GIFT

A STRATEGIC ANALYSIS OF THE PHARMACEUTICAL SECTOR OF BANGLADESH

A thesis submitted in fulfillment of the requirements of the University of Dhaka for the degree of Doctor of Philosophy

by

EVA RAHMAN KABIR

Dhaka University Library
465057

465057

October 2010

Institute of Business Administration

University of Dhaka

ঢাকা বিশ্ববিদ্যালয় গ্রন্থাগার

Dhaka University Institutional Repository

Declaration Certificate

This is to certify that the thesis entitled "A Strategic Analysis of the Pharmaceutical Sector of Bangladesh" submitted for the degree of Doctor of Philosophy from the Institute of Business Administration (IBA), University of Dhaka contains research work exclusively carried out by me under the joint supervision of Dr. Syed Ferhat Anwar, Professor, IBA and Dr. Md. Habibur Rahman, Professor, Faculty of Pharmacy, University of Dhaka. The work has not been submitted earlier in part or full for any diploma or degree to any University or Institution.

Eva Rahman Kabir

465057

ঢাকা
বিশ্ববিদ্যালয়
গ্রন্থাগার

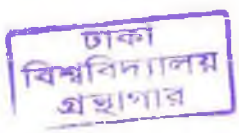
Countersigned by the supervisors

Dr. Syed Ferhat Anwar

Dr. Md. Habibur Rahman

Dhaka University Institutional Repository

Dedicated to my three daughters,
Sanam Kabir, Farihah Kabir and Amirah Kabir



465057

Dhaka University Institutional Repository

ACKNOWLEDGEMENTS

I am first and foremost grateful to Allah (SWT) for making it possible for me to go through this entire process.

There are many people that have made this dissertation possible. They have all contributed in their own special way, and I would like to take this opportunity to thank them all for their support during this research work.

I am very grateful and appreciative to all the Marketing Directors, Marketing Managers and Executives of all the pharmaceutical companies (both local and MNCs) of Bangladesh who have helped me with their co-operation, knowledge and time. It was truly a privilege to learn from them and collaborate with all of them. I am particularly thankful to the marketing team of Beximco Pharmaceuticals Ltd and to Mr Nazmul Hassan, CEO, Beximco Pharmaceuticals Ltd; to Mr. Iftekharul Islam, Managing Director, Sanofi-Aventis Bangladesh Limited and Mr Syed Tahmeed, Marketing Director, Sanofi-Aventis Bangladesh Limited; and to Mr. M. Azizul Huq, Managing Director, GlaxoSmithKline Bangladesh Limited for their constant co-operation.

My sincerest gratitude to Dr. G.M. Chowdhury, Professor and Director, IBA, Dhaka University; Dr. Md. Abdur Rashid, Professor and Dean, Faculty of Pharmacy, University of Dhaka and Dr. Md. Habibur Rahman, Professor and Chairman, Department of Pharmaceutical Technology, Faculty of Pharmacy, University of Dhaka for their co-operation during my research.

Next, I would like to thank the members of my doctoral committee, Dr Syed Ferhat Anwar and Dr Md Habibur Rahman for their advice,

Dhaka University Institutional Repository

assistance and constant support with this project. A special gratitude goes to Dr Ferhat Anwar, whose diligent foresight and prompt reviews were invaluable to me in completing this project. Dr Anwar graciously agreed to be my mentor at a very difficult time in my program. His kindness and positive attitude helped me immensely during this time. Plus, his unwavering belief in me and my ideas made this dissertation a reality. It was truly a pleasure to work with him on this dissertation, and I look forward to our future collaborations.

I feel the need to also mention a few names who have helped me through this extremely difficult time – Dr. Monsurur Rahman (Professor of Accounting, Department of Accounting, Indiana University of Pennsylvania, Indiana); Dr. Sarder Abdun Nayeem, Managing Director and Chief Consultant Surgeon, Japan Bangladesh Friendship Hospital, Dhaka; Dr. Golam Muhammad (Professor and Dean, North South University); Dr. Farhana Huq, Medical Officer, Department of Radiology and Imaging, Dhaka Medical Hospital, Dhaka; Nishat Chowdhury; A. Z. Md. Shafiullah; Mr. Aminur Rahman (IMS Health of Bangladesh); and finally, my colleagues and students of the Faculty of Pharmacy, University of Dhaka. I am particularly grateful to Dr David Clarke (Professor, Department of Drug Delivery, University of Manchester) who has been a mentor of mine throughout this period of mine. A special thanks goes to my dear friend, Mobina Hassan who had given me some valuable advice in the early days of my PhD when I was completely lost with my work.

It goes without saying that both my parents played a major role in determining the person that I am today. My path to academia is no accident, as both my mother and father cultivated a belief within myself where academic curiosity and passion constituted the highest virtue.

Dhaka University Institutional Repository

While they certainly provided me with the tools and discipline to be a successful academic, their unconditional love is what gave me the confidence to pursue avenues in my career that I felt passionate about. There is no doubt that I am extremely fortunate to be the daughter of my parents. I would also like to thank my only brother, Aminur Rahman, who has never failed to be by my side whenever I needed him particularly during this part of my life.

Finally, though many others have contributed maybe to a greater degree in competing this research, my husband, Mishaal Kabir has been the silent foundation of my life that has sustained me through the physically and mentally challenging times of the doctoral education. Despite all the sacrifices he has made to be at my side, he has never wavered in his patience and support for my academic dreams.

I have a special place in my heart for all my family members, friends and household staff that are too numerous to name, who have helped me through this journey. I would also like to sincerely thank those who thought I could never complete this dissertation because ironically, it was their sarcasm that actually helped me remain focused throughout my research.

Lastly, this study could not have been possible without the love and understanding of my three beautiful daughters – Sanam M. Kabir, Farihah N. Kabir and Amirah M. Kabir.

Dhaka University Institutional Repository

ABSTRACT

The current research is a qualitative, exploratory market study where the study of the marketing strategies has been stressed since the pharmaceutical industry is a market-driven organization and no elaborate research in this area has yet been documented and made available in order for the pharmaceutical industry of Bangladesh to capitalize on and create more opportunities and different sources of value for the industry's competitive landscape to be transformed to a more advantageous position.

The objective of the study was, therefore, to develop a marketing model (PPM) that will identify and provide useful information, new ideas and additional insights into the multidimensional issues and constraints of the pharmaceutical sector which could be considered as part of the strategic planning of the pharmaceutical industry in order for the Pharmaceutical Industry of Bangladesh to sustain after 2015.

