

Abstract

The establishment of the inner circle of new drug research and development is proportional to the economic strength of the country. In nineteen countries with the most powerful economic strength in the world as America Swiss Japan and etc formed the global inner circle of new drug research and development in the 1980' s. Iceland Ireland and other countries joined the inner circle from 80' s to 90' s. With the rapid growth of the economic strength of the country from the end of 90' s, China India and other countries have shown the strength. It is a strategic timing that China should seize to improve the ability of research of pharmaceutical industry. Meanwhile, the strategy of government and the choice of corporation are equally important.

At present, numerous attempts have been made to analyze the R&D situation of Chinese Pharmaceutical Industry (CPI) by the similar conclusions have been reached, such as, the lack of the R&D funding, the extra repeated development at the low level, the too long reviewing process, and so on. However, little attention is given to apply the statistics method, economics theory, and management theory to systemically study the CPI. On the contrary, the medical administration study by the foreign scholars has reached a higher research level by many professional analysis instruments and methods and model research. The thesis evaluates the CPI R&D capability and performance by the application of the quantitative analysis method and the establishment of the rational evaluation indexes system.

The thesis includes the following main contents.

1 To analyze the CPI R&D data by the establishment of the R&D evaluation system. This work vitally includes the theoretical analysis by Chapter 1 and

the practical analysis by Chapter 3. In the Chapter 1, the basic theory of the technology innovation system and the impact factors of the R&D capability are reviewed. It is concluded that the evaluation system to the R&D capability and performance should include the capability indexes, represented by the R&D intensity and scale and stock, and the performance indexes, showed by the patent number, the field number, the efficiency index, the innovation index, and the labor productivity. In the Chapter 3, these indexes are calculated on the basis of the CPI data. This chapter demonstrates the poor situation of the CPI R&D with the special emphasis on the R&D intensity index of 2.6. Fortunately, the CPI R&D level has the rapid development, for example, the growth ratio of the CPI R&D input is 20.87% from 1997 to 2002, which is rapider than the developed countries.

2 To compare the new drug R&D situation of the different countries. The part is showed on the comparative study on the drug R&D of the Chinese and the other countries by the Chapter 3, and the drug R&D introduction of the main countries by the Chapter 2. The Chapter 2 analyzes the drug R&D situation and the strategies of the government and enterprise in the USA, the Japan, the EU, and the India. Besides, the ICH is also introduced in this part. The chapter presents the drug R&D details in the every country from the following aspects of the input capital, the manpower, the supervision and administration departments, the government and enterprise, and the R&D strategies, and so on. The EU part introduces the new drug R&D situation of the English, the Germany, the France, and the Italy with the special emphasis on the English by the quantitative method.

3 To put forward the Chinese new drug R&D strategies on the basis of the former chapters by the case study method. The Chapter 4 puts a case about the new drug R&D strategies of the Shanghai Tianwei Bio-pharmaceutical Firm, controlled by the Shanghai Modern Pharmaceutical Limited Corporations. The

company has been developed from the started registered capital, 10 million RMB, to total capital after the 3 years, 59.89 million RMB by the favorable R&D strategies and environment. The case gives us a good example of the CPI R&D.

Based on the positive analysis, the case study, and the comparative analysis, the Chapter 5 puts a detailed study on the new drug R&D strategy of CPI. This part can be divided into the following 4 sections. Firstly, as far as the domestic capital enterprises are concerned, the big firms with the powerful competitiveness should implement the united R&D strategy, and the super huge company with the excellent performance should apply the inner R&D strategy, and the small business may carry out the technology introduction strategy. Secondly, about the foreign capital firms, their R&D activities in China are benefit to improve the R&D level of CPI; therefore, the Chinese government should encourage these activities. At the same time, it is of great importance to create a fair competition environment in order to avoid the super-national treatment. The Chinese technology improvement should depend on the increase of the Chinese technology innovation capability. Thirdly, about the role of the government in the R&D, we should introduce the following three foreign models and impel the role of the intermediary organizations. The first model, named the USA model, is that the government only creates a favorable innovation environment without the special technology innovation policies by government. In a word, the innovation is driven by the market system. The Japan model is that the government directly participates the technology innovation activities with the special technology police by the Japan government. It is interesting that the EU model is in the middle of the former two models. Finally, the other strategies are analyzed, such as the positive financial policy, the finance support policy, the patent policy, the public procurement policy, the small and middle

enterprises policy, and so on.

Keyword: R&D innovation system, R&D performance, R&D strategy, Drug R&D ,
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