Global Humanities and Social Sciences
ISSN: 3105-174X | eISSN:3105-1758 | Volume 1, Issue2, 2025 | https://doi.org/10.64574/ghss.2025.1.2.3

A New Model of International Talent Cooperation Driven by a Science and Technology Service Platform from the Perspective of Technology Managers: The Case of Talent Technology

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Abstract

To improve the effectiveness of international talent cooperation, this paper uses the Talent Technology service platform as a case and takes the Technical Manager Vocational Ability Level Specification (T/CSATA 0012022) as a benchmark to explore a collaborative operation model between science and technology service platforms and technology managers. By analyzing the platform's resource advantages and the practical paths followed by technology managers, the paper summarizes cooperation outcomes and realworld challenges, and proposes operational strategies such as service process optimization and strengthening of professional capabilities. The aim is to provide a practical framework for enabling international talent cooperation through science and technology service platforms.

Keywords

science and technology service platform; international talent cooperation; technology manager; professional competence; collaborative empowerment

1. Introduction

1.1 Research background

Global science and technology innovation is entering a stage of deep collaboration. International highlevel talents, as a key innovation factor, play a decisive role in shaping regional innovation capacity. The 14th FiveYear Plan for International Science and Technology Innovation Cooperation explicitly calls for "building a multilevel international talent cooperation network" [1]. China's demand for international talents in key fields continues to grow, and according to the China Science and Technology Service Industry Development Report (2023) issued by the Torch High Technology Industry Development Center of the Ministry of Science and Technology, the talent gap in related fields has exceeded one million in 2024.[1]

However, traditional cooperation models face at least three types of problems. First, information barriers between supply and demand are pronounced, and manual screening and matching are inefficient. Second, there is a mismatch between scientific and technological achievements and market demand, and mechanisms for linking technology with industry are underdeveloped. Third, the degree of standardization in services is limited, resulting in high cooperation costs and difficulties in scaling up and replicating successful cases.

Against this background, new types of science and technology service platforms have emerged as important organizational carriers for addressing bottlenecks in international talent cooperation through resource aggregation, process optimization and integrated services. Talent Technology positions itself as an "international science and technology innovation service specialist" and is building an innovation ecosystem that integrates talents, technologies, policies and capital. Technology managers, serving as key intermediaries between supply and demand, directly influence the efficiency with which platform resources are transformed into concrete cooperation outcomes. Based on frontline practice, this paper argues that exploring platformdriven cooperation models grounded in the professional capabilities of technology managers is of practical significance for improving the quality of international talent cooperation.

1.2 Research methods and structure

1.2.1 Research methods

This study combines case study and practiceoriented analysis. First, it takes the Talent Technology service platform as a case to systematically examine its technical architecture, service processes and operation model. Second, it draws on practical experience to

identify the core competencies of technology managers in the context of international talent cooperation. Third, by reviewing typical project processes and outcomes, it extracts optimization strategies that have proved applicable in practice.

1.2.2 Structure of the paper

Section 2 defines key concepts such as science and technology service platforms and technology manager competencies, and outlines the relevant theoretical basis. Section 3 analyzes the resource advantages and operational mechanisms of Talent Technology. Section 4 discusses how technology managers apply their professional competencies throughout the international talent cooperation process and describes their practical paths on the platform. Section 5 summarizes the main challenges facing platformdriven international talent cooperation. Section 6 proposes optimization paths. Section 7 presents conclusions and directions for further research.

2. Conceptual Framework and Theoretical Basis

2.1 Science and technology service platforms

A science and technology service platform is an organizational vehicle that uses digital technologies to integrate innovationrelated resources and provide professional, integrated and endtoend services to both supply and demand sides. Its main characteristics include: (1) resource aggregation, pooling scientific and technological achievements, talent, policy information and capital; (2) intelligent services, using algorithms and data analysis to improve the efficiency of demand identification and matching; and (3) online processes, incorporating needs assessment, project matching, agreement signing and performance tracking into a unified platform so as to form a relatively complete service loop [2].

Talent Technology adopts a "microservices + middleplatform" architecture, connecting four key functional modules—technology, capital, policy and talent—and supports an online process of "demand release–intelligent matching–online signing–performance tracking" [2]. On this basis, the platform designs differentiated service products for different types of clients, such as government development zones, universities and research institutes, and enterprises.

