

Research on the Support Mechanism for Shanghai and Macao to Jointly Build a World Important Talent Center and Innovation Highland by 2035

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Abstract: Shanghai and Macao have carried out practical cooperation in many fields, including new economy, smart city and academic communication. Based on the analysis of the current situation of the support mechanism for Shanghai and Macao to jointly build world's important talent center and innovation highlands for 2035, there are constraints on co-operation, such as insufficient industrialization of science and technology, imbalance of human resources structure and single industrial structure of Macao. Thus, Shanghai and Macao should active the vitality of the transformation of achievements, focus on the "addition, subtraction, multiplier and division" of talents and promote the coordinated development of Shanghai and Macao's industries, exploring and establishing a support mechanism for two-way service, resource sharing and coordinated development between local areas, and jointly building the world's most influential talent center and innovation highlands.

Key words: Shanghai and Macao; World's Important Talent Center; Innovation Highland; Support Mechanism

1 Introduction

In the report to the 20th National Congress of the Communist Party of China, General Secretary Xi Jinping pointed out that education, science and technology, and talents are the basic and strategic support for comprehensively building a modern socialist country. We must ensure that science and technology are the primary productive force, talents are the primary resource, and innovation is the primary driving force. We must fully implement the strategy of rejuvenating the country through science and education, strengthening China through human resources, and innovation-driven development, open up new fields and new tracks for development, and build new drivers of development^{[1]-[4]}. In 2021, General Secretary Xi Jinping proposed at the Central Conference on Talents Work that by 2035, China will have a comparative advantage in talent competition in many fields, and China's strategic scientific and technological forces and high-level talents will rank among the top in the world. To accelerate the building of a world-important talent center and innovation highlands, we need to make a strategic layout. Taking comprehensive consideration, we can build high-level talent hubs in Beijing, Shanghai and the Guangdong-Hong Kong-Macao Greater Bay Area^[5].

Shanghai and Macao not only have good geographical conditions, convenient transportation environment and a strong economic foundation, but also have the core scientific and educational resources and industrial foundation to form an international science and technology innovation center. In addition, in 2019, with the approval of the Hong Kong and Macao Office of the State Council, the “Shanghai-Macao Cooperation Conference Mechanism” was established; the first meeting of Shanghai-Macao Cooperation Conference was held in 2021 and relevant leaders signed five cooperation agreements on Online New Economy, Smart City and Small and Medium-sized Enterprises. Over the years, Shanghai and Macao have deepened cooperation in 11 fields, including finance, tourism, exhibition and scientific and technological innovation. Under the new development pattern, Shanghai and Macao as influential cities have their own advantages, make good use of Shanghai in economic development and reform and innovation of high quality resources, combined with the domestic and international binary intersection location advantage and "one country, two systems" system, promote the mutual build, will be able to give full play to the area of all kinds of resources integration advantage, continue to optimize the spatial structure of different regions, improve the joint development of industrial cluster layout and management system. In view of the differences in cultural background, social awareness and industrial structure, there are still many difficulties to overcome in the construction of a world important talent center and a support mechanism for innovation highland, and a series of measures are needed to promote smoothly.

2 Literature review

Many scholars at home and abroad have studied the support mechanism of scientific and technological innovation. Sefer Sener and Ercan Sarıdoğan found that countries with a technology innovation-oriented global competitiveness strategy have sustainable competitiveness and long-term growth^[6]. Chi Meiqing et al. believed that public debt is negatively correlated with technological innovation, and that any policy aimed at fiscal decentralization, R & D spending and public debt will significantly change the emergence of technological innovation^[7]. Hu Lina used the system dynamic model to simulate the implementation effect of China's policy to support scientific and technological innovation under different situations, and found that the tax reduction policy had a more significant effect on promoting the output of scientific and technological innovation^[8]. Xu Yulian and Wang Hongqi used Bootstrap simulation method to analyze the role of financial science and technology investment, bank science and technology credit, science and technology capital market and venture investment support in technology innovation under the framework of technology finance system^[9]. By focusing on the dynamic evolution process of the science and technology industry in time and space, Li Lu proposed that the financial supply supporting scientific and technological innovation should be dynamically adjusted in combination with the stage characteristics of the evolution process^[10]. Xu Shiqin et al. empirically analyzed the influencing factors of the efficiency of science and technology and finance, and found that the overall efficiency of science and technology and finance in China is relatively low and has obvious regional differences^[11]. Lu Feng and Han Shangrong used the panel model to quantitatively analyze the influence of science and technological finance on scientific and technological innovation, and found that science and technological finance has different roles

