

The Role of R & D in the Developing Countries (A Conceptual Study)

K.M. Jyothi¹, M. Kalpana² and R. Lavanya³

^{1,2}P.G Student, Department of Management Studies, Gates Institute of Technology, Gooty-515401(A.P)

³Department of management studies, Gates Institute of technology, Gooty-515401(A.P)

E-Mail: ¹kmjyothi720@gmail.com, ²malkarikalpana@gmail.com, ³lavanya.rl2001@gmail.com

Abstract—Now a day's the R&D plays a vital role in the present scenario and it is because of the tremendous changes has evolved. To meet the societal needs the R & D plays a significant role. The development of country depends on the R&D.

Research and development (R&D), also known in Europe as research and technical (or technological) development (RTD), is a general term for activities in connection with of corporate or governmental innovation. The activities that are classified as R&D differ from company to company, but there are two primary models, with an R&D department being either staffed by engineers and tasked with directly developing new products, or staffed with industrial scientists and tasked with applied research in scientific or technological fields which may facilitate future product development.

Where as in the new product design and development is more often than not a crucial factor in the survival of a company. In an industry that is changing fast, firms must continually revise their design and range of products. This is necessary due to continuous technology change and development as well as other competitors and the changing preference of customers. Without an R&D program, a firm must rely on strategic alliances, acquisitions, and networks to tap into the innovations of others. In the context of commerce, "research and development" normally refers to future-oriented, longer-term activities in science or technology, using similar techniques to scientific research but directed toward desired outcomes and with broad forecasts of commercial yield.

In this paper an attempt has been made to study the role of R & D in the development of countries. And I have collected the data through the secondary source of data to make this study better.

Keywords: RESEARCH, R&D, ECONOMY, GROWTH etc.,

1. INTRODUCTION

Investigative activities that a business chooses to conduct with the intention of making a discovery that can either lead to the development of new products or procedures, or to improvement of existing products or procedures. Research and development is one of the means by which business can experience future growth by developing new products or processes to improve and expand their operations.

In other words while R&D is often thought of as synonymous with high-tech firms that are on the cutting edge of new technology, many established consumer goods companies spend large sums of money on improving old products. For

example, Gillette spends quite a bit on R&D each year in ongoing attempts to design a more effective shaver.

The internationalization of R&D is not a recent phenomenon. Since the 1960s, companies have been performing some kind of R&D activities outside their home countries for various reasons but, the magnitude, nature and scope of the overseas R&D performed in the past were limited. Much of such R&D was undertaken either to facilitate technology transfer by adapting parent firms' technology to local operating conditions or, to gain a greater share of the local markets by developing products that met the preferences of the local customers better.

In the 1990s, the globalization of corporate R&D attracted greater attention of economists and policy makers, mainly due to its changing features and its potential implications. The scope of work in overseas R&D units of TNCs has gone beyond adaptation tasks to encompass innovatory product development for global markets or even the performance of basic research to develop generic technologies. The objective of this paper is to analyze the driving forces behind R&D-related FDI in developing countries by TNCs and its implications for the developing host countries, particularly for building up innovation capability. There are wide differences in the degree of globalization of corporate R&D between different industries. In Globalization of R&D and Developing Countries 90 general, it is observed that technology-intensive industries, such as electronics, biotechnology, chemicals and pharmaceuticals tend to internationalize their strategic R&D to a greater degree than other industries (Reddy 1997). Globally, the pharmaceutical industry, followed by food and beverages, machinery, and transportation equipment manufacturing, show the highest levels of internationalization of R&D (Noise 1999).

In the case of Japanese TNCs, most of their R&D units abroad are in the electronic equipment, pharmaceutical and automotive industries (Odagiri and Yasuda 1996). The significant increase in the overseas R&D activities of TNCs in recent years was motivated mainly by TNCs' aims to attain global competitiveness. Their new strategic approach involves

recasting the roles of individual affiliates and their intra-group interdependencies. In the traditional approach, the scope of R&D performed by an affiliate had to fit within the framework of the bilateral relationship between the parent and the individual affiliate. However, the new approach involves performance of distinctive operations in a framework of interdependent networks of mutually supportive facilities (Pearce 1999: 160). The growing trend of international technological alliances is another important element in the globalization of R&D. The traditional approach, using transaction costs as the basis, viewed that TNCs tend to develop technology in-house and internalize within their corporate networks by transferring technology to their own affiliates, rather than selling it to other companies. However, since the late 1980s, TNCs have been entering into technological alliances with foreign companies and research institutes in an effort to develop new technologies and products.