This required analyzing the business competencies currently present in the industry and determining any gap that may be keeping the sector from achieving a competitive advantage. It was done first by studying the secondary data available and later by the study of the primary data collected - by comparing the perceptions and opinions of the marketing executives of Bangladeshi pharmaceutical companies, as well as the physicians, the retailers and the PSRs regarding the value chain of the sector, current and future services, marketing practices, and strategies of the pharmaceutical industry - in order to validate and fill in any gaps found in the secondary data.

Although the Bangladesh Pharmaceutical Market has shown a growth of 6.68 in 2008 from a -2.38 in 1999, it has been found to be plagued by a

combination of poor infrastructure and scientific knowledge, a lack of a coordinated system of implementation and stringent monitoring of the regulations, as well as of a lack of drug testing, intellectual property and bio-safety issues (primary data).

The issues identified by this study are required for creating long-term customer value, thus improving the performance of the industry. Therefore, the present study has recommended a number of areas of focus for strengthening the industry which can be used as a guideline or strategic planning map for further improvement of the sector bearing in mind that Bangladesh might need to abide by the WTO regulations from 2016.

Focusing on these areas will improve the performance of the industry and therefore, take it to a more competitive platform. The study has also identified that the executives of the pharmaceutical industry of Bangladesh will need to manage at three levels to be on a competitive platform:

- They need to manage locally and take both correct and timely operations and marketing decisions in order to serve the local environment.
- They have to figure out what to manage centrally, in terms of global standardized decisions and activities.
- And they need to actually build the business processes in order to manage the ecosystem through CSR.