in scientific and technological innovation in different regions and stages^[12]. To sum up, various research methods of scholars will be of great significance for Shanghai and Macao to think about how to build the world's important talent center and innovation highland. Shanghai and Australia are stepping up efforts to implement the fruitful results. Our cooperation in economy, trade, investment, energy, science and technology, education, culture, tourism and other fields is advancing in an all-round way, and our cooperation will have a great future as a bridge for scientific and technological innovation.

3 The current situation of Shanghai and Macao to build a world important talent center and innovation highland

3.1 Comparative analysis of the economic development status of Shanghai and Australia

Due to the differences in historical and geographical location, Shanghai and Australia present different economic development conditions. As shown in Table 1, the total GDP of Shanghai in 2021 was 43,21.485 billion yuan, and the total GDP of Macao was 192.927 billion yuan. Although the total GDP of Shanghai was significantly higher than that of Macao, the per capita GDP of Macao was significantly higher. Shanghai has the lowest population density, with only 3.926 thousand people per square kilometer, while Macao has the largest population density, with 20.7,000 people per square kilometer. Macao's economy is small, but its level of economic development is relatively high. In recent years, its relatively single economic structure and limited development resources have greatly troubled Macao's development. Therefore, based on the differences in the economic development of Shanghai and Macao, making use of the characteristics of the two industries to promote the coordinated development of the two industries will create a new miracle for the development of Shanghai and Macao in the new era.

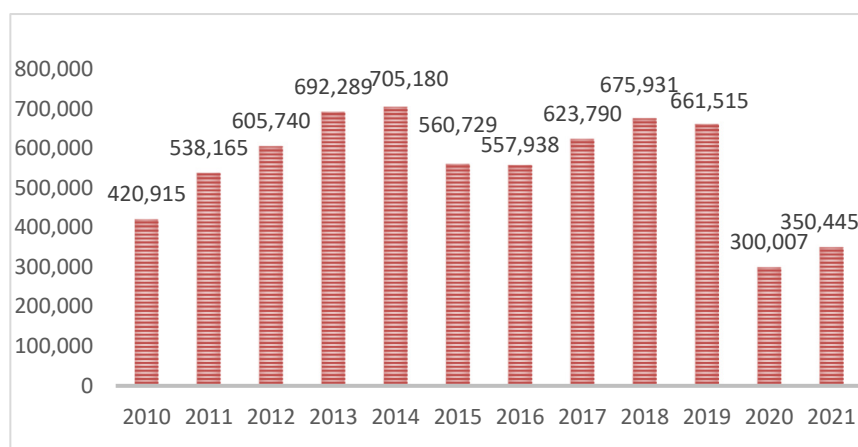
Table 1. Comparison of the Economic Development Status of Shanghai and Australia (2021)

	Shanghai	Macao
Area (km ²)	6,340.5	33.0
Total population (ten thousand people)	2,489.43	68.32
Population density (one thousand people / km ²)	3.926	20.7
GDP(100 million)	43,214.85	1,929.27
GDP per capita (US dollar / person)	26,900	43,774

Data source: Shanghai Municipal Bureau of Statistics, Macao Statistics and Census Bureau

3.2 Macao has achieved initial results in exploring its diversified development and enjoys bright prospects

The economic opening up of Macao SAR has further increased, and its economy has entered a stage of rapid development. Since the return of Macao SAR per capita GDP growth (see fig 1), under the central government policy support, steady economic growth, improving people's livelihood, social stability for a long time, deepening the contact with the mainland, GDP by 51.9 billion patacas in 1999 to 2021, realize the leapfrog development, per capita GDP from 42010 to 660000 patacas in 2019. Since 2019, the global economic recession and the spread of COVID-19 have comprehensively impacted the economy of Macao, with a single industrial structure, and its per capita GDP has fallen sharply. In order to maintain the long-term social and economic stability of Macao, with the support of the central government, Macao has gradually developed towards the "diversified" development, and the appropriately diversified economic development is the long-term plan for Macao.



