

A Model For the Effective Transfer Of Technology To Automobile Industry

**Case: Iran
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Abstract:-Automotive industry plays an important role today in the economical situations of the countries, meantime it is closely interrelated with many other branches of industry. This interrelation accounts for the strong desire the developing countries have for a rapid industrialization and as a result expanding this kind of industry. Though in the developing countries the process of technology transfer is employed for the reconsideration of the economical structures as well as decreasing the gap between the countries it seems to be quite necessary for a country to make the situation ready for the acceptance of such a transfer in a national as well as institutional scale. In this respect it will be necessary for a country to have the adequate potentialities in order to achieve the indispensable infrastructures for an effective transfer of technology.

Since Iran as a developing country is seeking the membership of the World Trade Organization, so as to cut down the prevailing gap is certainly no exception to the rule and must accordingly drift along with the international trends. There are many internal and external factors that are influential on the process of technology transfer that Iran tries to take the advantage of it to take up a better position in the world markets. But the question is can a mere transfer of technology prove to be effective enough?

In this research, the researcher has tried first, to find out the influential factors on the technology transfer, second, to identify the most important impediments and challenges that prevents the process, and finally to represent a model that can best function as an effective process of technology transfer in the Iranian automotive industry. To deepen the domain of the study, some case studies in transfer of automotive industries were also carried out and the results were accordingly compared to the similar cases in some newly developed countries. Finally, the establishment of a center which incessantly monitors the transfer from the very initial step that is the evaluation and the recognition of the required technology to that of its offering to the market, its exploiting, expanding, innovation, and creating new brands was recommended on the basis of the results of the research. A model called MSN was also suggested based on the same results. This model consists of two main parts. The first part depicts the transfer and the employment of the technology and explains that the heaviest part of the job is for the technology transfer, and the second part of the model shows the optimization stage and creating a new technology based on the technology that has been already transferred. This part shows that the technology receiver has the main responsibility. The developing countries usually face problems in this part.

Introduction

Today, technology is present in all aspects of life ,and since, it is a key factor for the industrial development and the economy of the countries ,an effective management must be carried out .

Technology affects the communities so deeply that now there is a gap between the developed and developing countries . The developed countries are superior because they employ technology effectively and usefully ,These countries are also able to

change the economical and political conditions the developing countries that are the technology receivers.

Automotive industry is strongly influential on the economy of the countries because it closely interrelated with other fields of industry . This industry has raised a 5% of gross domestic product (GDP) and also 17% of industrial employment in the USA .But in Iran the direct and indirect rate of employment created by Irankhodro industrial group –the greatest automotive company in the middle east –is a bout 1,300,000 people , and the added value of the motor vehicles , trailers and half –trailers in GDP is 2,23 . In this respect , the countries that try to achieve a rapid economical development rely on this industry to be able to decrease their gab with the developed countries.

In different industries of Iran technology transfer has been always used since long time ago, but due to its complexities, lack of specialized mangers familiar with the different stages of the process of technology transfer, absence of a center to monitor the procedures and contracts, and many other problems that will be later discussed in this research, it has only been confined to purchasing the products of technology and has never caused a growth in industrial thoughts nor achieving new technologies.

According to the studies carried out in the automotive industry it seems that a center of technology transfer must be established that can play an important role in the transfer of technology as a knowledgeable and enabled center assisted by specialized managers.

This center is predicted to have the following sections:

Brain storming section,center of information Technology, Tink Tank center ,center of creativity and innovation, center of R and D cooperated with the technology owners ,center of the cooperation of the universities with the industries ,center for human resources (training inside and outside of the country),center for international laws (familiarity with the laws and regulations of the countries that send technology in order to sign contracts), and a committee of senior

advisors of technology adapted & employed. This center as a thinking unit of the suggested model is in a direct interaction with the entire procedures of technology transfer. It functions as a coordinator as well as an advisor in the process of technology transfer. The most important function of this center is to plan a rational and continuous map of technology transfer. This center should be also able to draw a perspective of the future effects of the imported technology how it can be employed, upgraded and optimized. The model for an effective transfer of technology is shown in fig. 1.

The approach of the research

This research started with broad studies on the literature of the theoretical frameworks of the technology components, methods of technology transfer, the process and the appropriateness of the technology particularly for the Iran's conditions, the contracts of technology transfer in the automotive industry of Iran, then the results were compared with the information obtained from some other countries in order to make an analogy.

The research went on collective experimental documents consisting questionnaires, interviews and personal observations so that a set of data about technology transfer could be attained to explain the reasons why this industry was unable to succeed in Iran and could never place itself properly in international scale.

The findings of this experimental section were combined with theoretical frameworks so that the effective factor influential on technology transfer could be recognized. These findings offer some practical suggestions to reach an effective transfer in automotive industry of Iran (fig2.)

