

## A NEW DISCOURSE ON TECHNOLOGY TRANSFER

Decong Zeng

Professor of Fujian Institute of Economic Management  
Fuzhou, Fujian 350002  
P.R.C.

Changrong Zhong

Professor of College of Management of Fuzhou University  
Fuzhou, Fujian 350002  
P.R.C.

### ABSTRACT

In the contemporary era, all subjects of technology transfer (e.g. nation or an enterprise) exist as a non-linear open system of disequilibrium. However, while we step into the 21st century, the environment in which the said system operated will take place great changes. There are some new features emerged from technology transfer and it will encounter with a range of new problems. The traditional theories guiding technology transfer will have met lots of challenges. This paper brings forward a new theory that is adaptable to needs of the new century. In this paper, we view the opportunity as its core.

## I .New Era

In our human society, technology transfer is an eternal phenomenon; nevertheless, with the dramatic development of technological revolution, it has become the focus of common interest for both developed and developing countries; for competitors and allies; for politicians and enterprisers. Because in the century the competitive focus is on scientific technology, of which the talents are regarded as nucleus; it is vital to conduct technology transfer timely and effectively to the survival and the development of any strategical subjects, and it is the basic way to promote common development of all countries, and the fundamental demand for achieving human society's progresses.

Today, any subjects of technology transfer (e. g. a nation or an enterprise) exist as a non-linear open system of disequilibrium. The environment's (which surrounds this system) internal structural factors and its essential connection are closely related to the operating position of this system, to the decision-making behavior of the subjects and to the realization of the system's goals. Therefore, the environment has taken place great changes. The main indicators are listed as follows: (1) The new technology revolution worldwide is on the upgrade, information is expanding greatly, and industrial structure is making considerable adjustment; (2) the great turbulence of international society, multi-pole of international pattern, and multi-lateral international relationship; (3) rapid development with regard to the internationalization and multinationalization; (4) both technicalization of science and socialization of science & technology have achieved abnormal development; (5) the population problems, environmental problems and problems of broadening gap between the South and the North. In

sum,epochal changes of systematic environment make up a range of synthetic effect.It has pushed or forced the system of technology transfer into a newdevelopment stage,namely,a new era whichismatched with the 21th entury.

## II.New Features

Technology transfer is a social phenomenon and social system, the epochal changes of systematic environmentwill give birth to a newstage of system operation.This is because all respects of international society are not only in the urgent needs of technology transfer,but also there being such possibilities of realizing technology transfer.Furthermore, it is a coherence of the said needs and possiblities. It also is the epochal conjunction of international political,economic social and technological demands for combination of technology and economy.Technology,incidently,is viewed as its conjuntive point. In such a new stage, systematic operation of technology transfer has a great variety of newfeatures,mainly as follows:

(1)Combination of breakthrough and synthesis with coming of the 21th century,scientific technology will have made two leaps;first,technicalization of science,second,industrialization of technology. realization of the both is by the way of synthesis;in other words,it's strategy,technology and benefit.

(2)Combination of competition and synergy. The purpose of synergy is aiming at competition.The competition can only occur after synergy,competitive alliance is developing with care.

(3)Combination of market and non-market.Strengthening of protection of intellectual property has prompted the development of technological trade and technological commercialization. Development of"informationhigh express way" also speeds up non-trade technology transfer. Combintion of the both will propel the society forward.

(4) Combination of vertical transfer and horizontal transfer. It takes the form of intersection; yet, in the aspect of trade volume, the latter has priority over the former.

(5) Combination of unilateral and bilateral transfer. The time that technology transfer is unilaterally introduced into the developing countries from the developed countries has passed away. It takes the form of bilateral transfer.

(6) Combination of traditional technology transfer and top technology transfer. The focus is seeking for the latter.

(7) Combination of international transfer and domestic transfer. International technology transfer occurred by the way of MNCs internal technology dispersion is considered as a vital form.

The epochal changes of system of technology transfer and new features of technology transfer have formed a new trend which shocked the traditional theory of technology transfer.

### III. New Challenges

With the development of technology transfer, many academic research results have been come out, especially after World War II, many valuable works have been published, which played a historical role in guiding technology transfer. Nevertheless, with the new features of systematic environment and operation of technology transfer, such researches have definitely its own limitation. They are mainly referred to as: (1) Limitations of subjects. Traditional theory of technology transfer is served for the offerors; (2) Limitations of nationality. There have been ethnocentric bias in some theories of technology transfer. The purpose is to keep its technological "centre" position and distance with the "edge" technology. (3) Limitations of knowledge. Technology transfer are restricted by economic laws and social regulations. However, a. some publications on technology transfer

avail "ready" theories of economic trade; b. from a certain viewpoint, some aspects to explore and to give answers say little about their essence and rules. c. some of them just focus on the operating application and take negligence of theoretical research, let alone form a systematic, scientific theory system.

In sum, traditional theories of technology transfer have lost contacts with realities of its environment. They don't suit the needs of epochal changes. The only antidote to this problem is to combine the theory with the practice.

#### **IV. New Explorations**

The actual incompetence between theory and practice of technology transfer has caught great attentions, from which many results have been brought out. Among them, we should like to introduce the following points:

##### **1. Theories of opportunity and opportunity group .**

In our opinion, technology transfer is a kind of social behavior, the essence of it is that its subjects (offerors, offerees, and intermediators) have got a command of and made use of the opportunity offered by external environment for the purpose of its goals. It is argued that the central problem in strategical decision-making of contemporary enterprise management is to grasp, to master, to creat and to utilize "opportunity". So the term "opportunity" can be expressed as the possibility of development that the physical environment provides for the subjects, as the coherence of subjects' subjective conditions with the possibility. A significant proposition of a book called enterprise management strategy written by this author is that "success is always accompanied with people who can be good at mastering and utilizing opportunity".

##### **2. Technology transfer stems from "drop in ladder-shaped".**

Its basic notion of the thought is the imbalance of modern economic and technology development. There exists "drop" (falling) transfer between the developed and developing countries. "Falling" can form "potential energy", it creates "opportunity" for technology transfer, and its presentation may be due to the following two factors: one is driven by the main trends of social development, namely, the society has created an urgent demand for technology, and for technology transfer; the other is its own "potential energy" that comes from different level of its stands. Whether the vertical transfer or the horizontal transfer, there exist both gravitation and pulling force.

3. The science of "interest coupling" and its theoretical systems. There are many factors that influence the conversion of opportunity into reality. But in the final analysis, it is the function of interest mechanism, it is the beneficial coherence between the subjects of technology transfer. In addition, there exist many factors that influence strategical environment and opportunity offered for the subjects, namely "interest coupling", for example, joint-ventures are the "benefit coupling" between parent country and host country.

In a word, the contemporary theory of technology transfer which views "opportunity" as its core concept is a scientific theory that is reflecting our era's demand, exploring the essence and rules of technology transfer and prompting technological exchanges and cooperations among the countries on the basis of equality and mutual benefit.