CHAPTER - TWO

- METHODOLOGY
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METHODOLOGY

This Chapter contains Methodology of the study, Limitations of the Work and Profile of the Companies.

Introduction

The importance of the work undertaken can never be over-emphasized. Health has always been one of the core concerns of the human society. It is universally and eternally an important index to measure the success of any society. In general healthy societies have been prosperous too. Medicines are an important component of health-care system. Their availability and accessibility invariably determines the success of any health-care system. Thus, marketing and distribution of medicine will always be an important agenda for people and policy makers alike. How it is influenced by old and new variables in a fast changing reality has to be under constant scrutiny. Information Technology is a new variable. Its effect on marketing of pharmaceutical products deserves intensive and extensive study to fulfill our shared dream of providing health for all. It is important to identify new emerging models that can make a difference in the outcome. Because it is only after they are identified that they can be successfully implemented and replicated. For the same reason we should identify the wasteful, ineffectual and harmful models to avoid wastage of our efforts and scarce resources. Any human ingenuity is as easily and as widely abused or misused as it is used. Information Technology cannot be an exception. Thus, we also need to learn how IT can be misused or abused by marketers. Thus, the topic of research is relevant, significant and highly contemporary. The outcome is expected not to have just the theoretical importance but is likely to provide insights into marketing environment of pharmaceutical industry and well-structured set of guidelines that should help the society.
Objectives of the Study

Research in management, as V.P. Michael says, "is basically meant for specific purpose." Thus, this research work is primarily academic to understand the role of information technology in marketing pharmaceutical products and to acquire in depth knowledge. The objectives of this work may therefore be stated as follows:

1. To undertake in-depth study and analysis of the strategies adopted by pharmaceutical industry to market their product using information technology.

2. To estimate the extent of success or failure in using information technology in marketing pharmaceutical products.

3. To determine the new business models which may be tried in the near future along with the rationale behind them.

4. To identify the challenges posed to the government, market players and the society by pharmaceutical dealers/retailers/manufacturers using information technology to cheat the customers.

5. To suggest steps to set up mechanism to overcome fragmentation and lack of coordination amongst different healthcare providers to maximize the benefits of information technology.

Nature of Study

This study is empirical by nature, as the researcher is concerned to develop principles by arriving at generalizations and an aid to solve problems by improving knowledge, understanding skill and ability to make decisions. This study may also be seen as applied research as it has tried to test the known theories. The researcher is also concerned about collecting facts related to the pharmaceutical industry, products, marketing practices and the impact of information technology therefore, the research can also be termed as fact gathering research.

Research Design

A research design is purely and simply the framework or plan for a study that guides the collection and analysis of the data. It is a blueprint that is followed
in completing the study. This ensures that study remains relevant to the problem and employs economical procedures.

There are three basic types of research designs namely exploratory, descriptive and causal or experimental. As the design of investigation should stem from the problem hence it was important to comprehend the nature of investigation the researcher embarked upon. A careful analysis of investigative work shows that it is broad and vague and which needs to be broken into smaller, more precise, sub-problem statements. This type of research works is best dealt with using exploratory research work, hence the same was decided upon. To a certain extent design was also built around descriptive research as the work requires describing certain trends, behaviors, strategies, beliefs etc. This research design helps the researcher in enhancing familiarity with the problem under investigation and to clarify concepts. It is expected to find new hypotheses that could be pursued by future researchers. The research design for this work may also be seen as descriptive research design as the researcher has tried to describe the critical phenomena in pharmaceutical marketing and tried to come up with certain specific recommendations that pharmaceutical marketers may find beneficial.

Basic methods of exploratory research are Literature Survey; Experience Survey; Analysis of Case Studies. All these methods, as useful for the research work, are therefore accepted as parts of the research design.

Review of Literature

Information Technology has distinctly changed the world. The impact on Information Technology has been very keenly observed and investigated by many researchers. They have analyzed, differentiated, measured and compared it at different levels and different spheres. The literature survey on which the research work has been based is rich and diverse. Understandably, most of it is very recent in origin.

Literature on Impact of Information Technology in General
Budhiraja (Budhiraja, R., 2004), Hanna (Hanna, Nagy K. 1991), Accascina (Accascina. G. 2000), Mansell et al (Mansell, R and When, U. 1998), and
Tallero (Tallero, E. and Gaudette, P. 1995) have done a pioneering work to link information technology with economic growth and development. Ghaziri, (Ghaziri, H. 1998) and Grealish (Grealish, A., 2004) have made analytical study of impact of information technology on Banking Sector, which has been thoroughly revolutionized because of the impact of information technology. Another area that has witnessed massive changes is the marketing of books. Jermy (Jermy, C. 1995) was one of the pioneers to research this aspect in detail.

Starko (Starko, A.J. 1995), has explored the possibility of using computers to enhance creativity in a learning process. Coppala et al (Coppala, N., Hiltz, S.R., and Rotter, N. 1999) in their early works have identified areas of modification in pedagogical techniques with the advent of computers. Harmo et al (Harmon, W. S. and Jones, G. M. 1999) and Majumdar (Majumdar, S. 1999) have done initial study on use of web for collaborative learning.

Evans et al (Evans, J.R. and Berman, B. 1995), Lisanti (Lisanti, T. 1999), Schulz (Schulz D.P. 1999), and Tedeschi (Tedeschi, B. 1999) have made in-depth study to comprehend the effect information technology has had on retail marketing.

