

A High Level of Talent Training Mechanism Study of Innovative Industrial Clusters

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Abstract

Innovative companies and high-level talent is the theme of innovative industrial clusters and cultivate high-level talent is the basis for the development of innovative means of industrial clusters. Thus, the importance of high-level talent in creative industries clusters. This paper describes an innovative industrial cluster definition, and with distinction on the basis of innovation clusters, network will be divided into three levels: the core network, support network, the underlying network. Proposed industrial clusters of innovative talent bottleneck in the development process, and from different angles gives three levels of nurturing talent development countermeasures.

Keywords: innovative industrial clusters, high-level talent, nurturing countermeasures

As we all know, human resources has become the first element of the economic society, various countries in the world will foster technological innovation talents as an important way to enhance the core competitiveness of the region and expand strategic resources. Personnel training problem of innovative industrial clusters is more complex reality. Because it involves a series of studies in the cluster transmission mechanism of knowledge spillovers and technology diffusion. Talent is the main body of knowledge innovation, corporate human resources is not clear if the industrial clusters play in the spread of knowledge sharing activities and the important role it can not promote the development of industrial clusters, industrial clusters will lack vigor and vitality. At present, China's innovative industrial clusters exist some talent bottleneck in the development process. Therefore, only the increase in research on human resources cultivation mechanism through increased high-level talents, to achieve a virtuous cycle of innovation and industrial cluster interaction and enhance market competitiveness, and promote sustained and stable development of innovative industrial clusters.

1. Definition and Structural Features Innovative Industrial Clusters

1.1 Definition of Innovative Industrial Clusters

Innovative industrial cluster based on specialization and cooperation as the basic premise of the same industry or related industries, innovative institutions and enterprises, as have some commonalities between their complementarities and linked to each other and rooted in favor of institutional and cultural innovation environment in the industry through innovation clusters and the evolution of the state of competition in the market with each other and promote each other to form a regional innovation community organizations. Innovative industrial cluster emphasize interaction between enterprises, location in close proximity, focus on corporate innovation activities, based on a high degree of shared social values, knowledge spillovers and interactive learning through industry clusters to create a production enterprise organizational structure and new products. It is based on your organization's network and business model innovation-based, knowledge-or technology-intensive industries and brand as the main content, in order to facilitate innovation system and culture of the environment, innovation and enterprise and talent as the main industrial clusters, the traditional the high-end model of industrial clusters.

Through innovative industrial clusters in the cluster, a reasonable allocation of resources to optimize innovation, between the various components of the spread of the innovation system, introduction, creation, diffusion and application of new technology, new knowledge, new technology and old to promote industrial structure within the cluster and sustainable growth of the economy. The core problem is to realize a cluster of organic interaction and close contact with each main innovation truly serve to strengthen the cluster advantages, enhance their core competitive edge role.

According to the above definition and the definition of the concept, Hsinchu, Beijing's Zhongguancun, Bangalore, India, Taiwan, the United States and other Silicon Valley can be said to be more typical of innovative industrial clusters. Here it must be emphasized that, due to the innovative industry clusters with different manifestations in different historical periods and in different regions, and its time to form a historical process.

So although it looks like those who do not belong to the industrial areas of high-tech innovation, but continue to create new business models, new channels, new products, new brands, and highly competitive industrial clusters, it should belong to innovative industrial clusters.

1.2 Distinction and Innovation Clusters

Innovation cluster to produce new knowledge, new products appeared in large numbers for the essential meaning of the innovative organization, centralized or highly technical and economic space in the geographic space, and the formation of industrial organization structure effective interaction with the outside world. Innovation clusters may be formed within the same company may also be formed between different enterprises. It can be divided into M-type innovation clusters (innovation clusters time sense) and T-innovation clusters (innovation clusters spatial sense).

Innovation clusters and innovative industrial cluster two completely different concepts. The former is more focused on the contribution of regional and local economy, focusing on regional innovation systems, innovation refers to the phenomenon of a bell in time and space, in groups, and from the perspective of understanding the regional economy, and the latter more attention at overflow of knowledge and technological innovation diffusion, from the perspective of business or industry emphasis on innovation and continuous process of innovation advantage; Secondly, the perspective of the two studies is not the same, the former is static, which is dynamic; addition, the object is not the same between the two studies, the former study is "technological innovation", while the latter study object is the "industrial clusters" .

1.3 Innovative Structural Characteristics of Industrial Clusters Network

Various network hierarchy innovative industry clusters is the main source of a tremendous competitive value constitutes an innovative industrial clusters. Under normal circumstances, according to their role in the network structure can be divided into core networks, support networks and infrastructure networks.

