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# Cultivating Technology Business Talents: An Industry-Embedded Talent Cultivation System

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**Abstract: The cultivation of technology business talents is an important measure for breaking through the bottlenecks in the commercialization of China's scientific research, and support the development of a modern industrial system. Furthermore, it is an important direction for the reform of business education in universities. Therefore, based on the industry context, this paper conducts in-depth discussions on the connotation and cultivation system of technology business talents. The core training objective for technology business talents is to develop interdisciplinary technology industry organizational talents with the Five-Proficiency competencies: proficiency in technology, industry, capital, markets, and management. The Five-Proficiency competency framework is divided into three progressive levels: cognitive foundation, operational capability, and integration capability. To realize the Five-Proficiency objectives, this paper further constructs a technology business talent cultivation system, which consists of four dimensions: positioning reconstruction, curriculum iteration, platform construction, and model innovation. Based on industry demand, universities should develop differentiated and targeted cultivation orientations around key industry. a three-dimensional practical curriculum system should be constructed that regards business disciplines as the core, technological knowledge as the foundation, and industry-specific practice as the distinctive feature. Universities should integrate multiple resources and build multi-stakeholder collaborative cultivation platforms. Universities should innovate talent cultivation model, embedding industry into teaching and empowering talent cultivation.**

**Keywords: Technology Business Talents; Talent Cultivation System; Higher Education**

## 1. Introduction

The Outline of the 15th Five-Year Plan of China clearly states that talent cultivation shall be coordinated with scientific and technological innovation, industrial development and national strategic, and it is vital to improve the quality of independent talent cultivation. These statements identify the core direction for the integrated development of education, science and technology, and talent in China. In April 2026, Huai Jinpeng, Minister of Education, stressed the importance of building a high quality team of technology managers and accelerating the pilot development of technology business schools, which indicates that the cultivation of technology business talents has become a national priority for higher education reform. In recent years, scientific and technological innovation has entered a period of intensive iteration and activity, and continuously reshapes the industrial form and business logic. The traditional demand for talent has been completely changed due to the deep integration of technological change and industrial upgrading. There is an urgent demand for technology business talents who possess technological literacy, commercial thinking, industrial vision and capital awareness.

However, there are many problems in the current cultivation of technology business talents in universities. Traditional business education is rooted in the logic of industrialization and focuses on training general management talents. The curriculum system emphasizes traditional management theory, while there is less cross disciplinary content with technology and industry. At the same time, there are still shortcomings such as outdated training models, insufficient industrial practices, and a shortage of educational resources. All of these have led to serious homogenization in talent cultivation, which cannot adapt to industrial development. In the meantime, the large-scale free supply of

artificial intelligence has changed the mode of human work and promoted the transformation of business education. Higher education must abandon the simple imparting of knowledge, and focus on cultivating core competencies that AI cannot replace, such as complex strategic decision, industry value judgment, and integrative innovation.

Based on the above background, this paper will focus on the industrial context, integrate technological elements, and build a cultivation system for technology business talents in the new era. It is not a simple repair and extension of traditional business education. Rather, it is an imperative choice for universities to serve national strategies, empower industrial upgrading, and break through bottlenecks in the commercialization of scientific research achievements, and constitutes a core proposition for the reform and transformation of business education in the new era.

## 2. Research Dynamics in Technology Business Talent Development

### 2.1 International Research and Practice Progress

The interdisciplinary training model for technology business talents is an educational innovation driven by the reshaping of the global industrial landscape. Top universities in Europe and the United States pioneered the interdisciplinary training paradigm of "technology + management" and developed well-established practical systems. The System Design and Management (SDM) program at the Massachusetts Institute of Technology (MIT) is co-established by the MIT Sloan School of Management and the School of Engineering. It targets the cultivation of interdisciplinary talents competent to oversee the full life-cycle management of complex technological systems. Through the Stanford Technology Ventures Program (STVP), Stanford University focuses on nurturing high-tech entrepreneurial talents. Drawing on the Silicon Valley innovation ecosystem, it has built a unique educational model. In addition, the Master of Engineering Management Programs Consortium (MEMPC), consisting of top universities such as MIT, Cornell University and Duke University, has systematically advocated the educational philosophy of integrating technology and management, precisely addressing the industry's urgent demand for leaders with solid technical expertise and sharp business acumen.