Dhaka University Institutional Repository

Contents

ACKNOWLEDGEMENTS iii

ABSTRACT vi

LIST OF FIGURES xiv

LIST OF TABLES xvii

ABBREVIATIONS AND GLOSSARY xviii

CHAPTER 1. INTRODUCTION AND BACKGROUND 1

1.1 PREAMBLE 2

1.2 HEALTH AND MEDICINES 4

1.3 GLOBALIZATION 9

1.4 WORLD TRADE ORGANIZATION 10

1.5 THE PHARMACEUTICAL SECTOR 15

1.6 THE GLOBAL PHARMACEUTICAL SECTOR 18

1.6.1 The Pharmaceutical Industry 21

1.6.2 Impact of Economic conditions on markets 26

1.6.3 Status of the U.S. pharmaceutical market. 27

1.6.4 Expansion of the Pharmerging Markets. 27

1.6.5 Contribution of the Mature markets. 27

1.6.6 New Launches for narrow patient populations. 28

1.6.7 Value Chain of the Pharmaceutical Industry 30

1.6.8 Regulatory Issues in the Pharmaceutical Industry 31

1.7 PHARMACEUTICAL MARKETING STRATEGY 33

1.7.1 What is Strategy? 33

Dhaka University Institutional Repository

1.7.2 Strategic Management 35

1.7.3 Strategic Positioning 38

1.8 PHARMACEUTICAL MARKETING 39

1.8.1 The Positioning Paradigm for the Pharmaceutical Industry 41

1.8.2 Marketing Communications and Promotional System 44

1.8.3 The Physician (the Customer) 45

1.9 THE PHARMACEUTICAL INDUSTRY TODAY 48

CHAPTER 2. BANGLADESH 51

2.1 HISTORY OF BANGLADESH 51

2.2 THE PHARMACEUTICAL SECTOR OF BANGLADESH 52

2.3 THE PHARMACEUTICAL INDUSTRY OF BANGLADESH 56

2.3.1 History of the Industry 56

2.3.2 Structure of Business 59

2.3.3 Operations 69

2.3.4 Finance 73

2.3.5 Marketing 75

2.3.6 Human Resource Management 96

2.3.7 International Trade 97

CHAPTER 3. CONCEPTUAL FRAMEWORK of the RESEARCH 106

3.1 OBJECTIVES AND SCOPE OF THE STUDY 106

3.1.1 Objectives 106

3.1.2 Scope of the Study 107

3.2 INDUSTRY 109

3.3 PHYSICIAN 109

Dhaka University Institutional Repository

3.4 RETAILER 111

3.5 PSRs 112

3.6 CONCEPTUAL MODEL 113

CHAPTER 4. RESEARCH DESIGN AND METHODS 115

4.1 INTRODUCTION 115

4.2 RESEARCH DESIGN 115

4.3 RESEARCH QUESTIONS AND SPECIFIC RESEARCH OBJECTIVES 118

4.3.1 Broad Objectives 118

4.3.2 Research Questions 118

4.3.3 Specific Research Objectives 120

4.3.4 Hypotheses 121

4.4 INFORMATION FRAMEWORK 127

4.4.1 Source of Information (Sampling) 127

4.4.2 Sample Selection 129

4.4.3 Type of Information (measurement) 131

4.5 FIELD PLAN 133

4.5.1 Industry Executives 133

4.5.2 Physicians 133

4.5.3 Retailers 134

4.5.4 PSRs 134

CHAPTER 5. ANALYSIS OF THE RESULTS 136

5.1 INDUSTRY 136

5.1.1 Descriptive Analysis 137

5.1.2 Reliability Testing 137

Dhaka University Institutional Repository

5.1.3 Hypothesis testing 138

5.1.4 Regression Model 138

5.1.5 Relationship of the independent variables with the dependent variable (company performance or market share) 140

5.2 PHARMACEUTICAL INDUSTRY (excluding Square Pharmaceuticals) 147

5.2.1 Descriptive Analysis 149

5.2.2 Reliability Testing 149

5.2.3 Hypothesis Testing 149

5.2.4 Regression Model 149

5.2.5 Relationship of the independent variables with the dependent variable (company performance or market share) 151

5.3.1 Descriptive Analysis 160

5.3.2 Reliability Testing 160

5.3.3 Hypothesis Testing 161

5.3.4 Regression Model 161

5.3.5 Relationship of the independent variables with the dependent variable (satisfaction of the physicians) 166

5.4 RETAILERS 170

5.4.1 Descriptive Analysis 171

5.4.2 Reliability Analysis 171

5.4.3 Hypothesis Testing 171

5.4.4 Regression Model 171

5.4.5 Relationship of the independent variables with the dependent variable (satisfaction of the retailers) 174

5.5 PSRs 175

5.5.1 Descriptive Analysis 176

Dhaka University Institutional Repository

5.5.2 Reliability Testing 176

5.5.3 Hypothesis Testing 176

5.5.4 Regression Model 177

5.5.5 Relationship of the independent variables with the dependent variable (job satisfaction of the PSRs) 182

5.6 RESULT OF THE ANALYSIS 185

5.6.1 Answering to the Objectives 185

5.6.2 The Output Model 188

CHAPTER 6. STRATEGIC ANALYSIS OF THE SECTOR 191

6.1 INTRODUCTION 191

6.2 THE STRATEGIC MODEL 192

6.3 STRATEGIC PLAN 195

CHAPTER 7. CONCLUDING REMARKS 233

7.1 THE FUTURE OF THE BANGLADESH PHARMACEUTICAL INDUSTRY 233

7.2 ISSUES RAISED BY THE STAKEHOLDERS OF THE SECTOR 235

7.3 RECOMMENDATIONS: WHAT THE COMPANIES SHOULD DO 236

7.4 LIMITATIONS AND FURTHER SCOPE OF THE STUDY 239

7.4.1 Limitations 239

7.4.2 Further Scope of the Study 240

CHAPTER 8. SUMMARY 242

REFERENCES 255

APPENDICES 267

Appendix–1. Research Timeline 268

Appendix-2. World Trade Organization (WTO) 269

Dhaka University Institutional Repository

Appendix – 3. Hypotheses 273

Appendix – 4. Questionnaires 286

Appendix – 5. Outlook of Asia's Pharmaceutical Sector 300

Appendix -6. Case Studies 305

Appendix – 7. Explanation of the Variables used in the Hypotheses 310

Appendix – 8. Linear Regression 317

Appendix- 9. Sample Size Determination 318

Appendix – 10. Model Summary and ANOVA table of the Regression Models 322

Appendix – 11. Model Summary contd. 331

Dhaka University Institutional Repository

LIST OF FIGURES

FIGURE 1: FORECASTED SALES IN KEY MARKETS 20

FIGURE 2: STRATEGIC MANAGEMENT 36

FIGURE 3: TOP 25 COMPANIES OPERATING IN BANGLADESH, 2008 62

FIGURE 4: SECTOR-WISE COMPOSITION OF MARKET CAPITALIZATION IN DSE 75

FIGURE 5: GROWTH OF THE BANGLADESH PHARMA MARKET BETWEEN 1999 AND 2008 78

FIGURE 6: VALUE (IN MILLION DOLLARS) OF BANGLADESH PHARMA MARKET BETWEEN 1999 AND 2008 .. 78

FIGURE 7: SIZE AND GROWTH OF THE BANGLADESH PHARMA MARKET 79

FIGURE 8: MARKET SEGMENTATION BY % SHARE IN 2008 81

FIGURE 9: A COMPARISON OF THE TOP 20 COMPANIES WITH THE REST OF THE COMPANIES IN THE INDUSTRY IN 2008 82

FIGURE 10: MARKET SHARE (IN TAKA MILLION) OF THE MAJOR THERAPEUTIC GROUPS IN BANGLADESH 85

FIGURE 11: MARKETING ACTIVITIES AND RELATIONSHIPS IN BANGLADESH 89

FIGURE 12: A COMPARISON BETWEEN THE WORLD AND BANGLADESH PHARMACEUTICAL MARKET 103

FIGURE 13: INDUSTRY INFORMATION FRAMEWORK: THE FRAMEWORK FOR EXPLAINING THE ASSOCIATIONS BETWEEN THE DIFFERENT FACTORS THAT INFLUENCE THE STRATEGIC DECISIONS TAKEN BY THE PHARMACEUTICAL INDUSTRY OF BANGLADESH WHICH IN TURN AFFECTS THE PERFORMANCE OF THE INDUSTRY NOTE: 'OPPORTUNITIES' INDICATES A FUTURE EVENT 109

FIGURE 14: PHYSICIAN INFORMATION FRAMEWORK. THE FRAMEWORK FOR EXPLAINING THE ASSOCIATIONS BETWEEN PHYSICIAN'S INTENT TO PRESCRIBE, PATIENT DIAGNOSIS, DIRECT AND INDIRECT METHODS, PATIENT'S REQUEST AND OPPORTUNITIES 110

FIGURE 15: RETAILER INFORMATION FRAMEWORK: THE FRAMEWORK FOR EXPLAINING THE ASSOCIATIONS BETWEEN RETAILER'S SALES, CORPORATE MARKETING ACTIVITIES (PSRS), CUSTOMERS, POLICY AND OPPORTUNITIES 112

Dhaka University Institutional Repository

FIGURE 16: PSRs INFORMATION FRAMEWORK: THE FRAMEWORK FOR EXPLAINING THE ASSOCIATIONS BETWEEN PSRs SATISFACTION, CORPORATE FACTORS, CUSTOMERS, AND OPPORTUNITIES 113

FIGURE 17: CONCEPTUAL MODEL: MARKETING ACTIVITIES OF THE COMPANIES TOWARDS PHYSICIANS AND RETAILERS FOR SALES AND USE OF THEIR PRODUCTS 114

FIGURE 18: PROCESS FLOW CHART: TIMELINE INCLUDED IN APPENDIX - 1 117

FIGURE 19: PERCENTAGE OF RESPONDENTS WHO FOUND THE DIFFERENT ELEMENTS TO BE AFFECTING THE BANGLADESH PHARMACEUTICAL MARKET MODERATELY TO VERY INFLUENTIAL 145

FIGURE 20: PERCENTAGE OF RESPONDENTS WHO FOUND THE DIFFERENT ELEMENTS TO BE AFFECTING THE BANGLADESH PHARMACEUTICAL MARKET MODERATELY TO VERY INFLUENTIAL 146

FIGURE 21: PERCENTAGE OF RESPONDENTS WHO FOUND THE DIFFERENT ELEMENTS TO BE AFFECTING THE BANGLADESH PHARMACEUTICAL MARKET MODERATELY TO VERY INFLUENTIAL 147

FIGURE 22: BOXPLOT OF THE MARKET SHARE OF THE COMPANIES TAKEN INTO THE STUDY 147

FIGURE 23: PERCENTAGE OF RESPONDENTS WHO FOUND THE DIFFERENT ELEMENTS TO BE AFFECTING THE BANGLADESH PHARMACEUTICAL MARKET MODERATELY TO VERY INFLUENTIAL 157

