CHAPTER I

INTRODUCTION AND DESIGN OF THE STUDY

1.1 INTRODUCTION

Every Company has to develop new products for its survival and success management as well as combat diseases of poor mass like India. New product development shapes the Company’s future. New products must be created to maintain or build sales. Customers want new products and competitions will do their best to supply them.

Each year over 1600 new products are introduced pharmaceutical industry which take two forms.

1. Company can develop new products in its own laboratories.

2. It can contract the independent researchers or new product - development firms to develop specific new products for it market needs and supply.

There are six categories of new products which are given below:

**New to the - world**

New products that create an entirely new market.

**New products line for a company**

New products that allow a company to enter an established market for the first time.

**Additions to existing products lines**

New products that supplement a pharmaceutical company’s established product lines [package, sizes, flavors].
Improvements and revisions or existing products

New products that provide improved performance or create perceived value and replacing existing products.

Repositioning

Existing products that are targeted to new markets or market segments.

Cost reduction and value addition

New products that provide similar performance at lower cost. Less than 10 percent of all new products are truly innovative and new to the world market. These products involve the high cost as they are new to both the company and the market. The new products activity is developed to improve the existing products ones. Over 80 percent of new product activity is undertaken to modify and improve existing drugs.

Product development strategic orientation

A product development strategy provides the framework to orient a company’s development project as well as its development process. There is no one strategy for a company. The strategy takes into account the company’s capabilities (strengths, weaknesses and core competencies), the competition’s capabilities (strengths, weaknesses, core competencies and strategy), market needs and opportunities, goals, and financial resources.

As a starting point to develop a product development strategy, the company must determine its primary strategic orientation. A company must recognize that it cannot be all things to all people and that it must focus on what will distinguish it in the market place. There are six primary products development strategic orientations.
### Table 1.1 Primary Product Development Strategic Orientation

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time-to-Market</strong></td>
<td>This involves an orientation to getting a product to market fastest. This is typical of companies involved with rapidly changing technology or products with rapidly changing health uses. Pursuit of this strategy will typically will lead to tradeoffs in optimizing product performance, cost and reliability. Technology development must occur on an independent path from products development and technologies inserted on a “modular” basis, often with frequent products upgrades to make this strategy work.</td>
</tr>
<tr>
<td><strong>Low Product Cost</strong></td>
<td>This orientation is focused on developing the lowest cost or highest value products. This is typical of Pharmaceutical companies with commodity type products, products reaching a mature phase in their life cycle, or where there is consolidation or a shrinking market. This orientation typically will require additional time and development cost optimize products cost and the manufacturing process.</td>
</tr>
<tr>
<td><strong>Low Development Cost</strong></td>
<td>This orientation focuses on minimizing development cost or developing products within a constrained budget. While this orientation is not as common as the other orientations, it occurs when companies are developing products under contract for other parties, where a company has severely constrained financial resources, or where a “stealth” development effort is being undertaken on a “shoestring.” This orientation is somewhat compatible with time-to-market, but involves trade-off with products performance, innovation, cost and reliability.</td>
</tr>
<tr>
<td><strong>Product Performance, Technology &amp; Innovation</strong></td>
<td>This orientation focuses on having the highest level of product performance, the highest level of functionality or functions and features, the latest technology or the highest level of product innovation. This orientation can be pursued by Pharmaceutical companies many products except commodity products. Pursuit of this strategy involves higher risks with newer technologies and accepts a trade-off of time and cost to pursue these objectives.</td>
</tr>
<tr>
<td><strong>Quality, Reliability, Robustness</strong></td>
<td>This orientation focuses on assuring high levels of products quality, reliability and robustness. This orientation is typical of industries requiring high quality because of the significant costs to correct a problem (e.g., recalls in the automotive or food processing industries), the need for high levels of reliability (e.g., aerospace products), or where there are significant safety issues (e.g., medical devices, pharmaceuticals, commercial aircraft, nuclear plants, etc.) This orientation requires added time and cost for planning testing, analysis and regulatory approvals.</td>
</tr>
<tr>
<td><strong>Service, Responsiveness &amp; Flexibility</strong></td>
<td>This orientation focuses on [providing a high level of service, being very responsive to customer requirements as part of development, and maintaining flexibility to respond to new customers, new markets and new opportunities. This orientation requires additional resources (and their related costs) to provide this service and responsiveness.</td>
</tr>
</tbody>
</table>
STRATEGIES FOR THIS RESEARCH STUDY

This research study gives business strategies to develop new products in pharmaceutical business. These business strategies are given below.