From an academic research perspective, Novosibirsk State University (NSU) in Russia established the tripartite philosophy of "science–talent–production" from its inception, forming a unique science-education integration ecosystem [1]. Its model of deeply embedding frontier scientific research into the entire talent cultivation process provides a historical reference for understanding the organizational form of technology business schools. Scholars have proposed a pedagogical innovation that integrates agile methodologies, transformative economies, and complex thinking to enhance sustainability competencies [2]. This provides an operable pedagogical framework to cultivate interdisciplinary talents with both technological literacy and sustainable development awareness.

### 2.2 Research and Practice Progress in China

Although the construction of interdisciplinary disciplines for technology business talents in Chinese universities started relatively late, it has entered a phase of accelerated layout under national policy guidance in recent years. In 2018, East China Normal University established the Shanghai International Chief Technology Officer Academy (CTO Academy), pioneering the interdisciplinary construction of technology business in Chinese universities. In 2021, Shanghai Jiao Tong University was approved to establish China's first Master of Technology Transfer (MTT) degree program, opening a channel for the professionalized cultivation of technology managers. In October 2022, the University of Science and Technology of China (USTC) took the lead in establishing a technology business school. It successively launched the country's inaugural Science and Technology Innovation EMBA program and obtained approval in April 2026 for China's first undergraduate major in Business Artificial Intelligence. Currently, at least 10 universities nationwide have established technology business schools, with 9 concentrated within the past year, making technology business the core strategic track in business education reform.

With the advancement of educational practices, three core research themes concerning the cultivation of technology business talents have taken shape in domestic academia.

First, research on the definition of cultivation objectives. A consensus has been reached in

academic circles that the "Five - Proficiency" interdisciplinary talents-proficient in technology, industry, capital, market and management - should be set as the core cultivation objective. Its core essence lies in breaking down the industrial barriers between technological R&D, industrial operation, capital operation and market commercialization [3].

Second, research on the innovation of cultivation models. In the new era, business schools are facing three major transformation directions: the goal of educating students is to tilt towards leading talents in science and technology innovation, the teaching content strengthens the deep coupling between technology and business, and the educational services cover the entire cycle of scientific and technological innovation [4]. The cultivation of technology business talents generally adopts an interdisciplinary training paradigm of technology and business [5]. Scholars introduced project-based practice, dual-mentor collaboration, and VR case-based action learning as teaching methods, effectively alleviating the disconnect between classroom teaching and industry practice [6,7].

Third, research on institutional organizational forms. The technology business school has an independent educational attribute, which is a new type of educational carrier with the transformation of technological achievements as the core scenario and interdisciplinary integration as the core feature, different from traditional business schools and on campus technology transfer offices [8]. Based on the classified development theory of higher education, research-oriented universities, application-oriented universities and local undergraduate colleges ought to design differentiated training paths for technology business talents according to their own positioning and regional industrial endowments [9]. There is also study focusing on top-level institutional design, long-term operation mechanisms and multi-dimensional quality evaluation systems [10].

### 2.3 Research Review

In summary, current research on technology business in China has preliminarily established a core conceptual framework and talent cultivation objective system, addressing fundamental questions regarding the necessity of technology business development and the basic orientation of talent cultivation. Meanwhile, the educational practices of pioneering institutions such as USTC have provided preliminary practical references.

However, several gaps remain in the existing literature. First, most studies focus on macro-level theory and general educational principles, with insufficient exploration of cultivation system designs of technology business talents. Second, the cultivation practice of technology business talents is still in the exploratory stage. The experience of universities has not been effectively summarized, and a talent cultivation model that can be promoted and transferred has not yet been formed.

In response to these gaps, this paper focuses on industry demand orientation and constructs a talent cultivation system for technology business talents, which includes positioning reconstruction, curriculum iteration, platform construction and model innovation. This paper aims to answer the question of "how to cultivate technology business talents" at the practical level.

## 3. Definition and Competency of Technology Business Talents

The primary task of cultivating technology business talents is to precisely define the connotation and competency model of the talents. And then clarify the essential differences between technology business talents, traditional business talents and engineering talents.

