Literature Review About

Strategic Emerging Industries For China

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Abstract
In recent years, developing strategic emerging industries has become a significant strategy of major countries in the world to seize the high ground of a new round of economic and technological development. But the research of strategic emerging industries is relatively backward in our country. The author reviewed the development significance, present situation, problems and countermeasures, the law of development, development policy, etc about strategic emerging industries, It pointed out that we are weakness in theoretical research, lack of special study in specific segmentation industry of strategic emerging industries, empirical study partial less. Thus the author puts forward to strengthening the theory research about financing channels and responsibility of government, and paying attention to industry segmentation and increasing the empirical research.

Keyword: Strategic Emerging Industry, Research, Review

1. Introduction
Recently, the development of strategic emerging industries(SEI) by high-tech are becoming the world-wide trend in the progress of globalization and informatization because the global economies have more competition than ever before which compares to do cooperation.

China is a developing country as all know, although the total GDP had climbed up to the first range of the world, there is a series of problems in the country. For instance, low productivity and high resource consumption, unreasonable industrial structure, imbalance between city and county, lack of creativity in companies. One of the most important things in the industrial reconstruction is to develop the SEI which the government has issued sort of policies to support. However, the new concept of SEI is not mature for the lack of theoretic research.

Strategic emerging industries are greeted warmly with great attentions from all ministries and commissions of the State Council and all institutions directly under the State Council, since the State Council have announced the Decision of the State Council on Accelerating the Fostering and Development of Strategic Emerging Industries in 2010. The Decision presented that the output value of SEI would be nearly at 8%of GDP and SEI would be the significant important industries in the next five years. For this proposal, there are many projects have been set up by local governments ,the photovoltaic industry in Jiangxi province, marine industry in Fujian province, coal industry in Shanxi province ,to name a few.

Although many professionals have done different theories on the development of strategic emerging industries which refer to current institutions, problems, policies, etc. I think there is no certain answer that what is the right direction of such researches and how we can get it.
2. The Research of the Development of Strategic Emerging Industries

Many documents have been talking about the development of SEI including its meanings, status, problems, policies etc.

2.1 Meanings of Development of SEI

To develop SEI improves the competitive ability of cooperation and carry out the industrial structural readjustments, and then accelerates the transformation of the pattern of economic development which can win the initiative in international competition. The professor, Wang Ruoyang (2010), recognizes that the development can also raise up the economy and ordinary people’s standard of living. That is the main point to accelerate the transformation of our economy.

2.2 SEI development present situation, the problems and countermeasures

Zhize Zeng(2011), Ge Song(2011), Xian Man Wu(2011) who research Strategic emerging industries development present situation from State and local perspective, and pointed out that strategic emerging industries in our country is still in its beginning stages. But recent year, by strengthen the organization and coordination, planning, fund support, each district industry scale rapid expansion, R&D investment increasing, the innovation ability rising, the industrial cluster with characteristics gradually formed.

As the rapid development of SEI, which also have some problems. The independent innovation ability of our country is weak, the conversion of scientific and technological achievements is very low, Capital operation risk is big, it is very difficult to developing Market. Daniel p. Forbes (2011) proposed establishing historical archives, and used these historical data for qualitative analysis. Our country scholars put forward SEI ought to increase funding for technical support, relying on scientific and technological innovation.

2.3 The development research about Biological industry, Marine industry, the photovoltaic industry and energy industry (coal)

"Decision" listed the energy conservation, environmental protection, a new generation of information technology, biology, high-end equipment manufacturing, new energy, new materials and new energy automobile as key development and fostering Strategic emerging industries. Then, we talk the basic situation of development about several industries.

China biological industry should be based on its development foundation and comparative advantages, focus on the development of biological medicine, biological medicine engineering products, biological agriculture, biological manufacturing, Marine biological technology etc. Hong Zhang (2011) took Si Chuan for example, who Analyzed the present development of biological agriculture industry, and point out that the development of new products should rely on the progress of scientific and technological. Mei Chih Hua, Fred Phillips (2011) using global patent database and application stage interactive data collection method, taking China's emerging biofuels industry for example revealed mutual dependency between the evolution and technology.

Wenwen Zhong, Peifang Guo, YiFa Yu(2011) Analyzed the development present situation of the strategic Marine emerging industry, and found out the main problems in public policy system, the ability of independent innovation, capital investment and reserve of talents. Binguo Jiang, Liming Han (2011) said that Science and technology innovation is the power source for the development of Marine strategic emerging industry. Wei Wu (2011) using literature method, comprehensive evaluation method, and the SWOT analysis method analyzed the marine industry situation of Fujian province.