1. Strategy for Customer
2. Strategy for Marketing Employees
3. Strategy for Market
4. Strategy for Products
5. Strategy to identify the problem of commercialization
6. Strategy for suggestion and solution to solve the problems in commercialization.
7. Strategy for doctors’ suggestions and innovative idea to develop New products in pharmaceutical business.

1.2 NEED FOR THE STUDY

Pharmaceutical industry is the best growing industry in the world in more than thousand of the years. Even though lots of failures are happening in Pharmaceutical Industry. So Pharmaceutical companies have position to understand about the new products development strategy. Pharmaceutical company need to understand about Employees suggestion and feedback to develop new products development in pharmaceutical industry. Pharmaceutical company need to understand about doctors’ opinions about New Products. Pharmaceutical company need to understand about Market research and Product research to develop New Products. This research study helps to fulfill the needs of Pharmaceutical Company to develop new products successfully.
1.3 STATEMENT OF PROBLEM

Statement of problem in pharmaceutical business to develop new product are mentioned this research study. What are the problems are available to develop new product has been mentioned this research study. Cause of failure in New Product Development.

Most of the Pharmaceutical companies are struggling to introduce New Product in pharmaceutical business. If company has introduced New Product in Market sustainable is questionable in Pharmaceutical business. Lots of failures have been made in New Product development in Pharmaceutical Industry. Return of investment also very low in new product development in pharmaceutical industry.

Some pharmaceutical companies introduce new products with some unregistered brands which lead to failure in pharmaceutical industry. Improper mode of action of drugs, side effects, Doctors non acceptance, Patient unsatisfied, and Employees non acceptance of targets these are leads to failure New Products development in Pharmaceutical Industry.

1.4 OBJECTIVES OF THE STUDY

a. To study the conceptual framework of new product development in general and particular to Pharmaceutical industry.

b. To analyses the market research methods practiced to develop new product in Pharmaceutical Industry.

c. To analyses the sales promotion strategies practiced by the company, especially to the Doctors.

d. To find out the causes of failures in New product development in Pharmaceutical Business.
e. To identify the common problems faced by marketing force to launch a new products in Pharmaceutical market.

1.5 METHODOLOGY

Survey method has been followed for the study. Both primary and secondary sources of data were used. Well structured questionnaire was designed to elicit necessary data and details from the marketing employees of Pharmaceutical companies and Doctors. The secondary data were collected from the books, journals, Magazines and web portals.

1.5.1 Sampling Design

Pharmaceutical companies marketing employees and doctors are sampling respondents for this research study.

There are 568 respondents of pharmaceutical companies’ Marketing Employees have given sample primary data for this research study. And 254 respondents of doctors have given sample primary data for this research study. These respondents of Pharmaceutical companies’ Marketing Employees and Doctors details have been mentioned in below Table No 1.2 and Table No 1.3.

Table No 1.2 Sample Respondents of Pharmaceutical companies Marketing Employees.

<table>
<thead>
<tr>
<th>Type of Company</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>MNC</td>
<td>166</td>
<td>29.2</td>
</tr>
<tr>
<td>Indian MNC</td>
<td>179</td>
<td>31.5</td>
</tr>
<tr>
<td>Indian Large Size</td>
<td>120</td>
<td>21.1</td>
</tr>
<tr>
<td>Indian Small Size</td>
<td>103</td>
<td>18.1</td>
</tr>
<tr>
<td>Total</td>
<td>568</td>
<td>100.0</td>
</tr>
</tbody>
</table>
### Table No. 1.3 Sample Respondents of Doctors

<table>
<thead>
<tr>
<th>Doctors Qualification</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBBS</td>
<td>117</td>
<td>46.1</td>
</tr>
<tr>
<td>MD</td>
<td>69</td>
<td>27.2</td>
</tr>
<tr>
<td>MS</td>
<td>35</td>
<td>13.8</td>
</tr>
<tr>
<td>MBBS with Specialist</td>
<td>33</td>
<td>13.0</td>
</tr>
<tr>
<td>Total</td>
<td>254</td>
<td>100.0</td>
</tr>
</tbody>
</table>

#### 1.5.2 Pilot Study

A pilot study was carried out with a questionnaire to analyses the customer like doctors, chemist and distributor in Pharmaceutical business. The questionnaire was administrated to 30 doctors, and 50 Pharmaceutical companies’ Marketing employees. The data collected on this process has been tested using Cronbach’s alpha for its reliability. The result of the testing and validation revealed that the questionnaire possessed the reliability with the Marketing Employees Questionnaire value is 0.8454. This question was well fitted. So, it was inferred that the questionnaire used for pilot study was highly suitable in ascertaining the responses from the consumers of their products in Pharmaceutical business. Based on the experience gained in the pilot study, the questionnaire was suitably restructured to administer for the study.