FIGURE 24: PERCENTAGE OF RESPONDENTS WHO FOUND THE DIFFERENT ELEMENTS TO BE AFFECTING THE BANGLADESH PHARMACEUTICAL MARKET MODERATELY TO VERY INFLUENTIAL 158

FIGURE 25: PERCENTAGE OF RESPONDENTS WHO FOUND THE DIFFERENT ELEMENTS TO BE AFFECTING THE BANGLADESH PHARMACEUTICAL MARKET MODERATELY TO VERY INFLUENTIAL 159

FIGURE 26: PERCENTAGE OF RESPONDENTS WHO FOUND THE DIFFERENT ELEMENTS TO BE AFFECTING THE BANGLADESH PHARMACEUTICAL MARKET MODERATELY TO VERY INFLUENTIAL 168

FIGURE 27: PERCENTAGE OF RESPONDENTS WHO FOUND THE DIFFERENT ELEMENTS TO BE AFFECTING THE BANGLADESH PHARMACEUTICAL MARKET MODERATELY TO VERY INFLUENTIAL 169

FIGURE 28: PERCENTAGE OF RESPONDENTS WHO FOUND THE DIFFERENT ELEMENTS TO BE AFFECTING THE BANGLADESH PHARMACEUTICAL MARKET MODERATELY TO VERY INFLUENTIAL 169

Dhaka University Institutional Repository

FIGURE 29: PERCENTAGE OF RESPONDENTS WHO FOUND THE DIFFERENT ELEMENTS TO BE AFFECTING THE BANGLADESH PHARMACEUTICAL MARKET MODERATELY TO VERY INFLUENTIAL 170

FIGURE 30: PERCENTAGE OF RESPONDENTS WHO FOUND THE DIFFERENT ELEMENTS TO BE AFFECTING THE BANGLADESH PHARMACEUTICAL MARKET MODERATELY TO VERY INFLUENTIAL 175

FIGURE 31: PERCENTAGE OF RESPONDENTS WHO FOUND THE DIFFERENT ELEMENTS TO BE AFFECTING THE BANGLADESH PHARMACEUTICAL MARKET MODERATELY TO VERY INFLUENTIAL 184

FIGURE 32: PERCENTAGE OF RESPONDENTS WHO FOUND THE DIFFERENT ELEMENTS TO BE AFFECTING THE BANGLADESH PHARMACEUTICAL MARKET MODERATELY TO VERY INFLUENTIAL 184

FIGURE 33: THE OUTPUT MODEL FOR THE INDUSTRY'S MICS 189

FIGURE 34: THE STRATEGIC MODEL FOR THE PHARMACEUTICAL SECTOR OF BANGLADESH 193

FIGURE 35: STRATEGIC PLAN FLOWCHART. 194

FIGURE 36: STRUCTURING OF A COMPANY'S SALES FORCE ACCORDING TO DOCTOR'S NEEDS 210

FIGURE 37: PRODUCT POSITIONING IN THE MINDS OF THE MICS 215

FIGURE 38: DEVELOPMENT OF TRUST IN THE PHYSICIANS FOR THE COMPANY'S PRODUCT 216

FIGURE 39: POTENTIAL MESSAGE LEAKAGE IN PHARMACEUTICAL MARKETING COMMUNICATION CHAIN 217

FIGURE 40: FORECASTED SALES (IN TAKA MILLIONS) AND GROWTH (IN CAGR) OF SOME OF THE THERAPEUTIC GROUPS IN THE BANGLADESH MARKET FROM 2009 TO 2012 234

FIGURE 41: PROCESS FLOW CHART 249

LIST OF TABLES

TABLE 1: MARKET SHARE OF TOP 20 PHARMACEUTICAL COMPANIES 60

TABLE 2: RANKING OF THE TOP 25 COMPANIES IN 2008 61

TABLE 3: BANGLADESH PHARMACEUTICAL MARKET AT A GLANCE FROM 1981-2008 76

TABLE 4: NAME AND NUMBER OF COMPANIES IN TOP 100 BRANDS IN 2008 83

TABLE 5: TOP 20 BRANDS IN THE BANGLADESH MARKET IN 2008 84

TABLE 6: NUMBER OF PHARMACEUTICAL RETAILERS IN BANGLADESH 94

TABLE 7: PHARMACEUTICAL EXPORT STATISTICS OF BANGLADESH 100

TABLE 8: BANGLADESH PHARMA MARKET IN COMPARISON TO OTHER IMPORTANT PHARMA MARKET IN 2008 105

TABLE 9: IDENTIFICATION OF MOST IMPORTANT CUSTOMERS 128

TABLE 10: SAMPLE SELECTION 130

Dhaka University Institutional Repository

ABBREVIATIONS AND GLOSSARY

BAPI: Bangladesh Association of Pharmaceutical Industry

BMI: Bangladesh Monitor International

CME: continuing medical education

CPD: Center for Policy Dialogue

CRM: customer relationship management

CRO: contract research organization

CSR: corporate social responsibility

DDA: directorate of drug administration

DGHS: Directorate General of Health Services

DP: drug policy

DSE: Dhaka Stock Exchange

DTL: drug testing laboratories

EMEA: Europe, the Middle East and Africa

FDA: food and drug administration

FGD: focus group discussion

GDP: Gross Domestic Product

HR: human resource

ICH: The International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use

IPO: initial public offering

IPR: intellectual property right

LDCs: least developed countries

MDG: millennium development goal

MHRA: medicines and healthcare products regulatory agency

MIC: most important customer

NDP: national drug policy

OTC: over-the-counter

Dhaka University Institutional Repository

PRM: physician relationship management

PMM: pharmaceutical marketing model

PSR: pharmaceutical sales representative

R&D: research and development

RDIs: research and development institutes

ROI: return on investment

SWOT: Strengths, Weaknesses, Opportunities and Threats

TRIPs: trade related intellectual property rights

WTO: world trade organization

GLOSSARY

Pharmerging markets: these are the seven countries IMS Health dubs "pharmemerging markets" - China, Brazil, Mexico, Turkey, India, South Korea and Russia - and are some of the fastest-growing economies in the world. They are new markets with ageing populations demanding better and more developed healthcare.