2. OBJECTIVES

1. To study the role of R & D in the developing countries.
2. To study the impact of R & D in the developing countries.

3. METHODOLOGY

➤ PRIMARY DATA

It is the data which is collected at first for the specific purpose. It is collected through interview, surveys, questionnaire etc.,

➤ SECONDARY DATA

It is the data which is collected for the other purpose by the others. It is collected through no. of ways i.e., Text books, journals, websites etc.,

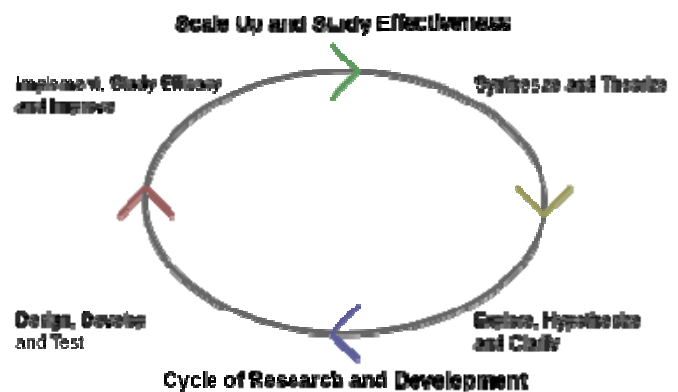
FOCUSSED TOPIC

1. ROLE OF R & D IN DEVELOPING COUNTRIES

Ever since the evolution of Italian city-states during the Renaissance and the Dutch and German cities in the 16th and 17th centuries, the concept and success of a modern economy have been based on geographical borders that make specialization possible. Recent advances of ICT and the liberalization of markets and trade have significantly changed the meaning and role of geography and the proximity of markets. The value chains of the global economy are no longer formed in line with geographical or national borders, but more and more within particular industries. At the same time, an increasing number of economic units are being established and positioned in the states and regions where the socio-economic environment is the most suitable for the production system in question. This means that simpler production tasks are transferred to regions with lower labour costs, but still of relatively high productivity, whereas more complex, higher value-added activities remain in countries with higher living standards. The situation has become increasingly complicated for the regions that can offer neither knowledge-based activities nor low relative labour costs.

A number of major changes have been taking place since the 1980s in the nature and scope of R&D undertaken abroad by TNCs. Increasingly higher-order R&D, such as regional technology units, global technology units and corporate technology units, had been located abroad in what can be regarded as the third wave of globalization of R&D. Such R&D abroad is carried out as part of long-term corporate strategy and is often carried out through inter-organizational collaboration. Hence, the change in the term from internationalization to globalization, reflecting the characteristic differences from the earlier waves. The main driving forces for this phenomenon had been:

- First, the increasingly globalized basis of competition, aided by the convergence of consumer preferences worldwide, creating a need for learning;
- Second, the increasing science-base of new technologies, necessitating multi-sourcing of technologies;
- Third, the rationalization of TNCs' operations, assigning specific global roles to their affiliates abroad. These trends are visible mainly in microelectronics, pharmaceuticals, biotechnology and new materials. The improvement of information and communication technologies and the flexibility of new science-based technologies, that allow de-linking of R&D and manufacturing activities, vastly facilitated this globalization process.



2. IMPACT OF R & D IN DEVELOPING COUNTRIES

In recent years, an increasing number of TNCs have established R&D laboratories and increased their R&D spending in China. This paper suggests that this internationalization of R&D by TNCs can benefit developing countries such as China, although it cannot automatically upgrade the local S&T capabilities. Therefore, China must upgrade, in parallel to FDI in R&D, its S&T competitiveness by strengthening its national innovatory capacities. Since Nortel Networks Corporation and Beijing University of Posts and Telecommunications jointly set up an R&D centre in 1994, the number of TNCs' R&D laboratories in China has been growing steadily. This tendency was especially

pronounced in recent years. Statistics collected by the Ministry of Science and Technology show that in 2002, more than 100 R&D laboratories were established by TNCs in China, and by the end of June, 2014, over 600 of the world's best-known TNCs had set up their R&D laboratories in China. In 2015, the Beijing Municipal Science and Technology Commission carried out a sample survey among 82 R&D laboratories of TNCs. That survey (China, MOST 2015) concluded that many large and well-known TNCs had set up R&D .

3. POSITIVE IMPACTS

First of all, TNCs' investment in R&D has resulted in the development of human resources on a large scale. TNCs emphasize the training of personnel, and regard improving the quality of personnel as a key factor of their competitiveness. Although China has abundant R&D personnel, most of these talents used to end up in higher learning and R&D laboratories to undertake basic research. Moreover, these talents did not meet the demands of the market. TNCs offer them relevant training. This contributes to the development of Chinese human resources and the enhancement of their talents. Second, R&D laboratories established by TNCs bring advanced R&D management to China. TNCs not only have experience with advanced innovation systems and global innovation networks, but also with developed management systems and methods of R&D networking. Therefore, TNCs' R&D, and the training of local people who have been involved in TNCs' R&D management, can have a positive spill over effect on the R&D management of Chinese institutes and enterprises. In a short period of time, for instance, Microsoft Research Asia developed an excellent software R&D laboratory with a worldwide reputation and, it might be possible to emulate some of the methods used to achieve this.

4. SUGGESTIONS

- If the R&D is made international wide the new technology will come to the countries.
- If the R&D is made with the intension of developing the necessities of countries then it will become good.
- If the R&D is takes place at technology the developing countries will develop.
- If the R&D is appreciated then the country will enjoy the fruits of it. &
- The R&D should be enhance with a specialized laboratories (where the facilities are available.)

5. CONCLUSION

By this paper it is clear that the R&D plays an effective role in the developing countries. Because of R& D the developing countries are becoming the developed countries, by increasing the new technology, growth & economy of country. The R&D is a back bone for the success of country. If we channelize the

R&D in a correct way it becomes a very great tool for the developing countries.

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