

# Study on Problems and Countermeasures of Chinese Local University Technology Transfer Center Construction

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## Abstract

This paper reveals the main problems in Chinese local university technology transfer center construction: low quality of patent, Lack of high-quality professionals, unreasonable distribution of income of scientific and technological achievements and fuzzy function of university technology transfer center. In-depth analysis, to establish a new framework of Chinese local university technology transfer and technology brokerage closed-loop control principle diagram, constructs perfect patent technology transformation cycle work mode. The study on problems and countermeasures of Chinese local university technology transfer center construction has great significance to improving the ability in Chinese local universities to serve the society.

**Keywords:** Chinese local university, technology transfer center construction, closed-loop control principle diagram

## 1. Introduction

In an increasingly competitive global market environment, enhance competitiveness through technical innovation has become the inevitable choice of enterprises. Rapid development in technology trading market at the same time, in the service of buyers and sellers of technology trading platform is also rapid development, technology trading platform is play an important role in the regional innovation system. University technology transfer center as an important part of the national technology transfer system construction, the system is more and more attention in the construction of innovative country. Gao etc. studied university technology transfer center from the two categories of the campus and independent legal institutions. Zhang etc. proposed through joint, alliances, joint promotion with combination, promote technology transfer to achieve leapfrog development. Guo studied technology transfer law of China the university technology transfer mode. At present, due to the time of Chinese local university technology transfer center set up late, in strengthening the management of intellectual property, intangible assets such as scientific and technological achievements, to build with the combination of technology transfer, improve the position of universities the equity incentive and the allocation policy of invention is just beginning, the research is relatively small. This article mainly aimed at the Chinese local university technology transfer center of research and analysis on the problems existing in the construction, building the framework of Chinese local university technology transfer and technology brokerage closed-loop control principle diagram, perfecting the Chinese local university patent technology transformation cycle work mode, to promote the transformation of scientific and technological achievements in universities under the new situation and technology transfer, improve the ability in Chinese local universities to serve the society.

## 2. Main Problems Existing in Chinese Local University Technology Transfer Center Construction

### 2.1 Low Quality of Patent in Chinese Local Universities Is Not Conducive to the Implementation of Technology Transfer

For scientific research evaluation, patent for invention has being as high level in Chinese Local universities, corresponding reward policy as an incentive. Patent of small scope to protect is easy to be authorized but is very difficult to transfer, having no commercial value. Spend money on applying for patent but not to be transferred is a waste of resources of science and technology. Most of companies buy the patent of Chinese local university, in order to enjoy tax incentives, but not apply patent to industrialization.

## *2.2 Chinese Local University Technology Transfer Center Is Difficult to Attract High-quality Professionals*

Work in the technology transfer interdisciplinary talents need to understand technology, law, market. Due to the low income, Chinese local university technology transfer center can not attract high-quality professionals. Existing university personnel engaged in technology transfer general lack of intellectual property rights knowledge can't have scientific and technological achievements to promote the ability of professional market analysis, can't also develop or design the marketing strategy for the future development of scientific and technological achievements and the commercialization of the optimal route.

## *2.3 Profit Allocation Methods Are Not Perfect, Lack of Effective Incentive Mechanism for Technology Transfer*

The Chinese local university has not established the full protection of the economic interests of the scientific research personnel to promote effective incentive mechanism for technology market, unable to motivate and mobilize the enthusiasm of the teachers and researchers of technology transfer; interest distribution method of the universities science and technology achievement transformation is not reasonable, not in the high university department to mobilize the enthusiasm of the main parties in R & D of technology transfer between universities; and market research and development division of labor is not reasonable, the uneven distribution of benefits, not established cooperation framework and play to the complementary effect; University in promoting the combination of interest distribution mechanism is not perfect, establish a reasonable mechanism for the benefits distribution not in cooperation with the government, enterprises, intermediary agencies etc..

## *2.4 Chinese Local University Technology Transfer Center Function Orientation Is Not Clear*

Existing universities engaged in transformation of scientific & technological achievements and technology transfer personnel lack of intellectual property rights in general knowledge, does not have the capacity to promote market analysis and market the achievement of science and technology professional, also cannot make or design the future development of scientific and technological achievements of the marketing strategy and the best commercial route. Practitioners can not be rational and effective management of project schedule and promote the rhythm, deficient in innovation resources, grasp the advanced technology of judgment, the target area directional technology integration of the selected.

