



# Made in China: Challenge and Innovation in China's Vocational Education and Training System

**International Comparative Study of Leading Vocational  
Education Systems**

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## **EXECUTIVE SUMMARY**



**CENTER ON INTERNATIONAL  
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## EXECUTIVE SUMMARY

In the less than forty years since premier Deng Xiaoping opened up the People's Republic of China to the outside world in 1978, China has leapt from being a poverty-stricken rural society to the second-largest economy in the world with a growing middle class of more than five hundred million people. China has become the largest manufacturer and the largest exporter in the world. And it has also developed some of the world's most modern infrastructure: from the spectacular skyscrapers of Pudong to high-speed Maglev trains, to the world's most modern airports and thousands of miles of new highways.

Fast forward. The Chinese economy is now at another inflection point. The astounding economic growth over the past thirty years has been built substantially on low-cost, low-skill manufacturing for export. But this model has come at great cost in terms of environmental damage and growing social and economic inequality and is increasingly unviable as wages in China's cities rise and post-recession markets remain soft in many parts of the world. To raise itself from a middle-income to a high-income country and extend prosperity to more of its people, China needs to transform its economic model. The government recognizes this and has announced that it wants to move from a model based on low-cost, low-skill exports to one based on services, consumer demand, agricultural modernization, high-value-added products and innovation. But does China have the skills necessary to build this new economy?

This study of China's skill development system is part of a larger international and comparative study of vocational education and training systems (VET), which also includes studies of Singapore, Switzerland, Australia, Denmark and the United States. The study is designed to examine how VET systems, often associated with outmoded industries, can be redesigned to provide meaningful career preparation for the more demanding labor markets of the 21st century. This case study of China, undertaken by a research team under the auspices of the National Center on Education and the Economy (NCEE), examines the development of the Chinese economy over the past thirty years and the current effort to shift to a new economy as a backdrop to the huge increase in skills and productivity China will need to become a "modern, harmonious and innovation-oriented society". It analyses whether the VET system can produce the skills China will need for this new economy by looking at it from the perspective of the world's best practices in VET in the 21st century.

The astounding growth of academic secondary and higher education in China since the Cultural Revolution and the world-beating results of the Shanghai school system mask the fact that China has a major skills gap. In 2010, only 4 percent of adults in the Chinese labor force were considered highly skilled and half of urban workers were classified as skilled, a reality which affects the productivity of the labor force and the quality of products that can be “made in China”. Vocational education, which in China is provided in separate institutions rather than vocational programs within more general purpose institutions, has grown but lagged behind academic education.

From interviews with economists, education researchers, government policymakers at national and provincial levels, Chinese and foreign employers, and visits to numerous secondary vocational schools and tertiary vocational colleges in four major cities, the research team concluded that despite recent changes, VET in China has many challenges:

- The curriculum design of VET programs is too narrow – focused primarily on entry-level skills for the first job rather than the broader skills needed in an era when jobs change rapidly.
- Connections to industry are weak and there are few incentives for employers to cooperate deeply with VET in creating sequenced and supervised interplays of learning and work.
- VET has low status in the public mind – the status distinctions between academic and vocational education are deeply rooted in Chinese culture.
- Structural barriers mean that most vocational education finishes at the end of secondary school and there are few bridges between vocational and academic/higher education.
- There is a mismatch between employer needs and graduate capabilities with employers complaining about graduates’ lack of ability to apply knowledge, solve problems and think critically.
- Most VET faculty have limited experience in industry.
- Occupational standards and qualifications systems need to be developed or updated and linked to the leading edge of industries.



- Adult and lifelong education is relatively undeveloped but essential as the life cycle of skills gets shorter.
- The complex government bureaucracies of VET hamper innovation and responsiveness to the market.

At the same time, there is growing recognition of many of these challenges. China runs the largest VET system in the world. VET has been designated a national priority – a ‘key target of education promotion’ – and more than one hundred vocational secondary schools and colleges and some cities have been designated as models to pilot new approaches, as described in this report. There is a wealth of experimentation going on and much debate as to the best path.

There are several different national models of VET systems. Some, such as Singapore, are education-based; some, such as Switzerland are employment-based, and others are hybrids. But no matter what the overall model, from our studies of VET systems in different parts of the world, NCEE has identified the key characteristics of successful VET systems in the global knowledge economy of the 21st century:

#### Characteristics of A Top VET System

- Provides students with a broad education designed to prepare them to easily gain additional skills and knowledge needed as their career goals, technology and work organization change over their employed lifetime.
- Provides opportunities for students to learn and to practice necessary cognitive and non-cognitive skills in an authentic industry setting.
- Provides opportunities for students to learn the theory behind the practice.
- Creates learning environments in which students can learn and practice on state-of-the-art equipment.
- Provides opportunities for students to move from vocational track to academic, university track and vice-versa.

- Provides opportunities for students to move up from the lowest levels of occupational preparation to the highest levels of academic and professional preparation with career guidance along the way.
- Provides a distribution of training slots that is reasonably related to the demands of the economy, in terms of occupations and levels of qualifications needed to operate the economy.
- Provides instructors who have industry experience and whose knowledge of the industry is fully current with state-of-the-art practice.
- Provides incentives adequate to attract the necessary number and quality of instructors for each occupational group and qualification level.
- Provides incentives adequate to attract qualified students to each level of the skills training system.
- Builds on a basic education system that provides students entering the vocational education system with the skills and knowledge needed to engage productively with the vocational education system.
- Creates a brand that makes vocational education an attractive opportunity to young people who have options.
- Provides standards and qualifications widely recognized in the labor market and continually adjusted to the leading edge of industries, including the increasingly global nature of occupations.
- Adapts to the level of economic development of the economy in which the student will work and to the level of technological advancement and work organization characteristic of that economy.



China is engaged in a period of significant experimentation in VET. To overcome these obstacles, successfully modernize its VET system and build the innovation-centered economy its government has publicly pledged to develop, we offer the following recommendations:

- Given the size of China, create models of systems at different stages of economic development in different provinces.
- Build a governance system that is substantially employer-driven.
- Redesign the programs and curricula of VET institutions.
- Create incentives for employer participation and for institutions to upgrade their programs to international standards.
- Build bridges between VET and academic and higher education.
- Address the low public perception of VET.

Developing a modern VET system is an issue of increasing urgency around the globe. China has a history of using international benchmarking to drive internal reform and innovation. We hope this report will contribute to that tradition. We thank our Chinese interlocutors for their willingness to candidly share their concerns and ideas without which this report could not have been written. Many countries face similar challenges to China in redesigning their education and skill-formation systems for the 21st century. We therefore hope that this report and the larger VET study will be of broad interest to other countries as well. We have much to learn from each other.

Read the full report, *Made in China: Challenge and Innovation in China's Vocational Education and Training System*, at <http://www.ncee.org/china-vet/>.