Literature on Impact of Information Technology on Health Sector
Early researchers saw immense possibilities and opportunities in use of information technology to enhance and enrich the health sector. Glowniak (Glowniak JV. 1995), Lowe et al (Lowe HJ, Lomax EC, Polonkey SE. 1996), Lafrance (Lafrance S. 1997) and Chapman (Chapman, R. 1997) have shown how with the birth of the Internet, a revolution began that changed the way physicians and patients can access health information.

Brakeman (Brakeman 1996), Higgins (Higgins T. 1996), Fink et al (Fink S, Gorden G. 1997) and Nussbaum (Nussbaum G. 1997), through their groundbreaking research work, established how the open standards of communication with Internet protocols, can bring together, the resources of many healthcare systems.

Jones (Jones E. 1996) and Macomber et al (Macomber L, Sadler G. 1997) established, how, through the communication of current, comprehensive,
and accurate information among researchers, physicians, and patients, a powerful way to reduce cancer mortality is possible.

*Edwards et al* (Edwards G, Sandberg L. 1997) and *Schiff et al* (Schiff L, Service R. 1996) did primary research work to show how more and more healthcare technology leaders are turning to the Internet as a primary tool for improving communications. *Benneial* (Benneial J H, 1999) has demonstrated how the internet is able to deliver a supra system that is able to talk to all operating systems so that medical records may be shared.

*Teich et al* (Teich, J.M.; Wrin, N.M., 2003) and *Ferri et al* (Ferri, C. A.; Klein S. R., 2002) have exhibited that telemedicine and disease management are two areas where Internet technology can contribute immensely.

*Rother* (Rother, M. (2004), through her innovative research approach has shown that E-health is not panacea for our sick health system but it can certainly reduce the inefficiencies that are inherent in our system and to create an environment that fosters collaboration, sharing and increased trust. *Blendon* (Blendon RJ, Schoen C, DesRoches CM, Osborn R, Scoles KL, Zapert K. (2002) RJ, Schoen C, DesRoches CM, Osborn R, Scoles KL, Zapert K. 2002) have probed the disparities existing in health care system with the added dimension of digital divide.

**Literature on Variables Affecting Pharmaceutical Marketing**

Pharmaceutical marketing has evolved rapidly in last one or two decades. Its evolution however is being shaped by very many variables and not just information technology alone. Numbers of researchers have shown interest in investigating the influence of different variables on pharmaceutical marketing. Some such works are as follows.

and Pradhan (Pradhan, J.P. 2003) have researched how R&D practices will be shaping pharmaceutical industries in general and Indian Pharmaceutical industries in particular.

Globalization has greatly altered the business universe. It has brought forth new opportunities as also new threats to pharmaceutical industry too. Smith (Smith, Eric 2000), Dubey, (Dubey D.P.2002), and Gombar (Gombar, V. 2004) have assessed the impact of globalization on Indian pharmaceutical industry. Joanna (Joanna Slater, 2003) and Kripalani (Kripalani, M. 2004), through their research probing, have identified the new opportunities due to globalization for Indian pharmaceutical industries. Dhar et al (Dhar, B. and N. Rao (2002), have studied the impact of transfer technology fuelled by globalization on Indian pharmaceutical industry. Vaishampayan et al (Vaishampayan, P. and Chen, V.2004) and Einhorn et al (Einhorn, B., Magnusson, P. and Barrett, A. 2004) have done pioneering work to link impact of globalization on pharmaceutical industries of India and China.

World Trade Organization inspired patent laws have been the most controversial of all the factors that are influencing pharmaceutical marketing. Richard et al (Richard E. Caves, Michael D. Whinston, and Mark A. Hurwitz, 1991) did early research work on strategies to market drugs for which patent has expired. Glasgow (Glasgow, L.J. 2001) through his studies has demonstrated that new patent laws have been stretched too far in favour of the pharmaceutical marketers. Fink (Fink, C. 2001) predicted the behaviour of transnational pharmaceutical giants, in view of the tougher patent laws adopted by Indian Government. Alam (Alam, G. 1996), Lanjouw (Lanjouw, J.O. (1998), through their intensive studies identified the negative impact of new patent laws on Indian Pharmaceutical Industries. Kamath (Kamath, G. (2004) has shown how the new patent laws will adversely affect the availability of drugs. Prasad (Prasad, G. C. 2004) has explored how the new patent laws will result in consolidation of pharmaceutical industry. Merchant (Merchant K., 2004), Karmali (Karmali, N. 2004) and Jha (Jha, A., 2004) through their studies have researched on the emerging responses of pharmaceutical industry to the new intellectual property laws. Lanjouw (Lanjouw, J.O. 2000) and Lodha (Lodha, M. 2004) conclude that perhaps the
hue and cry being made in the name of patent laws is exaggerated. Zimmerman (Zimmerman, J. 1989) has investigated upon the market potential of drugs that are off patent.

As a result of globalization and TRIPS inspired patents regime mergers and acquisition have become important features of Indian pharmaceutical industry. A Business Line News item (Business Line News 2003) shows how the climate is ripe for mergers and acquisition in India. Narsalay (Narsalay R. 2000) has studied the impact of cross-border mergers and acquisitions on competitiveness of Indian pharmaceutical industries. Ganguli (Ganguli, P. 2004) through her pioneering research work came to the conclusion that Indian pharmaceutical industry will benefit from the mergers and acquisitions taking place. Prasad (Prasad, G.C. 2004) has made an interesting case study on Glaxo-Sanofi deal.

