

CONFERENCE ON TECHNOLOGY DISSEMINATION SYSTEM AND ROLE OF IPR

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INTELLECTUAL PROPERTY AND TECHNOLOGY TRANSFER: AN EMPIRICAL ASSESSMENT

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**There is nothing more difficult ... than the
establishment of a new order of things.
- Machiavelli, 1532**

Introduction

The intellectual property system was developed to protect rights resulting from human creativity and related to new, practical knowledge which can be used commercially and could generate benefits for its creators and owners.

Technology is the systematic application of scientific or other organized knowledge into practical tasks.

John K. Galbraith, *The New Industrial State* (1967)

- Technology is the systematic knowledge for the manufacture of a product, for the application of a process or for the rendering of a service, including any integrally associated managerial and marketing techniques.

U.N. Doc. TD/CODE TOT/C. 1 WGI/CRP.3 (1979)

- Technology may be considered any knowledge, information and product, tangible or intangible that could contribute to the economic, industrial, or cultural development of a country, whether or not that technology is presently available to the country.

Some Definitions Technology Transfer

- A process in which technology originated in one place for one purpose is used elsewhere, for either the same or a different purpose
- Assignment of technological intellectual property, developed and generated in one place, to another through legal means such as technology licensing or franchising.
- Process of converting scientific and technological advances into marketable goods or services.

