Research on Industry Collaborative Innovation Alliance in Science and Innovation Corridor: Taking the G60 Science and Innovation Corridor in Yangtze River Delta as an Example

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Abstract. Innovation is the first driving force to promote high-quality and high-efficiency development of the society, and the establishment of industrial collaborative innovation(co-innovation) alliance is an effective way to coordinate the main body of innovation, gather innovation resources, and improve the performance of innovation. Science and innovation corridor is an efficient form of regional alliance formed under the development trend of economic globalization, and the reasonable construction and benign operation of industrial co-innovation alliance within the corridor is of great significance to the regional economic development. In this paper, based on the main participating subjects of science and innovation corridor and their interrelationships and operation mechanisms, we set up the alliance hierarchy, constructed a theoretical model of industrial co-innovation alliance in science and innovation corridor, and explained the nested relationship between alliances. Subsequently, based on the existing alliances in the G60 Science and Innovation Corridor, it explores the role of alliance mechanism in promoting the regional development of the Science and Innovation Corridor, in which the enterprise alliance, as the core of the industrial alliance, is able to pull its development and operation. Finally, relevant policy recommendations are put forward from the perspective of promoting the sustainable development of industrial co-innovation alliances in the science and innovation corridor.

Keywords: Industrial Alliance; Collaborative Innovation; Science and Innovation Corridor; G60 Science and Innovation Corridor.

1 Introduction

With the development of industrial economy, the collision and fusion of old and new industries penetrate into all fields of social economy. Therefore, China needs to con-

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tinuously strengthen basic research and original innovation, promote scientific and technological self-reliance and self-improvement, achieve breakthroughs in core technologies[1]. Most of the traditional science and technology innovation is led by government departments to guide the development and operation of enterprises, institutions and other subjects, but in the rapid development stage, it is difficult to cope with the rapidly changing market environment only relying on the government's lead. In order to solve the problems of resource shortages and stagnant cooperation among them, and to integrate the operation and development of the industrial chain, it is necessary to unite the expertise and advantages of each participating body.

At the same time, under the development trend of economic globalization, many countries and cities have broken through the boundaries of geographical boundaries and started to form a large number of cross-regional science and technology innovation corridors. Within the special region, it is necessary to build a suitable industrial co-innovation alliance system according to the market development strategy and industrial agglomeration characteristics of the region where the corridor is located, coordinate the development objectives of each subject and mobilize the innovation enthusiasm of the whole alliance, in order to enhance the output efficiency and flow capacity of innovation factors, and realize the significant optimization and reasonable allocation of innovation resources.

The problem is how to establish and run an effective alliance system to maximize innovation performance. This paper organizes the main participants of science and innovation corridor and their interrelationships and operation mechanisms, draws a theoretical model of industrial co-innovation alliance in science and innovation corridor, and takes G60 science and innovation corridor, which is at the forefront of China's economic development, as the research object to analyze the internal alliance operation mode, so as to put forward the optimization path, and to provide reference for the establishment of industrial co-innovation alliance in other science and innovation corridors.

2 Relevant Research Basis

2.1 Science and Innovation Corridor and Industrial Co-Innovation

Science and innovation corridor refers to a special regional innovation development form in a specific geographical area, led by the government or formed spontaneously by the activities for the purpose of scientific and technological development, where the innovation factors in the region cross the administrative boundaries to interact freely and rationally allocate, and the scientific and technological innovation resources are gathered at high densities, and through the gathering of innovative talents and the integration of innovative resources, to Promote high-density co-innovation activities of universities, enterprises and research institutions and other innovation subjects[2][3]. Science and innovation corridor is usually the relevant region or city to break the geographical restrictions, through system reform, supply-side reform, etc., to promote the free flow of talent, information, technology, capital and other innovation factors, so as to form the development of emerging industry clusters, high-end

human resources, scientific and technological innovation elements of the high concentration of the innovation and development of the key areas[4].

In the interdependence of firms, "collaboration" is one of the fundamental elements of strategy, which can transform a whole from a state of disorder to a state of order[5]. Cooperation and complementation between different parts of the system can produce effects far beyond the simple addition of the utility of individual parts[6]. Co-innovation emphasizes the cooperation of the operation mode system and the sharing of professional knowledge and technology among multiple subjects, and they can communicate and exchange information and resources through the innovation network, so as to achieve the common development goals[7]. To establish an industrial co-innovation system, it is necessary to establish a clear management mechanism, optimize the division of labor and responsibilities, build a perfect talent training mechanism, promote the scale and institutionalization of research as well as normalization, and vigorously promote economic development[8].