Chinese Local university technology transfer center is a new thing, with the original university of scientific research management and asset management, functional departments work is overlap and cross. Some university technology transfer center and technology offices are the same institution, it is easy to master information of scientific research project but it is difficult to develop the new work. Some university technology transfer center affiliated to the asset management department, the advantage is that the ownership of the intangible assets can be managed professionally; the disadvantage is that competes with the university scientific research management department has insufficient information of scientific and technological achievements.

## **3. Build New Model Construction of Chinese Local University Technology Transfer Work**

### *3.1 Building of Chinese Local University Technology Transfer Framework*

3.1.1 Platform of scientific research institution: including university industry university institute cooperation base and so on; innovation main body including scientific research team and the scientific research personnel; innovation environment for technology transfer for the university and the formulation of relevant policies.

3.1.2 Platform of technology transfer(technology transfer center) : accumulation of all related to technology transfer resources, such as: scientific research management department, asset management companies, university of science and technology park, technology transfer services, etc., the main realization technology evaluation, technology development and services, personnel training, information services, technology, marketing, policy consultation, project training, risk prevention, and other functions.

3.1.3 Platform of technical requirements: docking area of all kinds of requirements of economy and society, including the technical requirements of enterprises and the government, the enterprise service requirements.

With “technology innovation, technology transfer, technical service requirements” three big platform for the framework, in order to “information, capital, knowledge flow, business flow” as the context, to the innovation of the “horizontal chain”and “vertical business chain”as the driving force, to Chinese local university technology transfer framework, as shown in Figure 1. This mode pays attention to the whole process of scientific and technological achievements and the whole life cycle of a technology transfer services, accumulation of all resources related to technology transfer in universities, the principle of collaborative innovation between all kinds of resources.

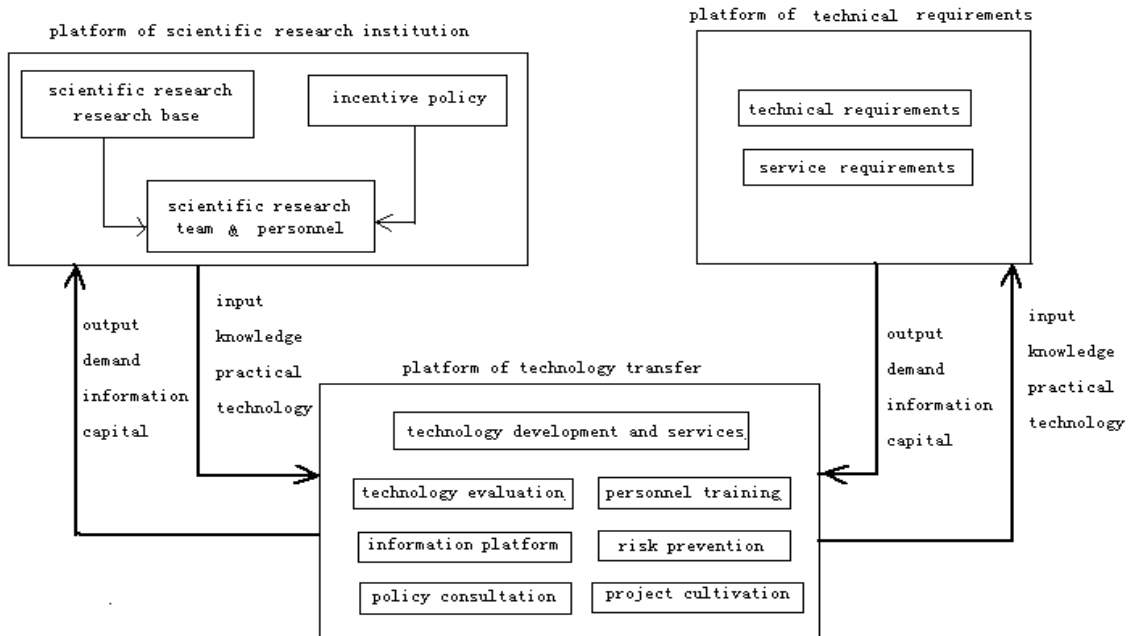


Figure 1

3.2 Construction of Chinese Local University Technology Brokerage Closed-loop Control Principle Diagram

Technology transfer center as a bridge of enterprises and universities, in the process of technical brokers, should be guided by the requirements of enterprises, makes scientific research in universities can meet the requirement of the market, so as to solve enterprise actual requirement, makes universities serve the society effectively. We build Chinese local university technology brokerage closed-loop control principle diagram (shown in Figure 2). In the figure, enterprise requirement as input, technology transfer center as the system control part, have many functions: identify enterprise requirement information, information transfer, technology assessment, technology trade, policy consultation, project cultivation and risk prevention. Controlled object for innovation main body (scientific research team and personnel), the goal is to make scientific research achievements eventually meet the requirement of the enterprise. The basic requirement of control system is rapid, stable and accurate. In the process of cooperation between university and enterprise, also need to satisfy the three requirements.

