

**Subject:** Development of a Technology Transfer Model for Mexico. Application in the Automotive Industry.

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## **Brief Description**

The concept of technology transfer (TT) is a difficult one to define, but in general, TT is the process in which technical knowledge, information and know-how is transferred. Since the technological knowledge is central for the development process, Mexico obtains this knowledge from more “advanced” economies rather than creating it itself.

Technology must consider some fundamental aspects, such as cultural, social, economic, educational and political aspects. All these aspects must be evaluated from the beginning of any technological development. Particularly the cultural aspect should be taken as a central issue; or damages, losses and failure could arise. The concept of technology transfer should change to technology cooperation, because technology can not be simply transferred, it has to be “personalized” for the environment it will be used in. We will analyze most of these issues and their repercussion in the TT process and try to develop a model which helps to the successful implementation of new technologies in Mexico and eliminates the method of trial and error in order to save millions of dollars to the companies that practice TT without knowing the problems they are going to face. Other countries, such as USA, already have TT models which work successfully, that will be a basis for this study.

During the development of this project, an analysis of successful and failed technology transfers will be made, in order to create a criterion for good TT and have a sort of measures of it.

There are a lot of types and fields in which TT takes place, but we will mainly focus on the ones undertaken by the automotive industry. The automotive industry was chosen because of the importance and presence it has in Mexico and specifically in Puebla.

As an important part of this research effort, a real case study will be included that synthesizes the key issues that characterize the project and allows to transmit them and analyze them in a clear and concise way.

## **Main Objective**

Develop a model of technology transfer applicable to Mexico, in order to eliminate the method of trial and error and save millions of dollars to the companies that practice technology transfer without knowing the problems they are going to face in this country.

## **Specific Objectives**

1. Define the term technology transfer and its types.
2. Describe the main steps in the technology transfer process.
3. Identify the critical factors that affect technology transfer in Mexico.
4. Propose a general model that makes the technology transfer process easier to apply.
5. Develop an engineering case study within the Mexican Automotive Industry.
6. Analyze all the issues together and propose a practical solution.

## **Scope of the Project**

1. Present a case study that exemplifies the main objective of this research work in order to transmit in a clear and concrete way its issues.
2. Present a clear analysis of each of the specific objectives.

## **Limitations**

1. This thesis will be written in English.

## **Material and Equipment to use**

1. Personal Computer.
2. Public bibliography related on the subject.
3. Bibliography of the industry in which the case study will be undertaken.

## **Methods and Techniques**

1. Documental Research.
2. Field Search.

## **Structure**

1. Introduction.
2. The Technology Transfer Concept. Definitions and types.
3. Background of TT. Success and failure stories.
4. Proposal of a Technology Transfer Model.
5. Engineering Case Study in the Mexican Automotive Industry.
6. Analysis.
7. Conclusions and Recommendations.

## **Timeline**

### **Activity**

Proposal Defense

1 <sup>st</sup> Report	Chapter 2 and 3
2 <sup>nd</sup> Report	Chapter 4
3 <sup>rd</sup> Report	Chapter 5
4 <sup>th</sup> Report	Chapter 6
5 <sup>th</sup> Report	Chapter 7 and 1

## Research Plan

- Bibliographical review at UDLA-P's library.
- Research on the Internet.
- Field search at the industry in which the case study will be taking place.
- Advisory session at the university.

## Places where the research will take place

- Facilities of the industry in which the case study will be carried out and UDLA-P.

## Bibliographical Review

### Books

- Agmon, Tamir. Von Glinow, Mary Ann. 1991: *Technology Transfer in International Business.* Oxford University Press, USA.
- Stobaugh, Robert. Wells, Louis T. 1984: *Technology Crossing Borders.* Harvard Business School Press, USA.
- Heston, Alan. Pack, Howard. 1981: *Technology Transfer: New Issues, New Analysis.* The Annals of the American Academy of Political and Social Science. Volume 458.
- Goulet, Denis. 1989: *The Uncertain Promise: Value Conflict in Technology Transfer.* New Horizons Press, USA.
- Whiting, Van R. 1984: *The politics of Technology Transfer in Mexico.* Research Report Series, 37, Center for US- Mexican Studies University of California, San Diego, USA.
- García Blásquez, Alejandro. 2003: *Research on the Technical and Cultural Factors that affect the Implementation of TPM Standards on new Technology Transfer Projects in the Tlaxcala Region.* Universidad de las Américas-Puebla, Mexico.

## Journal and Proceedings Articles

- Steenhuis, Harm-Jan. De Bruijn, Erik J. 2002: **Location selection in manufacturing networks, The case of the aircraft industry.** 7<sup>th</sup> International Pacific Conference on Manufacturing and Management.

## Internet Bibliography

- (1) ESCP-EAP. Group Technology and Innovation **Course Notes** [https://www.escp-eap.net/~gtilab/Course\\_materials/course\\_material.htm](https://www.escp-eap.net/~gtilab/Course_materials/course_material.htm)
- (2) IDEAS **Rethinking the Issues of International Technology Transfer** Ochieng Fred Walumbwa <http://scholar.lib.vt.edu/ejournals/JTS/Summer-Fall-1999/PDF/Ideas.pdf>
- (3) The Economy Sphere. Technology Transfer and Management **Notes on Technology Transfer** <http://www.gdrc.org/techtran/techtran.html>
- (4) Science, Technology and Innovation. Viewpoints. **TRIPS and technology transfer for developing countries.** Professor Antonio Marcio Buainain <http://www.cid.harvard.edu/cidbiotech/comments/comments183.htm>
- (5) Strategy Plan. INRIA 1999-2003 **Technology Transfer** <http://www.inria.fr/inria/strategie/planstrat99-03/4.2.en.html>
- (6) Academic / Industrial Interface. Dr. Manuel Panar **Making the Transfer Process Work** [http://www.udel.edu/ccr/acad/acad22\\_5.html](http://www.udel.edu/ccr/acad/acad22_5.html)
- (7) The Economy Sphere. Technology Transfer and Management. Hari Srinivas **Technology Transfer for Sustainable Development.** <http://www.gdrc.org/techtran/techtran-sustdev.html>
- (8) Asist Bulletin no. 4, January 1995 **Technology transfer that lasts** from the paper by John Clifton, Feeder Roads Programme, Mozambique <http://www.ilo.org/public/english/employment/recon/eiip/asist/bulletin/bul-4/tttl.htm>

- (9) Impacts of National Information Technology Environments on Business. Anne Theodore Briggs and Stephen Watt *Technology Transfer*  
<http://www.american.edu/carmel/ab5293a/Techtransfer/techtransfer.htm>
- (10) Risdon, Penny, 1992. *UNDERSTANDING THE TECHNOLOGY TRANSFER PROCESS*. VITA Distribution Service, 20 Dec 1992.  
[http://www.sas.upenn.edu/African\\_Studies/Comp\\_Articles/Technology\\_Transfer\\_12764.html](http://www.sas.upenn.edu/African_Studies/Comp_Articles/Technology_Transfer_12764.html)

### **Videos**

- VII Reunión General de Directores 2001. Visión y Análisis Temático por Especialistas. Ing. Antonio Madero Bracho. Sector Automotriz

### **Organizations**

- Consejo Nacional de Ciencia y Tecnología. (CONACYT)
- Unidad de Transferencia de Tecnología. (UTT)