Data source: Macao Statistics and Census Bureau

Fig 1. Macao's per capita GDP

3.3 Shanghai and Macao have strong economic strength, close exchanges and complementary advantages and disadvantages

Shanghai and Macao are both attractive cities where Chinese and Western cultures gather together. They have maintained good cooperative relations for a long time. Shanghai and Macao have a long history of local cooperation, economic and trade exchanges and local exchanges of people-to-people exchanges. Entering the new era and embarking on a new journey, the cooperation between Shanghai and Macao has broader prospects. The two sides will seize major national strategic opportunities such as the integrated development of the Yangtze River Delta and the development of the Guangdong-Hong Kong-Macao Greater Bay Area to strengthen cooperation on cultural tourism projects and realize complementary advantages, mutual benefit and common development. In recent years, the two sides have signed the agreement on the Shanghai-Macao Cooperation Conference mechanism, and the cooperation intensity has been increasing. The exchanges and cooperation between Shanghai and Macao SAR have become increasingly close, and the cooperation in finance, convention

and exhibition, culture and tourism has achieved fruitful results. Although there are many official exchanges and cooperation, Shanghai and Australia have relatively independent industrial development and have not given full play to economic cooperation for economic recovery.

4 Restricted factors for promoting the cooperation between Shanghai and Macao to build a world's important talent center and innovation highland

4.1 The transformation of achievements urgently needs to be improved urgently, and the industrialization of science and technology is insufficient

The transformation of scientific and technological achievements in Shanghai has been significantly improved, but the vitality and energy level of the transformation still need to be improved, mainly facing the following problems. First, in terms of the demand for achievements, enterprises do not have a strong sense of innovation subject, and they are reluctant to invest in the early scientific and technological achievements with high risks and high difficulties. Second, in terms of the supply of achievements, national laboratories, state key laboratories and universities and institutes have some problems in the process of achievement transformation, such as the insufficient supply of high-quality achievements, and the information channel of supply and demand is not smooth enough. Third, in terms of the service system, the construction of supporting conditions still needs to be strengthened, the impetus for the transformation of scientific and technological achievements is insufficient, the introduction of talents and professional positions need to be improved, and the lack of compound talents. Fourth, in terms of the allocation of factors, capital is the key condition restricting the transformation of scientific and technological achievements, and there is a lack of effective guidance and support methods for financial funds in the pilot scale and mature transformation stage. Fifth, in the implementation of policies and regulations, there are still problems of policy disharmony between relevant departments. On the other hand, before Macao's return, Macao's scientific and technological development had long been in the situation of "no science and technology policy, no development plan, and no resource input". There were many deficiencies, such as the low proportion of R & D investment, weak scientific foundation and lack of scientific research talents^[13]. After its return to the motherland, Macao began to attach importance to scientific and technological innovation, and concentrated resources to introduce a series of measures to universities and research institutions to support the development of innovation and technology, including creating a good environment for scientific research, increasing investment in scientific research and strengthening scientific research cooperation. However, the effectiveness of scientific and technological innovation depends on its degree of industrialization. The main problems existing in the industrialization of science and technology in Macao include: emphasizing the publication of papers, lacking the function of achievement transformation, and lacking the enterprises with innovation ability.

4.2 Lack of economic vitality and imbalance of human resources structure

Since the 18th National Congress of the Communist Party of China, President Xi Jinping has repeatedly stressed the importance of talents on different occasions, pointing out that "those who gain talents will win the world". It can be said that whoever has high-quality talents can gain advantages in international competition. As a nickname for "magic capital" and "Shanghai Paris", its attraction is beyond doubt. In addition to a large amount of economic investment, college graduates can hardly resist its charm. However, when Shanghai Hongqiao Railway Station ushered in the re-operation, a wave of "leaving Shanghai tide" was quietly set off, and the emergence of "leaving Shanghai tide" also means the brain drain, which is undoubtedly an obstacle on the road of urban development. As for Macao, the lack of talents has been an old problem in Macao for many years, and it has not been well solved. The main reasons are as follows: First, the birth rate of Macao is low, the aging society is serious, and the supply of human resources is insufficient. Second, the single industrial structure leads to the low level of talents, and the level is not rich enough. As a micro-economy, Macao has a small area and a small population. In addition, it has been dominated by the gambling industry for many years, and lacks the soil for the development of other industries and the experienced high-level management talents and applied senior professional and technical personnel matching with the industrial development. Third, the employment rate of the workforce needs to be improved. The number of people employed in Macao dropped from 388,000 in the fourth quarter of 2018 to 377,100 in the fourth quarter of 2021, according to the Macao Statistics and Census Bureau. Meanwhile, Macao's overall unemployment rate rose from 1.7 percent in the fourth quarter of 2018 to 3.1% in the fourth quarter of 2021, a record high. At present, the employment rate in Macao decreases and the unemployment rate continues to rise.