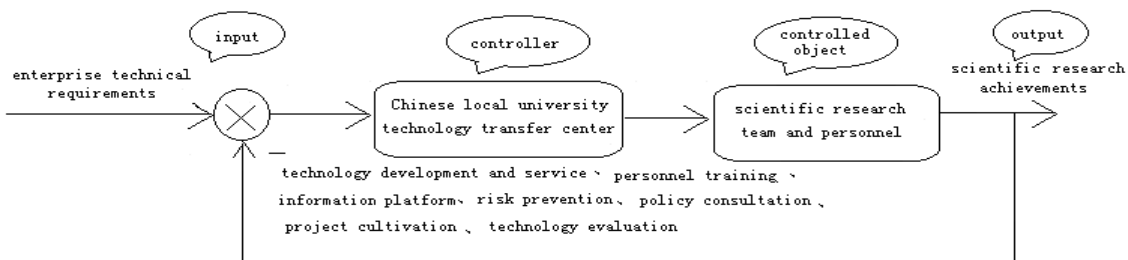


Figure 2. Chinese local university technology brokerage closed-loop control principle diagram

Fast is the need of cooperation between enterprises and universities on time as far as possible to ensure timeliness, this request as the controller of the technology transfer center in mining enterprises requirement and information transfer (assuming that is positive) and promoting scientific and technological achievements of universities to enterprises (assuming that is negative) quickly. Through information means and technology transfer personnel of comprehensive analysis and judgment ability, for the enterprise and universities provide all aging, all-round quality service.

Stability is the requirement of cooperation between enterprises and universities is the norm, with a long-term mechanism to ensure, rather than a dot, loose cooperation. In addition to the project cooperation between enterprises and universities, from build joint laboratories, combine the production task, enterprise and the talent flow in universities, universities talents for enterprises and opening the laboratory and scientific equipment, enterprise

become a base of production practice, provide scholarship and research grants for universities to carry out the depth of the multi-level and comprehensive integration. This will require technology transfer center effective organization and coordination, can achieve the collaborative innovation (shown in Figure 3). Integration of universities, enterprises, government, social organizations, such as many resources, not only effectively attract outside resources, at the same time pay attention to the campus resources integration and coordination, for the researchers of scientific research team and in terms of capital, information, sites, treatment and create a good environment for innovation entrepreneurship. Create form "clearly established ownership, well-defined power and responsibility, knowledge service and scientific management" of the modern system of scientific research and innovation; realize the effective combination of science and technology and economy, education.