### 3.1 Definition of Technology Business Talents

Technology business talents represent an deepth integration of multi-dimensional capabilities spanning technology, industry, business and capital, rather than a simple superposition of knowledge across diverse fields. Their core trait is the capacity to deeply connect technological innovation with industrial markets. They not only comprehend the developmental patterns and transformation pathways of frontier technologies, but also grasp the logic of business operations and industrial development trends. They can build bridges between technological achievements and market demands, and drive scientific research outcomes from the laboratory to industrialization.

Unlike traditional business talents concentrating on general management functions and engineering talents specializing in single technical fields, the core competency of technology business talents is the ability of

cross-boundary integration. They can transform technological cognition into industry judgment, feed industry demand back into technological direction, and embed capital resources into the process of technology transfer and commercialization, and ultimately achieve an efficient circle among science, technology, industry and finance. As defined, technology business talent is a new form of talent, with technology commercialization as the core scenario and cross-boundary integration as the distinctive feature [8]. This definition accurately captures the key attributes that distinguish technology business talents from traditional talent types.

### 3.2 The Five-Proficiency Competency Modal

In accordance with national strategies and industrial needs, the core cultivation objective for technology business talents is to develop interdisciplinary organizational talents for the technology industry, who are proficient in technology, industry, capital, markets, and management [3]. It is called the Five-Proficiency competency modal of technology business talents. The Five-Proficiency competency modal is not a simple list of five abilities, but a system of abilities with an inherent hierarchical structure. It can be further divided into three dimensions: cognitive capability, operational capability and integration capability.

The first dimension is cognitive capability, including proficiency in technology and proficiency in industry. Proficiency in technology means that technology business talents should grasp frontier technology development trends and technology commercialization patterns, and are able to assess the industrial application prospects and commercialization feasibility of technologies. Proficiency in industry requires technology business talents to understanding the competitive landscape and value chain structure, and should identify industry issues and opportunities. The two competencies constitute the cognitive threshold that distinguishes technology business talents from traditional business talents, and are the knowledge prerequisite for their subsequent business judgment and resource integration.

The second dimension refers to operational capability, comprising proficiency in capital and proficiency in markets. Proficiency in capital means that technology business talents should grasp financial instruments and the logic of capital operation, master core skills such as technology assessment, intellectual property pricing and sci-tech enterprise valuation, and are able to identify appropriate capital pathways for technology commercialization. Proficiency in markets means that technology business talents should grasp market analysis and business model design, and be capable of translating technological achievements into competitive products or services. This dimension is the key lever for transforming technological value into commercial value.

The third dimension is integration capability, namely proficiency in management. The management competency here is not a traditional general management skill, but refers to the strategic management, organizational coordination, and cross-border integration ability in complex technology commercialization and industrial innovation scenarios. Technology business talents are able to coordinate multiple resources including technology, capital, and market. They can also coordinate diverse entities such as research teams, investors, and industry partners. More importantly, they can drive the commercialization of technological achievements and the implementation of industrial innovation. This dimension is located at the top of the Five-Proficiency competency modal, and it is the core competency of technology business talents.

The above three dimensions, from cognition to operation and then to integration, together constitute the capability map of technology business talents. The Five-Proficiency competency modal not only provides the cultivation objective for talent cultivation system but also offers an reference for talent evaluation standards.

## 4. Construction of the Technology Business Talents Cultivation System

Based on national strategy and industrial demand, business schools in universities need to comprehensively reshape their talent training system. The full chain and integrated technology business cultivation system can be constructed through positioning reconstruction, curriculum iteration, platforms construction, and mode innovation.

### 4.1 Reconstructing the Core Positioning of Talent Cultivation

Facing industrial transformation and national

strategy upgrading, the homogenized and generalized talent cultivation of traditional business education can no longer meet the demands of modern industrial development. From the "14th Five-Year Plan's" emphasis on scientific and technological innovation to the "15th Five-Year Plan's" systematic construction of a modern industrial system, the iterative upgrading of national development priorities has placed new demands on the industrial adaptability and technological interdisciplinary literacy of business talents. Currently, scientific and technological innovation has become the core competitiveness of industries. A large number of composite technology business talents with cutting-edge technological knowledge, business operation capabilities, and industrial integration perspectives are urgently needed to provide core support for industrial transformation and upgrading

In this context, business schools need to actively connect with the talent gap in regional leading industries and science and technology innovation industries, break away from the traditional path of education, and create differentiated and precise cultivation directions around regional key industry [9]. This will help promote the deep integration of business talent cultivation with national industrial strategies and real market demands.