4.3 The single industrial structure of Macao restricts the economic and cultural exchanges between Shanghai and Macao

Since its return to China, Macao has undergone earth-shaking changes, with rapid economic development, highly developed tertiary industry and per capita GDP among the top in the world^[14]. As a micro-economy, Macao adheres to its advantages, actively integrates into the overall development of the country, vigorously develops the service industry with an international open attitude, attracts international talents, capital and technology, and enjoys the enduring tourism service industry. While the tertiary industry has brought dividends to Macao, it has also become an important issue troubling Macao's development and transformation. Statistics show that by 2020, the tertiary industry in Macao accounted for as high as 91.3%. The single industrial structure makes Macao's weak industrial growth momentum, low talent level, large economic fluctuations, and the lack of connection between emerging industries and traditional industries, which will have a negative impact on the long-term and stable development of Macao. Especially in the context of the impact of the epidemic and the global economic recession, some countries and regions implemented strict tourism bans and entry and exit control measures, which have greatly restricted the flow of the factors of production and talents. Thus, the recovery pace of external demand is still quite uncertain, and Macao's moderately diversified economic development is facing new challenges. The above problems brought by the special industrial structure and economic structure of Macao seriously restrict the cooperation and exchanges between Shanghai and Macao, which urge Macao to accelerate the pace of moderate economic diversification.

5 Promote the basic goal of building a world important talent center and innovation highland between Shanghai and Macao

5.1 We will stimulate the innovation vitality of the digital economy and promote the development of smart cities

Digital economy has injected a strong force into China's economic innovation and development, and data serves as a new factor of production to participate in economic activities^[15]. In the era of digital transformation, Shanghai should make good use of its own location advantage and science and technology strength, seize the opportunity and responsibility given by the era of, focusing on the digital transformation strategy policy, to vigorously promote the digital economy as the gripper, depth fusion of digital economy and the real economy, accelerate the digital city construction, for the development of high quality Shanghai, improve the level of urban governance of digital and create a digital economy transformation benchmarking area play an exemplary role. The construction of smart city is an effective form of the comprehensive integration of informatization and urbanization, and also an important way to realize the wisdom and modernization of the city. In recent years, Macao has actively integrated into the overall development of the country, made use of its own advantages to promote appropriately diversified economic development, and continuously deepened exchanges and cooperation with the mainland. Smart cities are inseparable from the empowerment of science and technology. Scientific and technological innovation can help us build smart cities, improve the capacity and level of smart city governance, and make cities smarter and smarter. In the future, Macao will work with the motherland to make the five-step move of green development, scientific planning, coordinated joint construction, education and independent innovation, integrate advantages, optimize the construction of smart city, and strive to become a leader in the construction of smart city in the Guangdong-Hong Kong-Macao Greater Bay Area.

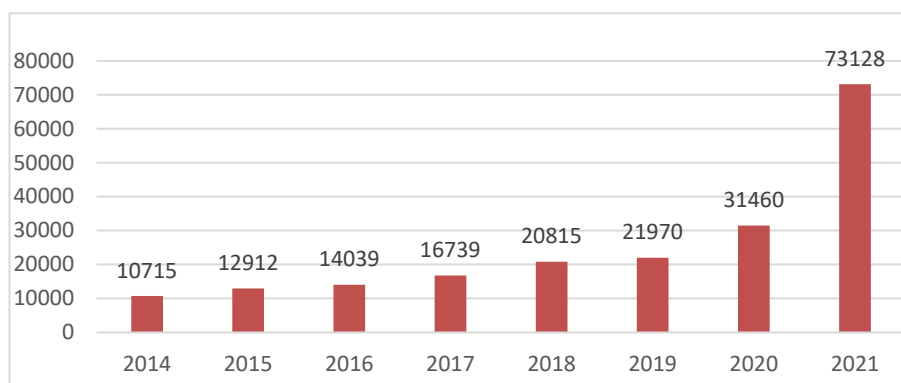
5.2 Explore the cultural characteristics of Shanghai and Macao, and jointly build a communication bridge between Shanghai and Macao