2.2 Industry Co-Innovation Alliance in Science and Innovation Corridor

An alliance is an organization established by two or more subjects through a formal agreement for the needs and benefits. For enterprises, alliance cooperation can help them to obtain external innovation elements to cope with the social environment of increasing product abundance, technological decentralization and intensifying changes[9]. Regional industrial co-innovation alliance refers to a complex innovation system in a certain region, led by local governments, with industrial aggregation as the core, universities and research institutes as the source of knowledge, and intermediary organizations as the link[10].

Science and innovation corridor industrial co-innovation alliance refers to a kind of co-innovation organization that can carry out complementary advantages, benefit sharing, risk sharing and cooperative development within or between organizations such as enterprises, governments, higher education institutions and scientific research institutes, etc., which are located in this special region of science and innovation corridor, and based on the development needs of the market and the common interests of the participating subjects, in order to enhance the competitiveness and innovation capacity of the industries within the region.

3 Analysis of Industrial Co-Innovation Alliance in Science and Innovation Corridor

3.1 Regional Characteristics of Science and Innovation Corridors

The mature science and innovation corridors are broadly characterized by four basic features: First, spatial form, mostly centered on highways and railways connecting several major cities, with a corridor-like structure; second, innovation resources, mainly innovative enterprises, scientific and technological achievements, knowledge and talents, and information and services; third, cultural exchanges, involving mul-

ti-city and cross-regional integration, with strong openness and inclusiveness; fourth, policies and systems, in terms of innovation system reform and the construction of different basic support facilities for science and technology innovation activities[11].

However, due to the regional specificity, diversity of subjects and complexity of relations in science and innovation corridors, the probability of risks such as lagging information and lack of resources is greatly increased in the process of independent operation of each subject. Therefore, it is necessary to form cooperation between the subjects to maximize the benefits. One of the important purposes of building a co-innovation alliance for industries in the Science and Innovation Corridor is to enhance the overall innovation capability of the industry.

Coase[12] and Williamson[13], from the transaction cost theory, argue that firms and markets are two types of resource allocation organizations that can be substituted for each other, and that the existence of firms' organizations reduces market transaction costs, and that alliances are a third organization between firms and markets, and that transactions within them are neither firms nor markets because the organization of transactions does not depend entirely on a particular firm's governance structure, and the conduct of transactions is not entirely dependent on the market price mechanism. Co-innovation in industries in the science and innovation corridor involves a number of subjects in various aspects, and there are different "third organizations" between each subject and the industrial market, but they all share the same desire to improve the efficiency and capability of innovation while lowering the cost of innovation, so as to obtain higher benefits. Therefore, the establishment of alliances at all levels is a good choice for realizing complementary advantages and win-win cooperation, as it can cater to the needs of different subjects and the pursuit of benefits of the regional system as a whole.

3.2 Formation of Science and Innovation Corridor Industry Co-Innovation Alliance

3.2.1. The Main Bodies of the Alliance's Operation.

Science and innovation corridor industrial co-innovation alliance bases on co-innovation network, with six types of participants: enterprises, government, higher education institutions, research institutions, intermediary and financial institutions which are operated within the network through mechanism arrangement, requirement orientation, platform support and resource supply. In the process of co-innovation, the subjects with related characteristics and common benefits may form alliance, such as university alliance, scientific research institution alliance., which called first-level alliance in this paper; and alliances are also formed between different subjects. This paper divides five types of second-level alliances:

Enterprise Alliance: Firms form alliances with each other in order to compensate for their respective shortcomings in terms of capabilities, resources, etc., and thus improve their innovation performance[14]. Many firms rely on inter-firm cooperation to obtain the resources they need to survive and grow, to explore new business opportunities, and to learn new skills that can be utilized for themselves outside the alliance[15]. In the Science and Innovation Corridor Industry Co-Innovation Alliance, the

most important participants are small, medium and large enterprises of different sizes and levels, as well as the most benefit-oriented interest demand side in the alliance. A common alliance is led by one or a few leading enterprises, and a number of supporting enterprises that can meet the needs of the leading enterprise industry chain development. In the operation process of enterprise alliance, the leading enterprises support the supporting enterprises that can meet their own needs, and the supporting enterprises can also assist the leading enterprises in a certain link of the industry chain.

