Lesson ticker: Technology Management

Technological change is one of the most important sources of change in the economy. Technology consideration must be an integral part of a firm’s business strategy. With the increasing impact of globalization on business, the scope for competition is no longer limited by national boundaries or by the definition of a particular industrial sector. A sound scientific and technological base is essential to economic growth in a competitive international environment.

To a scientist technology is the end product of research, while to an engineer technology is a tool or process that can be employed to build better products.

Technology refers to all the knowledge, products, processes, tools, methods, and systems employed in the creation of goods or in providing services.

The management function includes planning, organizing, coordinating and controlling. Innovation refers to new products, new processes, new managerial approaches, and combinations of the above.

Management of technology is an interdisciplinary field of natural sciences, social sciences, business management, engineering.

Technology management supports organizations in finding answers to the following questions:

– How are technologies created?
– How can the dimension technology be integrated in a business strategy?
– How can technologies be used to gain competitive advantages?
– How can technologies be exploited to create business opportunities?
Classification of technology

Emerging technology, new technology, low technology, medium technology, high technology, appropriate technology

Relationship between business and technology

The goal of an organization is to achieve a set of objectives
Technology adds value to the assets of a company

Business view on managing technologies

New technologies require plans for system integration, qualified champions as well as organizational integration
Challenges: lack of system integration, incompatible systems, failure of the champions and lack of cross-functional teams.

Technology management and innovation

The adoption and implementation of IT is an important aspect of innovation.
Variables to be considered with innovation are the ability to understand competitors' innovative strategies, structure and cultural context, the business technological environment, strategic management capacity in dealing with entrepreneurial behavior and resource availability and allocation. Success factors of technology management are adaptability, business focus, sense of integrity, Hands-on top management, organizational cohesion and entrepreneurial culture. Leaders must have a strong knowledge and capability in managing both technology and people. Technology and human resources must be working in an integral manner to ensure success. Technology itself does not produce commercial results. It is its application that brings commercial benefits.

How to review technological innovation?

Discovery of a new idea or product or process, evaluation of the proposed idea or design concept, verification of the theory or design, demonstration of a prototype, evaluation, commercial introduction of the innovation, adoption.
Change in technology without change in the way it is used can lead to failure.

**Technology transfer**: technology can be bought, sold, or lease

**Technology licensing**: Inward and outward licensing deals with the issue of intellectual property

**Relationship between technology and market**

Congruent of an innovation with corporate objectives and targets
Proactive approach for technical developments
Feasibility analysis of an innovation (technological and commercial view)
Balance between market pull and technology push

**How to choose technology management methodologies? Which factors have to be considered?**

the corporate maturity, the nature of the technology involved, corporate processes, best practices of the industry, industry wide risk acceptance rate, corporate learning capabilities

**Prerequisites for a successful methodology?**

Management recognizes the need for the project and enables a flexible landscape for the project to grow up with.
Availability of clear defined core competences
Willingness to provide and manage business functions that support the methodology (project management, personnel deployment, Mentor support
People with innovative spirit are the main factor in using technology for development. They can ease both the technical development, and the social one, they can assure the link between research-development, industry and decision factors and environmental factors.
Technology transfer is developed through knowledge transfer.

**Benefits of using a methodology**

consistent and standardized approaches, faster implementation and use, better planing, development of a knowledge base
When you have chosen a methodology review it consequently

- Do we use the most appropriate methodology?
- How can flexibility be encouraged?
- Do project management and technology management properly match?
- Is the necessary administrative support provided?
- Do we build appropriate competences with the methodology applied?
- Is productivity optimized throughout the project life span?

Strategic technology lifecycle

The strategic technology lifecycle (TLC) offers a systematic approach for assessing the state of your technologies.

Steps to develop a TLC: Kick off => decide => deploy => manage => develop => support => use