As General Secretary Xi Jinping has pointed out, "Without a high degree of cultural confidence and without cultural prosperity, there will be no great rejuvenation of the Chinese nation.". At present, China's economy has shifted from the stage of high-speed growth to the stage of high-quality development, and both cultural undertakings and cultural industries have ushered in the "golden age" of development^[16]. New era, Macao with the system of "one country, two systems" advantage, the historical trend of Chinese and western culture long-term exchanges, rich cultural heritage of cultural advantages, committed to the development of cultural undertakings and cultural creative industry, and the construction of "world tourism and leisure center" and "China and portuguese-speaking countries trade cooperation service platform" to support each other. Macao culture is a kind of common accommodation culture with diversified colors. Religious diversity and language diversity are the local characteristics of the collision and integration of eastern and western elements in Macao^[17]. On the one hand, it will build Shanghai and Macao into cities with unique cultural charm; on the other hand, it will undertake the mission of building "Belt and Road" countries and spreading excellent traditional Chinese culture. The cultural exchange between Shanghai and Macao not only promotes the gathering of talents in the two places, but also promotes the development and

progress of related industries.

5.3 Strengthen the construction of talent team to escort the innovative development of Shanghai and Macao

City is an important platform for talent growth, and talent is the inexhaustible driving force for urban development. The two are interdependent and mutually reinforcing. In recent years, Shanghai has continuously strengthened its strategic planning and policy innovation for talent work. Remarkable achievements in talent work: during the 13th Five-Year Plan period, Shanghai has introduced more than 67,000 overseas returnees, more than doubled that during the 12th Five-Year Plan period; In terms of the total number of talents, by the end of 2021, the total number had reached 6.75 million, among which digital talents accounted for 12.94%. Ranked first in the five digital transformation leading cities in Beijing, Shanghai, Guangzhou, Shenzhen and Hangzhou; Judging from the results of talent settlement, 2021 is the "big" year for settling down in Shanghai, surge from 31,460 in 2020 to 73,128 in 2021. More and more talent has poured into Shanghai, significant results (see Fig 2)..... Talent is the foundation of innovation, innovation-driven development is essentially a talent-driven development^[18]. Whether it is the "China height" of Shenzhou flying, or the "China depth" of Jiaolong submersible, whether it is the "China speed", or the "China dimension" of radio telescope, it is not the result of talent drive.



Data source: Shanghai Human Resources and Social Security Bureau

Fig 2. Statistics of the number of major registered residents in Shanghai in the last 8 years (excluding their spouses and children)

6 The construction of a support mechanism for the coordinated construction of a world important talent center and innovation highland between Shanghai and Macao in 2035

Combined with the basic goal of jointly building a world important talent center and innovation highland between Shanghai and Macao, in view of the possible problems in the construction, this paper proposes a corresponding support mechanism, which will provide possibilities for better development of Shanghai and Macao. The support mechanism mainly consists of three parts: the transformation of achievements, talent allocation and industrial

development. These three parts work together to support the goal of building a world important talent center and innovation highland between Shanghai and Macao by 2035 (see Fig 3)