### 4.2 Upgrading the Interdisciplinary Integrated Curriculum System

Addressing the problems of traditional curricula being disconnected from industry and disciplinary fragmentation, a three-dimensional practical curriculum system should be constructed that regards business disciplines as the core, technological knowledge as the foundation, and industry-specific practice as the distinctive feature.

On one hand, disciplinary barriers among management, economics, and STEM fields should be dismantled, with new interdisciplinary core courses added in areas such as technology transfer principles, science and technology finance, sci-tech industry incubation, and business artificial intelligence, to address the technological and industrial shortcomings of traditional business education [8]. On the other hand, industry frontier developments, enterprise innovation challenges, and real technology commercialization cases should be comprehensively integrated into classroom teaching content. Abandoning traditional theoretical textbooks and keeping course content closely aligned with technological iterations and industry practices, in order to achieve a fit between teaching content and industry development.

### 4.3 Constructing Multi-Stakeholder Collaborative Cultivation Platforms

The core competencies of technology business talents are forged through real industry scenarios. Theoretical teaching detached from industry practice cannot cultivate interdisciplinary "Five-Proficiency" talents. Universities need to strengthen the deep collaboration between the government, enterprises, and schools, and build a collaborative education platform. Multiple parties can jointly establish industrial practice bases, joint laboratories, and industrial research institutes to break down barriers between industry, academia, research, and application.

Meanwhile, a mentoring system combining internal academic mentors and industry practice mentors should be established. Senior technology managers, industry investors, enterprise executives, and intellectual property experts can be recruited as external mentors. With support from external mentors, we can embed technology commercialization projects and enterprise operation challenges into the educational process [7]. Furthermore, business schools should proactively serve as hub platforms for regional innovation ecosystems, integrating university research resources, enterprise application scenarios, financial capital, and government policy resources to build an innovation community of "education-science-talent-industry-city" integrated development, achieving precise matching and dynamic linkage of technology flows, talent flows, capital flows, and policy flows.

### 4.4 Innovating Industry-Empowered Talent Cultivation Models

Following the industry orientation, the cultivation of technology business talents should break the boundary between campus teaching and industry practice, implement a linkage education model of "back-end resources, mid-platform teaching, and front-end industry", and promote interdisciplinary joint enrollment and cross disciplinary collaborative training. A practical education mechanism of "enterprises

posing questions, joint problem-solving, and market evaluation" should be implemented, allowing genuine enterprise technology needs and industry development challenges to become teaching and research topics. Through project-based teaching, industry research projects, and sci-tech innovation practice, faculty and students should be organized to deeply participate in the full process of scientific research achievement commercialization, sci-tech enterprise operations, and industrial project implementation, enabling research outcomes to be directly transformed into teaching cases and industrial results [6].

Meanwhile, by deeply engaging with Chinese industry practice and conducting original management research rooted in the pain points of domestic enterprise development, a self-reliant Chinese business knowledge system should be constructed, ensuring that talent cultivation is rooted in Chinese soil and serves the high-quality development of Chinese industry.

## 5. Conclusion

Against the backdrop of deep integration between national sci-tech innovation and industrial upgrading, technology business talents have become crucial support for breaking through bottlenecks in the commercialization of scientific research achievements and empowering high-quality industrial development. This study clarifies the connotation and "Five-Proficiency" competency system of technology business talents, and addresses the practical gap in existing research regarding operable and implementable talent cultivation designs. Drawing upon domestic and international educational practices and theoretical research, this paper suggests that technology business talents cultivation system can be constructed through positioning reconstruction, curriculum iteration, platforms construction, and mode innovation.

The research findings effectively remedy the homogenization issue of traditional business education and bridge the disconnect between talent cultivation and industrial demands.

This paper provides theoretical guidance and operational reference for universities to reform business education and cultivate technology business talents.

Nevertheless, this study has certain limitations. Future research should further optimize talent cultivation system through empirical study and longitudinal investigation. Meanwhile, it is worth to explore different talent cultivation pattern for universities with diverse educational orientations.

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