(A) Core Network

Core network is the main innovation of the cluster, is the part of an innovative industrial clusters having core status. Enterprise is the main research and development cluster, into the main distribution main decision-making body, as well as the interests of the cluster technology innovation, management innovation and market innovation main body, so it is the core role in the whole creative industry cluster network organization.

(B) Secondary Network

Secondary network refers to innovative industrial clusters based on network-level secondary status. Including government agencies, financial institutions, research institutions, universities, intermediary service organizations.

(1) Government agencies. Government to change the speed of technological innovation, direction and scale, thus affecting the primary mechanism for technological innovation activities within the cluster. Government efficiency and effectiveness of technology innovation from barriers to exclude the allocation of resources within the cluster dare effectiveness of technological innovation. In other words, the government is through this indirect way is to participate in innovative industrial cluster innovation activities.

(2) Financial institutions. Financial institutions are important funding sources for technical innovation. Because of technological innovation has a very high risk, and therefore the key to success lies in technological innovation to get corporate venture capital.

But China's current situation, whether it is state-owned enterprises or private enterprises, financial strength is not strong, most companies are not yet mature, can not become a major source of risk capital. Therefore, innovative industrial clusters we must help financial institutions expand the sources of venture capital, the role of different subjects, must establish "benefit sharing, risk sharing, multi-input" operating mechanism.

(3) Scientific research institutions, universities. Research institutions, universities are the creative source of industrial clusters innovation. Either from home or abroad, many research or industrial processes rely on scientific and technological achievements of scientific research institutions and universities to complete.

(4) Intermediary service agencies. Intermediary service organizations are innovative industrial clusters on the basis of technological innovation and service network. As the activities of intermediary service organizations energy, advanced forms of organization, a high degree of specialization, gather expert management, technology, investment, information and other aspects, can provide technology, information, personnel and other elements of support for the successful realization of technological innovation and reasonable to integrate these elements, but also can effectively reduce the risk of SMEs technological innovation to help companies gain market opportunities and investment, providing specialized services, technological innovation and industrialization so as soon as possible.

(A) The Underlying Network

Network is the foundation for the realization and successful implementation of technological innovation within the cluster and provides the basis for a supporting role in the network hierarchy, which includes innovative resources, infrastructure and external markets.

(1) Innovation resources. Access to resources is one of the powerful means of innovation within the cluster enterprises to remain competitive, enterprises technological innovation guarantee. Also, the ability to obtain innovative enterprise cluster resources not only reflects the competitive advantage of the cluster, but also reflects the company's competitive advantage.

(2) Infrastructure. Innovative industrial cluster infrastructure largely provided by government departments. Reasonable infrastructure can enable enterprises to achieve cost savings, resource sharing, and can be easily implemented innovative ideas of knowledge, information, raw materials, etc., can span many invisible barriers can also provide greater innovation cluster innovation platform.

(3) External markets. In addition to the external market is the local market, the broader markets and regions. Share of the market share outside the cluster, the distance from the external market, end-user features, market entry barriers will affect enterprise clusters in the external market competitiveness.

2. Our Innovative Industrial Clusters in the High Level of Talent Development Issues

Knowledge spillovers and technology diffusion is the core competitiveness of innovative industrial clusters, of if you want to achieve a healthy growth of innovative industrial clusters, we must improve the level of knowledge spillover and enhanced technological innovation diffusion. And the development of innovative industrial clusters mission is to continue to promote industrial upgrading and efficient manner to enhance the competitiveness of industrial clusters. Talent is the carrier of knowledge, is also the subject of technological innovation, so to ensure the sustainable development of industrial clusters, we must address the following high-level creative talent development bottleneck of the development of industrial clusters that exist.

(A) The Lack of High-Level Technical Skills, Talents

In our development process, has been the lack of high-level technical skilled personnel. Partly because the country's education system in the nurturing of talent , talent is not enough to encourage innovation , did not form a good atmosphere for innovation ; on the other hand , the high level of talent in our breed , are attracted to study abroad , and studies accounts for the return of a minority, the brain drain phenomenon is more serious. Our innovative industrial clusters have the same problem exists , along with increasing levels of science and technology , in order to adapt to the competitive needs of the market environment , many enterprises in China are purchased abroad "sophisticated " technology equipment , hardware facilities to the international class level, but some companies have emerged with no advanced operating personnel issues .

Most enterprise technology cluster shortage of skilled workers in each industry talent introduction process are more or less suffer serious brain drain , shortage of skilled workers , researchers and other hard to find talent crisis , a serious impediment to the industry and technology upgrades to improve overall competitiveness , so that the development of innovative industrial clusters lost vigor and vitality , the lack of high-level talent also makes business unsustainable development.