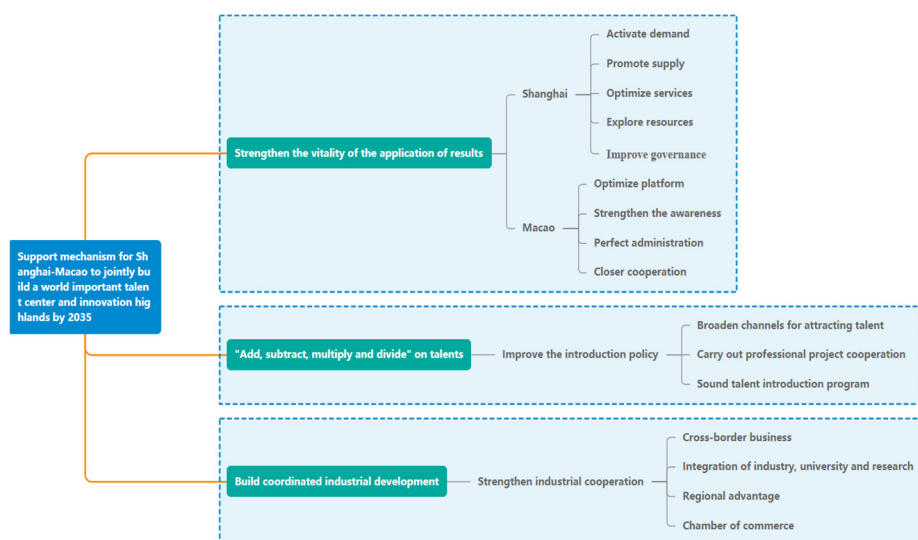


Fig 3. Supporting the mechanism body framework

6.1 We will activate the transformation of achievements and build a highland for scientific and technological innovation

As an important link of scientific and technological innovation, the transformation of scientific and technological achievements should start from activating demand, promoting supply, optimizing services, exploring resources and improving governance, so as to activate the vitality of the transformation of scientific research achievements and build a highland of scientific and technological innovation^[19]. First of all, strengthen the enterprise demand side pull. We will support enterprises in establishing platforms for the transformation of their achievements, enhance their awareness of innovation subjects, and constantly unleash and stimulate their innovation potential. Secondly, activate the supply vitality of universities and institutes. We will strengthen the development linkage between local universities, institutes and innovative enterprises and national science centers and national laboratories, and accelerate the improvement of the internal control system for the transformation of achievements. Then, improve the service system. We will provide high-quality public services, improve the ability of technology transfer and achievement transformation, attract first-class scientific and technological personnel, draw on the advanced international experience, and establish an open and professional alliance platform for achievement transformation service. Thirdly, optimize the capital investment. We will coordinate and integrate financial funds and optimize the structure of investment, give full play to the agglomeration effect of funds, implement new support methods such as institutional funding, and improve the utilization rate of funds. Finally, pay attention to accurate management. We will strengthen the implementation and supervision of policies and regulations on the transformation of scientific and technological innovation achievements, promote the high-quality implementation of

scientific and technological innovation achievements, and break bottlenecks in their transformation^[20]. As an important link in scientific and technological innovation, the transformation of scientific and technological achievements should make great efforts to transform scientific and technological achievements and improve its efficiency. First of all, Macao should strengthen the construction of scientific research and innovation platforms, increase the introduction of innovative talents, and expand capital investment. Secondly, improve the innovation awareness of enterprises, improve laws and regulations, enterprises should learn to absorb advanced technology, be good at digestion and secondary innovation, so that enterprises become the main body of innovation. Thirdly, improve the internal management and establish innovation system. The enhancement of enterprise innovation ability, in the final analysis, should be through system innovation. Finally, strengthen industry-university-research cooperation and innovation to meet the market demand. Industry-university-research cooperative innovation is an effective way of enterprise innovation. In the process of industry-university-research cooperative innovation, the leading position of enterprises should be established.