#### 1.5.3 Questionnaire

The primary data was collected through a well structured questionnaire comprising bi-polar, optional methods are mentioned below

- The study related to the Pharmaceutical industry five new products mode of action, diseases for Pharmaceutical companies new products, and pricing strategy of Pharmaceutical companies.
• An interview schedule was prepared to elicit information from the pharmaceutical Companies.

• Competitor information was prepared to elicit information from chemist in India’s’ Major cities, town and village.

• Diseases and drugs information collected from Pharmaceutical study materials, and Journals and websites.

• New product process and new product Life style in Pharmaceutical business information has collected form New product related books and websites.

• Reason for failure to develop new product in pharmaceutical business information has collected form Pharmaceutical companies executives and Managers.

• Diabetic related studies have collected information from Pharmaceutical related books and collected information from pharmaceutical companies’ conference and meeting.

• Recent new product information has been collected from Leading Pharmaceutical chemist in India.

1.5.4 Statistical tools used for Analysis

1.5.4.1 Chi-Square Test: In order to identify the degree of influencing factors in new product development strategies chi-square $\chi^2$ test was used.

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

with Degree of Freedom (D.F.) = (c-1) (r-1).

Where,

$O$ = Observer frequency,
$E$ = Expected frequency,
$c$ = Number of Columns,
$r$ = Number of Rows.
1.5.4.2 Multiple Regression Analysis

The regression is a statistical relationship between two or more variables. When there are two or more independent variables, the analysis that describes such relationship is the multiple regression. This analysis is adopted where there is one dependent variable that is presumed to be functioning as two or more independent variables. In multiple regression, a linear composite of explanatory variable is formed in such a way that it has maximum correlation with an active criterion variable. The main objective for using this technique is to predict the variability of the dependent variable based on its co-variance with all the independent variables. It is useful to predict the level of dependent phenomenon through multiple regression analysis models, if the levels of independent variables were given. The linear multiple regression problem is to estimate coefficients β1, β2, .......... βj and β0 such that the expression,

\[ Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + ..........+ \beta_jX_k \]

provided a good estimate of an individual Y score based on the X scores.

In this Research study dependent variable is Strategy for Products, Independent variables are Strategy for customers, Strategy for Marketing Employees and Strategy for Market and analysis are discussed as follows.

Dependent Variable : Strategy for Products (Y)

Independent Variables : 1. Strategy for Customers (X_1)
                       2. Strategy for Marketing Employees (X_2)
                       3. Strategy for Market (X_3)

1.6 Scope of the Study

New product development strategies in pharmaceutical business in India, being the large industry in the world in terms of growth, provides goods and services to the
large number of people like patients, doctors and chemist. Further this Pharmaceutical industry is one of the best and largest employment generators in India.

In this study gives idea about analysis and interpretation of Doctors and Pharmaceutical companies’ employees’ feedback pertaining to develop New Products in Pharmaceutical industry.

In this research study helps to analysis about the Development of the New Product development about the Pharmaceutical business. This study helps to analysis about the causes of New product failure in Pharmaceutical business. And it analysis about the overcome the failure Products in Pharmaceutical business. This study gives idea of Analysis and Interpretation with Pharmaceutical companies Marketing employees and doctors.

This study gives idea about the Role of training in Pharmaceutical business. It gives idea about the Market research in Pharmaceutical business. This study analysis about the Top selling brands in Pharmaceutical business. And it gives information about Recent New product in April 2012. This study useful to understand the Managers responsibility to develop products in Pharmaceutical business. This study useful for future research related to New Products development. This study useful for future research related to New Products development especially in Pharmaceutical Business.