Dhaka University Institutional Repository

"A man may die, nations may rise and fall, but an idea lives on."

- John F. Kennedy

Dhaka University Institutional Repository

CHAPTER 1. INTRODUCTION AND BACKGROUND

A revolution is taking place at every level of society and like every other sector, the medical world is struggling to keep up. Changing patterns have been observed in the occurrence and distribution of diseases all over the world, from communicable to non-communicable diseases that deserve serious attention. The medical community (which involves medical personnel, the pharmaceutical industries and the healthcare providers) is challenged to widen its scope of responsibility to respond to the emerging change in the pattern of diseases.

There is also the impact of patent protection on the pharmaceutical industry which has been a controversial issue because of its relevance to national health. The issue gained unprecedented attention in the past decade in those developing countries able to develop significant local innovative capacity in the pharmaceutical sector. In Bangladesh, like India, the signing of the 'Agreement on Trade-Related Aspects of Intellectual Property Rights' (TRIPs) in 1995 (January 1st) stirred up a debate regarding its implication for the survival and growth of the booming pharmaceutical industry. The transition period (1995–2015) granted to Bangladesh for full compliance with the TRIPs agreement is full of speculations. The growth indicators of the industry during this period have, however, been encouraging. The industry has been found to have performed exceedingly well in terms of production, value addition, regional spread and diversification.

Dhaka University Institutional Repository

1.1 PREAMBLE

The pharmaceutical industry structure has undergone significant structural changes in the last 15 years. It has been proposed in numerous research papers that the industry has evolved from being highly fragmented to that of a global oligopoly, accompanied by a high number of small new entrants (Jones and Cockerill, 1984; Kettler, 2001). Moving from an historical base of largely organic growth the industry has in the recent years seen a high level of merger activity, including several 'megamergers' such as the creation of GlaxoSmithKline, Sanofi-Aventis, etc (Allen et al., 2002). Although there appears to be agreement that the pharmaceutical industry has undergone a process of consolidation it is not universally accepted that the pharmaceutical industry has a high level of concentration at the global level (Coombs et al., 2002).

This fast growing industry is devoted to research, development, manufacturing and the selling of pharmaceutical products that safely alleviate, treat or cure a wide range of diseases or ailments, extend and improve quality life. According to the Intercontinental Marketing Services (IMS) Report "2003 Year in Review" as reported in Long (2004), the global market size and the growth for the global pharmaceutical industry since 1994 have increased significantly.

Although the Bangladesh Pharmaceutical Market has shown a growth of 6.68 in 2008 from a -5.3 in 1999, it is found to be plagued by a combination of poor infrastructure and scientific knowledge, a lack of a coordinated system of implementation and stringent monitoring of the regulations, as well as of a lack of drug testing, intellectual property and bio-safety issues (primary source).

Dhaka University Institutional Repository

Compared with its Asian counterparts, the country has been found to be slow in setting up some kind of framework (eg, R&D, CRO or a drug testing framework) that is absolutely essential to do business with large, reputed foreign investors. Although Bangladesh does have a fairly strong manufacturing base (unlike most LDCs), it does not have a strong capital base as does Singapore, or a huge talent pool as of India and China. Lacking a ready pool of skilled scientific researchers and also significant joint research programs, the Japanese pharmaceutical industry has addressed its disadvantages by bringing technology from outside or making necessary alterations to that technology to create new drugs for the Japanese market, which Bangladesh could consider.

Surrounded by competition and a globally changing scenario in the pharmaceutical world, there is also an urgent need of the Pharmaceutical Sector of Bangladesh to satisfy the needs of the entire population of Bangladesh after 2015. According to the WTO TRIPs agreement, LDCs are exempted from 'Patent Protection' until 2015 allowing legal reverse engineering and sale of patented products. This provides a unique opportunity for Bangladesh over India and China, who are already under the patent regime.

No strategic issues relating to the forward linkage of the value chain of the Pharmaceutical Sector of Bangladesh have been found to be documented and made available in order for the industry to capitalize on and create more opportunities and different sources of value for the industry's competitive landscape to be transformed to a more advantageous position.

The current research is a qualitative, exploratory market study where the study of the marketing strategies has been stressed since the

Dhaka University Institutional Repository

pharmaceutical industry is a market-driven organization and no elaborate research in this area has yet been documented.

In order to address the thesis subject, the author examined several journals, papers, web-sites in every area of research. Among them can be mentioned The Lancet, Harvard Business Review, Journal of International Marketing, Journal of Business Studies, Journal of Business Ethics, Journal of International Law, JSTOR, studies on strategic management, EBSCO, etc.

1.2 HEALTH AND MEDICINES

Health is a fundamental human right (Health and Human Rights, 2009). Access to health care, including essential drugs, is central to realizing this right. Both public and private sectors play a variety of roles in financing and providing health services to the people. In many countries all over the world, these roles are now undergoing considerable changes. This is true for the pharmaceutical sector as well as for the overall health sector.

Identification of priority health problems and trends is important (and vital to anticipate future challenges) but, from a policy point of view, the crucial information is that which allows identification of the operational and systemic constraints. In low-income countries in particular, where planning has long been structured along epidemiological considerations, this can provide a new and dynamic basis for orienting systems development (Galichet et al., 2008). For example, the report by the Bangladesh Health Watch on the state of the country's health workforce has identified systemic constraints and outlined corresponding recommendations for the consideration of health authorities (The state of health in Bangladesh, 2007).

The World Health Organization (WHO) has also been found to report disparities in health conditions, incidence and prevalence of disease (WHO, 1999). Despite years of WHO's essential drug programs and the adoption of essential drug lists by many countries, availability of drugs remains highly uneven (WHO, 2009). The World Health Assembly has noted that "one third of the world's population has no guaranteed access to essential drugs" (WHO, 2004-2007).

