

# Technology and its Impact

## Globalization of Technology

- ❖ The global exploitation of technologies through patents and licenses.
- ❖ The global sourcing of research and development (R&D) through alliances and joint ventures with foreign companies or universities.
- ❖ The global production of R&D through overseas subsidiaries.

### Definition

Archibugi and Michie (1995, 1997) identified three separate processes that are generally included under the catch-all expression “globalization of technology”.

According to them the term has three connotations:

- ❖ International exploitation of national technological capabilities;
- ❖ International technology alliances; and
- ❖ Globalization of innovation across countries

### Markets For Technology

Implicit in the "globalization" argument is another one, namely that markets for technologies exist and that with globalization the barriers to entry into this market are being lowered, leading to increased competition among the so-called technology suppliers.

This state of affairs of increased competition is said to be beneficial to developing countries as they are supposed to be able not only to benefit from increased access to, say, state-of-the-art technology but also to obtain it in terms of better terms and conditions

### Technology Transactions

"technology transactions can take different forms, from pure licensing of well defined intellectual property, to complicated collaborative agreements which may include further development of the technology, or its realization from scratch".

- ❖ Non-market forms of technology transfer are on increase. i.e., increasingly technologies are being transferred by the intra-firm route.
- ❖ To illustrate, parent companies are selling technologies more to their affiliates and conversely less to unaffiliated firms.

### **Technology – Reduces the Hurdles in Globalization**

- ✓ Technology advancement has led to the progress and prosperity of various business firms throughout the world. Indirectly it leads to the improvement and advancement of other sectors of economy and also benefits the consumer by providing them up-to-date information when and where required.
- ✓ It leads to industrial growth by saving energy and time and thereby bringing improvement in productivity.
- ✓ In India the concept of Software Technology Park (STP) was introduced in 1986 with objective of promoting software exports to other countries and in pursuance thereof first Technology Park was set up in 1987. The companies operating under STP exported software worth Rs16 crores upto Dec 1996 against India's total software export of Rs.675 crores at the end of 1996-97.
- ✓ Electronic Trade is one of the examples of the applications of Internet economy in the socio-economic activity. The new pressures occur and urge business enterprises to fastly adapt themselves to and creatively use wonderful achievement in Internet.
- ✓ For e.g. General Motors, Ford & Daimler – Chrysler announced to consolidate their Internet supply networks for product and materials exchange with other auto companies and sales agents.

- ✓ On one hand improve the capacity to produce either goods or services. On the other hand, it has lead to change in the way of conducting business e.g. E-Business.
- ✓ Global networks help in realization, maintenance and reproduction of the system – basically the capitalist system. Electronic banking, EFT, etc has made it much easier for consumers and trading firms to send and receive financial assets among banks.
- ✓ Internet and especially E- commerce are the terms basically used for justifying the recent approach of techno- globalism.

### **Positive Impact of technology on globalization**

- ❖ Internet has facilitated opportunities for economic development in MNCs. It has initially started off as a medium for sharing information among academics but now it has paralleled the emergence of globalization as a concept. Its positive impacts can be discussed as follows
- 1) For developing countries Technology is an opportunity to gain access to knowledge and services from all around the world.
  - 2) EG: A poor land line telephone system is being by passed by mobile phone with Internet access which has allowed developing countries to step forward in their development of infrastructure and business.
  - 3) Those countries who were technological late comers have drastically improved with globalization as it provide a unique opportunity for low-income countries to raise per capita income which shows that technological upgrading is important for development.
  - 4) Improved access to technology imports is improving the demand for skilled labor in many low income countries which will provide job opportunities for the professionals and in turn will bind to work in its own country.
  - 5) By going global those firms whose output was significantly more limited by the size of their domestic market have chance to reap greater advantage from economies

- 6) An inflow of technology can raise labor prices by increasing productivity. In general, one would expect wages across countries to equalize as technology and production techniques spread. Increased trade may contribute to innovation and the spread of technology, and thus indirectly affect wages.
- 7) Most invention is incremental in nature. Improvement in the technology have led to cheaper and more efficient electronics, the manufacturing cost and complexity have increased at a similar pace.
- 8) With invent of technology, the company has become globalize and one has not to restrict within his own country.
- 9) No mediator is required to run the business online.

