A GROWING APPROACH OF IT IN TECHNOLOGY TRANSFER & BUISNESS

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Abstract

This paper presents an overview of IT in technology transfer and business i.e. E-business. The two points; technology commercialization and information technologies clearly explains the role of IT in technology transfer. The presentation of these issues is discussed in detail. This paper explores the research questions that arise from these two issues and recommends a set of research questions that need to be answered by researchers.

1. Introduction

There are two interrelated issues: technology commercialization and information technologies. The two are intertwined by the fact that (1) information technologies are a major contributor to new innovations that are commercialized and (2) information technologies can be used to facilitate the commercialization of all technologies. A good example of technology transfer in India is DMRC project to be developed in west Bengal.

The West Bengal government has asked Delhi Metro Rail Corporation (DMRC) to start a detailed project report and ultimately help it in technology transfer and systems to be undertaken on this line [1].

As far as technology transfer is concerned, much technical collaboration has been approved for different counties which accounts for a good percentage of the total collaboration approved during 1991 to 2005. The highest technical collaboration has been in the Transportation Industry followed by Electrical Equipments (including computer software & electronics) Industry and Chemicals (other than fertilizers). There are mainly five sectors which are being used in the field of

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technology transfer. The sections are given following [6]:

1. Transportation Industry
2. Electrical Equipments (Including computer software & electronics)
3. Chemicals (other than fertilizers)
4. Misc. Mechanical Engg
5. Industrial Machinery

2. Technology Transfer

Extend the parameters of technological innovation by making knowledge useful through information technology. Enhance R&D downstream related activities such as the patenting, licensing, marketing and commercialization of IP (Intellectual Property) using and R&D results in the form of products, processes and services Promote and develops knowledge and technology intensive enterprises Participate in the establishment of technology and business incubators and related support structures. This is explained point wise in the following sections [2]-[3].

2.1 Strategies for Technology Transfer

- The promotion and establishment of a culture for innovation and technology transfer amongst staff and students [3].
- Commitment from Executive Management.
- Integrated into educational and R&D programs.
- Exposure and active participation.
- Capacity building.
- Experienced role models.
- Enabling environment.
- Innovative incentive mechanisms.
- The development of appropriate innovation and technology transfer models and support system.
- Office for Technology Transfer.
- Vibrant Partnerships and Networks.

2.2 Office for Technology Transfer

- Promotions using information technology resources e.g. internet, facilitation and support [2].
- IP, patents, licenses, etc.
- Funding opportunities
- Proposals and business plans
- Opportunity identification, assessment and selection.
- Business development and new venture creation [3].

- A good example technology transfer is patent. The information of latest inventions in the various fields is sent with means of patents. Now a day patent is useful information to know about the world's growing state. A brief point wise introduction about patent has been given in the next section [8]-[9].

2.3 Patents

- Historical Basis
- Statute of Monopolies
- The 'deal':
  - Ø Inventor must make a full disclosure
  - Ø In return they receive a monopoly for a fixed period of time
- Nature of Protection
- Negative Right: allows owner to exclude others i.e. Licence to sue.

2.3.1 Patents: Subject Matter

- Definition of Invention in Patent Act.
- Any new invention which involves an inventive step and which is capable of being used or applied in trade or industry or agriculture [9].
- A scientific theory;
- A mathematical method;
- Copy right able creation;
- A scheme for doing business
- A program for a computer
- Other rules in other countries

2.3.2 Patents – Formalities

- Patents require an application in each country.
- Many industrialized countries have examination of application.
- Term is 20 years from application (use of 'provisional' to extend by a year in some countries [8].
- Many countries require maintenance fees.

In short there are few points to be noted about technology transfer:

- Major challenges and opportunities in Innovation and Technology Transfer
- Growth via development trajectory

- No “quick fix” – this is a long-term strategy.
- Share and exchange experiences, models and best practice, through networks.

3. IT in E-Business

Now a day IT has created an E-Business Infrastructure. However, most companies lack the tools to properly evaluate e-business infrastructure projects, leading to poor spending decisions and bad technology choices. The use of a robust methodology applied to e-business infrastructure initiatives can help both business and IT professionals in the following ways:

- Determine the appropriate metrics to evaluate the e-business infrastructure initiatives
- Calculate a risk-adjusted or expected return on investment (ROI) for the project
- Identify the characteristics of e-business infrastructures that yield improved ROI
- Make technology and vendor decisions that are the most appropriate to meet current and future business goals
- Reduce project risk
- Accelerate the decision making cycle
- Provide actionable items and a road map to evaluate ROI during the stages of the infrastructure project. The stages are given point wise following:

Ø Planning
Ø Design
Ø Implementation and deployment
Ø Maintenance and improvement

While a traditional ROI analysis looks at the return (direct benefits) on an investment (cost), such tools ignore two categories of analysis that must be evaluated in order to ensure sound business decisions-flexibility, which encompasses the options for future investments created by the infrastructure, and risk, which evaluates and quantifies the impact of uncertainty on our estimates of benefits and costs. Together, these four categories provide the information required to make sound business decisions. Likewise, these four categories encompass Total Economic

Impact (TEI) methodology for evaluating IT investment decisions.

Now a question arises about IT flexibility as a financial option. A financial option is the right, but not the obligation, to take an action at a specified time in the future to acquire an asset. When one makes a flexibility investment, one purchases the right, but not the obligation, to use this investment to acquire an asset at a specified time in the future. Just as with financial options, technology options will expire if not exercised. Additionally, just as with financial options, the greater the uncertainty about the future, the more valuable it is to invest in options, rather than committing capital directly to the acquisition of the final asset [4].

Recently, the characteristics of the decisions in acquiring additional flexibility, be it in research and development of new pharmaceuticals, the acquisition of power generating capacity or in IT infrastructures, have been noted and a similar methodology has been used to calculate the theoretical value of the options created by these investments [7].

Examples of the options created by e-business infrastructures include the following:

- Ø Leverage of additional platform capabilities: The level of competition in the e-business infrastructure market is driving a continuing level of innovation and an expanding set of platform services (e.g., portal, personalization, workflow, etc.). Use of these additional capabilities will often involve additional license and maintenance costs, the second investment to exercise the option, while producing additional benefits to the organization, generating or saving costs, the asset to be acquired.
- Ø Easier expansion to meet greater scalability requirements: Systems built on a flexible infrastructure are easier to scale, if required. The option to quickly scale an application can be valued using options pricing tools.
- Ø Easier to implement multichannel user interfaces: The number of user interface devices is expanding (e.g., wireless phones, personal digital assistants (PDAs), etc.) and flexible

architectures and platforms provide greater tools and well structured interfaces for reusing existing transactions.

- Easier to implement business-to-business (B2B) and other integration scenarios: A flexible infrastructure or architecture provides the options to quickly and easily integrate applications as business needs call for such changes.
- Vendor flexibility: Investing in a well constructed application infrastructure creates the flexibility to move applications to another vendor's product (either hardware or software). The most significant benefit is that this potentially acts as a downward pressure on license and maintenance costs. Migrations from one product to another take from 10 percent to 20 percent of the original cost of developing the application. Of course, some solutions, such as Microsoft's Web solution platform offers only some flexibility (one can choose a different hardware platform but not another application server or operating system) [10].

Conclusion

The paper presented a brief and critical evaluation of each of the issues supported with list of references. This paper will help everyone to gain an overview and an inspiration for further research on the subject of Information technology in technology transfer, research and development.

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