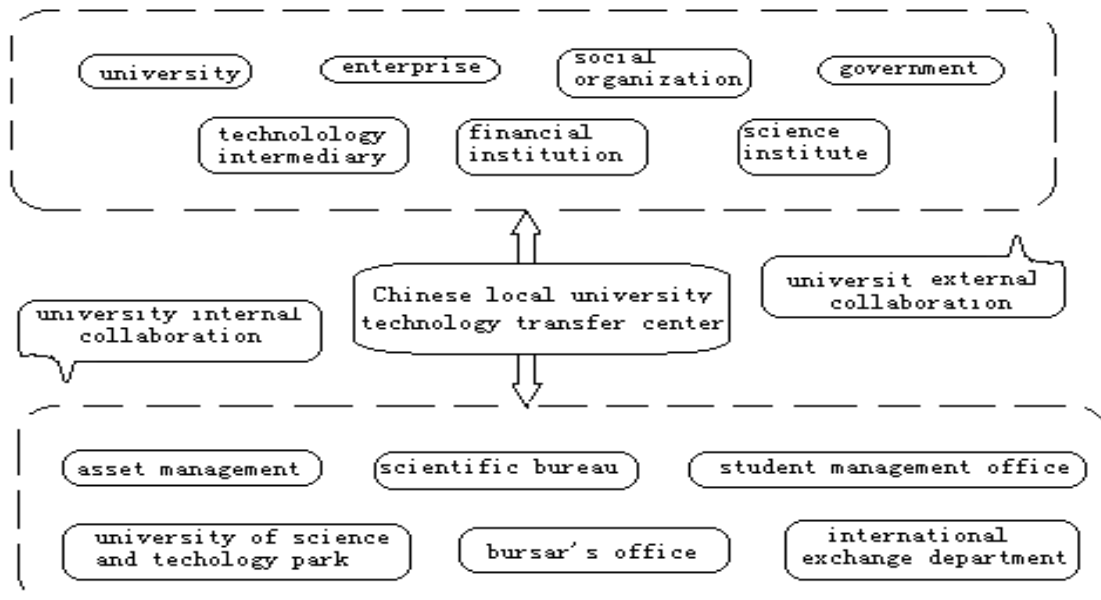


Figure 3. Chinese local university technology transfer center collaboration diagram

Accurate is accurate docking for the result of scientific research in universities and enterprise's requirement. With the enterprise requirement as the guidance, take the market as the guidance, for the technical requirements of enterprises, technology transfer center staff should according to the subject direction of university and the understanding of the scientific research information, can accurately judge the ability to undertake the university, to the filtering of business needs, and accurate delivery team of scientific research and scientific research personnel. For the existing research results can have a definite object in view of the university's own, introduced to the real needs of the enterprises. In the technology transaction, contract signing, policy advice, project tracking links, by virtue of their own professional knowledge, carry out accurate technology brokering activities.

### 3.3 Constructing and Improving the Circular Working Mode of College Patent Technology Transformation

The agencies of intellectual property management and service in China University are responsible for the application, protection and management of patent technology. But they lack of the necessary professional assessment analysis for the competitive advantage in technology, the technology of scientific and technological achievements whether it is necessary to apply for a patent and its market application prospect and commercial promotion. If there were professional assessment for patent application, with respect to the potential commercial value of the technology, through the experimental design, expand the scope of claims, improve the patent value, will be able to greatly improve the feasibility of scientific and technological achievements by the laboratory to industrialization.

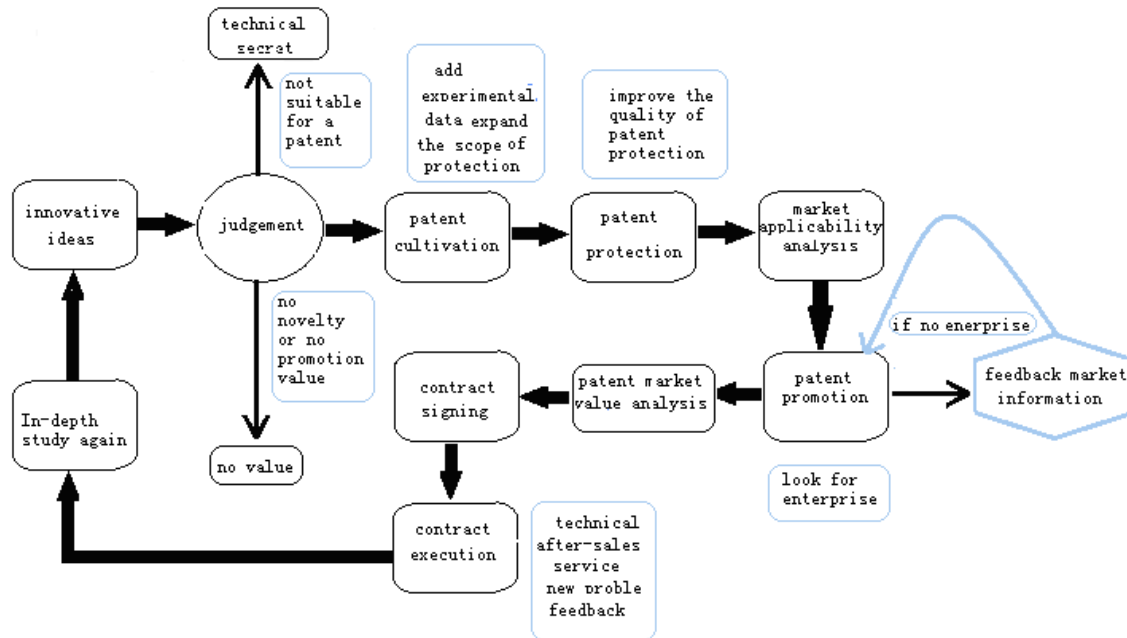


Figure 4. Chinese local university patent technology transformation cycle working mode

With the patent was authorized, a good college patent technology transformation cycle mode can be formed through the analysis of market applications, patent marketing, and tracking the patent implementation, as shown in Figure 4.