(B) A High Level of Talent Training Mechanism Incomplete

Due to the high level of creative talent is to enhance the competitiveness of industrial cluster core strength, and therefore improve its training mechanism is especially important. High-level personnel training is the need of many supporting infrastructure, such as: quality model, knowledge management, job analysis, performance management, career planning, promotion and management.

And our innovative industrial clusters for the construction of training infrastructure are inadequate, and this is leading to inadequate training mechanisms important reason. On the other hand, the training of high-level personnel lack of effective evaluation mechanisms and evaluation criteria, the existence of such a situation, leading to a high level of talent can not individualized, and thus hinder its further development. Finally, for high-level personnel training professional structure, inseparable from the discipline-based teaching system, with little talent combined with practical applications to improve the ability to make the training and recruitment of talent can not be effectively convergence.

(C) The degree of coupling between the network-level talents is not high

Previously been introduced to innovative industrial cluster into core networks, support networks, infrastructure networks, each level has a complete set of personnel training and the introduction of mechanisms. Unfortunately, our innovative industrial cluster does not create a complete database of personnel and exchange of scientific and technical knowledge platform, resulting in a lack of talent at all levels necessary to communicate to some extent hindered the cluster of knowledge spillovers and technological innovation the diffusion capacity, due to the insufficient degree of coupling mechanism talent, knowledge and technology exchange weakened, reducing the core competitiveness of innovative industrial clusters will ultimately affect the quality and speed of its development.

3. Our Innovative High-Level Personnel Support Industrial Clusters Measures

Innovative industrial cluster should force the human resources as a strategic industry cluster development, for the development needs of the cluster, focusing on the most scarce, the most urgent need of talent that is highly skilled, high-level personnel, introduction and training to improve agglomeration advantages, as the core mechanism in the industrial cluster member whose market regulation, intermediary services, liquidity management, government guidance, the new model contract of employment, from the system level, service level and organizational level of convergence with each other, overall progress, focused on solving industrial clusters adaptability and talent team building development, strive to build a reasonable structure, excellent quality, a sufficient number of industrial clusters personnel, to achieve industrial clusters coordinated, comprehensive and sustainable development provide strong governance support and personnel security. In this paper, three network-level innovative industrial clusters, namely, the core network, the auxiliary network, the underlying network, which provide a high level of personnel support measures.

3.1 Increase the High Level of Innovative Industrial Clusters from the Core Level Personnel Training

Core network layer innovative industrial clusters are business. First, companies should develop a long-term high-level personnel training programs, establish and improve the education and training system, the creation of a variety of training and educational seminars integrated system, step by step, at different levels on the staff systematic, forward-looking, full-that training activities be standardized and institutionalized. Second, create learning-oriented enterprises, and build lifelong learning system. Encourage employees to our posts through various forms, trying to "recharge" to participate in lifelong learning, personal pursuit into the business development strategy objectives. Optimization training, attention to strengthening both theoretical knowledge, but also to the business skills training; improve both capacity-building, and improve academic education, while vigorously cultivate talent and ability to adapt to the overall quality. Again, companies need to establish an effective mechanism to stay only LiCai.

In business, the loss of talent widespread problems, including the loss of employees to accept the company's high level of training and long-term culture of talent, the company is not afraid of the brain drain because of lower input cost of training, the key is to establish an effective mechanism to stay only , to minimize the loss of talent, enterprise leaders must understand that investment in training is worthwhile, not only conducive to the development of the internal high-level talent, more conducive to promoting the development of enterprises, so as to drive my creative industries growing clusters. Finally, companies should create an environment which people can develop their potential. To do this, companies should be primarily based on the inventory of the stock of talent, develop in-house talent to form utilized, can make the best use of good posture. Such as break down barriers and build corporate talent pool of talent exchange center, exchanges, so that the flow of talent into the company's most needed, the most suitable positions to maximize the efficiency of human resources, promote the growth of high-level talents.

3.2 From the Auxiliary Network Level for a High Level of Innovative Industrial Clusters Personnel Training

Innovative Industrial Clusters auxiliary network includes elements of government, universities and intermediary service agencies, etc., can be said that each element has a high level of talent to nurture plays an important role.

(1) Government agencies. Our innovative industrial clusters to strengthen the talent within the cluster service innovation, the relevant government departments to build talent and personnel information database information network, the establishment of specialized training base, to provide a good living environment for foreign talent. Broaden the channels established enterprise technical centers, post-doctoral research station, corporate engineering and technology research centers, to encourage independent research. To encourage the formation of industrial clusters similar between the new strategic alliance to make them from the competition between competing relationship, so that more high-level talent competition and collaboration environment to the fore. On the other hand, the government through policy guidance and other means, to cultivate and improve the application and the introduction of highly skilled personnel, leading high-tech talent, to promote industrial clusters to develop independent innovation, the implementation of scientific and technological innovation strategy of industrial clusters provide a suitable external environment. Carried out among a cluster of corporate training to encourage exchanges and technical cooperation , the establishment of the use and incorporate innovative entrepreneurs mechanisms and systems , and strive to create a good environment for outstanding innovative entrepreneurs make the best use . Government should be based on ideas, sound policy and institutional framework of the national system of innovation systems , by establishing a system for coordinating and promoting policies related to each other , so that the market development, to create a favorable policy environment for enterprise knowledge flows , conducive to a high level of talent cultivation and growth.