Medical Insurance, if European and US experience is any indicator, that too will affect pharmaceutical marketing in a big way. Falaknaaz (Falaknaaz S 2004 and Falaknaaz S 2005) has attempted to comprehend the influence of medical insurance on pharmaceutical industry.


Indian Medicinal Systems too are in the process of reinventing themselves. Their growing markets too have compelled pharmaceutical marketers to reshape themselves. An article in Express Pharma Pulse, (Anonymous, Express Pharma Pulse,2005) has advocated strengthening traditional Indian medicinal system.

Government is always concerned about the prices of medicines, particularly the life saving and essential ones. Government regulations, thus, in this

**Ethical aspects** are of prime concern to pharmaceutical marketing. *Socolar et al* (Socolar D, Sager A. 2001) through his studies have shown that high prices justified by pharmaceutical firms on the basis of sales cost and R&D are not supported by the evidence on ground.

**Literature on Impact of Information Technology on Pharmaceutical Marketing.**

Pharmaceutical Marketing is different and unique. Not much work has been done in India so far to understand the influence of Information Technology on it. In US and in several other developed countries researchers have indeed attempted to understand the difference information technology is making in pharmaceutical marketing. Some of the works researcher came across include:

Determination of territory for medical representative has always been an important aspect of pharmaceutical marketing. *Zoltners et al* (Zoltners, A., Sinha, P., 1988) have made use of computer systems for designing best possible and viable territories for medical representatives.

*Green et al* (Green, P., Tull, D. and Albaum, G. ,1988) has developed a variety of mapping techniques to deal with the complications that arrive with higher dimensionality.

Research and Development and Marketing are the two important corner stones of pharmaceutical industry. Thus, their relationship is vital for the survival and growth of any pharmaceutical industry. Yet the precise nature of this relationship remains elusive. *Corstjëns et al* (Corstjëns and Demeire 1988) used computer based business games for marketing simulation exercises, specially designed for pharmaceutical Industries to acquaint
Research and Development Staff with the intricacies of marketing environment.

Williams et al (Williams and Glenn ,1987) have shown the relationship between use of computer technology in drug invention and the subsequent boom of rational drug development. This, according to him, has created substantial opportunities for the integration of research & Development and Marketing.

Information Technology has changed the expectations and perception of consumers dramatically, thus, adding another dimension to marketing. Kyrouz et al (E.M., Holt, M., Miltmn, R. & Everett W. ,1988) have attempted to draw the profile of a twenty first century health care consumer.

Whitten et al (Whitten, P., Steinfeld & Hellmich, S.A., 2001) have examined the possible option for survival and growth for E-health firms. Retailing has gained greater importance ever since the arrival of information technology. Regal (Regal B. 2002) has attempted to understand the emergence of E-pharmacies in India and has explored the provisions that need to be enacted to overcome the possibility of their misuse and strengthen the healthcare system.


From the literature survey it becomes apparent that a comprehensive study on impact of information technology on pharmaceutical marketing has not been undertaken. Hardly any work has been done in this area in India. Since information technology does not only reflect enormously enhanced potential but also enormously enhanced cost too, hence it is critical. Further it naturally has limitations. Thus, a study on its impact on pharmaceutical marketing is due for more reasons than one.

**Universe or Population**

The universe or population for a study is the specific group of people, firms, conditions, and activities etc., which form the pivotal point of any research project. The population for this research work is all pharmaceutical companies operating in India and physicians practicing in India. This will also include pharmaceutical products, intermediaries and tools of information technology. To elaborate, there are over 20,000 pharmaceutical firms operating in India currently. It was practically not possible to include all the firms for investigation. It has already been stated that focus of investigation was on allopathic drugs and drug manufacturers. Sampling frame, in this respect, is made at two levels – Size of firm and Geographical location. Universe is categorized in terms of size as:

1. Large Sized Firms / Multinational Firms
2. Moderate Sized Firms / National Firms
3. Small Sized Firms / Regional Firms
And on the basis of geographical locations universe is categorized as follows:

1. North Zone
2. South Zone
3. East Zone
4. West Zone
5. Central Zone

It would have been practically impossible to choose Physicians from different locations of India. Hence to decide upon representative cities, their categorization is done in terms of population of the cities. Categories are:

1. Metropolitan cities (Population over and above one crore)
2. Large cities (Population around ten lakhs)
3. Small cities (Population around one Lakh)

**Sampling Frame**

A sampling frame may be defined as the listing of the general components of the individual units that comprise the defined population. For this research work the sampling frame consist of five parameters, described as below:

**People:** The people include all those associated with marketing of pharmaceutical products. Thus, pharmaceutical marketers, retailers, physicians and market experts/consultants were selected. Certain other categories of people who are associated with pharmaceutical marketing such as patients, their relatives, nurses or other Para-medical professionals, drug distributors are excluded from the study.

**Pharmaceutical firms:** It will include those pharmaceutical firms that market pharmaceutical products. Mainly allopathic drug marketers were focused upon. But Ayurvedic drug marketers too were included as the physicians prescribe their products.

**Products:** The product includes pharmaceutical products. The Pharmaceutical products are broadly classified as Bulk and formulations.
Bulk drugs are medicinally effective chemicals whereas Formulations refer to the dosage forms such as Tablets, Capsules, Syrups, and Injections etc. in which form a medicine is marketed and administered. Formulations can be further classified as Prescription drugs and over the-Counter (OTC) drugs. Only formulations were considered as universe in the product category with a clear emphasis on prescription product.

