

SUBJECT: Research on the technical and cultural factors that affect the implementation of Total Productive Maintenance (TPM) standards on new technology transfer projects in the Tlaxcala region.

STUDENT: Alejandro García Blásquez
ID 103202
Dirección: Priv. Ahuehuetes 23
Col. Atempan
Tlaxcala, Tlax.
CP 90010
Tel: (246) 4663808

DATE: April 24, 2003

POSSIBLE DIRECTOR: Carlos Acosta Mejía, M.Sc.

DIRECTOR'S SIGNATURE: _____

BRIEF DESCRIPTION

This research project seeks to identify the factors (technical, social and cultural ones) that considerably affect the efforts of a company such as A&B, to implement an engineering project that represents a substantial investment and whose success is rather decisive to assure the continuance of the business. This engineering project consists of the installation and start-up of a foreign technology machine. The approach followed during this investigation will be directed by the main guidelines that define Global Manufacturing.

The standards that govern A&B Company clearly establish that all new engineering projects that take place in no matter which area of the organization must strictly abide to the following Total Productive Maintenance (TPM) requirements:

- Step 3 of Autonomous Maintenance
- Step 2 of Progressive Maintenance
- Elimination of all potential losses that the new project could imply
- Documentation and full registry of the Education and Training process of all the personnel involved in the project

The above stated requirements are justified by the strong conviction of the company in that if the TPM tools and systems that surround any single piece of equipment are being fully applied and are 100% functional, a direct and rather obvious effect will be its excellent results and reliability. All this will be continuously sustained by A&B's Integrated Working System (IWS) that will also be presented in this course of this thesis.

The research to be undertaken must unveil what the reaction of the company's personnel, most of it native of the Tlaxcala region, will be before the strict requirements that the company clearly sets in order to qualify a project as successful; both a technical and sociological justification will be searched and opportunity areas will be identified that will

ultimately allow for a better implementation of the previously mentioned standards; a profound analysis of the company's current production culture will be presented as well as its tendencies in the short, medium and long terms.

Additionally, a thorough analysis will be made of the difficulties found along the project that are directly related to the fact that A&B is buying foreign technology that will be implemented with Mexican engineers, technicians and workers. We will highlight the points that are considered as critical to a successful technology transfer, fully documenting the actions taken to make it easier. Plus, we will conduct an analysis of the mechanical design of the machines in order to make recommendations to make its operation and maintenance more adequate to the culture of the people that will work with them.

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

As a requirement of the company in which this research will take place, a confidentiality agreement is signed that prevents us from revealing its real name, specific details that it considers of vital importance for its business as well as the true names of the personnel that will be interviewed. As an additional restriction, in case we need to use confidential figures and technical data, they can be shown after being previously affected by a numerical factor that won't be revealed.

MAIN OBJECTIVE

Investigate and analyze the critical factors that prevent and/or facilitate the technology transfer process that truly abides to the TPM standards that the company requires for new manufacturing projects.

SPECIFIC OBJECTIVES

- 1.- Establish the socio-cultural characteristics of the Tlaxcala region.
- 2.- Describe the production culture of the company.
- 3.- Identify and describe the IWS production system and the TPM standards that the company requires for new engineering projects.
- 4.- Describe the new engineering project that is the subject of the case study.
- 5.- Identify the critical points that facilitate the technology transfer.
- 6.- Evaluate the difficulties that the socio-cultural characteristics of the Tlaxcala region impose to the implementation of standards in the new engineering project.
- 7.- Analyze the costs that the latter imply.
- 8.- Recommend a solving methodology.

SCOPE OF THE PROJECT

- 1.- Present a case study that reflects the main objective of this research work., making it sufficiently didactical in order to transmit in a clear and concrete way the issues subject of this research.
- 2.- Elaborate and present interviews to personnel of all levels to show their reactions and opinions towards the difficulties that the region's culture presents to the implementation of standards.

- 3.- Present a clear analysis of each of the specific objectives.
- 4.- Turn in to the company's management a set of recommendations derived from such analysis with the purpose of facilitating the technology transfer and the implementation of standards in its facilities. These recommendations should also include a detail of the strengths and opportunity areas that were clearly identified during this research.