(2) University. From Chinese universities should cultivate high-level talents in two ways. On the one hand, to create a model of teaching practice, practice contains a people's initiative, creativity and initiative. In practice , not only to be felt, comprehend knowledge, but also can be applied , the growth of new knowledge and acquire new skills. College students through a variety of ways to put in practice, companies can be referred to the university to do some projects, to provide students with more opportunities to practice, is to understand the cutting edge of technology and markets to achieve a combination of theory and practice need to achieve talent training and recruiting effective convergence, is to train high-level innovative talents of university only way. On the other hand , see the various disciplines to strengthen exchanges and cooperation in various disciplines due to the specific object of study will be the use of specific research methods and theoretical basis , showed a different way of thinking , so students can get a variety of academic exchange ways of thinking learn to promote student pursuit of new knowledge , training in modern society the spirit of cooperation and team concept, cultivate a good cultural exchange , in order to achieve the school 's resource sharing and complementary advantages for the training of high-caliber university provides a powerful environment .

(3) Intermediary service agencies. Intermediary service organizations can provide cluster cooperation inside and outside the enterprise information to help research institutions, enterprises, universities songs their complementary knowledge assets and core knowledge assets, the correct choice of partners. It can also provide enterprises with a high level of human resources information will help the company's recruitment, improve recruitment success rate; through to provide enterprises with a high level of talent evaluation system, and enhance the business of high-level talent nurturing quality.

3.3 Increase the High Level of Innovative Industrial Clusters from Basic Network Level Personnel Training

Basic network of innovative industrial clusters including external markets, infrastructure, innovation resources, this paper focuses on the role of high-level personnel training outside markets for our innovative industrial clusters play. Regional industry cluster is a geographic, that it faces the market with a certain locality, therefore, in addition to a high level of talent in the cluster to be cultivated, but also imported from outside the market. We have previously introduced the definition of external markets , in addition to the internal market that all markets and regions, we can see that the external market is huge , it is not only the existence of a more intense competitive environment , but also has a more abundant human resources. Our innovative industrial clusters achieve a high level of talent from the external market, there are two main ways.

On the one hand , the cluster of foreign talent to the more advanced college or region, learning to master within the industry 's top technical and management level, by comparing the learning experience at home and abroad , to improve the lack of perspective on themselves with theoretical knowledge , thus better used in practice, to promote rapid growth of high-level talent , which led to the rapid development of innovative industrial clusters ; the other hand , the introduction of the fierce competition in the high-level talent directly from external markets, they are leader in the industry , will be introduced into the industrial cluster is bound to the development of innovative industrial clusters inject a new force .

3.4 The Level of Talent Each Network Coupling

Innovative industrial cluster of three network levels, they are on their own level to have a high level of talent nurturing role can not be ignored. However, nurturing talent is not limited to this, to really enhance the innovative industrial clusters knowledge spillovers and technology diffusion core competitiveness; we must separate the various levels of high-level talent network coupling. Talent flow path in innovative industrial cluster is diverse , including: between enterprises, between enterprises and research institutions, between business and government , enterprises and intermediary intermediate institutions, enterprises and financial institutions, the research department of flow between there and the social mobility of talent flow and the external market. The flow of talent through these paths to achieve the integration of knowledge at all levels. Government personnel coupling process also plays an irreplaceable role , it can introduce some policies Cooperative training high-level talents , promote the development of enterprises, research institutes , colleges and universities cooperation in personnel training incentive policies to encourage and support employers body involved in training high-level talents. Establishment of research institutes , companies high-level, two-way flow of talent colleges system to encourage industry, academia talents to colleges and universities engaged in teaching part-time ; open universities, enterprises , channels the flow of talent between research institutes ; build clusters internal talent network platform , so that more knowledge and technological innovation can flow in industrial clusters , network integration at all levels of talent to nurturing a comprehensive high-level talent. Knowledge spillovers and diffusion of technological innovation is the core competitiveness of innovative industrial clusters, and a high level of talent is the main driving force behind the development of knowledge spillover and diffusion of innovation and technology, and therefore increases the high level of talent in favor of innovative development of industrial clusters.

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