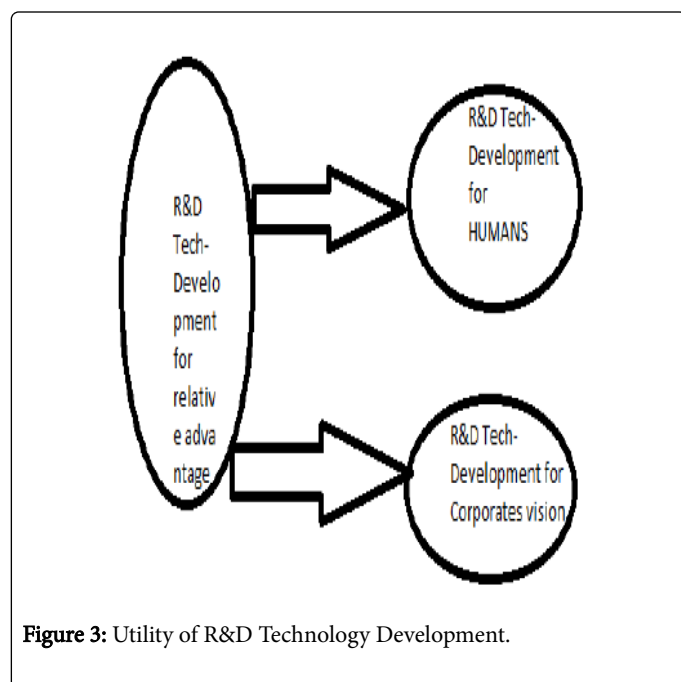

Figure 3: Utility of R&D Technology Development.

Major Area Involve in Technology Management

*   Technology information, monitoring, forecasting, and assessment.
*   Technology evaluation, selection and acquisition.
*   Intellectual property management.
*   Research and Development and innovation.
*   Management of manufacturing, standard and quality.
*   Technology management for sustainable development.
*   Product innovation process for product development and production.

*   The resonance of Market and Technology creation.
*   The globalization of management and R&D.
*   Transforming information system promote innovation.
*   Strategic Technology management.
*   Technology Transfer.

Three 'P' of Technology

1. Product.
2. Process.
3. People.

It refers as practical knowledge, know-how, skills and artifacts that can be used to develop a new product or service or a new production process.

National Programmed for Technology Management

It was felt that Technology Management should be considered to be an important element of human resource development effort. It is suggested that primary responsibility for formulation of a national programme for Technology Management should be assumed by ministries/Department of S&T and higher education. This would ensure the incorporation of the programme in national agenda of each developing country. Further, it is not a new concept because countries such as Vietnam and India have explicit policy statement with respect to S&T management.

APCTT: Asian and Pacific Centre for Transfer of Technology (APCTT) initiate.

*   Multi country course development projects.
*   Internet based mode of materials.
*   Identification of country experts and resource person.

Status of Technology Management Education

An International association for Management of Technology has been formed. Education related issues are being addressed in Europe through the European Technology management initiative (ETMI) and in the USA through the National Technological University (NTU). More than two thirds of Technological Management educational programmes in world are reported in USA and 25% in UK and Canada. There is dozen or a little larger number of programms in developing countries. In developing Asia, Republic of Korea, China, India, Hong-Kong and Thailand are reported to be interested. Some elements or other of Technological Management may however figure in a larger number of educational and training programmes in Asia and the world [1-3].

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