A Model for an Effective Technology Transfer to Iranian Automotive Industry

M. Samiei Nasr
Engineering Faculty
Islamic Azad University (Tehran, South Branch)
165 Gharany St. The Deputy of Research & Planning
IRAN-TEHRAN

ABSTRACT: - In spite of the tremendous efforts made by those who were actively involved in the automotive industry in Iran, particularly in recent years, the transfer of technology has not taken place as effectively as it has been expected in this industry. Therefore, it is quite necessary for this industry to, first, identify what barriers hinder the effective technological transfer to Iranian automotive industry, and then, to present a model that can suggest the most effective ways through which the Iranian automotive industry can gradually enter the world competitive markets.

In the first phase of this study, the impediments, as well as the components of the effective technological transfer were identified through conducting theoretical and field studies. Then, in the second phase, a general model for effective technological transfer to Iranian automotive industry was suggested.

Key words: - effective technological transfer, automotive industry, foreign direct investment, joint venture, process of technological transfer, Iranian automotive industry

1 Introduction

As the automotive industries and its related technologies are changing rapidly in the world today, the Iranian automotive industry has no choice but to cope with such rapid changes in order for maintaining and upgrading its industrial entity. This can be done through applying appropriate methods of effective technological transfer including foreign direct investment (FDI) and a joint venture (JV) with leading world industries (companies). In other words, transferring of technology and accessing the research findings of the developed countries which can be made possible through establishing strategic connection to the giants in automotive industry provide a shortcut for transferring modern management and marketing systems, as well as the new technical knowledge, and hence, gradually create a significant change in industrial structure and competitive behavior in Iran. Based on his experience in Iranian automotive industry, the researcher has come to the idea that as the economic contrasts is fading and the products are globalizing “we should accompany the giants, so that one day we can become a giant too.”

The purpose of this study is to identify the impediments of technological transfer, and then, to propose a general model for an effective transferring of technology to Iranian automotive Industry.

2 Method and Procedures

The present study is a field study regarding sampling and data collection. Regarding the type, it is a heuristic descriptive study, and regarding the objectives it is a developmental and applied.

The population for this study included the university professors inside and outside of Iran, as well as the senior executives, directors, and experts involved in technological transfer to Iranian automotive industry and car manufacturing companies, and the Presidential Office of Technology. The subjects participating in this study were asked to identify the problems, and factors
involving in technological transfer, and also, to evaluate the fitness of the suggested model for the effective transferring of technology. The size of the samples for each questionnaire was determined by Koran Formula.

For identifying the problems, and the factors involved, the random sampling procedure was used. The indices and the model fitness for the evaluation of the industry readiness for an effective technological transfer were determined based on experts’ judgments.

The instrument for data collection in this study included observation (having a practical experience with the problems and the impediments of the technological transfer to automotive industry), referring to libraries, websites, and databases (providing information for the review of the related literature), interviews with experts, and two questionnaires which were the most important instruments in this study.

3 Research Findings in order of the Research Questions:

**Question 1:** what are the major barriers of the technological transfer to Iranian automotive industry?

The analysis of the results of the first questionnaire (Barriers of technological transfer) indicated that the major barriers of the effective technological transfer in Iran are as follows:
1. Shortage of qualified personnel
2. Lack of appropriate contracts for transferring and application of automotive technology
3. Not utilizing the finding of the countries research centers (lack of communication between industry and universities)
4. Not paying attention to the conformity of the technology to the present status of the country and the automotive industry in Iran
5. Not allocating sufficient research budget for the process of technological transfer in automotive industry
6. Lack of codified policies for technological transfer in automotive industry

**Question 2:** What are the major components of effective technological transfer in Iranian automotive industry?

According to the review of the related literature, the research background, the intensives studies on different models (mentioned in Chapter II of the dissertation), and the results obtained from the first questionnaire data analysis, the major components of effective technological transfer in Iranian automotive industry were identified as follows:
1. Environmental macro factors
2. The process of technological transfer
3. Communication systems
4. Direct foreign investment
5. Joint venture
6. Innovation
7. Research and development
8. A center of technological transfer

**Question 3:** What is a tentative model for the effective transferring of technology to Iranian automotive industry? Based on the acquired components the following general model of an effective technology transfer of is devised.
Question 4: How fit is the tentative model according to experts, university professors, senior executives and advisors involved in automotive industry? Data analysis of the second questionnaire indicated that the model fitness to philosophical perspectives, as well as model objectives for effective technological transfer was approved by experts, university professors, senior executives and advisors involved in automotive industry.

It is worth noticing that the efficacy of the suggested model depends on how well the automobile industry is ready for such a technological transfer. Thus, in order to identify the necessary indices of evaluating the levels of the industry readiness, consequently, a model must be devised to evaluate the capabilities of the automotive industry for an effective technology transfer. This is the topic of my future research which will be presented in near future.

4 Conclusions

1. Based on the review of the related literature, and the research background (mentioned in Chapter II of the dissertation), as well as the study of the deeds and documents on the previous contracts, six barriers were identified which could hinder the effective technological transfer to Iranian automotive industry.

2. Based on these identified barriers and referring to the various available models for technological transfer, as well as the findings of the first questionnaire, eight major components were identified which were
presented in the form of a general model as
road map for effective technological transfer.
3. The fitness of the model to philosophical
perspectives and the objectives of the model,
the effectiveness of the process of
technological transfer, theoretical basis, the
cognitive framework, the operational
algorithm, and the validity of the suggested
model were approved by experts and
executives, and supported by statistical
analysis.

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radhi@ugm@.ac.id), university of Newcastle,
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