6.2 We will focus on adding, subtracting, multiplying, and dividing talents to make cities more attractive

Shanghai's urban development vision is to build a remarkable global city by 2035. As the gears of Shanghai constantly roll forward, the efforts of the city builders are very important. The issue of talents in Macao is a problem closely linked to the future development of Macao. However, what really restricts the flow of talents is the unclear introduction policy and the imperfect introduction mechanism. The policy of introducing specialized talents and cultivating local talents and the return of overseas talents goes hand in hand. Only when the policy concept of "building talents into Macao" is implemented can the three tracks of "introducing" and "training" and "backflow" provide rich talent reserve for the appropriately diversified development of Macao's economy and truly give full play to the role of strategic talent resources. First, we need to broaden the flexibility to attract talent channels. Flexible and flexible introduction policies will be adopted for professional and technical talents, scientific and technological innovation talents, Marine economy and financial and professional talents in insurance. Secondly, to carry out cooperation on specialized projects. Give full play to the international advantages of Shanghai and Macao, and attract the postdoctoral and leading talents with strategic significance and leading role. Finally, improve the talent introduction plan. Establish a talent evaluation mechanism and introduce an open and transparent scoring system, formulate and improve the public talent needs list and publicize it, and classify the scoring criteria for the age, academic qualification, language ability and accompanying family members according to the list needs. Talent is the first resource of innovation, is a strong support to promote the development of high quality, the implementation of more active talent policy is to activate the "stock", introduce "incremental", innovation "variable", fully release of talent vitality, is also consolidate enhance competitive advantage, strengthen exchanges with Hong Kong, the mainland in various fields.

6.3 Coordinated development of Shanghai and Macao industries to build a new path of innovation cooperation between Shanghai and Macao

It has become the status quo of contemporary economic development to cultivate advantageous characteristic industries and promote high-quality economic development. First,

promote the coordinated development of industries in Shanghai and Macao, and jointly carry out cross-border business. For example, cooperation between Macao themed exhibition and CIIE can be strengthened to amplify the spillover effect of the exhibition industry. Second, we need to strengthen academic exchanges and industry-university-research cooperation between Shanghai and Macao, and promote the deep integration of entrepreneurship and the industrial chain. Macao enterprises in Shanghai are involved in emerging industries such as service industry and advanced manufacturing, and industry-university-research innovation cooperation has broad prospects. We will support Macao enterprises in strengthening academic exchanges with local universities and research institutions in Shanghai, and accelerate innovation with the help of the industry-university-research and government network^[21]. Third, Shanghai-Macao cooperation to deepen regional innovation coordination. The construction of the Yangtze River Delta and the Greater Bay Area is of great value to the construction of the domestic cycle. It is suggested to support Macao enterprises to participate in the inter-regional science and innovation cooperation in the Yangtze River Delta. At the same time, integrate the insight of Macao enterprises into the overseas market into the construction of the two strategic regions, and integrate overseas and Shanghai and Macao talents. Enterprises in Shanghai and Macao can give full play to the advantages across the two strategic regions, promote the resource circulation, and become the regional microeconomic pillars. Fourth, give full play to the guiding and linking role of the Chamber of Commerce in innovation cooperation. Chamber of commerce organization is an important link between the government, society and enterprises. Chamber of commerce organizations in Macao and Shanghai can do a good job of guidance and lay a foundation for Macao enterprises to play their value. At the same time, we will publicize and implement policies, actively coordinate with the government and enterprises, and build more platforms for cooperation and exchange, such as establishing the Shanghai-Macao Innovation Cooperation Forum to promote cooperation among enterprises, and better serve and lead the economic and trade development between Shanghai and Macao.

7 Conclusions

Through the analysis of the Shanghai-Macao economic development, there are some constrains on co-operation. Shanghai and Macao should active the vitality of the transformation of achievements, focus on the “addition, subtraction, multiplier and division” of talents and promote the coordinated development of Shanghai and Macao’s industries. It is important to explore and establish a support mechanism for two-way service, resource sharing and coordinated development between local areas, and to jointly build the world’s most influential talent center and innovation highlands.

Acknowledgments: Funding for the preliminary research project of the National 13th Five-Year Plan for Science and Technology Development (Project No.: 2014DP2024, Project name: Research on the development mechanism of scientific and technological talents to meet the needs of innovation driven during the 13th Five-Year Plan); Macao, China Project of Macao Foundation of HKSAR Government: Research on incentive Mechanism for jointly building a World Important Talent Center and Innovation Highland between Shanghai and Macao in 2035 (Project No.: G01540-2112-10; Project leader: Xiangqian Zhang); Industry-university Cooperation and Collaborative Education Project of Ministry of Education:

Construction of Virtual simulation Experiment and Practice Base of Public Administration Discipline of College of Demonstration Humanities and Industry (Project No.: 220505095251644; Project Leader: Xiangqian Zhang)