All health systems, whether in the developed, developing or in the poorest countries, will have to deal with the expanding need and demand for care for chronic, communicable and non-communicable diseases; and this can only be possible by establishing a continuum of structured infrastructure and comprehensive care within the pharmaceutical sector of a country (Beaglehole and Yach, 2003). There is data that support the claim that chronic disease cannot always be correlated with affluence (Stong et al., 2005). It is equally important to address the pervasive health inequalities within each country. Over the past few decades, health authorities have shown little evidence of their ability to anticipate such changes, prepare for them or even adapt to them when they have become an everyday reality. This is a critical issue because the rate of change is accelerating. Globalization, urbanization and ageing will be compounded by the health effects of other global phenomena, such as WTO-related TRIPs issues, climate change, etc, the impact of which is expected to be greatest among the most vulnerable communities living in the poorest countries (The World Health Report, 2008). Precisely how these will affect health in the coming years is more difficult to predict, but rapid changes in disease burden, growing health inequalities and disruption of social cohesion and health sector resilience are to be expected. There is also an increasing recognition that the WTO policy issues, as well as the

Dhaka University Institutional Repository

health related MDGs to be achieved by the countries all over the world will depend on how well they build their capacities and infrastructure and then utilize them to harness and apply science and technology. This recognition is articulated in the international policy in identifying and solving health challenges associated with disease and improving health care systems of the countries (Mugabe et al., 2009).

Data from WHO's World Health Surveys, covering about 18 low-income countries, show low coverage of the treatment of several diseases such as asthma, arthritis, angina, and depression, etc: less than 15% in the lowest income quintile and less than 25% in the highest. Public-health interventions to remove the major risk factors of disease are often neglected (Ezzati et al., 2003). For example, premature tobacco-attributable deaths from ischaemic heart disease, cerebrovascular disease, chronic obstructive pulmonary disease and other diseases are projected to rise from 5.4 million in 2004 to 8.3 million in 2030, almost 10% of all deaths worldwide (WHO report, 2008), with more than 80% in developing countries. Yet, two out of every three countries are still without, or only have minimal, tobacco control policies (World Health Statistics, 2008). With a few exceptions – for example, the SARS epidemic – the health sector has often been slow in dealing with new or previously underestimated health challenges. The awareness of the emerging health threats also posed by climate change and environmental hazards dates back at least to the 1990 Earth Summit, but only in recent years have these begun to be translated into plans and strategies (The World Health Report, 2007; Rockenschaub et al., 2007). All this depict the need of effective strategic planning, implementation and management for the development in the related sectors of each individual country.

Dhaka University Institutional Repository

For the pharmaceutical industry, medical need must be combined with the likelihood of a reasonable return on investment. At the same time, an effective regulatory regime to ensure that the industry works in the public interest is also essential (The World Health Report 2008). It has been known for ages that medicines contribute largely to the health of the nation. The discovery, development and effective use of drugs have improved people's quality of life. Low-cost high-quality drugs benefit society and help provide pharmaceutical companies a competitive edge.

Despite many notable successes in expanding access to low-cost essential drugs during the last two decades, problems seem to persist. In the public sector of many countries funding for health care is insufficient and the available resources are not always well managed; drug stockouts are common, drug deliveries often inadequate. In both public and private sectors there are problems of drug quality and irrational drug use. The picture varies between regions and countries, and even within countries. For instance, in Europe the principal concern is often cost containment (Mossialos et. al, 1994) whereas in sub-Saharan Africa improving the accessibility of drugs is a much greater concern. On the other hand, although the consumption of drugs is found to be increasing, there are disadvantages in the increasing use of and reliance on medicines since the inappropriate or excessive use of medicines can also cause adverse effects, ill-health, hospitalization and even death.

Another major global concern is the rising prices of medicines that are putting them beyond the reach of people who cannot afford them, even in rich countries (Henry et. al, 2002). In less-developed countries and in the LDCs, millions of individuals either have limited or no access at all to essential drugs. Drug development is found to be failing to address the major health needs of these countries. The general scenario of the

Dhaka University Institutional Repository

pharmaceutical companies in developed countries is to choose to market those products that generally offer a greater return on investment (ROI) This is confirmed by the enormous earnings from drugs for raised cholesterol concentration, depression, and musculoskeletal disorders (Henry and Lexchin, 2002) and a lack of sustained efforts to develop effective medicines against diseases, like malaria, tuberculosis, etc that predominantly affect the poor people all over the world. There is also a lack of effective, safe, and affordable pharmaceuticals to control infectious (communicable) and non-communicable diseases that cause high mortality and morbidity among poor people in the developing world and in the LDCs. A lack of current public and private initiatives aimed at correcting the imbalance in research and development leaves diseases that occur predominantly in the developing and least developed world largely unaddressed. There is a 13-fold greater chance of a drug being brought to market for central-nervous-system disorders or cancer than for a neglected disease because of high-return (Patrice et. al, 2002).

The pharmaceutical industry of the developed world argues that research and development is too costly and risky to invest in low-return neglected diseases, and public and private initiatives have tried to overcome this market limitation through incentive packages and public-private partnerships. The lack of drug research and development for "non-profitable" infectious diseases and the growing burden of the non-communicable diseases will be requiring new strategies to make them available and affordable to the people (Trouiller et al. 2002). No sustainable solution will result for diseases that predominantly affect poor people in the world without the establishment of an international pharmaceutical policy for all neglected diseases. Private-sector research obligations should immediately be explored and the capacity of the

Dhaka University Institutional Repository

pharmaceutical industry promoted to increase availability at affordable prices. It will then be up to the individual countries to improve their regulatory and import-export policies in line with the WTO regulations in order to attract foreign investors from the developed countries to collaborate with them for the benefit of everyone.

1.3 GLOBALIZATION

International trade is the exchange of goods and services across international boundaries or territories. In most countries, it represents a significant share of GDP. While international trade has been present throughout much of history, its economic, social, and political importance has been on the rise in recent centuries. Industrialization, advanced transportation, globalization, multinational corporations, and outsourcing are all having a major impact. The increase in international trade is the primary result of "globalization" – defined as the cross-border integration of markets for capital, goods and services, labor, energy, idea and knowledge. The globalization of business and the firms increasing ownership of different stages of the production and distribution process have increased the role of intermediate goods in merchandise trade over the last decade (International Trade Statistics, WTO).

As the industrial revolution has continued to unfold over the last century, both the local and global environment has been found to have altered fundamentally as a result of globalization. A century of innovation in science and technology, together with improvements in socio-economic conditions, has brought better health and an improved quality of life for many. Over 60 years ago, the Universal Declaration of Human Rights laid the foundations for the right to the highest attainable standard of

Dhaka University Institutional Repository

health. This right is central to the creation of equitable health systems (the Lancet, 2008).