**Activities**: Activities include, the marketing activities for finished goods inventory management, forecasting, order processing, accounts receivable, sales decisions, maintaining sales databanks, restructuring of sales territories, receipt and analysis of daily reports, sales call made by MR to physicians, market segmentation, training & Development of sales persons, detailing, sample distribution, customer relations management, direct-to-consumer communication, drug compliance, launch of new products, retail-marketing, prescription writing and activities where information technology is playing or has the potential to play role.

**Tools of Information Technology**: Tools of information technology include those tools that emerged with computers from 1985 and onwards.

**Sampling Method**

Regardless of the method used to obtain the primary data, the researcher has to decide whether the information is to be obtained from every unit of the population under study or only a portion of the population will be used. Collection of data about each and every unit of the population is called *census method*. Approach where only a few units of population study are considered for analysis is called *sampling method*. It is apparent that for the present study because of severe time, money and geographical constraints, census method was not feasible. Therefore, sampling method is the only option left with the researcher. Further there are two broad methods of sampling namely probability and non-probability. As researcher has some knowledge of pharmaceutical industry, use of non-probability sampling rather than probability sampling method, is considered to be more appropriate. Sampling methods adopted are as follows:
Sampling Method for Selection of pharmaceutical firms: Non-probability methods are of three types, namely Judgment sampling, Convenience sampling and quota sampling. A combination of Judgment and Convenience sampling techniques was decided upon for this study. Initially a tentative list of firms from each of large, medium and small categories was drawn using judgment-sampling method. From this tentative list a final list was prepared based on convenience and their accessibility of the researcher.

Sampling Method for Selection of Cities for Conducting Physicians’ Survey: To conduct physicians’ survey cities are decided by using convenience sampling method. The list of cities selected are shown in Table 11.

Table 11: List of Cities Selected for Conducting Physicians’ Survey

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Category of City</th>
<th>Names of Cities Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Metropolitan cities</td>
<td>Mumbai and Kolkata</td>
</tr>
<tr>
<td>02</td>
<td>Large cities</td>
<td>Raipur and Bilaspur</td>
</tr>
<tr>
<td>03</td>
<td>Small cities</td>
<td>Gangtok</td>
</tr>
</tbody>
</table>

The physicians from these cities are selected by a method that combined random sampling and convenience sampling. List of physicians is obtained from telephone directories and thereafter physicians are chosen on random basis. Thus, only the physicians, whose names and telephone numbers are available, are contacted. The sample is expected to be near national average as care has been taken to take geographical and demographic aspects into consideration to the extent possible. Money and time constraints have not permitted a more extensive/intensive schedule.

Sampling Method for Selection of Physicians who are Reluctant to Meet MRs. Physicians under this category are selected from cities mentioned earlier using the same method. Such physicians are identified on the basis of information collected from Medical Representatives of different companies.

Sampling Method for Selection of Experts for Online Information: The queries floated in online forum automatically reach to each of its member.
Understandably only a few responded at a time. Other experts not part of the forum, are selected on the basis of information about their expertise and contact email address/phone numbers.

Observational Units

Industrial Units: The names of industrial firms selected for the survey are shown in Table 12. Indian pharmaceutical industry is overwhelmingly Mumbai-centric hence, selection of seven industrial firms from Mumbai is unbiased.

Table 12: List of Pharmaceutical Firms Selected for the Study

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Geographical Zone</th>
<th>Name of Selected Cities</th>
<th>Name of Selected Pharmaceutical Firm</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>North Zone</td>
<td>(a) Delhi (b) Saharanpur</td>
<td>(a) Ranbaxy (b) Indian Herbs</td>
</tr>
<tr>
<td>02</td>
<td>South Zone</td>
<td>Chennai</td>
<td>Orchid Pharmaceuticals</td>
</tr>
<tr>
<td>03</td>
<td>East Zone</td>
<td>Kolkata</td>
<td>Franco-Indian Pharmaceuticals and Baidyanath</td>
</tr>
<tr>
<td>04</td>
<td>West Zone</td>
<td>Mumbai</td>
<td>Pfizer, Aventis, Organon, Khandelwal, Kopran, Lupin and Almet Corporation</td>
</tr>
<tr>
<td>05</td>
<td>Central Zone</td>
<td>Raipur</td>
<td>Transflex</td>
</tr>
</tbody>
</table>

Physicians’ Survey: The observational units for the physicians’ survey are shown in Table 13.

Table 13: Observational Units: Details for Physicians’ Survey

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of Place of Survey</th>
<th>No. Of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Mumbai</td>
<td>80</td>
</tr>
<tr>
<td>02</td>
<td>Kolkata</td>
<td>80</td>
</tr>
<tr>
<td>03</td>
<td>Raipur</td>
<td>30</td>
</tr>
<tr>
<td>04</td>
<td>Bilaspur</td>
<td>30</td>
</tr>
<tr>
<td>05</td>
<td>Gangtok</td>
<td>20</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>240</td>
</tr>
</tbody>
</table>
Survey of Physicians' who are Reluctant to Meet MRs: The observational units for survey of Physicians' who are reluctant to meet MRs are shown in Table 14.

Table 14: Observational Units: Details for Survey of Physicians' who are Reluctant to Meet MRs

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of Place of Survey</th>
<th>No. of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>02</td>
<td>03</td>
</tr>
<tr>
<td>1</td>
<td>Mumbai</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>Kolkata</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>Raipur</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Bilaspur</td>
<td>10</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>80</td>
</tr>
</tbody>
</table>

Sources of Data

There are two types of data available to a researcher, namely primary data and secondary data. Primary data are collected by researcher himself, whereas, secondary data are those data that are collected by earlier researchers and are of some use to a researcher. In the present study the researcher has made use of the both - secondary and primary data. Since the present study is first of its kind and earlier research works are not available, therefore, the researcher has mainly relied on the primary data. However, the researcher has also exhausted the secondary data sources. He has tried his best to use the secondary data in an effective manner to understand the frame, components and parameters of the problem undertaken.