Government Alliance: Governments have a guiding role in market development, and policy makers need to establish appropriate policy orientations for the network needs of SMEs[16]. As the science and innovation corridor breaks down the boundaries of administrative divisions, government departments in each region are required to participate in its operation, and in the formulation and implementation of specific policy measures, it may be led by the core regional governments, with the cooperation of peripheral regional governments. In the process of co-innovation, government departments can exist separately if they only implement policies for their own regions, or form cross-regional government alliances with each other if they are involved in the implementation of policies that need to be jointly implemented by government departments in multiple regions.

Knowledge Alliance: In the process of industrial co-innovation, higher education institutions, research institutions and R&D enterprises are the main body of knowledge resources, and can provide knowledge elements such as talents, theories, achievements and technologies respectively[17]. Institutions of higher education hold more talents and theories, and scientific research institutions usually transform theories into achievements, and both of them belong to the supply side that can realize knowledge and provide the basis for R&D enterprises[18]. R&D enterprises are more engaged in technological output, transforming results into revenue, and are the demand side in the knowledge chain, driving the development of the supply side with demand[19].

Financial Institution Alliance: The participation of financial institutions is to meet the additional financial needs of the participating subjects, so as to guarantee the smooth operation of all parties and the dynamic operation of the science and innovation corridor, catering for the development needs of the subjects. In the process of industrial co-innovation, different financial institutions, such as brokerage firms, banks, accounting firms, etc., are able to provide different financial products and financial services according to the different needs of the main parties.

Intermediary Institution Alliance: The participation of intermediary institutions is to improve the communication efficiency between subjects, so as to solve the problem of information asymmetry in cooperation, and improve the efficiency and accuracy of co-innovation. In the cross-regional and multi-subject co-innovation activities in science and innovation corridor industry, different intermediaries hold different information, and through specific contact channels for supplementary exchange, establish effective contact with each other, and realize the efficient allocation of resources.

Different from the first three types of alliances, the intermediary institution alliance and the financial institutions alliance belong to the service main body. If a separate institution can satisfy the need of information and fund, then a certain intermediary or

financial institution can participate in the co-innovation process independently, and it doesn't need to form an alliance.

The core of constructing industrial co-innovation alliance is to unite subjects to optimize and improve the industrial chain on the basis of sharing innovation factors with each other[20]. In the process of the operation and development of multiple alliances, the industrial co-innovation alliance within the scope of the entire science and innovation corridor is gradually formed the three-level alliance, the formation of which is aimed at taking the market mechanism as the basis, integrating innovative resources, realizing the efficient flow of elements matching, promoting the integration and union of subjects at the management level, and enhance industrial innovation and competitiveness.

3.2.2. The Mechanisms of the Alliance'S Operation.

Inamori Kazuo mentioned in his book "Amoeba Management" that an amoeba reproduces by division. He thought that the business model of dividing a company into several small organizations was similar to the reproduction of an amoeba, and so he named this business model "Amoeba Management"[21]. As a unit of accounting, an "amoeba" is an independent organization with clear aspirations and goals that grows continuously and independently. In the process of operation, each amoeba organization is nested in a hierarchy, with each level containing some or all of the components of the next level. In the Science and innovation corridor industry co-innovation alliance, the "third organization", each subject forms the first and second level alliance according to its own nature, innovation elements and other differences, and then forms the overall third level alliance, with gradual progression and nesting between different alliances.

Co-Innovation Network: The key to co-innovation is the formation of a network innovation model with the synergistic interaction of multiple subjects, which generates the non-linear utility of system superposition through the in-depth cooperation and resource integration between knowledge creation subjects and technological innovation subjects[22]. Through division of labor and cooperation, different subjects within the science and innovation corridor can play their respective advantages to participate in co-innovation, in which innovation factors can be aggregated and further configured. Co-innovation network is built on the basis of industrial chain, knowledge chain, etc., emphasizing the network correlation between subjects. In the process of industrial co-innovation activities in the science and innovation corridor, different main bodies participate together to form alliances of different natures oriented to market development and centered on enterprise needs, and the alliances are a process of integrated management and factor flow.