In addition, Yuzhe Zhang, Junfeng Wang (2011), Wei Wang (2011) and many others were put forward countermeasures to promote the development of photovoltaic industry, the sewage treatment industry and coal strategic emerging industries.

2.4 Research on Strategic emerging industry development law

Strategic emerging industry cultivation and law of development including industry value chain, industry growth regularity and industrial organization law (Li Shungan, 2011). Wang Xinxin (2011) Pointed out that should be based on their own endowment of resources and characteristics of industrial structure to choose SEI. Gao Feng, Tang Jialong (2011) Point out that the development of foreign law is to grasp the economic recession of the emerging industry of "opportunity window", and beat in, according to demand and market to adjust technology direction to achieve the congregation of industries and industrial extension.
2.5 The Policies

In general, the policies on tax, credit and stimulating demand usually give a strong support to the development of SEI.

In the first, the development asks us to readjust our tax policies. At a micro level, we need optimize our structure of taxes which includes appreciation tax, business tax, resource tax, individual income tax and business income tax. At a macro level, establishment of good system and equal legislation are required.

In the second, it is very important to make a choice credit policy for the development in order to avoid the credit risk. The commercial bank should establish the statistical analysis of credit and give the client a good and scientific serve.

Finally, we need to pay much more attention to the stimulating demand policy. Liu XianFeng (2011) said that the government should finish the “Government Procurement Agreement” as soon as possible though that we can decide which product we have to buy first or buy in China. The government can also make a proposal and develop the public project related to the SEI.

3. The strategic research on emerging industry

3.1 Research on financial support system and financing model of Emerging industry

Finance is a basic pattern in the development of high technological industry. It is very important to create a good financial system and study financing model for the development of SEI.

Financial department need to improve their serves to clients and create new product. There are several solutions they can provide to their buyers such as different serves to different people, less restrictions of private capital, deep transformation of financial system. In fact, they now have 15 ways to collect the money. For instance, interior collection, angel collection, Venture Capital and so on. Every stage they choice different model to get money.

3.2 The choice, path and mode of Strategic emerging industry

The choosing of Strategic emerging industries is mainly on the basis of national policy guidance and local endowment of resources. Development strategic emerging industry not only needs the support of national policy, more important is each region should choose their industry according to their own economic development characteristics, the level and the reality of each industry. American mainly develop new energy industry, the European Union is given priority to develop low carbon industry. Brazil wants to use the unique natural conditions to develop biological energy and other emerging industries. Shanxi Province increase coalbed methane (CBM) and modern coal chemical industry for strategic emerging industry.

The path for Optimize SEI is market, government, technology and innovation. It should combine with technology innovation and independent innovation, combine technology innovation and financial innovation, combine with market regulation and government guidance. Development SEI path is to follow the law of industry, to insist the enterprise leading development, to form the independent innovation power, and to establish the national innovation drive mechanism. Tao Wuxian (2011) point out that we should adhere to the high-end, characterization, concentration change and international basic direction, and choose to break through the core technology, Cultivate key enterprises, build a characteristic base, deepen international cooperation as the path.

The mode of ESI is more. Qiao Yuting (2011) Put forward featuring military and civilian integration mode of SEI. Like the mode of relying, mutual and embedded. Wang Lizheng (2011) suggests that SEI is in its initial stage, the best development model is combination of government leading alliance.

3.3Evaluate strategic emerging industries

He Zhengchu (2010)consider that we should evaluate SEI in these aspects : government support, natural resources environment, market, technology research and development. He takes Hunan province for example to test the feasibility and operability of evaluation system by using AHP, fuzzy comprehensive evaluation (FCE), and factor analysis, and then applies the evaluation system to vehicles manufacturing industry. Wu Mengyun(2011) analysis the Development path of SEI in Zhenjiang city, constructs SEI evaluation index system, and provides some suggestions for further development of Zhenjiang city. Sun Wenqing (2011) measures the weight of environment, economy, society and culture, science and technology, industry competitiveness, government by using AHP and Delphi method. And then sort the order of seven new industries according to development quality.

However, there is less research on strategic emerging industries technical innovation performance. Henderson and Clark (1990) proposed that technical innovation ability can measure in two aspects, product innovation ability and
process innovation. Scherer(1984) considered that we should use different evaluation index system because of different type of innovation activities. In view of technology innovation different sides of input and output, Fu Jiayi etc(1998) take input of innovation resources, innovation management capability, innovativeness, research and development capability, manufacturing capacity and marketing ability as the evaluation indexes. Wu Fuxiang (2011) use GVC model, which based on human capital, to proceed empirical analysis in the relativity of production factors clustering and strategic emerging industry innovation performance. The conclusion is that in light of different characteristics between the product innovation and process innovation, we should take full advantage of industrial centralization and economies of scope to go to the development road of the scale expansion and collectivization. On account of Investigation about SMEs Board enterprises from 2006 to 2008, Lu Guoqing(2011) demonstrate strategic emerging industries performance are significant: innovation performance has positive correlation with rate of gross profit, but a weak positive correlation with innovation input-output and innovation environment.