The major secondary data sources which are used by the researcher are reports, records, journals, state publications, professional publications, individual firm publication, directories, books, magazines, newspapers, websites etc.
The researcher has also used primary data in order to fill the gaps and deficiencies and to update secondary data. Sources of primary data for this study include:

1. Data collected by researcher by visiting the pharmaceutical companies, retailers and physicians, using observation method.

2. Data collected by discussion held with pharmaceutical market expert for their opinions, suggestions and information using Online Discussion forum.

3. Data collected by making queries over telephone or email from professionals and experts in the field of pharmaceutical marketing.

4. Data collected using interview schedule as an instrument of primary data collection. For this purpose, following three different structured interview schedules were designed:
   a. Interview Schedule-I for collecting data from marketing executives of pharmaceutical firms
   b. Interview Schedule-II for collecting data from physicians
   c. Interview Schedule-III for collecting data from physicians who are reluctant to meet MRs.

   All the three interview schedules contain dichotomous, multiple choice and open-end questions

5. Data collected using intensive unstructured interviews (personal / telephonic / online) held with marketing executives of Aventis and Pfizer.

**Data Collection Methods**

For this research work, following methods of data collection are used:

**Secondary Data**

The list of journals and magazines and other secondary sources of information for this study is presented in Appendix X. Secondary information is collected online and also from the libraries of Sikkim Manipal Institute of Technology, Majhitar, Sikkim, Sikkim Manipal Institute of Medical Sciences,
Primary Data

1. Data collected using observation method: The researcher dwelled into his own experiences with pharmaceutical industry that dates back 22 years in order to develop a holistic understanding of marketing of pharmaceutical products. Whatever gaps are found in personal experiences are duly filled via literature survey and getting information from friends and ex-colleagues working in various pharmaceutical organizations.

2. For collecting data by holding discussions with Foreign and Indian pharmaceutical market experts to seek their opinions, suggestions and information using Online Discussion forum the researcher joined an exclusive e-mail networking community organized by Pharma Marketing Network of pharmaceutical marketing professionals and experts. Pharma Marketing Network is owned and operated by VirSci Corporation; a pharmaceutical marketing best practices consultancy and Communications Company, which was established in 1995 by John Mack. The application for membership was made at the end of November*2003 and became a member on 28th December 2003. Email conforming acceptance of researcher's membership has been attached as Appendix I.

The Pharma Marketing Forum is an exclusive e-mail networking community of pharmaceutical marketing professionals and experts. The forum operates via the PHARMA-MKTING listserv. Members of the Forum are employed at a wide array of pharmaceutical manufacturers, medical communications companies, marketing service providers, advertising agencies, and academic institutions. Many members are recognized experts in the field of pharmaceutical marketing and hold important positions within their organizations.
Forum members benefit from the experience of other members by posting queries to the list, sharing information with other members, or by merely "lurking" or reading e-mail communications from other members. The Pharma Marketing Forum offers members an excellent opportunity to network with other pharma marketing professionals via the convenience of e-mail. Members ask other members for advice, help finding information and online resources, and generally share knowledge with other members. The list of experts consulted is attached as Appendix II. Details of online correspondences are shown in Appendix III.

3. For collecting data making queries over telephone or email from professionals and experts in the field of pharmaceutical marketing, experts from India, US and Australia are contacted. Also other organizations/individuals too provided valuable primary information online to complete this research work. Their names and contact details are shown as Appendix XI.

4. For collecting data from marketing executives of pharmaceutical firms, the researcher approached Mr. S. D. Joag, Secretary, Indian Pharmaceutical Association for a certificate recommending support for the research work undertaken. Copy of this certificate is attached as Appendix IV. It may be mentioned here that without this certificate the work would have remained incomplete.

Having obtained the certificate the researcher approached executives of pharmaceutical companies with a pilot interview schedule. However it was realized that marketing experts were unable (mainly for past data) and unwilling (for certain sensitive current data) to share information. Hence the researcher revisited the companies with a revised interview schedule. The list of companies (and their contact details) that are visited is shown as Appendix V. The list of company representatives that were interviewed has been shown as Appendix VI. A copy of the revised interview schedule is attached as Appendix VII. Wherever possible an effort is made to crosscheck the information that was collected.
5. For collecting data to understand preparedness and willingness of physicians to use IT tools, physicians were approached with an interview schedule-II. Copy of Interview Schedule-II is attached as Appendix VIII. Telephonic interviews are held to collect required information. This is done to have a holistic comprehension of strategies adopted by pharmaceutical organizations.

6. Interview Schedule-III (shown as Appendix IX) is designed to understand the willingness and ability of physicians not meeting MR or meeting them rarely/selectively, for online communication with pharmaceutical companies. The physicians are identified from MR of various companies. Telephonic interviews are held to collect required information.

7. Further data was collected far by holding several sessions of intensive unstructured interviews with marketing executives of Aventis and Pfizer. These companies are chosen as they were found, during previous interactions, to be using information technology for marketing of pharmaceutical products extensively and in a sophisticated manner. The interviews are personal, telephonic as well as online. This information is compared and discussed with the online forum mentioned earlier. This helped in putting the global view.