Integrated Management Layer: Integrated management is a method that uses resources to effectively achieve the global optimal solution, based on the content of integration, the allocation of resources according to the needs of each subject, to achieve efficient organizational management, which can help the organization to achieve strategic change, improve the operational structure of the organization and the core competitiveness of the organization, as well as to promote the development of the organization[23]. The subjects participating in the science and innovation corridor

form alliances, and the different subjects and alliances at all levels form a integrated management layer. Due to the specificity and autonomy of the subjects and the different development goals, it is necessary to strengthen the coordination and management.

Factor Flow Layer: Different subjects within the corridor have different advantages and functions, and can create different innovation factors for the co-innovation network. Enterprises can provide economic benefits and innovative technologies to support the alliance's operation and development; governments formulate corresponding policies and systems according to the development needs to promote the operation of the alliance; higher education institutions and research institutions, as the suppliers of knowledge, provide corresponding theories and talents, which are then transformed into results and put into the market through the R&D enterprises; financial institutions provide financial products and services for the subjects that have needs; intermediary institutions provide information exchange services. The development of alliance brings about the coordination of objectives and optimization of management, and in the coordinated and managed co-innovation network, the subjects are able to effectively exert their strengths and utilize their resources.

3.2.3. Theoretical Model.

Based on the participating subjects and the hierarchical division of the alliance, this paper organizes the recursive and nested relationships among them, and draws the theoretical model of industrial co-innovation alliance in science and innovation corridor as Figure 1.

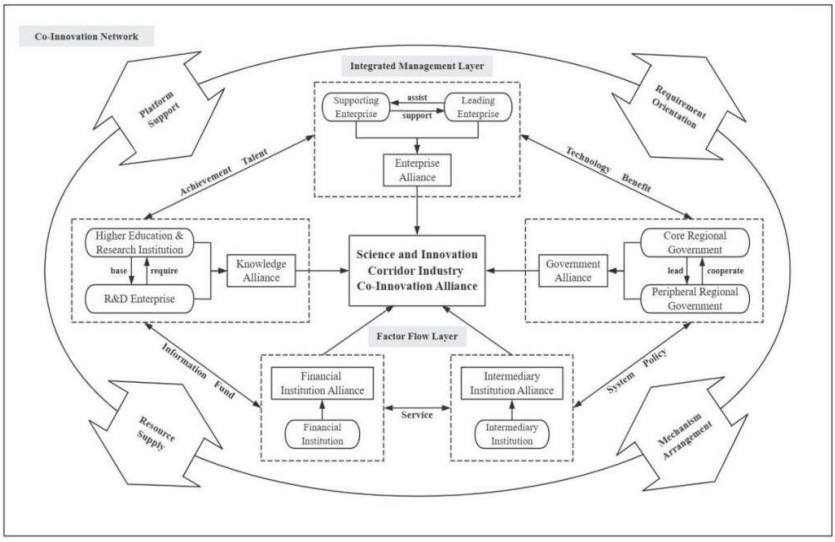

Fig. 1. Science and Innovation Corridor Industry Co-Innovation Alliance.

4 Mechanism Analysis of Industrial Co-Innovation Alliance in G60 Science and Innovation Corridor

4.1 G60 Science and Innovation Corridor Introduction

The G60 Science and Innovation Corridor runs through three provinces and one city, and is linked to the nine cities of Songjiang in Shanghai, Hangzhou, Huzhou, Jiaxing and Jinhua in Zhejiang, Suzhou in Jiangsu, Xuancheng, Wuhu and Hefei in Anhui, and form the overall spatial layout of "one corridor, one core and nine cities". "One corridor" is the G60 Science and Innovation Corridor, which focuses on the G60 Expressway and the Shanghai-Suzhou-Huhu-Hefei High-speed Railway. "One Core" is the global science and innovation center: Shanghai, which is located at the starting point of the G60 Science and Innovation Corridor, and is the support and core of the industrial development of the corridor. Inside the corridor, there are more than 1,000 headline enterprises, many high-tech enterprises, as well as key universities and research institutes, and it has become one of the regions with the richest allocation of resources, the greatest intensity of R&D investment, and the fastest pace of economic development, but there is still a big gap in the level of development of each city due to its different economic foundation.