1.7 PERIOD COVERED BY THE STUDY

The period of the study was confined from 2010 to 2013. With a view to gain an insight into Pharmaceutical Industry in the region, a detailed study was conducted. The review of Literature and conceptual frame work of the study took six month period. Preparation of the interview Schedule with Pharmaceutical companies’ employees, and
Preparation of Questionnaire with doctors and conducting the pilot study consumed six months. The collection of Primary data from the Pharmaceutical companies’ Marketing Employees and Doctors took one year of the time. 568 Marketing Employees and 254 Doctors were selected as respondents for this study. The analysis and Interpretation of the data took another six months. The last six months period was used for rough drafting and final form of the thesis.

1.8 LIMITATIONS OF THE STUDY

Limitation of this research study is mentioned below.

- Researcher did not collect primary data from foreign country. So this studies applicable only Indian Pharmaceutical Industry.

- The top 50 Pharmaceutical company applicable only Multi National Pharmaceutical Company. This secondary data only for Multi National Pharmaceutical Company.

- This research work gives information about top selling Brand from Multinational Pharmaceutical companies only. But its not applicable for Indian Pharmaceutical company.

- Analysis information about recent New Product Information –April -2012 has been collected from all India operation Pharmaceutical National and Multi National and Indian National Pharmaceutical company only. Recent New Product details are not applicable for worldwide operating Multinational Pharmaceutical Company. Recent new product information is not applicable for Small size pharmaceutical company.

- Recent New product information applicable only Large size all India operation Pharmaceutical company.
❖ Researcher collected primary data form Marketing employees and doctors only, but researcher did not collect information from Production chemist in Pharmaceutical industry.

1.9 OPERATIONAL DEFINITION

EXECUTIVES

Executive is a professional job in Pharmaceutical business; regularly meet doctors, Chemist, and Distributors to generate prescription by using Product Knowledge and communication skill.

MANAGERS

Manager is a Professional Job in Pharmaceutical business regularly meets doctors, chemist, and distributors with Executives to generate prescription by using product Knowledge and communication skill. Managers are placed in different designation in Pharmaceutical Business. E.g. Area Business Manager, Regional Business manager, Zonal Business manager, General Managers, Vice President, President and Managing Director.

Fungi Static

These are pharmaceutical product inhibit fungal cell Membrane in skin and prevent the formation of fungal organism in skin.

Fungicide

These are Pharmaceutical Product kills the fungal cell membrane in skin and stop the formation of fungal organism in skin.
DIABETES MELLITUS

Diabetes mellitus is a condition in which the pancreas no longer produces enough insulin or cells stop responding to the insulin that is produced, so that glucose in the blood cannot be absorbed into the cells of the body. Symptoms include frequent urination, lethargy, excessive thirst, and hunger. The treatment includes changes in diet, oral medications, and in some cases, daily injections of insulin.

HYPOCALCEMIA

Lower-than-normal level of calcium in the blood, which makes the nervous system highly irritable, as evidenced by tetany (spasms of the hands and feet, muscle cramps, abdominal cramps, and overly active reflexes). Chronic hypocalcemia contributes to poor mineralization of bones, soft bones (osteomalacia), and osteoporosis. In children, hypocalcemia leads to rickets and impaired growth. Treatment involves increased dietary intake of calcium or calcium supplementation.

EPILEPSY

Any of various disorders marked by abnormal electrical discharges in the brain and typically manifested by sudden brief episodes of altered or diminished consciousness, involuntary movements, or convulsions

TRADEMARK

A trademark is any word, name, symbol, or design, or any combination thereof, used in commerce to identify and distinguish the goods of one manufacturer or seller from those of another and to indicate the source of the goods. The symbol of trademark picture is shown below.

[Trademark symbol]
1.10 CHAPTER SCHEME

The **First Chapter** deals with introduction of this research study, statement problem, objectives of this study, methodology and scope of this study and this chapter gives information about period of this study and Limitation of this study and Chapter Scheme of this study.

The **Second Chapter** reviews the concept of the Literature of the previous studies related to the present research of new Product development strategies in Pharmaceutical business.

The **Third Chapter** highlights about the Product Research to develop New Product in Pharmaceutical Industry.

The **Fourth Chapter** highlights about Analysis and Interpretation of New Products development in Pharmaceutical Industry.

The **Fifth Chapter** analysis about the Market Research to develop New Products in Pharmaceutical Industry.

The **Six Chapter** recapitulates the key findings and conclusions of this research study. Based on these findings, a few suggestions have been made for effective functioning of New Product development strategies in Pharmaceutical Business.