8. Case studies have been a time tested research methodology. For this research work also following case studies are collected as part of primary data and are used to understand the implications of applying IT tools on marketing Pharmaceutical products:

   a. Case study for launching a new product (Arava) by Aventis.
   b. Case study of e-Detailing as a Supplement to Sales Effort.
   c. Case study on how Internet made possible the study of Nail-Patella, an extremely rare inherited disorder.
   d. Case study of Orphan Medical Corporation to reach orphan drugs to Cambodia within 48 hours.
To assess the appropriateness and originality of the work being done, two papers based on the findings of this work have been presented at national and international level conferences and another three papers have been published in indexed journals. Details of papers presented and published are shown in Appendix XII.

Analytical Methods

The data that is collected from a survey needs to be analyzed and interpreted to draw out meaningful conclusions. Analysis is the process of placing the data in an ordered form, combining them with existing information, and extracting meaning from them. Interpretation is the process of relating various bits of new information to other existing information. A large number of techniques are available for analyzing data. As the data generated from this research work is not suitable for statistical analysis hence, the researcher relied upon two simple analytical techniques namely Cross Tabulation and Percentage. The process of cross tabulation involves placing the collected data into tabular form so that their true meaning can be extracted. Percentage is also a useful tool as it reduces everything to a common base and thereby allows meaningful comparisons to be made. The findings are presented as Graphs, Tables and Diagrams.

Hypotheses

Because of the immense possibilities provided by Internet and other information technology tools many new business models will be tried – some may succeed; some others may not do as well. Information technology paraphernalia offers a wide spectrum of opportunity for the creative and strategic thinker these days. It will be important to pick up on strategies others are using and how they work out. It will be equally as important to understand the trends of the day in order to help create the changes rather than be left behind.

On the basis of this research work and after making analysis of the data collected for the study, it is expected that following hypothesis may be accepted or rejected:
1) Strategies adopted by pharmaceutical industry using information technology have not been significantly effective in marketing their product.

2) Extent of success in using information technology to market pharmaceutical products is low as compared to failure.

3) There are no business models, which may be tried, in the near future for marketing pharmaceutical products.

4) There are no business opportunities available to different health care providers using information technology for marketing pharmaceutical products.

5) Returns of using information technology in marketing pharmaceutical products are low as compared to risk and dangers.

There are two premises on which the hypotheses of this research work is based, they are as follows:


   It has not been very successful with other products. What is common between these products where marketing today is overwhelmingly Internet oriented? All these products or services are not physical – they are digital in nature and have bits as their unit. These, therefore, can not only be ordered instantly as any other product can be, but can also be delivered instantly over internet, Thus, transcending all barriers enacted by time and space.

   For the purpose of discussion the products and services therefore can be categorized into two broad groups namely, Bits and Atoms.

   Bits represent those products and services that are digital in character and Thus, can be delivered online. Atoms, on other hand, represent products that have a physical existence and Thus, can not be delivered over internet and have to be distributed through traditional media and
channels and Thus, are subject to the constraints posed by time and space.

Pharmaceutical products fall under "atom" category and Thus, are necessarily delivered using time-honored distribution methods. Thus, their marketing is not expected to be influenced substantially by the revolution brought in by information technology.

2. The other premise is based upon the inherent nature of pharmaceutical products. Health issues are taken seriously Thus, invite maximum caution and restriction by the society. The ethical dimension of its products, therefore, puts pharmaceutical industry in a special category. The risk involved in the use of pharmaceutical products has important marketing implications. The pharmaceutical industry, therefore, is understandably and justifiably a conservative industry. The human dimension and personal interaction between physician-patient-pharmacists is sacred and cannot essentially be replaced with an efficient but impersonal entity such as information technology.

It will be worthy to mention that the researcher can not apply suitable statistical methods, to test the hypotheses formulated for this work, owing to three following obvious reasons.

1. Data collected is variegated in nature. It has many combinations and large number of parameters. Suitable statistical techniques to test hypotheses under such conditions are not available.

2. Moreover, the parameters are related to different aspects and different periods of time.

3. The responses of survey are both subjective and objective.

Limitations of the Work Undertaken

This research work is not free from limitations as happens with all research work. Despite best efforts of researcher this work suffers from certain limitations. They are as follows:

a) While collecting information from pharmaceutical marketers, structured and unstructured interview method is used. As a constraint:
Only a small fraction of sample universe could be studied. Cost and time constraints would have made a larger sample size unmanageable.

There remains a possibility of the bias of researcher as also that of the respondents.

Data may not be adequate also because high-level marketing executives are not easily approachable.

For a complete and uniform collection of information it was important to recall upon the respondents many times. Though modern information technologies made it possible, quick and convenient, yet, sometimes recalls were not possible.

b) For collecting information from physicians telephonic interview method is used, consequently:

i. Survey was restricted to respondents having telephone facilities.

ii. Survey was not intensive.

iii. Respondents had not much time for considered answers.

c) As has been mentioned earlier a new interview schedule, that did not seek specific and quantitative details had to be prepared after the pilot survey had showed that marketing executives were unable (past data) and/or unwilling (present data) to share data. Therefore quantitative data could not be collected.

d) In the absence of any worthwhile quantitative data, appropriate statistical techniques could not be used for making interpretation and drawing inferences. Effort was made though, to quantify the beliefs using opinion survey techniques.

e) The research work involved comprehending an extremely dynamic and multifaceted reality. The world of pharmaceutical marketing is undergoing massive transform. The evolution of application of information technology is not yet complete. It will take another decade for a clear picture to emerge. It will change because of the new patent rights, arrival of the era of big-time medical insurance, emergence of
new dimensions of health, changing perceptions and capabilities of consumer also. Yet it is expected that a similar research work using future tools of information technology will verify the findings of this work as technologies may change but nature and characteristics of information remains same.

