



United Nations  
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for Technical and Vocational  
Education and Training



## Shenzhen Polytechnic: Innovation in higher TVET

i-hubs Innovative Practice

## Context

### Setting an innovative pace on the national level

Shenzhen Polytechnic (SZPT) has built its reputation on a wide range of programmes, initiatives, student opportunities and partnerships, all based within an environment that includes a pioneering technology research and development centre, a global innovation and entrepreneurship education centre for technical and skilled talents, and support for innovative talents and entrepreneurs. These best practices have gained national prominence and the result is a nation-leading TVET institution that is setting the pace for the rest of the country.

### Immersing students in innovation

Innovation takes root in the physical spaces dedicated to innovation and entrepreneurship on the campus. The College Student Creative and Entrepreneurship Park exists for students to work on start-up projects, and the microfabrication centre (known as the Maker Centre) features free open source design tools, advanced manufacturing equipment such as 3D printers, shared collaborative platforms, and training opportunities from representatives at well-known companies.

### Innovating campus culture

Interestingly, in a field such as TVET where hard skills and specific professional qualifications are often the focus, one of the keys to success at SZPT has been creating a cultural atmosphere of innovation and entrepreneurship. Weekly activities and projects for each student and monthly theme activities are part of this, involving more than 12,900 students active in clubs that focus on innovation.

## Enablers of institutional innovation

**The following four dimensions of institutional operation represent the evaluation lens that was applied in the selection of this initiative as an Innovative Practice:**

**Teaching and Learning:** Teachers are encouraged to become leaders in innovative methods of TVET instruction and all students are immersed in an environment that progressively increases the depth of innovation skills, entrepreneurial instruction, and start-up support.

**Strategy and Management:** SZPT's strategy and management policies reflect its high standing as a cutting-edge TVET institution in PR China, where large-scale innovations are given high priority and dedicated resources.

**Products and Services:** The Research and Development (R&D) mandate is reflected in the type of products and services offered, with top-notch facilities and equipment that are regularly used to address specific industry issues.

**Ecosystem Relationship Management:** Close collaboration with major private sector partners creates avenues for innovation in teaching and learning in addition to funding for large-scale campus projects and facilities.

## Institutional Overview

Shenzhen Polytechnic (SZPT), Shenzhen, China

Established: 1993

Student body: 23,601 (2020)

Faculty and staff: 2,406 (2020)

**SZPT is a higher technical and vocational education and training (TVET) institution funded by the Shenzhen municipal government. When it was established, it was one of the earliest independent public higher TVET institutions in China. It now strives to be a pioneer of innovative development in TVET.**

**Mission statement:** *"To supply interdisciplinary, innovative, high-calibre, technical and skilled human resources while serving students' career development, Shenzhen's local industries and enterprises, and Chinese economic and social development."*

The engine for driving innovation at SZPT is its approach to **Teaching and Learning** in entrepreneurship. Students take a progressive path that starts with an introduction to innovation and builds to business start-up opportunities and beyond.

The standardized curricula system covering a core set of successive courses – categorized as either innovation or entrepreneurial – is included in every programme of study. The standardized curricula system targeted at the progressive acquisition of innovation competencies is known as the 'four-in-one' curricula model: Enlightenment Education, Preparatory Education, Professional Education and Practical Education for start-ups by student teams. This approach is tied to specific innovative teaching practices and professional development opportunities designed by SZPT. By mainstreaming these competencies across all programmes, the institution has created a comprehensive learning environment underpinned by the concepts and practices of innovation.

**SZPT's Strategy and Management centres on an Innovation Action Plan comprising a large-scale, policy-driven culture of innovation and entrepreneurship.**

The institution's successful strategy and management is deeply embedded in policies and processes that are measured against internal innovation benchmarks. In addition, its plan for innovation makes provisions for the development of dedicated facilities for entrepreneurship. Concerted efforts from management and faculty to encourage student clubs and competitions for business plans and innovation have yielded significant results.

SZPT's non-traditional **Products and Services** are also a major contributor to institutional innovation. SZPT analyses business developments and opportunities, and draws upon this research to inform TVET opportunities.

Business incubators and mentorship services are available to help new business initiatives, and insights from businesses provide a source of real-life cases or challenges, which in turn inspire the creation and testing of business prototypes commissioned by industry partners.

SZPT has developed a national innovation and entrepreneurship resource library with support from the Chinese Ministry of Education. It covers 34 provincial regions and is used by over 800 colleges. By setting up open educational resources, the best practices of a leading institution like SZPT can be easily disseminated and adopted by other schools to provide students with top-notch innovation and entrepreneurial training.

**SZPT utilized its Ecosystem Relationship Management to enhance its multidisciplinary approach to innovation and entrepreneurship.**

The multidisciplinary approach creates ownership and buy-in for its work by actively participating in collaborative efforts with stakeholders, including interdisciplinary learning centres or innovation and entrepreneurship platforms. Networking by management and staff is encouraged and facilitated through participation in a wide range of ecosystem fairs, conferences, alliances, and competitions. Thanks to a robust local business environment, SZPT has collaborated with industry leaders on shared platforms and training. It has also worked with global companies to create industrial schools, such as the Huawei School of Network Technology.



"Four-in-One" Curricula Model  
Source: Shenzhen Polytechnic

## Insights

### Implement a "major+" approach

A curricular innovation at SZPT is known as the "major+" reform. This is a model of "core majors + extended majors" to encourage interdisciplinary approaches to learning and courses of study that better integrate traditional majors with TVET skills. In addition to highlighting innovation and entrepreneurial training, the major+ approach creates new opportunities for students and TVET institutions to work closely together with stakeholders from the private sector.

### Adapt to your context

While many TVET institutions will not be able to replicate SZPT's scale or resources, the school's culture, dedicated spaces for innovation and entrepreneurship, and approach to mainstreaming innovation and entrepreneurship represent an array of best practices that can be adapted fully or in part to suit different institutional contexts and can be implemented on an à la carte basis. SZPT represents what is possible when a TVET institution establishes itself as an authority in teaching entrepreneurship, creates an environment for students to succeed and responds to the needs and opportunities of the business sector.

### UNESCO-UNEVOC Innovative Practice

Shenzhen Polytechnic is a true 'hub' as defined by the 'Skills for Innovation Hubs' project – the focal point of TVET innovation in its regional and national setting. What makes SZPT a TVET innovator is its streamlined educational processes and expansive network of collaborators and like-minded institutions around China and across the world.

## Learn more

**Prof. Wenming Yang, UNEVOC Centre Coordinator, Shenzhen Polytechnic**, helped to compile this document. For more information, contact [yangwm@szpt.edu.cn](mailto:yangwm@szpt.edu.cn). To learn more about SZPT, visit <http://www.english.szpt.edu.cn>.

## Discover other i-hubs innovative practices

Skills for Innovation Hubs (i-hubs) is a global initiative led by UNESCO-UNEVOC and supported by the Beijing Caofeidian International Vocational Education City (BCEC), with contributions from the German Federal Ministry of Education and Research (BMBF) and the Federal Ministry for Economic Cooperation and Development (BMZ).

Learn more at:

<http://www.unevoc.unesco.org/i-hubs>

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