### **Negative Impact of Technology on Globalization**

- 1) Less of equal /Balanced: Globalization If we take a look on the historical primacy, we get very little that shows that widespread globalization of the generation of technology has occurred. The leading industrialized countries have been benefited by this. So mainly globalization of technology generation have been concentrating particularly in intra-European countries like North America, Europe and East Asia.
- 2) The earnings are invested in the financial markets throughout the world. The fate of this is ultimately determined by a series of factors out of which some are related to the economy also. Because of the complexity and unpredictability, the network in which all firms is anchored need to reform and readapt themselves in this endless variation. The organizations that do not follow the networking logic are wiped out by competition, since they are not able to cope up with the new information and business era

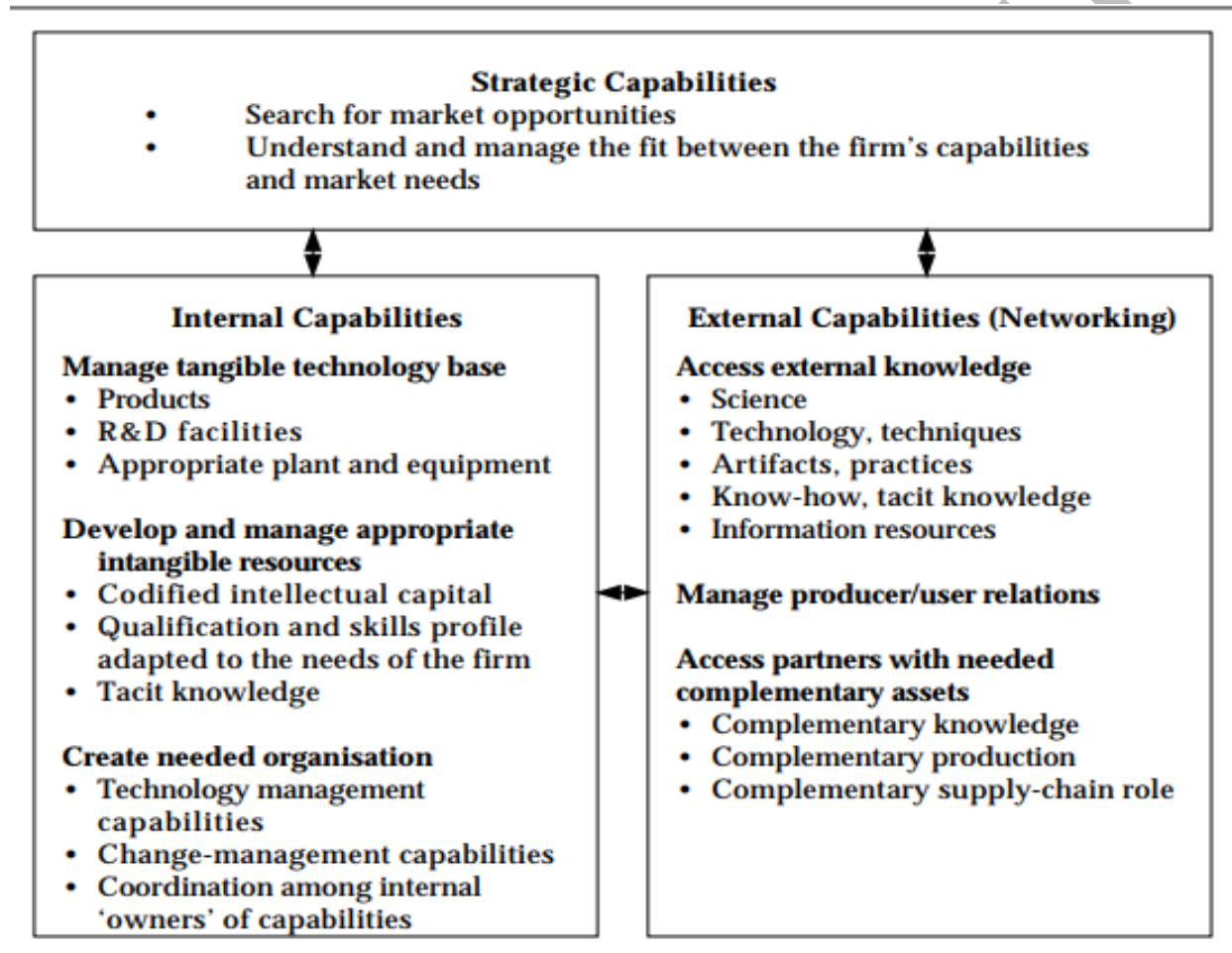
### **Technological capabilities**

Bessant and Dodgson's approach is dynamic: They define their terms as

- ✓ Resources All the assets in the firm which enable firms to operate, including tangible and intangible assets, skills, knowledge, organisation, links with other firms

- ✓ Innovative Capabilities Features of firms and their management which enable them to define and develop competences to create competitive advantage
- ✓ Competences That focused combination of resources which enables firms to differentiate themselves from their competitors

### Key Elements of Technological capabilities



1. **Strategic Capabilities** : This defines the core competencies of the firm. Product strategy needs to be hammered out here, based on inputs from the three areas mentioned.
2. **Internal Capabilities** : The tangible basis of companies' internal technological capabilities is their products and the design and production facilities employed, which need to be

adequate to meet competitive needs. Choice, maintenance and renewal of these is based on design and engineering skills.

**3. External Capabilities (Networking) :** External or networking technological capabilities involve

- ✓ Accessing external knowledge
- ✓ Managing the producer/user relationship which is central to successful innovation
- ✓ Accessing other partners who have useful complementary assets and capabilities
- ✓ Role of such external relations in successful innovation<sup>39</sup> and in learning is extremely important.