Profile of the Companies

Profile of the companies that were studied for this research work is as follows:

I. Kopran

Promoted by the Parijat Enterprises Kopran is currently an integrated health care company. Kopran has used research-based technology to contribute towards total health-care.

The company started modestly as a Semi Synthetic Penicillin (SSP) player and expanded to become the largest SSP Player in India with an annual SSP facility of over 1200 tones per annum.

Its products include:

- **Anti-hypertensives** - Atenolol, Amlodipine, Atorvastatin
- **Macrolides** - Roxithromycin, Clarithromycin, Azithromycin
- **Cephalosporins** - Ceftriaxone Sodium Sterile, Ceftotaxime Sodium Sterile

II. Pfizer Ltd

Pfizer Ltd is a leading player in the domestic formulations market. Its main therapeutic segments are vitamins, cough expectorants, Non Steroidal Anti-Inflammatory Drugs (NSAIDs), protein supplement, cardiovascular, anti-infective and vaccines. Pfizer is renowned for its unparalleled marketing prowess, reflected by the fact that two of its products are perched right on top of the list of the best selling pharmaceutical brands in India.

Pfizer is rated amongst the top 10 formulations company in Indian pharma industry. Over the years, Pfizer has transformed into a marketing company. Pfizer has 8 brands out of its portfolio of around 30 brands which are ranked
amongst India's top 300 brands in the industry. Its top brands namely Becosules and Corex are market leaders in respective therapeutic segments.

The Pfizer Global Research and Development (PGRD) unit in India, with its two departments—Clinical Study Management and Monitoring (CSMM) and Biometrics, has consolidated its position as a quality service provider to PGRD in the US. The departments have been on a steep growth curve, with the current total strength of around 55.

III. Aventis Pharma Limited

Aventis Pharma Limited is the second largest pharmaceutical multinational company in India. In 2003 its sales turnover stood at Rs. 6157 millions and its market share was 2.9%.

The Aventis product portfolio in India is in synergy with the organization's global strengths in seven key therapeutic areas. These are anti-infectives, metabolism, cardiology/thrombosis, respiratory, CNS, bone/joint and oncology. In six of its therapeutic areas, Aventis leads the market in India.

In each of these the thrust is on consolidating existing markets, penetrating new markets, offering high quality support to care providers and keeping patient well being at the heart of all business efforts.

The company has six regional offices at Mumbai, Calcutta, Delhi, Hyderabad, Lucknow and Chennai and two state-of-the-art manufacturing sites at Ankleshwar (active pharmaceutical ingredients & formulations) and Goa (formulations). Incorporating the latest designs and processes in manufacturing, both sites has been identified as potential global sourcing units.

IV. Organon India

Organon is a global leader in the creation of innovative prescription medicines for gynecology, mental health and anesthesia - products that contribute to the health of people and their quality of life. It is a global company with a history of 36 years of rich experience in the Indian market.
Organon, during its journey across the world reached the Indian shores in 1961. The subsequent years witnessed consistent growth. This growth called for an independent identity for the organization. In 1967, Organon India was established with its Headquarters at Kolkata with all India operations. In 1983 it was renamed as Infar India. Back again in 2002, it has been renamed as Organon India, when its parent company Organon NVO obtained Government of India approval to increase its shareholding in Infar to 100% through an ‘open offer’ to the existing shareholders. Today, its corporate headquarters is located in Mumbai.

Organon India strives to serve its customers with its products and services in the best possible way. Its growth comes from an optimal combination of organic and inorganic business opportunities. They plan to serve the Indian market with their core therapeutic field in reproductive medicine, psychiatric medicine, anesthesia as well as India’s specific therapeutic categories that help their customers, and in turn help the patients.

As a global pharmaceutical company committed to innovation and high quality products, it is amongst the leading companies in their areas of expertise. These areas include contraception, menopause & andropause, fertility, mental health, thrombosis and anesthesia.

V. Ranbaxy Laboratories Limited

Ranbaxy Laboratories Limited, is the largest Indian Pharmaceutical organization that manufactures and markets bulk drugs, generics, branded pharmaceuticals and active pharmaceutical ingredients. Globally also, it is placed along with the top ten generic companies. Its products are sold in over 100 countries. In fact its exports account for 78% of its total sales. Its manufacturing operations are spread over seven countries.

Ranbaxy has modeled itself in the image of US and European Pharmaceutical multinationals and has substantial international portfolio of affiliates, joint ventures and representative offices across the globe with JVs/subsidiaries in USA, UK, Germany, France, Spain, Ireland, Netherlands, India, China, Brazil, South Africa, Japan etc. Recently with the acquirement
RPG (Aventis) SA, this Indian Giant has made its place amongst the major generic companies in Europe in general and France in particular. This drive to be an international player has not affected its focus on Indian Market. It has a strong brand marketing team and distribution network in India. Recently it is toe holding the expanding herbal market also and has launched three herbal brands under New Age Herbals range.

Ranbaxy has established state-of-the-art multi-disciplinary R&D facilities at Gurgaon (near New Delhi), India. It is one of the largest investor on R&D in the Indian pharmaceutical industry with an R&D spend of 7% of its sales during 2004. Its major research drives are in the field of Urology, Anti-infectives, Respiratory, Anti-inflammatory and Metabolic disorders segments.