The Methodology of the Research

This research started with studying the literature of the subject including the available documents of the libraries, different websites, questionnaires , personal observations and interviews. Some significant centers such as automobile research centers, universities, the

organization of Industrial development , the center of Industrial project and Scientific Researcher of Iran ,the center of conserving the contracts of Technology transfer of the Iranian Automotive Industry , the scientific and manufacturing centers of automotive industry of the whole country were also visited .

To determine the questions of research a series of theoretical studies were carried out in order to identify the concepts of technology and technology transfer , then library studies began . Then some theoretical studies were carried out on the automotive industry of Iran as well as some newly industrialized countries .finally ,the questions were formed on the basis of personal experiences and observations. Field studies were also done to approve the hypothesis of the research. To approve the validity and reliability of the research results some statistical procedures such as Likert scale was employed. The statistical data were used for the statistical analysis of the research and some statistical tests such as T test were used to recognize the parameters of the research and the significant roles they may play.

Ultimately, an appropriate model on the basis of the information obtained was suggested that can reach an effective transfer of technology in the automotive industry of Iran.

4- Conclusion

A summary of the results of the research after getting through a great deal of analysis are presented as follows:

1- The process of technology transfer in the automotive industry of Iran is void of effectiveness. To improve this situation some specialists who are well-acquainted with the sensitive and process of technology transfer, the ways of selecting an appropriate technology proportionate to the cultural, political and economical conditions of the country, the ways of signing a contract, the ways of monitoring the contract whether it has been implemented fully, ways of allocating sufficient budget for a dynamic cooperation between research centers and

universities with the automotive industry must be employed.

2- There are no principled contract (under no supervision) for the transfer and application of an appropriate technology concerning automotive industry in Iran.

3- In a transfer and the application of technology in the automotive industry the experiences of the research centers (the cooperation between universities and industries) are not used. The world experiences show that the countries which have spend more budget for conducting researches are those who possess advanced technology and industries.

4- There is no attention paid to the factor of technology adoption in the process of technology transfer in the automotive industry of Iran. The absorption and compatibility of the transferred technology with the needs of skilled human powers, infrastructural facilities, its compatibility with the existing technology, weather conditions, economical and political objectives are among the important factors which must be taken into consideration while selecting a technology.

5- In the process of technology transfer in auto-industry the research budgets are not regarded as important. In advanced countries the proportion of research credits to the GDP is between 2.5 to 3.5 percent but the same proportion in Iran fluctuates between .2 to .4 percent. This low percentage is obviously seen through the low rate of scientific articles of Iran in international level.

6- In the process of technology transfer there is no attention paid to the consistent policies of technology transfer.

Taking the advantage of a center that dynamically monitors the entire procedures of a technology transfer particularly in the automotive industry can ensure the effectiveness of the transfer. Nevertheless it must be emphasized that auto industry of Iran, and especially the Iran khodro. industrial group, as the greatest auto -maker

of the Middle - East have made significant advances in the recent years in domestic market and by exporting automobile, has also achieved praiseworthy place in international community.

- 5-Acknowledgement

The Author wish to express his thankfulness to the Vice President of IKCO in Market Development for his cooperation and Miss Farshadpay for her contribution in this research.

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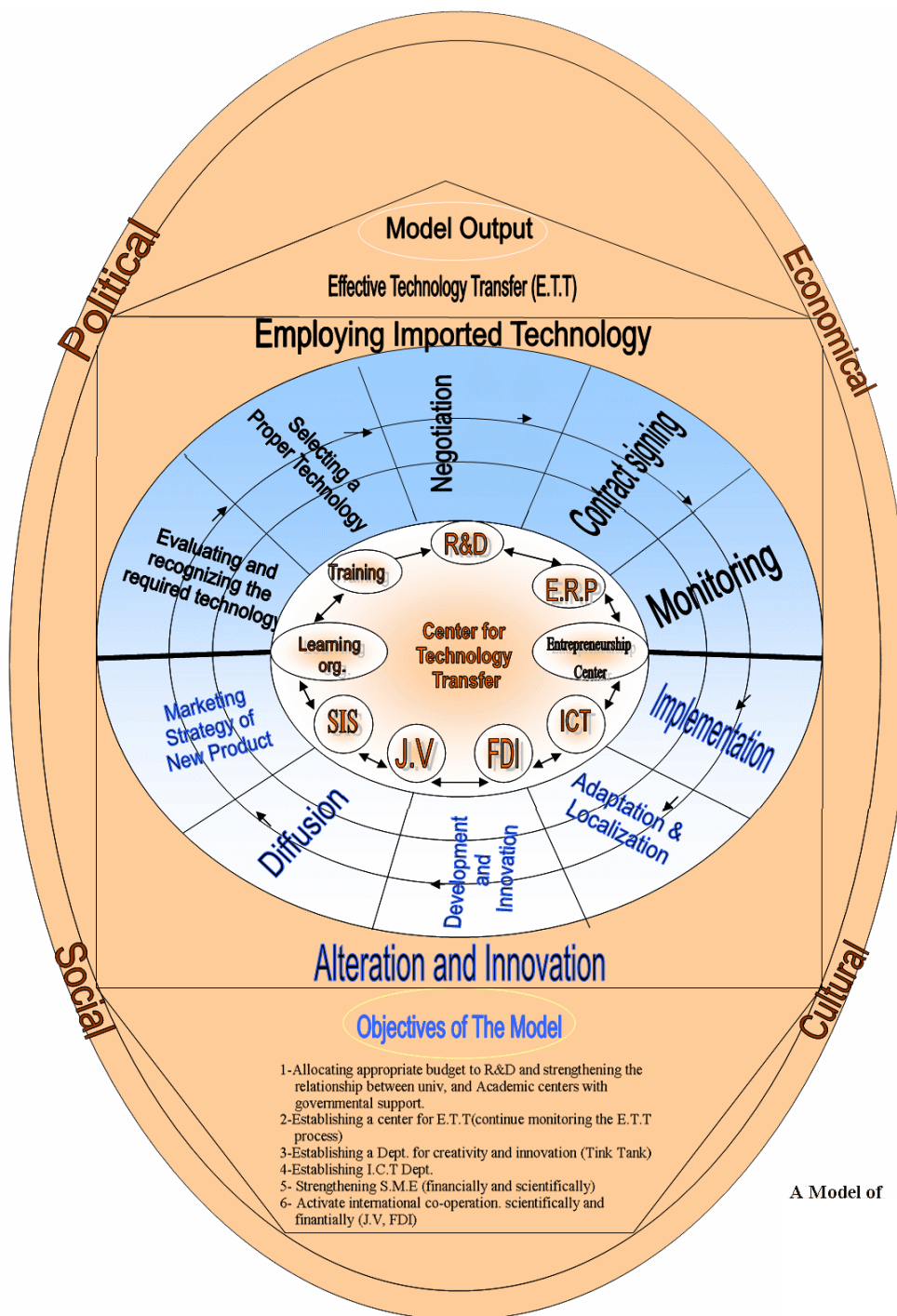