2.2 International talent cooperation

International talent cooperation refers to crossborder activities involving talent flows, joint research and project coconstruction. Its core objective is to promote technology sharing, commercialization of research outcomes and innovation breakthroughs by reallocating talent resources across borders. The "demand side" includes government parks, universities, research institutes and enterprises, while the "supply side" includes international highlevel talents and overseas science and technology projects. Cooperation can take various forms, such as talent introduction, joint R&D and technology transfer, and is often associated with significant knowledge spillovers and industrial upgrading effects [5].

2.3 Professional competencies of technology managers

According to the Technical Manager Vocational Ability Level Specification (T/CSATA 0012022), technology managers are professionals with integrated capabilities in technology understanding, market analysis, resource integration and project management [3]. Their core competencies include demand identification, resource matching, risk control and communication and coordination. Reports from the Torch High Technology Industry Development Center further emphasize that, in international cooperation settings, technology managers also need specialized skills in interpreting international science and technology policies, protecting intellectual property rights and handling crosscultural communication [4].

In international talent cooperation, technology managers must understand the industrial structure and technological gaps of demandside regions, assess the technical level and application potential of overseas talents or projects, and facilitate the design and implementation of cooperation schemes. They thus play a dual role as "professional intermediaries" and "project managers" [6].

3. Resource Advantages and Operational Mechanisms of the Talent Technology Platform

3.1 Core resource advantages

3.1.1 Global service network

Talent Technology has established more than ten talent service stations in China and abroad, including in Beijing, Hangzhou, Hong Kong (China), and London. This initial global network enables relatively quick responses to cooperation needs from different regions and provides ontheground support for international talent cooperation.

3.1.2 Multidimensional databases

The platform has built several databases, such as a scientific and technological achievements database and a talent demand database, and has integrated information on international highlevel talents and enterprise technology needs. To date it has served more than one hundred projectrelated technology demands, accumulating a body of practical cases and resource reserves that support subsequent matching and analysis.

3.1.3 Endtoend service system

The platform provides services covering the full chain of science and technology demand release, achievement transformation and policy information, aiming to offer "onestop" support and lower cooperation costs for both sides. In specific projects, the platform not only acts as an information broker, but also participates in scheme design and followup services, thereby reducing time and coordination costs.

3.1.4 Qualifications and standardsetting experience

Talent Technology has obtained qualifications such as national hightech enterprise certification and has taken the lead in drafting group standards such as the Evaluation Specification for International Science and Technology Innovation Cooperation Bases and the Evaluation Specification for International Science and Technology Talents. This experience helps to clarify internal service procedures and quality requirements, and supports the standardization of its service system.

3.2 Operational mechanisms

3.2.1 Dualengine model of "intelligent tools + human expertise"

The platform combines algorithmic tools with a professional service team. Intelligent matching systems are used for initial screening of needs and supply, improving efficiency, while experienced brokers or technology managers conduct secondary evaluation and provide indepth services to ensure service quality and depth. This dualengine model seeks a balance between efficiency and professionalism.

3.2.2 Online management of the full cooperation process

Moving beyond the traditional "information display + offline matching" model, Talent Technology aims to bring key cooperation stages—demand release, initial communication, scheme negotiation, agreement signing and implementation tracking—onto a unified platform. This helps to overcome time and space constraints and facilitates visual management of project progress.

3.2.3 Combination of standardized and customized services

Relying on group standards, the platform has developed a basic standardized service process and set of nodes, while also designing differentiated service schemes for different clients. For example, services for development zones focus on overall talent layouts along industrial chains; services for universities emphasize scientific research cooperation and achievement commercialization; and services for enterprises prioritize introduction of technologyoriented talents and project implementation. Standardization helps to ensure baseline service quality, while customization improves the fit of services to specific needs.

4. Application of Technology Manager Competencies and Practical Paths in International Talent Cooperation

4.1 Competency requirements across the cooperation process

International talent cooperation involves multiple stages and relatively complex processes. Each stage imposes distinct requirements on technology managers:

- Demand identification stage: Technology managers need industry research and market analysis capabilities to diagnose potential technological gaps and talent needs in light of a park's or enterprise's industrial structure, technological base and development plans, and to generate operationalizable demand analyses.
- Talent screening stage: On the basis of clarified needs, they must be able to evaluate overseas talents or teams in terms of educational background, research focus, output quality and commercialization experience, and, where appropriate, organize expert reviews to improve the scientific basis of selection.
- Matching and negotiation stage: This stage emphasizes communication, coordination and resource integration. Technology managers act as information intermediaries, clarifying cooperation models, intellectual property arrangements and expected outcomes, and reducing information asymmetry.
- Implementation stage: They need project management and basic risk control skills to help define milestones and responsibilities and to identify and flag potential legal, technical and market risks.
- Followup service stage: They maintain communication with both parties, collect feedback, help solve problems that arise during implementation and use these experiences to refine service processes.