#### 4. Countermeasures and Suggestions for Establishment and Improvement of Chinese Local University Technology Transfer Center Place

##### 4.1 Establish and Implement the Scientific Evaluation of University Evaluation System, for Technology Transfer Intellectual Achievements of the Commercial Value

According to the researchers, university innovation team, platform base, research projects in accordance with the characteristics of different objects, basic research, applied research, technology transfer, transformation of different jobs, the implementation of classification evaluation: the evaluation of the application of researchers to focus on requirement, with independent intellectual property rights and the major technological breakthrough for the evaluation of the main focus; engaged in technology transfer, technical service activities in science and technology personnel to implement economic and social benefit and practical contribution to the key. Study on the application of the project focuses on the evaluation target completion, achievement transformation and the technical breakthrough and leading. Industrial development project will focus on the assessment of real contribution to the industry development; promote the capitalization, the industrialization of scientific and technological achievements.

##### 4.2 With the Help of Professional Intellectual Property Services, Enhance the Quality of Local Colleges and Universities Intellectual Property

Education management departments in China university technology transfer center set up special funds to support, encourage local universities and professional intellectual property Service Corporation cooperation, explore the "benign patent management predict in advance, tracking services, technology promotion", to engage in technology transfer personnel can reasonably and effectively manage the project schedule and promote the rhythm.

##### 4.3 Give the University Technology Transfer Center More Autonomy to Cultivate High-quality Personnel, Technology Transfer and Innovation Team

The State shall encourage the creation and selection of technology transfer and innovation team, encourage university technology transfer center in accordance with the relevant provisions of the state, improve employment and post employment mechanism, the personnel should have more autonomy. For example, favor in the evaluation of professional titles, adding technology transfer senior title of professional post, with good policy to attract high-end technology transfer professionals' compound. University Technology Transfer Center construction should be strengthened in the technology transfer team construction, related to regular professional training, an important part

of the technology transfer of professional personnel training mechanism into the technology transfer system.

#### 4.4 Fully Implementation of the Use of Scientific and Technological Achievements, Disposal and Revenue Management Reform Policy

Since 2011, Beijing Zhongguancun National Innovation Demonstration Zone, Wuhan East Lake National Innovation Demonstration Zone, Shanghai Zhang Jiang national innovation demonstration zone and hewubeng independent innovation Comprehensive Experimental Zone started the achievement of science and technology institutions in their right to dispose of rights and benefits management reform, 8000000 below science and technology achievements disposal process simplified. In 2014 July, the State Council executive meeting decided: allows the pilot units to take transfer, licensing, pricing shares, transfer and transformation of scientific and technological achievements, the income from all units remain independent distribution, more incentives to achievement of science and technology to create the institutions and persons who made important contributions to the science and technology personnel, further mobilize the enthusiasm of innovation. The scientific and technological achievements of the right to use, disposal and the right to return to the creation of the results, further to create loose afterburner. Governments at all levels should formulate policies conducive to refine the achievement transformation, promoting the transformation of scientific and technological achievements and technology transfer. The technology transfer centers should be established to meet the characteristics of their local university development policy, perfecting the technology transfer system construction, enhance the enthusiasm of the transformation of scientific and technological achievements.

#### 4.5 Technology Transfer Center Construction Gradually Market-oriented Operation

University technology transfer center should gradually shift to the independent operation of the market, strive for social funding. By the present government blood transfusion to the future own hematopoietic function change, strive for more extensive resources of science and technology for the transformation of scientific and technological achievements. With the highlights of social service function of University, it will move toward the market of professional operation of the road.

### 5. Conclusions

University Technology Transfer Center is innovation of the universities science and technology achievement transformation, is a set of enterprise technology research projects requirement release, achievements in scientific research, technology trading results supply function in the integration of technology transfer service platform. In strengthening the management of intangible assets, combining the construction of technology transfer for research, and play an active role to improve the invention of equity incentive and distribution policy etc. Local universities should improve scientific evaluation system, training and professional service team, technology transfer, disposal of local colleges and universities use the activation of scientific and technological achievements and benefits management initiative. The strengthening of local university technology transfer center construction under the new situation, to promote our country universities science and technology achievement transformation and transfer of technology, has great significance to enhance the ability of college social services.

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