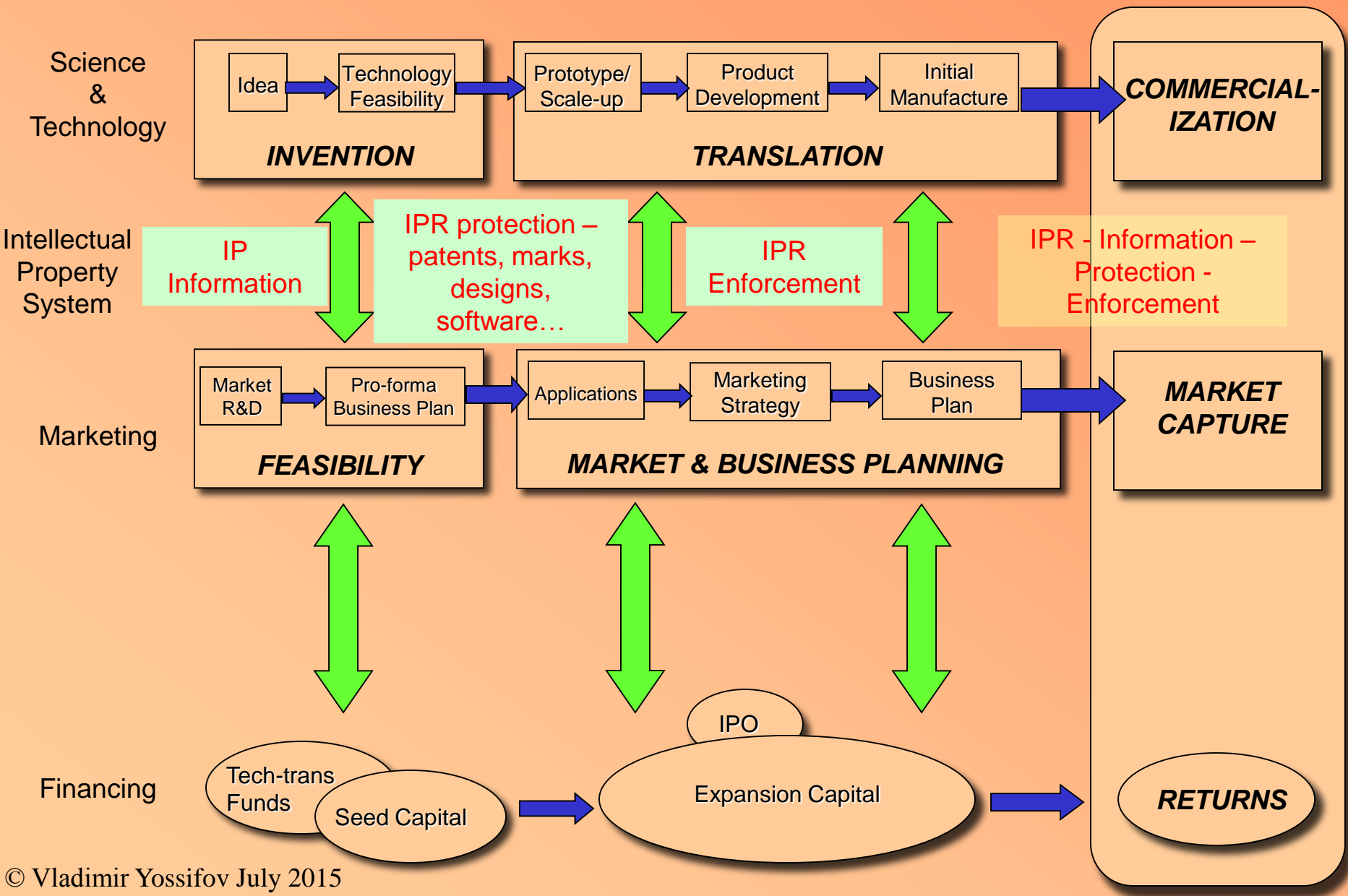
Source: www.businessdictionary.com

Some Definitions Technology Transfer

- In order to achieve a true transfer of technology, there must be effective absorption of the transferred technology by the recipient party or country.

The Technology Transfer Process

← 3 TO 10+ YRS →



Transfer of Technology – Different Interest of Suppliers and Receivers

- **technology suppliers** are seeking users who are interested in using the technology and are ready to pay a price for it,
- **the technology receiver** (user) is searching for a functioning technology that would resolve a problem (technical, managerial) and offer some competitive advantages (quality, new product).

Transfer of Technology

The Position of the Technology Supplier

- generating additional income including funds for further research;
- entering distant or difficult markets;
- reducing cost of production;
- creating a basis for joint R&D;
- diversifying sources of supply;
- improving quality of sub-suppliers production;
- bringing production closer to source of raw materials;
- reducing transportation and distribution costs.

Transfer of Technology

The Position of the Technology Supplier

- depending on the objective, the technology supplier may seek partners or users of its technology among advanced or medium advanced companies.
- the preferred partner should be at the same or comparable technology development level.

Transfer of Technology

The Position of the Technology Receiver

- avoiding considerable expenses or costly R&D;
- guaranteeing the freedom of operation for own research;
- creating a basis for joint R&D;
- improving quality and efficiency of production;
- meeting stricter environment and health standards;
- upgrading and/or diversifying production;
- reducing cost of production;
- entering a new market;
- improving quality of sub-suppliers production;
- adding value to raw materials and commodities;
- import substitution.

Transfer of Technology

The Position of the Technology Receiver

- From the point of view of the technology receiver, transfer of technology typically involves the following steps:
 - discovery (identification), evaluation, acquisition, adaptation and implementation.
- Transfer of technology is an active process of exchange of information and learning.
- For that reason the educational level of the staff of the technology recipient is very important for a successful transfer of technology and its adaptation.

Intellectual Property and Transfer of Technology

- The IP system has two functions: the “exclusivity function” and “the information function.”
- The IP system is based on the contract between the inventor and society where grant of exclusive ownership in IPR in exchange for full disclosure of the invention
- Disclosure of the invention in patents is the basis for advancement of technology and development

Intellectual Property and Transfer of Technology

- Most commonly known is the “**exclusivity function**” of the IP system - i.e. the owner of an IPR can prevent third parties to use such IPR
- or the owner can allow another party using its IPRs (licensing IPRs)
- Anyone using an IPR without permission from the owner is infringing the IPR and can be persecuted under national laws
- The owner of the IPR must initiate a procedure of enforcement of his rights

Intellectual Property and Transfer of Technology

- The **information function** is very important for the continuous development of technology and for the transfer of technology.
- The IP system plays an important role in the process of matching technology suppliers and recipients.
- In addition to valuable technological information, a published patent document contains details of the names and addresses of the applicant, patentee and inventor, and thus provides a tool for identifying and location of the owners of rights in relation to specific technology.

Intellectual Property and Transfer of Technology

Information contained in patent documents can be very useful in relation to the transfer of technology to:

- identify specific new technologies, ideas and technical solutions, products or processes;
- assess and evaluate specific technology and identify possible licensors;
- identify alternative technology and its sources;
- locate sources of know-how in a specific field of technology or in a given country;
- identify the state-of-the-art in a specific technological field in order to be aware of the latest development;
- monitor activities of competitors both domestically and abroad; and
- identify a market niche or to discover new trends in technology or product development at an early stage.