LIMITATIONS

- 1.- The confidentiality agreement must be respected at all times, preventing us from revealing names, figures and details that the company considers critical for the continuance of its business.
- 2.- This thesis will be written only in English.

MATERIAL AND EQUIPMENT TO USE

- 1.- Personal computer
- 2.- Proprietor A&B printed and electronic bibliography
- 3.- Public bibliography related to the subject.

METHODS AND TECHNIQUES

- 1.- Documental research
- 2.- Field research
- 3.- Interviews inside and outside the company

STRUCTURE

Chapters

- 1 Introduction
- 2 Global Manufacturing
- 3 Socio-cultural characteristics of Tlaxcala
- 4 Production culture in Mexico
- 5 Production culture of the company
- 6 IWS and TPM standards for new Technology Transfer Projects in the Company
- 7 Cultural factors that affect the Technology Transfer
- 8 Technical factors that affected the Technology Transfer Project
- 9 Case-study
- 10 Conclusions and Recommendations

TIMELINE

Activity	Date	Description
Proposal defense	Jan 31	
1st Report	March 7	Chapters 2, 3, 4, 5 and 6
2nd Report	April 11	Chapters 1, 7, 8, 9 and 10
Final draft to Adviser	April 25	
Final draft to Committee	May 7	

RESEARCH PLAN

- Bibliographical review at UDLA-P's library
- Research on the Internet
- Bibliographical review at the company
- Elaboration and conduction of interviews
- Advisory sessions both at the company and university.

PLACES WHERE THE RESEARCH WILL TAKE PLACE

- Facilities of both the company and UDLA-P

BIBLIOGRAPHICAL REVIEW

- [1] Suzuki, Tokutaro. TPM en industrias de proceso. Productivity Press Inc., EEUU, 1995
- [2] Shirose, Kunio. TPM para Mandos Intermedios de Fábrica. Productivity Press Inc., USA, 1994
- [3] Ito, Yoshimi. Moritz, Eckehard. Synergy of Culture and Production: A Holistic Approach to Machine Tool Innovation Vol. 1, Artefact., Alemania, 1997
- [4] Historia y sociedad en Tlaxcala : memorias del Primer Simposio Internacional de Investigaciones Socio-Historicas sobre Tlaxcala, Octubre, 1985. GET-ITC-UAT., México. 1985
- [5] Nickel, Herbert J. Relaciones de trabajo en las haciendas de Puebla y Tlaxcala (1740-1914) : cuatro analisis sobre reclutamiento, peonaje y remuneración. UIA. México, 1987.
- [6] García, Julio. El Estado de Tlaxcala Hoy. Auge. México, 1995
- [7] Wireman, Terry. Inspection and Training for TPM. Industrial Press, EEUU, 1992

- [8] Amsalem, Michel, et.al. Technology crossing borders : the choice, transfer, and management of international technology flows / contributors. Harvard Business School. EEUU. 1984
- [9] Ramírez, Mario. Manual de Técnicas de Supervisión en la Producción. Limusa. México, 1986
- [10] Amrine, Harold. T. Manufacturing and Organization Management. Prentice Hall Inc. 3rd Edition. USA 1992
- [11] Rendón Garcini, Ricardo. Breve Historia de Tlaxcala. Fondo de Cultura Económica. México 1996
- [12] De la O, Ma. Eugenia. Los Estudios sobre la Cultura Obrera en México. CONACULTA, México 1997
- [13] Guadarrama Olvera, Rocío. Cultura y Trabajo en México. UAM, México, 1998
- [14] Stobaugh, Robert; Wells, Louis. Technology Crossing Borders. Harvard Business School Press. USA 1984
- [15] Wionczeck, Miguel. La Transferencia Internacional de Tecnología: El Caso de México. Fondo de Cultura Económica. México, 1974
- [16] González, Roberto. Estudio del establecimiento de un sistema de mantenimiento autónomo en un marco de manufactura global. UDLA-P. México 2002