4.2 Practical paths of technology managers on the Talent Technology platform

4.2.1 Demand identification and diagnosis

In practice, technology managers at Talent Technology have introduced marketoriented methods such as proof of concept (POC). Working together with potential cooperation partners—such as channel providers, manufacturers and investors—they jointly assess the commercial potential and industrial fit of projects [5]. In a case involving the industrial upgrading needs of a local development zone, technology managers examined the technological weaknesses of the zone's leading industries, specified target fields and research directions for talent introduction, and suggested

appropriate cooperation modalities, ultimately producing a detailed demand analysis report to support more precise matching.

4.2.2.Talent screening and evaluation

Supported by the platform's overseas talent assessment system and relevant evaluation specifications, technology managers assess candidates along several dimensions, including educational background, technological achievements and prior experience. Industry experts are invited to participate in reviewing key candidates in order to strengthen the professional basis of selection.

4.2.3.Targeted matching and engagement

During the matching phase, intelligent recommendation and manual screening are combined. Technology managers utilize the platform's algorithmic tools to generate an initial list of candidates that fit the demand profile and then organize events such as international innovation and entrepreneurship competitions to create opportunities for direct interaction. For instance, by hosting the Hebei Province Scenario Innovation Competition, Talent Technology facilitated effective connections between international talents and domestic demandside institutions.

4.2.4.Cooperation implementation and followup services

At the implementation stage, technology managers assist with the negotiation and signing of cooperation agreements, focusing on intellectual property protection, value assessment and other key issues, and providing followup services throughout the process. They assess projects with reference to legal stability, technological innovativeness and market application prospects, and apply tools such as the income approach and cost approach to support pricing decisions [6].

4.2.5 Resource integration and valueadded services

In the course of project implementation, technology managers also coordinate with other platform modules to integrate additional resources such as policies and capital. For example, they may help connect science and technology programs or talent initiatives, or bring in investment institutions, thereby promoting deeper integration among talents, technologies and industrial actors.

5. Challenges in PlatformDriven International Talent Cooperation

Despite the positive role of science and technology service platforms and technology managers in international talent cooperation, several challenges remain in practice:

5.1 Need to strengthen the professional capabilities of technology managers

International talent cooperation involves multiple domains, including crosscultural communication, intellectual property and policy and regulatory frameworks. This places high demands on the composite skill sets of technology managers. In reality, some technology managers still lack sufficient international exposure and crosscultural communication skills, which affects the depth and quality of services [7].

5.2 Insufficient indepth use of platform data resources

Although the platform has accumulated substantial data on talents and demands, there is room for improvement in data cleaning, structuring and mining. In some cases, information updates are not timely, which affects the accuracy of algorithmic matching and lowers the efficiency with which resources are utilized.

5.3 Policy barriers to international mobility and geopolitical uncertainty

International mobility of talents involves visas, work permits and other administrative procedures, which may be complex and timeconsuming in certain countries and regions. Geopolitical factors can further increase uncertainty and pose challenges to the stability of medium and longterm cooperation projects [7].

5.4 Balancing standardized services and individualized needs

Different client groups exhibit diverse needs in terms of service depth, cooperation timelines and expected outcomes. Within a standardized process framework, it remains challenging to reconcile the efficiency gains from standardization with the flexibility required to respond to individualized demands.

6. Optimization Paths for PlatformDriven International Talent Cooperation

6.1 Strengthening professional development of technology managers

6.1.1.Building a systematic training system

A threedimensional training system combining theory, practice and case studies can be established, drawing on models such as the "physicianstyle" career development pathway. Training should place particular emphasis on international talent policies, crosscultural communication, intellectual property protection and evaluation of scientific and technological achievements [3,6]. Regular participation in industry forums and exchange activities can help technology managers learn from leading practices and broaden their international perspectives.

6.1.2.Improving competency assessment and

incentive mechanisms
On the basis of the T/CSATA specification, a multidimensional competency assessment system can be developed to evaluate technology managers in terms of professional knowledge, practical skills and service quality. Assessment results can be linked to remuneration, promotion and project allocation, thereby providing incentives for continuous professional development.

6.1.3.Creating platforms for knowledge sharing and exchange
By organizing internal knowledgesharing sessions and case discussions, and by encouraging participation in relevant conferences and workshops, organizations can facilitate experience exchange among technology managers. Internal knowledge bases can also be built to support the transmission of accumulated experience and methods.