- Forms and Methods of Transferring Technology

Technology may be transferred in various ways:

- Education, incl. on the job training
- Purchase of equipment (machinery) or other intermediate goods
- services of individual experts
- sharing of patented or non-patented technical know-how, trade secrets, or other proprietary information
- acquisition of a company

- Forms and Methods of Transferring Technology
- Means/arrangements of transferring technology
 - (i) Trade in goods and purchase of equipment
 - (ii) Direct foreign investment
 - (iii) Turn-key packages
 - (iv) Technology license agreements (patents, trade secrets, know-how, etc.)
 - (v) Joint ventures (incl. joint R&D agreements)
 - (vi) Management contracts and movement of people (exchange of personnel)

- Forms and Methods of Transferring Technology

Transfer of technology can be

- domestic - e.g. between local companies of organizations (universities, R&D organizations, industry, etc.)

or

- International - e.g. between domestic and foreign companies / organizations

In both cases a strong and well functioning national IP system is an enabling factor that will facilitate the technology transfer negotiations and process

Transfer of Technology and Intellectual Property: Some Policy Issues

- Transfer of technology and diffusion of knowledge is facilitated by an open trade regime
- Policy efforts need to focus on improving the investment climate and reducing the costs of absorbing technology. This task is complex and involves building human capital (expertise) and expanding national innovation systems.
- Absorptive capacity in the host country is crucial for obtaining significant spillover benefits from trade or FDI. To take full advantage of technology transfer countries need to have adequate human capital and investments in R&D, policies with respect to education and R&D.

Transfer of Technology and Intellectual Property: Some Policy Issues

- Markets do fail and there may be good rationales for governments to provide incentives for firms and organizations to engage in innovation and risk taking.
- The efficient use of support policies requires that governments are effective at both identifying cases that justify intervention and at implementing these appropriately.
- Government supported projects (e.g. infrastructure development) and policy decisions (e.g. environment protection or industrial priorities) may be excellent opportunities for local industry and companies to acquire up-to-date technology and to manage its local absorption and adaptation

Transfer of Technology and Intellectual Property: Some Policy Issues

- Policy should aim at:
- increasing access of local companies and organizations to the international stock of knowledge and increasing the ability of technology owners to signal the true value of their inventions to buyers;
- reducing the cost of acquiring and absorbing existing technologies; and
- increasing incentives for domestic innovation.

Transfer of Technology and Intellectual Property: Some Policy Issues

- Countries should increase the ability to absorb and adapt technology by investing in at least simple R&D capacity and in development of engineering and management skills.
- In case that prevailing technology policies, restrictions on capital markets, and tax policies lower discourage such investments, they should be reformed to encourage more innovation.

Transfer of Technology and Intellectual Property: Some Policy Issues

- *Governments can reduce the technological “distance” to advanced foreign firms by establishing national or regional innovation systems that encourage local R&D, transfer knowledge from universities and public laboratories to domestic firms, and promote use of telecommunications, e-commerce, biotechnologies, and other cost-saving technologies.*

Transfer of Technology and Intellectual Property: Some Policy Issues

- International cooperation could seek to create a exchange and information platform for knowledge about successful technology-acquisition programs that have been undertaken by individual countries or companies.
- Rather than regulate what countries may or may not do to encourage technology transfer and innovation through substantive policy harmonization, the aim would be to establish a broad framework that requires countries to engage in a regular exchange of information and to consider assessments of their policies in attaining their stated objectives.

On the following slides I have listed some links to useful sources of information on technology transfer
I shall be pleased receiving your comments and suggestions

ORGANIZATIONS, PERIODICALS AND OTHER USEFUL SOURCES OF INFORMATION ON TECHNOLOGY TRANSFER

- Association of Small Business Development Centers (ASBDC)
<http://www.asbdc-us.org/>
- Association of University Technology Managers (AUTM)
<http://www.autm.net/>
- Defense Technical Information Center (DTIC)
<http://www.dtic.mil/>
- DoD TechMatch
<http://www.dodtechmatch.com/>
- Innovation Magazine
<http://www.innovation-america.org/>
- Industrial Research Institute (IRI)
<https://www.iriweb.org/>

ORGANIZATIONS, PERIODICALS AND OTHER USEFUL SOURCES OF INFORMATION ON TECHNOLOGY TRANSFER

- Minority Business Development Agency (MBDA)
<http://www.mbda.gov/>
- NASA Tech Briefs
<http://www.techbriefs.com/>
- National Technical Information Service (NTIS)
<http://www.ntis.gov/>
- Rehabilitation Engineering & Assistive Technology Society of North America (RESNA)
<http://www.resna.org/>
- Small Business Innovation Research (SBIR) & Technology Transfer (STTR) (on the SBA website search for SBIR or STTR)
<http://www.sba.gov>