3.4 How to cultivate development strategic emerging industries research

Wang xinxin (2011) put forward SEI standards in order to cultivate SEI, including state will, market demand, technological innovation, industrial correlation, gathering talents, resources and environment, international outlook. Zhang Zihong (2011) considered we should cognize the forms of local SEI development by comparing aboard. Li Yefei (2011) and Zhang Chensheng (2011) point out that mastering core technology, strengthening technological innovation, promoting emerging technology industrialization and technicalization are the way of SEI development. Besides, Guo Xiaodan(2011) emphasize that, in order to develop SEI, we need increase investment and government subsidies and set up the technological financing platform for enterprises to obtain investment with ease.

4. The study of experience and inspiration of the development of overseas strategic new industry.

4.1 Overseas development experience

The global strategic emerging industries is mainly on the field of new energy, medical system, Environment protection technology and IT technology. The emerging industries of America and European Union is mainly on low carbon; British places a high value on high-tech biopharmaceutical industry; Japan stresses on Energy development and environment technology, Russia propose to develop the technology of Nano and nuclear energy. The scholars mainly have conducted study related to developed countries such as American, European Union, Japan, pointing out that the government has played a significant boosting role by policy support, capital investment and technological innovation encouragement.

Wang Bing (2011) and Zeng Zhaoning (2011) pointed out that the American government’s supporting policy towards SEI is dominated by the market. Zeng Zhaoning (2011) claimed that during the development of industry guided by Japan, they adopt the policy of the combination of government, enterprise, university and Scientific Research Institute, promoting the all-round commercialization of research findings on the basis of various combinations. Luo Zuchun(2011) pointed that Europe and America are the countries whose economy is dominated by the market while countries and regions in East Asia whose economy is dominated by government. However, the government will give cultivation and support to strategic emerging industries, reflecting on the establishment of supporting policy system, increased investment on technology development and supporting system. Liu Tie (2011) claimed that America, European Union and Japan all increase financial input and preferential taxation policies to promote the development strategic emerging industries. Yu Xindong (2011) has conducted a detailed study of the development strategy of America, Japan and Europe, pointing out that America, rectified with new energy development, increased financial input and support, promoting industrial convergence, encouraging the involvement of ordinary people. Japan focuses on the field of new energy development by stressing technology innovation, motivating the need of the new market, actively carrying out some relative encouraging policy. European Union stress green technology’s innovation and investment, vigorously promote information network development, attaching great importance to cultural creation industries.

4.2 Comparison between home and abroad

Every country’s strategic emerging industries development is different concerning each one’s background, emphasis and development path. But every country attach importance to improve traditional manufacturing, they all increasingly give it financial and investment support. Firstly they choose to develop new resources, and with the leading of the market demand to reinforce the information technology construction (Yu Xindong, 2011). Although the emphasis and characteristic of the development of each country is different, there is something they have in common. The strategic emerging industries can help the countries get out of the severe global economic crisis, and push the industry revolution forward. At the same time the governments are playing important roles in this process
(Peng Jinrong, 2011). Hu Haifeng (2011) proposes that the financial system among America, Japan and Germany is all different, but they all choose the SEI based on their own situation, and give it approval and support, such as the special treatment of credit from banking to facilitate financing of enterprises in different phases.

4.3 Enlightenment

The research of the SEI of China should base on the condition of the whole country and different regions, to make the deep choice of developing the SEI, to straighten developing time sequence and deploy the recent, mid-term and long-term emphasis on the industry in stratification, to make the macro developing plan to construct efficient policy supporting system and reinforce the role of the government, to attach importance to develop industry from the demand side, to form our own innovation capability and accelerate the process of transforming technology into real productivity, and allocate the resources effectively.

5. Problems and prospects

5.1 Weakness in theoretical research

The appearing of SEI is not a long time, both for its theory and practice research are few. The concept, characteristic, function and basic theory problem of the SEI is no consensus has been reached.

5.2 Lack of special research on specific segmentation industry of strategic emerging industries

The literature research on Biological industry, Marine industry, New energy of strategic emerging industries rarely and study in-depth. The development mode and path exist is different, Overgeneralization research does not effective to guide the development of specific industries.