Fig.1 A Model of Effective Technology Transfer

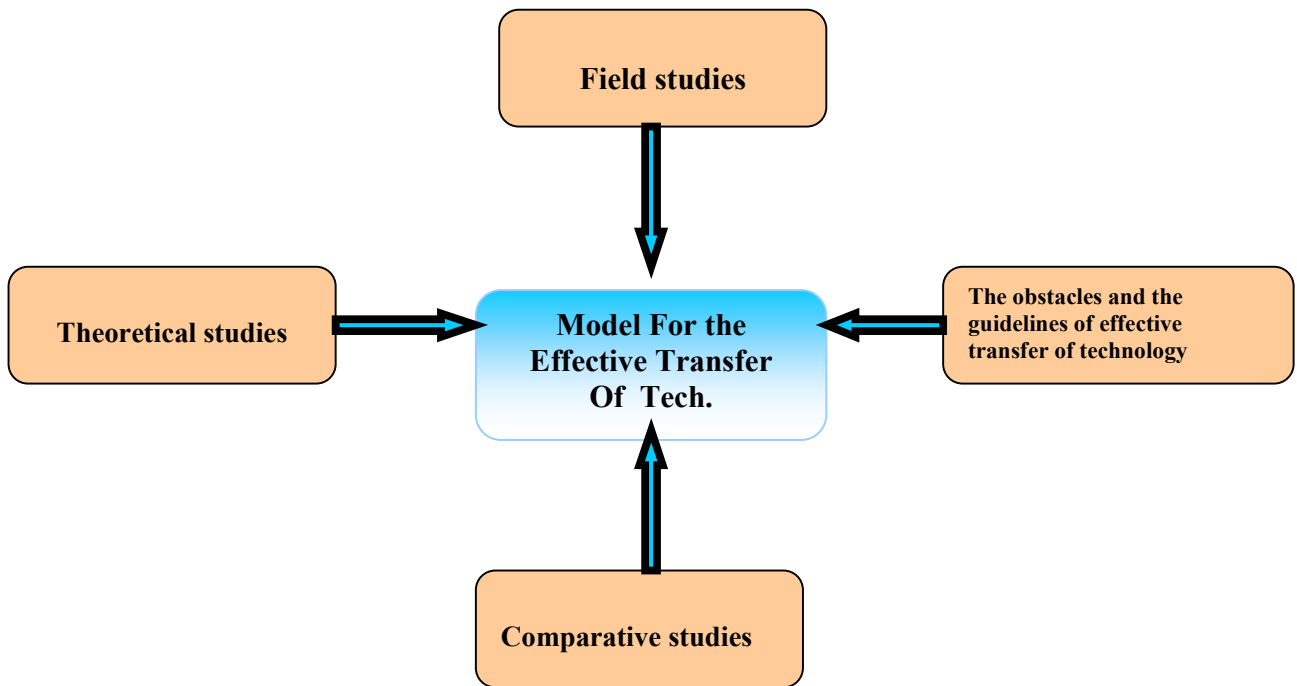


Fig.2 A conceptual model