4.2 Development Status of Industrial Co-Innovation Alliance in G60 Science and Innovation Corridor

Enterprise Alliance: The G60 Science and Innovation Corridor supports the promotion of cross-regional synergistic cooperation of industrial chains led by head enterprises, builds industrial technology innovation alliances for enterprises, and encourages leading enterprises in different industries to drive small and medium-sized micro-enterprises in nine cities to enter the industrial chain or the supporting system to make up for the production vacancies. On the one hand, it builds up the enterprise alliance that breaks down the barriers of administrative divisions in a market-oriented way; on the other hand, it gives better play to the leading role of the leading enterprises, expands the market with the industrial chain as a link, and accelerates the in-depth cooperation between upstream and downstream enterprises. In addition, the G60 Science and Innovation Corridor has also set up an enterprise alliance of CPPCC members from nine cities to promote exchanges and cooperation among enterprises in the region, and promoting the high-quality development of the G60 Science and Innovation Corridor.

Government Alliance: In 2018, Songjiang took the lead in establishing the Yangtze River Delta G60 Science and Technology Innovation Corridor Joint Conference Office(Joint Office), exploring cross-administrative cooperation and coordination, with the Science and Technology Innovation Development Office and the G60 Innovation and Research Center under it. Subsequently, the G60 Science and Innovation Corridor has carried out "Centralized Linkage" and set up a special task force for promoting the construction to promote the implementation of key tasks in the construction of the G60 Science and Innovation Corridor. As the core area of G60 Science and Innovation

Corridor, Shanghai Songjiang has led the neighboring areas to continuously explore and practice institutional innovations, such as the establishment of G60 nine-city NPC exchange and cooperation mechanism and CPPCC consultation and collaboration mechanism, the formation of nine-city NPC enterprises and CPPCC members enterprise alliance, and so on.

Knowledge Alliance: The nine cities have established a mechanism for mutual recognition and exchange of talents and a regular exchange mechanism for quality standards to create a great environment for science and innovation. Songjiang relies on knowledge suppliers such as higher education institutions, research institutes and R&D enterprises to pool innovation elements and promote cooperation between universities and enterprises, industry, academia and research. For example, under the guidance of the Joint Office, the Shanghai University of Engineering and Technology has taken the lead in establishing the "Yangtze River Delta G60 Science and Innovation Corridor High-level Applied Universities Co-Innovation Alliance", which is dedicated to supporting scientific and technological and industrial innovation in the G60 Science and Innovation Corridor; establish the G60 Science and Innovation Corridor Innovation Research Center Alliance of High-End Think Tanks is intended to build a platform for multi-principal exchanges and cooperation, and so on.

Financial Institution Alliance: With the support of financial regulators from three provinces and one city, the G60 Science and Innovation Corridor has built up a linked financial service ecology of debt, equity and funds. Firstly, a regional financial service alliance was set up under the leadership of the Joint Office, covering about 500 head organizations such as banks, brokerage firms, funds, insurance, accounting firms, law firms, etc., to set up a service platform for enterprise credit information sharing, and provide comprehensive financial services for enterprises; subsequently, the governments of the nine cities and Haitong Securities jointly financed, and a social capital was introduced to jointly set up the G60 Science and Technology Creation Corridor. In addition, financial services also include financial leasing services, and the corridor has signed a strategic cooperation agreement with financial leasing organizations in three provinces and one city, which will be used to support some key projects in the future.

Intermediary Institution Alliance: At present, the resource system of G60 Science and Innovation Corridor covers industrial co-innovation centers, research institutes, business associations, professional organizations, etc. In order to make factor resources flow more fully, the corridor will provide ten types of services for governments, parks, enterprises and organizations at all levels, including investment and landing of industrial projects, guidance and support for the subjects to hold various kinds of elemental docking activities, and support for enterprises to join various kinds of alliances and business associations. For example, nine cities signed the Framework Agreement on the Exchange and Cooperation of Talent Service Work among Nine Cities in the G60 Science and Innovation Corridor of Yangtze River Delta, and set up the High-end Talent Hunting Alliance, which releases the demand for high-end talents of the nine cities to the world.