It has no intention to give up its foothold in generics market but to sustain its growth, which is around 18-20% now, it has invested on NCEs (New Chemical Entities) for long term value building and on NDDS (Novel Drug Delivery Systems) in the medium term.

Together with the commitment of a 10,000 strong multicultural workforce, Ranbaxy continues to aggressively pursue its strategies to become a Research- based International Pharmaceutical Company.

VI. Lupin Laboratories Ltd

Lupin is among the few companies from India with global scale manufacturing facilities that conform to the world's best quality standards. Nine of their facilities are approved by the USFDA; two by the UKMCA.

Its portfolio of over 80 finished products primarily focuses on anti-TB, anti-infectives, NSAIDS (non-steroidal anti-inflammatory drugs), and cardiovasculars.

Some of its most prescribed brands include Rcinex, Rcin, Ceff, Combutol, AKT-4, CZ3, Odoxil, Aptivate, Cetil and Lipril.

VII. Orchid Chemicals & Pharmaceuticals Ltd

Orchid Chemicals & Pharmaceuticals Ltd. is an integrated pharmaceutical major (headquarteried in Chennai, India) with diversified competencies in bulk drugs, formulations and drug discovery, with a strong orientation
Orchid has been recognized as the only company in the Indian Pharmaceutical industry to record remarkable growth in a decade of operations. Orchid has since its inception grown ten-fold in physical output terms and fifteen-fold in value terms signifying an exciting growth journey.

Orchid’s world-class manufacturing facilities for bulk actives, including the latest US FDA approved blocks, are located in Alathur, a little away from Chennai. Orchid also has dedicated manufacturing facilities for nutraceutical bulk active ingredients and cephalosporin and non-cephalosporin formulations in Alathur. A State-of-the-art US FDA compliant bulk actives manufacturing facility is also located at Aurangabad, near Mumbai.

Orchid has also commissioned a pre-clinical toxicology and pharmacology centre, located in the R&D campus to aid pre-clinical trials.

Orchid is one of the few pharmaceutical companies of its size and scale to have received the ISO 9001:2000, ISO 14001 and OHSAS 18001 certifications for its world-class quality, environmental management systems and Operational Health & Safety systems respectively.

VIII. Franco-Indian Pharmaceuticals Pvt. Ltd

Franco-Indian Pharmaceuticals Pvt. Ltd., is one of the major players in the Pharmaceutical industry in India. This reputation is due to the stringent and high quality standards maintained in the production processes at the manufacturing units, and continuous research conducted in the laboratories in pursuit of excellence.

Franco-Indian Pharmaceuticals has always given prime importance to Quality Control and therefore purity, efficacy, standardization and elegance have been the fundamental principles on which products are manufactured.
In order to have larger manufacturing capacities with advanced technology and at the same time giving prime importance to Quality Control, Franco-Indian Pharmaceuticals established three more Associate Companies with separate Manufacturing Units.

IX. Khandeiwal Laboratories Pvt. Limited

Khandeiwal Laboratories Pvt. Limited (KLab) was founded in 1945 and is in the business of manufacturing and marketing of speciality pharmaceutical formulations, niche APIs, chiral intermediates, Novel Drug Delivery Systems and Research. KLab is a pioneer and leader in Oncology, and pain and spasm management.

Their sales team focuses on Gastroenterologists, General Physicians, General Surgeons, Gynecologists, Orthopedic Surgeons and Pediatricians. KLab’s products are distributed nationally through 30 distributors, 1,000 stockiest and 75,000 pharmacies.

X. Shree Baidyanath Ayurved Bhawan Pvt. Ltd.

Shree Baidyanath Ayurved Bhawan Pvt. Ltd. (Kolkata), popularly known as Baidyanath, is the acknowledged leader of Ayurvedic know-how. The Company has played a pioneering role in re-establishing ancient knowledge with modern research and manufacturing techniques.

With a vision to introduce new-age herbal medicines that are ayurvedic, herbal, probiotics, antioxidants, nutraceuticals and phytonutrients Goodcare Pharma Pvt Ltd was established. In Goodcare Pharma a group of talented R&D Scientists are constantly endeavoring to implement all advanced pharma techniques so that the ancient age old wisdom of Ayurveda is firmly validated by the latest techniques of modern science.

XI. Indian Herbs

The Indian Herbs, an ISO 9001 certified organization, has added a modern dimension to traditional herbal medicines and has made them available for humans and animals. Founded in 1951, the flagship company Indian Herbs Research and Supply Co. Ltd. was well underway even before the interest in herbal remedies worldwide began. It is located in Saharanpur, U.P.
Its product categories include, Immune-Potentiator, Anti-arthritic, Anti-asthmatic. Prompt and Sustained Action Liver Tonic, Cardiac Tonic and Antioxidant, Renoprotective, Nephrogenic and Renal Tonics.

XII. Almet Corporation

Almet Corporation is a regional company with head office located in Mumbai. It began operations in early 1990s. Initially they operated in Maharashtra only and now have begun to cater the markets of Gujarat, Madhya Pradesh, Chhattisgarh and other states adjoining Maharashtra. They prepare tablets and parenteral preparations. Their products categories include Antibiotics, cough syrups etc.

XIII. Transflex

Transflex is a small pharmaceutical firm located at Raipur, Chhattisgarh. It has a turnover less than rupees one crore. It was established more than 35 years ago and caters to a niche market. They only produce liquid Anima in 100 ml packs. Being Niche marketers they have no sales force and they distribute their products through a few chosen distributors located nationally.