The international community has been collaborating over the past decades to also improve the health of the people of the world (SDC Health Policy/2003-2010). The significant health gains that have been achieved are encouraging and demonstrate that progress can be made. Prominent examples are the eradication of smallpox and the near eradication of polio, leprosy and guinea worm disease. At the same time, progress in other sectors such as increased literacy rates and better coverage of clean water and sanitation has contributed substantially to these health improvements. These are all the successful results of globalization.

1.4 WORLD TRADE ORGANIZATION

The World Trade Organization is the only international organization dealing with the global rules of trade between nations. Its main function is to ensure that trade flows as smoothly, predictably and freely as possible for a more prosperous, peaceful and accountable economic world. Decisions in the WTO typically taken by consensus among all member countries are ratified by members' parliaments to ensure that the countries' trade policies conform to them. The WTO's system also breaks down other barriers between peoples and nations by lowering trade barriers. The agreements of this non-discriminatory, multilateral trading system are essentially contracts, guaranteeing member countries important trade rights and also binding governments to keep their trade policies within agreed limits to everybody's benefit. The purpose of these agreements, negotiated and signed by governments, is to help producers of goods and services, exporters, and importers conduct their business.

Dhaka University Institutional Repository

And the goal of WTO is to improve the welfare of the people of the member countries.

It all began with trade in goods. From 1947 to 1994, GATT was the forum for negotiating lower customs duty rates and other trade barriers. The World Trade Organization came into being in 1995. Since 1995, the updated GATT has become the WTO's umbrella agreement for trade in goods, established as a consequence of the Second World War. The System was developed through a series of trade negotiations, or rounds, held under GATT. The first rounds dealt mainly with tariff reductions but later negotiations included other areas such as anti-dumping and non-tariff measures. The last round – the 1986-94 Uruguay Round – led to the WTO's creation. In 2000, new talks started on agriculture and services. These were incorporated into a broader programme, the Doha Development Agenda (DDA), launched at the fourth WTO Ministerial Conference in Doha, Qatar, in November 2001. The agenda adds negotiations and other work on non-agricultural tariffs, trade, and environment, WTO rules such as anti-dumping and subsidies, investment, competition policy, trade facilitation, transparency in government procurement, intellectual property, and a range of issues raised by developing countries as difficulties they face in implementing the present WTO agreements.

The effect of stringent intellectual-property protection in the pharmaceutical market is contentious, focused in recent years on the World Trade Organization's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs). The first multilateral IPR disciplines, formalized in the TRIPS, were established following the Uruguay Round of the then GATT negotiations. In the case of medicines, these have been focused around measures to reduce scope for parallel

Dhaka University Institutional Repository

imports. Having signed onto TRIPs, WTO member countries are then required to amend domestic legislation and regulation so that it is consistent with TRIPs obligations over agreed timeframes (Business and Economic Development: Pharmaceutical Sector Report, 2003). Least developed countries that are WTO members are agreed by TRIPs to establish minimum standards for the protection of patented products (not only medicines). This includes the ability to grant a patent for 20 years from the date of filing, and a period of exclusivity of clinical data during the medicine R&D phase (Cohen, 2002). The TRIPs agreement did not seek to define anti-competitive practices; rather, the conditions under which trade in products embodying IPR can take place.

In January, 1995, the TRIPs agreement established global minimum standards for the protection of intellectual property, including a minimum 20 years' patent protection on pharmaceuticals. Compliance was postponed until 2005 for the developing countries and 2016 for least developed countries. The agreement greatly expanded intellectual-property rights, including rules on the protection of test data for the effectiveness and safety of drugs. This change in intellectual-property rights generated clear gains for industry and the developed world, but to some the question still remains whether it generated gains for developing countries and the LDCs in the form of increased exports.

The last few decades have seen a surge of new intellectual (IP) treaties, aimed at making IP rights stronger around the world, and especially in developing countries. The most important of these treaties is the Trade-Related Aspects of Trade-Related Aspects of Intellectual Property (TRIPs) Agreement, which requires all members of the World Trade Organization (WTO) to adopt and enforce relatively high minimum standards of IP protection (hereinafter TRIPS, 1994). It is now fifteen

Dhaka University Institutional Repository

years since the "TRIPS" (Trade Related aspects of Intellectual Property rights) Agreement was signed – requiring all members of the newly-formed World Trade Organization to implement a set of minimum standards for intellectual property protection. The WTO's Agreement on TRIPS attempts to strike a balance between the long term social objective of providing incentives for future inventions and creation, and the short term objective of allowing people to use existing inventions and creations (WTO OMC, Fact Sheet, September 2006: pp1). This agreement, a major milestone, is a continuing effort by developed countries to strengthen intellectual property (IP) rights on pharmaceutical innovations throughout the world. Although this effort has been deeply unpopular with the government of the poor countries and their advocates, there have been plausible arguments made that it could in some ways work to the benefit of the poor. Most importantly, it was argued that introducing patent rights in developing country markets might stimulate greater R&D investment targeting their specific health needs (Lanjouw et. al, 2009) – diseases which have been long neglected - instead of spending only on the same disease areas. It is now up to the developing and least developed nations to come forward and take the effort for WTO to work to the benefit of the poor.

The debate on intellectual property protection in the pharmaceutical sector has assumed significant importance because of its socio-economic relevance especially among developing economies (Lalitha, 2002). The TRIPs Agreement was developed to protect the interests of the industry, trade and services. The higher standards of protection are relatively advantageous for the developed economies which are ahead of the developing economies in terms of innovation and R&D. But among the developing economies and LDCs it is less advantageous for those

Dhaka University Institutional Repository

where the domestic industry is not developed and regulated enough to carry out their product development processes.

Concerns about the harmful effects of the international system of intellectual property rights have led the World Trade Organization (WTO) to relax the demands placed on least developed countries, and to advocate differential pricing of essential drugs. How these actions will help countries that lack domestic production capacity is unclear to some (David Henry and Joel Lexchin, 2002). It is believed that better access to essential drugs may be achieved through voluntary licensing arrangements between international pharmaceutical companies and manufacturers in developing countries. However, analyzing the legal aspects of WTO and TRIPs is not the objective of the current research.

Realizing that WTO regime is a reality, at least some of the developing countries are looking for means to improve the competitive advantage of the pharmaceutical industry within the WTO framework, since the future growth of the pharmaceutical industry will be governed not only by the domestic business environment but will also be shaped by the changing global scenario. Bangladesh should also immediately start looking for similar opportunities. In the knowledge-based pharmaceutical industry where the technology becomes obsolete fast, the process of innovation however is long and expensive (Lalitha, 2002). The constant need to upgrade the technology in this field is generally done by the resource rich western world and hence they demand higher standards of protection for their innovations and products uniformly than that is currently prevalent among their trading partners. Such variations in the intellectual property standards may result in counterfeit products and affect the trade interests.