6.2 Deepening platform intelligentization and datadriven services

6.2.1.Optimizing matching algorithms and data quality management
Without altering the factual basis of the data, efforts can be made to improve data structures and cleaning mechanisms to ensure the accuracy and timeliness of information on talents and demands. On this foundation, the logic of matching algorithms can be refined to enhance the relevance and usability of initial screening results.

6.2.2.Expanding the scope of data resources
In compliance with relevant regulations, more publicly available data on international talents can be integrated, including information from overseas universities, research institutes and enterprises, as well as global trends in science and technology and industry developments [4]. This can provide more systematic support for the judgments of technology managers.

6.2.3.Enhancing intelligent service functions
On the basis of the existing system, new features such as intelligent policy retrieval and alerts, risk indication and visualized project management can be gradually introduced. These functions can reduce repetitive work and enable technology managers to devote more effort to high valueadded tasks.

6.3 Strengthening policy alignment and resource integration

6.3.1.Establishing policy coordination mechanisms
In regions where conditions permit, it is advisable to explore "green channels" for international talent services and to establish regular communication mechanisms with government departments. Under conditions of compliance, visa and work permit procedures can be streamlined. Experiences with integrated service packages for international talents, such as those piloted in Shanghai, show that better coordination of policies can improve the efficiency of approvals [8].

6.3.2.Integrating resources along industrial chains
By strengthening cooperation with universities, research institutes, enterprises and investment institutions, platforms can help construct a "talent–technology–capital–industry" ecosystem. This allows international talent cooperation to be more closely coupled with industrial chain upgrading and regional innovation strategies.

6.3.3.Expanding international cooperation networks
Building on existing overseas service stations, the network can be extended to additional countries, including those along the Belt and Road, while respecting local laws and business practices. Cooperation with international talent service agencies, universities and industry associations can increase the diversity of talent and project sources.

6.4 Optimizing service processes and models

6.4.1.Refining standardized service processes
Using existing group standards as a foundation, standardized operating procedures for international talent cooperation can be further specified, covering demand identification, talent screening, matching and engagement, cooperation implementation and followup services. Clearer process descriptions can help improve replicability and ensure more stable service quality.

6.4.2.Designing customized service packages
Tailored service offerings can be developed for different types of clients. For example, integrated talent solutions for development zones can focus on the overall needs of industrial chains; universities and research institutes can be offered services centered on research cooperation; and enterprises can receive targeted support for introducing talents who can contribute directly to technology transfer and industrial upgrading. In this way, standardization and customization can be combined.

6.4.3.Exploring diversified service models
In line with evolving trends in international talent cooperation, new service models such as "talent + project" bundled services and longterm advisory arrangements can be explored. These can extend single transactions into ongoing service relationships and enhance trust and satisfaction on both sides.

7. Conclusions and Prospects

7.1 Main findings

Using the Talent Technology platform as a case, this paper has examined a new model of international

talent cooperation driven by science and technology service platforms and grounded in the professional competencies of technology managers. The analysis indicates that such platforms provide essential infrastructure for international talent cooperation through resource aggregation and process optimization, while technology managers, as core implementers, play a decisive role in translating platform resources into concrete cooperation outcomes.

In the case of Talent Technology, technology managers contribute to improved efficiency and quality of cooperation through professional services that cover the entire process. At the same time, several challenges have been identified, including gaps in composite capabilities, limited indepth use of data resources, constraints arising from policy barriers and geopolitical factors, and the difficulty of balancing standardization with individualized demands. The paper suggests that these challenges can be addressed by strengthening professional development, deepening intelligent and datadriven services, enhancing policy coordination and resource integration, and optimizing service processes and models.

7.2 Future prospects

As global science and technology cooperation deepens, international talent cooperation is likely to become more diversified, datadriven and normalized. Looking ahead, platforms such as Talent Technology can continue to refine their matching algorithms and technology transfer functions, expand their networks in Belt and Road countries, and explore closer linkages between education and scienceandtechnology innovation. Technology managers will need to keep updating their knowledge structures and enhance their abilities in crosscultural communication and crosssector collaboration in order to meet new requirements.

Future research could focus on the evolution of technology manager competencies under digital transformation, conduct comparative studies across different platforms and regions, and explore new paths for the deeper integration of platforms and international talent cooperation, thereby providing more targeted support for policymaking and platform development.

Data source: Torch High Technology Industry Development Center, Ministry of Science and Technology, China Science and Technology Service Industry Development Report (2023) [4].

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