Industrial Alliances: In terms of industrial alliances, a "1+7+N" industrial alliance system has been formed under the leadership of the Joint Office. As shown in Table 1, 16 industrial alliances have been set up, with nearly 3,000 head enterprises in various

fields as members. Each industrial alliance is guided and coordinated by the Joint Office, and under the leadership of the leading enterprises, enterprises, colleges and universities, research institutes and other subjects participate in the construction of upstream, midstream and downstream industry chains. The head enterprise of each city acts as the chairman unit of the alliance, and the cooperative units of the industry chain act as the secretary-general.

Table 1. G60 Science and Innovation Corridor Industry Alliance System.

System	Alliance Name	Establishment Place	Establishment Time	Chairman Unit
"1"	Industrial Parks Alliance	Suzhou, Jiangsu	2019.6.28	Suzhou Industrial Park
"7"	New Materials Industry Alliance	Jinhua, Zhejiang	2018.11.12	Hengdian Group DMEGC Magnetics Co., Ltd
	New Energy Industry Alliance	Xuancheng, Anhui	2019.4.19	EIKTO Battery Co.,Ltd
	New Energy and Connected Vehicle Industry Alliance	Hefei, Anhui	2019.4.25	Jianghuai Automobile Group Co., LTD
	Artificial Intelligence Industry Alliance	Songjiang, Shanghai	2019.5.15	Csg Smart Science&technology Co.,Ltd
	Biomedical Industry Alliance	Hangzhou, Zhejiang	2019.5.28	Zhongmeihuadong Pharmaceutical Jiangdong Co., Ltd
	Integrated Circuit Industry Alliance	Suzhou, Jiangsu	2019.6.28	TF-AMD Semiconductor Co., LTD
	Intelligent Equipment Industry Alliance	Huzhou, Zhejiang	2019.8.30	Noblelift Intelligent Equipment Co.,Ltd
"N"	Robot Industry Alliance	Wuhu, Anhui	2018.12.21	Efort Intelligent Equipment Co.,Ltd
	Cross-border E-commerce Industry Alliance	Hangzhou, Zhejiang	2019.11.9	Koala Haimai Technology Co., Ltd
	Intelligent Driving Industry Alliance	Suzhou, Jiangsu	2019.4.11	ChuSuDu Technology Co., Ltd
	General Aviation Industry Alliance	Wuhu, Anhui	2019.9.29	CETC Wuhu Diamond Aircraft Manufacture Co., Ltd
	Environmental Industry Technology Innovation Alliance	Hefei, Anhui	2020.9.1	Hefei Institutes of Physical Science, Chinese Academy of Sciences
	Collaborative Alliance of Specialized, Specialized and New SMEs	Hefei, Anhui	2021.11.8	Royalstar Electronic Appliance Group Co.,Ltd
	Photovoltaic Collaborative Innovation Industry Alliance	Jiaxing, Zhejiang	2021.5.28	Flat Glass Group Co., Ltd
	Laser Industry Alliance	Suzhou, Jiangsu	2022.6.16	Everbright Photonics Co., Ltd

4.3 Operation Mechanism of G60 Science and Innovation Corridor Industry Co-Innovation Alliance

Summarize the specific G60 Science and Innovation Corridor Industry Co-Innovation Alliance, as shown in Figure 2.