References

- [1]FENG Hua, JIN Zhengbo, CHANG Qin, et al. Accelerate the implementation of the innovation-driven development strategy[N]. People's Daily,2022-10-22(001).
- [2]QI Zhiming, WANG Haonan, HUANG Cao, et al. Create a new situation with high-quality development[N]. People's Daily, 2022-10-18(008).DOI:10.28655/n.cnki.nrmrb.2022.011316.
- [3]JIN Haotian, XIA Jing. Basic research is the source of scientific and technological innovation[N]. Guangming Daily, 2022-10-22(010).DOI:10.28273/n.cnki.ngmrb.2022.005170.
- [4]. Science and technology are the first productive force. Talents are the first resource. Innovation is the first driving force [N]. Guangming Daily, 2022-10-20(001).
- [5]. We will further implement the strategy of reinvigorating human resources in the new era and accelerate the development of a world important talent center and innovation highland[N]. 2021-09-29(001).DOI:10.28655/n.cnki.nrmrb.2021.010270.
- [6]Şener S,Sarıdoğan E. The Effects Of Science-Technology-Innovation On Competitiveness And Economic Growth[J]. Procedia - Social and Behavioral Sciences,2011,24.
- [7]CHI Meiqing, et al."Is centralization killing innovation? The success story of technological innovation in fiscally decentralized countries." Technological Forecasting & Social Change 168.(2021). doi:10.1016/J.TECHFORE.2021.120731.
- [8]HU Lina. Simulation and Countermeasure Research on China's Supporting the Implementation of Science and Technology Innovation Policy[J]. China Science and Technology Forum, 2020(01):1-8.DOI:10.13580/j.cnki.fstc.2020.01.002.
- [9]XU Yulian, WANG Hongqi. The supporting role of technology finance on technology innovation: an empirical analysis based on Bootstrap method[J].Science & technology Progress and Policy,2012,29(03):1-4.
- [10]LI Lu. Financial supply side supporting science and technology innovation from the perspective of dynamic evolution[J]. Scientific Management Research, 2022,40(02):147-154.
- [11]XU Shiqin, YIN Tianbao, YANG Yang. Analysis of China's Inter-provincial Science and Technology Financial Efficiency Measurement and Its Influencing Factors: Empirical Research based on Spatial Panel Model[J]. Technology Economics, 2020,39(03):81-86.
- [12]LU Feng, HAN Shangrong. Research on the Impact of Science-finance on Technological Innovation Based on Panel Data Model[J]. China Soft Science, 2015(06):139-147.
- [13]LIU Chengkun, ZHANG Junhong. Macao's innovative technology development and industrialization[J]. Science & Technology Review, 2019,37(23):57-60.
- [14]LI Zhanshu.We will unswervingly follow the successful path of "one country, two systems" to ensure the full, accurate and effective implementation of the Constitution and the Basic Law of Macao[N]. People's Daily,2019-12-04(003).DOI:10.28655/n.cnki.nrmrb.2019.000374.
- [15]YIN Ximing, LIN Zhenyang, Chen Jin, et al. Research on the dynamic value creation process of data element[J]. Studies in Science of Science, 2022,40(02):220-229.
- [16]Romer M P. Growth Based on Increasing Returns Due to Specialization[J]. The American Economic Review,1987,77(2).
- [17]DAI Kui. Thoughts on the integrated development of Macao's cultural industry [J]. Modern

Management Science, 2018 (07): 78-80.

[18] ZHOU Jiezheng. Research on building China's new international science and technology innovation cooperation mechanism[J]. Scientific Management Research, 2015, 33 (3) : 119-122.

[19] Ali Mamhoori. Technology Parks and Innovation Areas of Developing Countries as a New Way for Retuning Talents (Case Study: Pardis Technology Park)[J]. Journal of Economics and Technology Research, 2021, 3(1).

[20] CHANG Xuhua, LIU Yongqian, LIU Xiao, et al. Policy Orientation and Evaluation of Regional Technology Transfer: Evidence from Shanghai[J]. Forum on Science and Technology in China, 2018(09):58-68. DOI:10.13580/j.cnki.fstc.2018.09.013.

[21] LIU Feiran, HU Lijun, FAN Xiaoqun. Research on the Influence of Industry-University-Research Cooperation on Enterprise Innovation Quality[J]. Business and Management Journal, 2020, 42(10):120-136. DOI:10.19616/j.cnki.bmj.2020.10.007.