5.3 Few research on strategic emerging industries evaluation

It dose not construct complete system of SEI evaluation. Mature enterprise and perfect industry chain are less. Data collection is difficult. Lack the empirical research on regional development influence. The last is lacking of all kinds of industrial policy effectiveness evaluation and further analysis, etc.
References

The state council about to speed up cultivating and developing strategic emerging industry decision
http://www.gov.cn/zwgk/2010-10/18/content_1724848.htm2010.10

He Zhengcu; Zhang Xun; Zhou Zhenhong (2010), The Study of Strategic Emerging Industries Selection System and Model .Science of science and management of s.&t, 2, 62-67

Song Ge(2011). The present situation analysis and strategy choice about development of strategic emerging industries in Henan, Enterprise Strategy, 10, 15-19

Wu Xianman(2011), The present situation analysis and strategy choice about development of strategic emerging industry in JiangShu, Journal of Southeast University (Philosophy and Social Science).5.37-42

Zeng Zhize (2011). The present situation and policy Suggestions about strategic emerging industry in china, economic and trade guide in china, 13, 14-15

Yu Xindong (2011). The outstanding contradictions and related countermeasures about strategic emerging industry in our country, Red flag literary, 13, 19-21

Ji Jing (2011). The thinking about using scientific and technological innovation to promote strategic emerging industry, Chinese university science &technology,11,33-35


Zhang Hong; He Wentao (2011), Strategic study on cultivation of biological agriculture products in strategic emerging industries. Scientific management research, 5, 1-5

Wang Wei (2011). The countermeasure analysis to promote the development of strategic emerging industries in JiangXi - in photovoltaic industry as an example, Regional Economy, 8, 121-123


Zhang Yuze; Wang Junfeng. The countermeasure research to Cultivate photovoltaic strategic emerging industry, 2, 27-32

Zhong Wenwen; Guo Peifang; Yu Yihua (2011). The Policy Implication for the Development of New Marine Strategic Industries in China, China population resources and environment, 9, 163-167

Wang Xinxin (2011).Strategic new industry law of development and development countermeasure analysis study. Scientific management research, 4, 1-5

Wang Xinxinz (2011). Strategic new industry law of development and countermeasure orientation research, The research of technical economy and management, 9, 102-105

Qiao Yuting; Zeng Li (2011). Research on the Military and Civilian Integration Development Mode of Strategic Emerging Industry, Forecasting, 5, 1-5

Li Ganshun (2011). Research on Innovative Path Optimization of Strategic Emerging Industries Development in Hebei Province, Journal of Hebei University (Philosophy and Social Science), 4, 44-48

Wang Lizheng (2011). Development Model of China’s Emerging Industries of Strategic Importance. BBS of science and technology of China, 1, 12-16

He Zhenchu; Wu Yan (2011). Gambling research based on longitudinal integrated patent pool promotes evolution industrial structure adjustment. Studies in Science of Science, 5, 678-683

Liu Tie; Wang JiuYun (2011) .The experience and enlightenment of strategic emerging industry at developed countries. Academic Exchange,9,109-113


Wang Bin; Luo Zuchun (2011), The latest move, characteristics and enlightenment about development strategic emerging industry in United States, Economic Report of the President, 6, 84-87
Hu Haifeng; Hu Jieya (2011), The comparative analysis and revelations on the financing mechanisms of strategic emerging industries in U.S., Japan and Germany. Comparative analysis of financing mechanism in USA, Japan and Germany about strategic emerging industries which enlighten to China, 8, 62-74

Yu Xindong; Niu Shaofeng (2011), Main International Similarities and Differences in the Development of Strategic New Industries and Future Tendency Forecast, Exploring of International trade, 10, 4-11

Zeng Zhaoling; Wei Zhen (2011), The experience and enlightenment about development strategic emerging industry in Japan, Finland and the United States. Commercial age, 11, 121-123

He Zhengchu; Zhang Mi (2011). The evaluation index system research on Strategic emerging industry, based on several kind of industry connotation and feature comparison perspective. Journal of Xuehai, 6, 70-75

He Zhengchu; Wu Yan; Zhou Zhenhong (2011), Evaluation Index of Emerging Industries of Strategic Important and its Application, BBS of science and technology of China, 5, 10-14

Wu Wei (2011). Research of Sustainable Development of Fujian Provincial Oceanic Strategic Vision Emerging Industry Cultivation, Thesis of Master’s Degree of Fujian Agriculture and Forestry University, 4


Mei ChihHua; Fred Phillips (2011). Technological evolution and interdependence in China's emerging biofuel industry, Technological Forecasting & Social Change, 78, 1130-1146