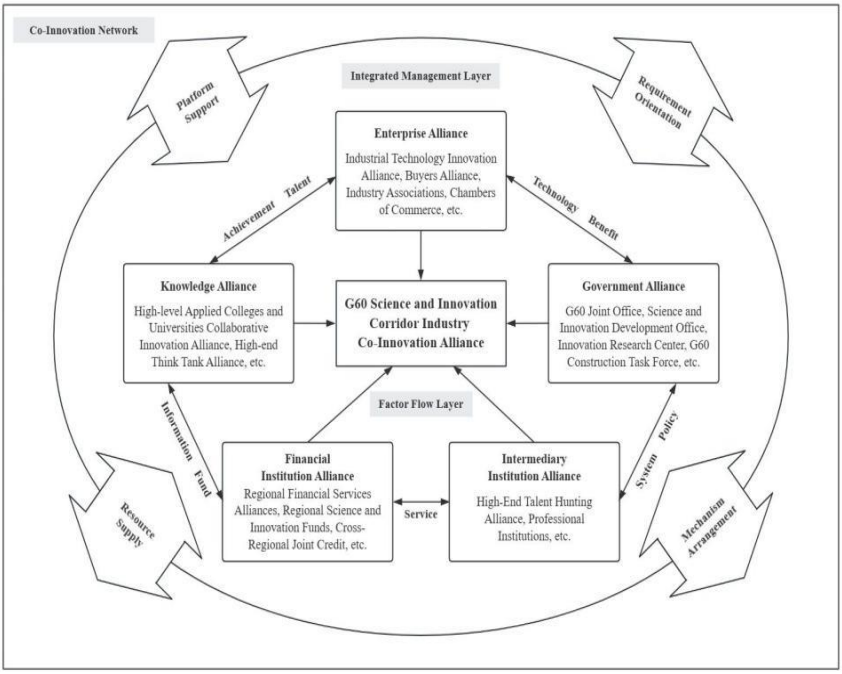

Fig. 2. G60 Science and Innovation Corridor Industry Co-Innovation Alliance.

Analyzing the internal development status of different industrial alliances in the G60 Science and Innovation Corridor, it is not difficult to find that alliances at the same level don't exist independently of each other, but present a state of mutual benefit and symbiosis; alliances at different levels gradually progress and nest each other, thus building a co-innovation alliance of industries. All subjects and alliances at all levels converge and coexist to promote the construction and stable and efficient operation of the G60 Science and Innovation Corridor Industry Co-Innovation Alliance.

5 Policy Suggestion

According to the advantages and disadvantages of the industrial co-innovation alliance of the science and technology innovation corridor, the main suggestions of this paper are as follows:

Firstly, coordinate the development objectives of the bodies. It is suggested that each participating body within the alliance should encourage more industries to form industrial co-innovation alliances according to the different characteristics and the

actual situation of regional development, and strengthen the cooperation with technological innovation alliances, innovation research centers and other innovation platforms in the science and innovation corridor under the guidance of the market and the government, so as to play an active role in the industrial co-innovation alliance.

Secondly, optimize the operation mechanism of the alliance. Enterprises as the demand side and the leading party of co-innovation, as well as the important participants in the alliance, should increase their inputs into the development of the alliance. The government should do a good job of macro-control and guidance for the development of the alliance to pave the way for policies and mechanisms, in order to fully stimulate the innovation vitality of all the main bodies. The management of alliances at different levels should be strengthened, through optimizing the mechanism of decentralization and division of responsibilities, to link and nest alliances, and jointly form industrial co- innovation alliances.

Finally, improve the industrial alliance system. Each member in science and innovation corridor industry co-innovation alliance has its unique resources. A suitable system should be set up according to the actual situation of the science and innovation corridor, and constantly reformed and improved according to the development situation. It is necessary to give full play to the technical benefits of enterprise alliance, the policy guidance of government, the basic research advantages of knowledge alliance, the fund service advantages of financial institutions and the information flow advantages of intermediary institutions, so as to improve the innovation performance of the whole system through cooperation and realize the rapid development of the science and innovation corridor.

6 Conclusions

Based on the characteristics of the science and innovation corridor and the participating subjects, this paper has sorted out the interrelationships and operation mechanisms among them, drawn a theoretical model of the industrial co-innovation alliance of the science and innovation corridor, and taken the G60 Science and Innovation Corridor as the research object, specifically explored the construction status of the alliance and the actual operation mechanism within it. This paper obtains the following conclusions:

Firstly, enterprises are the main participant of industrial co-innovation alliance, and also the biggest resource demander and benefit producer, which can pull the development and operation of the whole industrial alliance; secondly, the government alliance assumes a guiding and leading role in the process of establishment and operation of alliance at each level, and provides policy and system guarantee for the main body to develop, which is especially important for the development of financial service institutions; thirdly, alliances are not independent of each other, and in the process of forming alliances by subjects according to their own nature, other subjects and alliances will participate in them more or less to fill the resource gap.

According to the above conclusions and actual situation, the science and innovation corridor can effectively improve the industrial innovation performance by con-

structing industrial co-innovation alliances with the participation of multiple subjects, which will have a positive impact on the innovation development of the whole regional city.

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