ORGANIZATIONS, PERIODICALS AND OTHER USEFUL SOURCES OF INFORMATION ON TECHNOLOGY TRANSFER

- State Science & Technology Institute
<http://www.ssti.org/>
- Technology Transfer Tactics
<http://www.technologytransfertactics.com/>
- National Technology Transfer Center at Wheeling Jesuit University
<http://develop.nttc.edu/>
- United States Department of Agriculture - National Agricultural Library - Research and Technology
<http://www.nal.usda.gov/research-and-technology>
- Wisconsin Alumni Research Foundation
www.warf.org

ORGANIZATIONS, PERIODICALS AND OTHER USEFUL SOURCES OF INFORMATION ON TECHNOLOGY TRANSFER

- The iBridge Network - Access new technology search features and an extended innovation database with new transformative technologies fed into the platform by our member *Academic Institutions, Research Labs, SMEs, Startups*

www.ibridgenetwork.org

- Larta Institute

www.larta.org

- LESI - The Licensing Executives Society International

www.lesi.org

ORGANIZATIONS, PERIODICALS AND OTHER USEFUL SOURCES OF INFORMATION ON TECHNOLOGY TRANSFER

- ASTP-Proton is the pan-European association for professionals involved in knowledge transfer between universities and industry. By promoting and professionalizing knowledge transfer practice, the association aims to enhance the impact of public research on society and the economy.

<http://www.astp-proton.eu>

- International Association for Management of Technology (IAMOT)

www.iamot.com

- PraxisUnico – an UK network that drives the commercialisation of academic and public sector research; a strong voice for technology and knowledge transfer.

<http://www.praxisunico.org.uk/>

ORGANIZATIONS, PERIODICALS AND OTHER USEFUL SOURCES OF INFORMATION ON TECHNOLOGY TRANSFER

- Isis Innovation Ltd, University of Oxford
www.isis-innovation.com
- Imperial Innovations
www.imperialinnovations.co.uk
- Bayh-Dole Act
www.cogr.edu/docs/Bayh_Dole.pdf
- Technology transfer
- https://en.wikipedia.org/wiki/Technology_transfer
- Technology assessment
en.wikipedia.org/wiki/Technology_assessment

ORGANIZATIONS, PERIODICALS AND OTHER USEFUL SOURCES OF INFORMATION ON TECHNOLOGY TRANSFER

- Kings College London – Central Innovation and Enterprise Support

<http://www.kcl.ac.uk/innovation/business/support/entrepreneurship/Enterprise-Connect/EnterpriseConnect.aspx>

- **swiTT** - The Swiss Technology Transfer Association - association of technology transfer professionals active in the transfer of technology from institutes of public research and education, university hospitals, and other not-for-profit research organizations to the private sector.

<http://www.switt.ch/adminall2/index.php>

- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V. Fraunhofer is Europe's largest application-oriented research organization.

<https://www.fraunhofer.de/en.html>

ORGANIZATIONS, PERIODICALS AND OTHER USEFUL SOURCES OF INFORMATION ON TECHNOLOGY TRANSFER

- German Center for Research and Innovation
<http://www.germaninnovation.org/research-and-innovation/centers-of-innovation-in-germany>
- *Technology transfer and knowledge transfer activities in Italy: a detailed analysis*
http://www2.units.it/impresse/files/Tech_Transfer_in_Italy_%28The_Quarterly_Review_of_Corporation_Law_and_Society-Waseda_Institute_for_Corporation_Law_and_Society%29.pdf
- *Comparative Technology Transfer and Society*
https://muse.jhu.edu/journals/comparative_technology_transfer_and_society/

ORGANIZATIONS, PERIODICALS AND OTHER USEFUL SOURCES OF INFORMATION ON TECHNOLOGY TRANSFER

- *International Journal of Technology Transfer and Commercialisation (IJTTC)*
<http://www.inderscience.com/jhome.php?jcode=IJTTC>
- *Intellectual property and technology transfer (a European perspective)*
http://ec.europa.eu/invest-in-research/policy/ipr_en.htm
- *The Relationship Between IP, Technology Transfer, and Development (IP-watch, 2010)*
<http://www.ip-watch.org/2010/08/30/the-relationship-between-ip-technology-transfer-and-development/>

Thank you for your attention

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