

# Practice and Application on TRIZ in China

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**Abstract:** Since 1998, the first published paper introduced TRIZ theory in P. R. China; it was widespread in many research areas and places sharply. This article will introduce the former researchers, the universities, the institutes and the companies, who had done some work on TRIZ in China. The main work on TRIZ are mainly about three areas: developing TRIZ software in Chinese type, initiating TRIZ knowledge to students or engineers, and applying TRIZ theory in practice to solve the technical contradiction, shorten the period of developing new product, save lots of wealth. For a short time, more and more people begin to acquire TRIZ knowledge to enhance their creativity and innovative consciousness for solving technical problems or developing new products finally.

**Keywords:** TRIZ, Research, Software

## 1 Introduction

The first published paper introduced TRIZ theory in P. R. China was in 1998 by Niu Zhanwen (牛占文) who is a teacher working in Tianjin University (天津大学). And the first time to introduce TRIZ theory at the First International Mechanical Conference in Shanghai (上海) at September 2000 was by professor Tan Runhua (檀润华) who now is a vice-president of Hebei Industrial University (河北工业大学). After that time, many university teachers, engineers and researchers begin to learn, know and apply this theory into practice. And TRIZ theory was widespread in many research areas and places sharply. The practice and application of TRIZ theory in China are mainly on Altshuller's Classical theory and Modern TRIZ theory.

## 2 Researchers and Research Organization

Now there are many universities, institutes and companies involving TRIZ theory into practice. Table 1 shows the brief research works on TRIZ in China that the researchers or the organization had done before.

**Table 1 Brief review works on TRIZ in China**

<b>Researcher/ Organization</b>	<b>Main works</b>	<b>Places</b>
Niu Zhanwen (牛占文)	First publisher to introduce TRIZ, Research on Ontology & TRIZ theory	Tianjin University (天津大学)

Xu Yanshen (徐燕申)	Applying TRIZ theory to solve practical problem & develop products	
Tan Runhua (檀润华)	Develop TRIZ software Integrate TRIZ, QFD, Axiomatic Design Spread TRIZ to university students, postgraduates and engineers	Hebei Industrial University(河北工业大学) China TRIZ Research Center (中国 TRIZ 研究中心)
Zhao xinjun (赵新军)	Develop TRIZ software Integrate TRIZ, QFD, Taguchi Method Spread TRIZ to university students, postgraduates and engineers	Northeastern University (东北大学)
Zhang Genbao (张根保)	TRIZ and integrated application Education	Chong Qing University (重庆大学)
Zheng Chengde (郑称德)	Introduce TRIZ with papers	National Fund Committee (国家自然科学基金)
Ma Huaiyu (马怀宇)	Introduce TRIZ with papers Education	Tsinghua University (清华大学)
Huang Qiming (黄旗明)	Introduce TRIZ with papers Education	Zhejiang University (浙江大学)
Hu Xiuqiang (胡秀强)	Education on Computer Aided Innovation	Southwest Jiaotong University (西南交通大学)
IWINT Inc. (亿维讯集团公司)	Provide innovation technologies and applications to the enterprises, research institutes and universities. Especially on TRIZ software & e-book	HQ in California, USA <a href="http://www.iwint.com/">http://www.iwint.com/</a> Branch in Beijing (总部: 在美国 加州 分部: 香港、北京、成都)
Chengdu Aircraft Design & Research Institute (CADI) (成都飞机设计研究所)	Applying TRIZ, QFD or other design method into practice	Chengdu City (成都市) <a href="http://www.cadi.ac.cn/">http://www.cadi.ac.cn/</a>
Other companies	Learn and apply TRIZ theory into practice	

### 3 Main Work on TRIZ

Now in China, the main works on TRIZ researches are included three research areas as below.

The first research area is that to develop Chinese type software on TRIZ. And now some kinds of software about TRIZ are on the market. For example Professor Tan Runhua and his research center developed Invention Tool 1.0 (发明工具 1.0) and Invention Tool 2.0 (发明工具 2.0), which include three modules – technology evolution module, science effect module and technical contradiction solving principles module. IWINT Inc. developed two kinds of software on TRIZ, one is called Pro/Innovator (计算机辅助创新设计平台) and the other is called Computer- Based Training for Innovation (创新能力拓展平台) - CBT/NOVA. Pro/Innovator is a Computer-Aided Innovation tool that enhances logical thinking by integrating TRIZ, modern design methodologies, philosophy, and natural language processing technology to assist engineers breaking psychological inertia during the conceptual design stages of product development. It helps the engineering and scientific professionals and corporations to resolve engineering problems, generate innovative concepts, evaluate alternatives, and create patent application documents. This tool is used across many different industries. CBT/NOVA is a training platform developed by IWINT, Inc. This platform offers a systematic computer aided training so that the users can, in a short time, achieve substantial improvement and development in innovation abilities. Mastering the innovation skills enable the users to gain sustainable and effective production of valuable new knowledge.

The second research area is that to initiate TRIZ knowledge to students, engineers, or researchers by using TRIZ software (CBTI or others) or TRIZ books (published in English or in Chinese). These kinds of works are mainly doing by the University professors. Now there are two books published in Chinese about introducing TRIZ systematically. One book is called Innovative Design [创新设计-TRIZ 理论]- Introduction on TRIZ written by Tan Runhua, and the other book is Technical Innovation Theory (TRIZ) and Its Application [技术创新理论 (TRIZ) 及应用]written by Zhao Xinjun. And there are a few TRIZ books edited in English been translated into Chinese by some researchers.

The third research area is that to apply TRIZ theory into practice, solve the technical contradiction, and shorten the period of developing new product, save lots of wealth. And the application fields cover the industries including aerospace & defense, equipment manufacturing, automobile, electronics, light industry and so forth.

#### **4 Conclusion**

From 1998, some new methods for increasing human being's creativity especially for TRIZ theory are sharply emerged in the mainland of China. Researchers, engineers, managers and government officers are all pay more attention to product innovation, technical innovation, administrant innovation, and scientific system innovation. Enterprises, universities and the correlative government branches are all give financial supports on National Innovative Engineering, the National Fund Committee and some Province Fund Committee established research items on TRIZ specially. Some successes were achieved from these items on TRIZ

software, the development of TRIZ theory and the application of it. And also more and more people specially assigned for launching out into TRIZ research work.

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