Original Research Article

Construction of university science and technology park and transformation of scientific and technological achievements

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Abstract: Focusing on the promoting role of the construction of university science and technology parks in the transformation of scientific and technological achievements, this paper sorts out and analyzes the current construction status and development characteristics of China's university science and technology parks, points out the main problems such as the shortage of interdisciplinary technical talents, puts forward corresponding countermeasures and suggestions, and thus draws conclusions.

Keywords: construction of university science and technology parks; transformation of scientific and technological achievements; composite technical talents

1. Introduction

The transformation of scientific and technological achievements is a key link in promoting the deep integration of scientific and technology innovation with economic and social development. The essence is to turn scientific research achievements in laboratories into real productivity, thereby promoting industrial upgrading and economic growth. In this course, university science and technology park, as an important carrier, plays an irreplaceable role.The university science and technology park, by integrating the research advantages of universities, enterprises and government support,constructs an innovative ecosystem of multi-agent cooperation, which provides systematic support for the incubation, transformation and industrialization of scientific and technological achievements[1]. In the context of building an innovation-oriented country, university science and technology park, as an important node of the RIS, has been upgraded from a mere physical space provider to an integrator of innovative factors and a builder of innovative ecology[2].

2. University science and technology park construction status and characteristics

China's university science and technology park can be divided into two steps. The initial stage (the late 1980s to the 1990s) was marked by the National torch program, with a single function, relying on key universities for technology incubation and enterprise cultivation, and initially formed the "industrial research and development" model.

In the 21st century, the Ministry of Science and Technology and the Ministry of Education jointly promoted the accreditation of national university science and technology parks.The Science and Technology Park pays more attention to the integration of innovation resources, becoming a key node of the regional innovation system, strengthening interaction with local industries, and promoting the recycling of talent, technology, capital and other factors.

In recent years, with the implementation of innovation-driven strategy, university science and technology parks have entered a new stage of high-quality development and functional expansion. At the policy level, more attention is paid to the deep integration of science and technology parks and the regional economic structure, supporting them to build a full-chain incubator system and improve the market-oriented operation mechanism. University science and technology parks not only serve the transformation of scientific and technological achievements, but also promote the upgrading of industrial structure and cultivate new kinetic energy[3][4]42

3. University science and technology park to promote the transformation of scientific and technological achievements and obstacles

The university science and technology park mainly promotes the achievement transformation through the transfer of technology, the business incubator and the synergetic creation. The transfer of technology is the key, with the help of patent licensing, pricing shares, etc. Enterprise incubation provides space, funding and mentoring to foster technology enterprises;Collaborative innovation involves technological advancement through joint R & D institutions. However, the translation process faces institutional and institutional obstacles: the evaluation system of colleges and universities that places emphasis on dissertations and weakens the motivation of researchers; Unclear ownership of results and complex approval processes also affect efficiency; Inadequate management coordination between science and technology parks and universities further constrains conversion effectiveness.

In terms of talent, there is a severe shortage of versatile technical brokerage talents who possess both technical expertise and market understanding[5].There is also a mismatch between the demand for technology and the supply of it. Some scientific research findings are not aligned with market demands, and the prospects for industrialization are limited. These obstacles collectively pose a real challenge for the transformation of scientific and technological achievements.

4. Suggestions on optimizing the construction of university science and technology parks and promoting the transformation of scientific and technological achievements

Implement a "leading group, management agency, and operating company" model to clarify the rights and responsibilities of government, universities, and enterprises. The government pools policy resources and establishes a transformation fund; Universities open up research resources and include science and technology parks in subject assessments; Run a company that operates in a market-oriented manner and inspires dynamism with equity incentives. Establish a 30 per cent revenue distribution plan for schools, 10 per cent for departments and 60 per cent for groups to simplify approval and ensure that rewards are delivered quickly. Integrate results-based conversion performance into the core indicators of job title evaluation, and eliminate the "heavy thesis, lighter conversion." Build teams of technology managers, entrepreneur mentors and financial experts and promote licensed employment.Technology managers are responsible for evaluation and matching, and entrepreneurial mentors provide personalized nurturing. Build three plateaus: transfer of technology to form a closed-loop supply and demand; The pilot incubation platform is built according to a "bed- incubator-accelerator" gradient; The public service platform integrates legal, financial and other professional services. Create "seed fund + venture capital fund + technology innovation loan" capital chain, covering the whole business cycle. Promote "linkages between the three regions" and optimize support. Building on the concept of "many schools and one park," special parks are planned in industrial clusters. Around the advantageous disciplines of the university and the dominant industries in the region, leading enterprises have joined forces to jointly build R & D centers. Regular roadshow facilitates docking. Local governments give policy preference in land, taxation, and approval, and set up green lanes. Develop evaluation indicators with the core value of conversion and the number of incubated enterprises, and implement annual evaluation and dynamic adjustment. Reward high-quality parks, rectify or exit inefficient parks, and improve operational quality.

5. Conclusion

University Science and Technology Parks (USTPs) serve as the key hub connecting university scientific research with industrial development and promoting the transformation of scientific and technological achievements. Their function has evolved from an initial space provider to a builder of innovation ecosystems and an engine for regional economic development. Although China's USTPs have gone through the stages of initiation, standardized development, and high-quality expansion, and formed effective paths in technology transfer, enterprise incubation, and collaborative innovation, they still face practical challenges such as institutional and mechanism obstacles (e.g.,assessment systems overemphasizing academic papers, unclear

ownership rights, and insufficient management coordination), shortage of interdisciplinary talents, and mismatches between technological supply and demand.

To optimize their construction and enhance transformation efficiency, systematic reforms are required: in terms of management mechanisms, establish a collaborative governance model with clear division of powers and responsibilities among the government, universities, and enterprises, as well as a market-oriented operation mechanism; in terms of incentive policies, clarify and simplify the distribution of achievements' benefits, and incorporate transformation performance into professional title evaluation and appointment; in terms of service support, build a professional talent team, and construct a full-chain service platform and a financial support system; in terms of development models, promote the "linkage of three zones" (university campuses, science and technology parks, and urban communities) and the construction of characteristic parks, and strengthen integration with regional industries. Ultimately, it is necessary to establish an assessment system centered on transformation effectiveness to guide the high-quality development of USTPs, thereby enabling them to more effectively serve the construction of an innovative country.

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