Dhaka University Institutional Repository

The globalization of the pharmaceutical industry continues to progress at a rapid pace which adds to the complexity of meeting regulatory requirements and expectations. WTO regime is a reality and with only five more years left for 2015 that marks the end of the transitional period for LDCs to initiate reforms, it is extremely essential to assess the situation, come up with strategic decisions and take the necessary steps to make the pharmaceutical sector of Bangladesh sustainable on a competitive platform after 2015.

1.5 THE PHARMACEUTICAL SECTOR

The definition of a pharmaceutical sector may differ according to analysis, but the standard definition is as follows: it comprises the development, the production, the marketing and trade in of the products listed below:

- Medicinal products (medicaments)
- Medical devices (including medical dressings)
- Homeopathic products, etc and
- Cosmetic products.

The products groups of the pharmaceutical sector are connected with other sectors, particularly with the chemical industry, the packaging industry and agriculture. The international trend in the pharmaceutical sector is presently involved in the research and development, manufacture and the marketing of drugs, medical devices and homeopathic medicines for the treatment of widespread modern-day illnesses, immune system diseases, cardiovascular disorders, diseases of the nervous system, etc; genetic engineering; etc. However, most drugs purchased in the developing world today are generic drugs. The sector is thus becoming

Dhaka University Institutional Repository

more and more competitive due to the dramatic reduction of public expenditure in the sector, and the increasing spread of generic drugs. The situation is also changing dramatically as production is progressively outsourced to the Far East, with lower labor costs and continually improving quality (EFESO and pharmaceutical sector, 2004).

Pharmaceutical companies provide significant socio-economic benefits to society through the impact of products on the health of the individuals, through job creations, through supply chains in various communities and nations, and through community development and investment projects (Business and Economic Development: Pharmaceutical Sector Report, 2003). The role of the companies in healthcare is not only complex, but also reflects the special obligation inherent in a sector whose products and services are needed by people when they are most vulnerable.

At the macroeconomic level, there is a well-established body of health economics research that explores the relationship between health and economic development. Health can be both a cause and result of economic development. The pharmaceutical sector is specifically recognized in the UN Millennium Development Goals as an actor that can contribute to this realization.

The economic impacts of pharmaceutical products – through product development, use and delivery of medicines – on the communities that are affected by them, are diverse. They include both production-side economic impacts and consumption side product-related economic impacts. Production-side impacts include research and development (R&D), employment in facilities, and sourcing from suppliers. While the impact of these activities is important, the most significant economic impacts are likely to accrue to patients. Consumption-side economic

impacts relate directly to the access to or availability of medicines that is, marketing of the products.

The pharmaceutical sector is one of the most highly regulated in the world. Typically, governments intervene throughout the product cycle, from manufacturing, product registration or approval, distribution, pricing, and to the sale to patients. The route to market for medicines is complex and varies from country to country. Players in the sector include: brand-name drug manufacturers, generic drug manufacturers, firms developing biopharmaceutical products, non-prescription drug manufacturers, firms undertaking research on a contract basis, universities, and hospitals and research centers also play a role in the R&D activities of this sector. A key determinant of the business model of the sector is whether, and to what extent, companies are engaged in R&D. For companies that are involved in or rely on innovation as a key aspect of their business model, the regulatory and scientific framework critically affects their ability to fund ongoing investment in R&D and to protect income streams of commercialized medicines for as long as possible, through pricing policies and intellectual property rights (Business and Economic Development: Pharmaceutical Sector Report, 2003). Finally, there are several key factors that affect the way in which the distribution chains operate, for example, whether customers are public or private sector entities, the nature and efficiency of health care infrastructure and systems, the role of sales, and market specific requirements or policy directions.

The sector in each country has a strong network of national and international industry associations, representing and advocating their interests at the national and international level. The IFPMA (International Federation of Pharmaceutical Manufacturer Associations) has taken a

leading role on a range of international policy and political issues affecting the sector, including TRIPs (Trade Related aspects of Intellectual Property Rights), access to medicines, animal welfare, etc. EFPIA (European Federation of Pharmaceutical Industry Associations) represents European companies, mainly with the European institutions; the Association of the British Pharmaceutical Industry (ABPI) represents British pharmaceutical interests, including negotiating medicine prices and profit margins with the UK government; BAPI (Bangladesh Association of Pharmaceutical Industries).

1.6 THE GLOBAL PHARMACEUTICAL SECTOR

The global pharmaceutical market generated total revenues of $615.1 billion in 2008, representing a compound annual growth rate (CAGR) of 4.7% for the period spanning 2004-2008. The market's cardiovascular segment was most profitable in 2008, generating total revenues of $121.7 billion, equivalent to 19.8% of the market's overall value (Datamonitor, 2008).

The performance of the market is forecast to decelerate, with an anticipated CAGR of 3.6% for the five-year period 2008-2013, which is expected to drive the market to a value of $734 billion by the end of 2013. In 2009, the global pharmaceutical market was forecasted to grow to $940 billion, equivalent to a compound annual growth of 7%, by 2013 (Figure 1). Also IMS Health (NYSE: RX, 2009) reported that the value of the global pharmaceutical market is expected to grow 2.5 - 3.5 percent on a constant-dollar basis in 2009, two percentage points lower than indicated last October, as deterioration in the global economic environment continues to affect market demand. The updated forecast predicts global pharmaceutical sales exceeding $750 billion for the year,

Dhaka University Institutional Repository

down from the $820+ billion forecast in October 2008, reflecting sustained double-digit growth in key emerging countries tempered by a slower pace in more established markets. This includes the USA, where growth is expected to be in the 1%-2% range for both years.

The global pharmaceutical market is highly polarized, with North America, Europe, and Japan accounting for around 75% of sales (Pharmaceutical Marketing Trends, 2007). A clear divide exists within the global market between developed countries on one end, producing and exporting high-value patented pharmaceuticals, and on the other end, the developing countries (with a few exceptions) and LDCs importing these products and involved in the production of low-value generic or alternative medicines. This difference leads to many countries having a trade deficit in modern medicines, which often results in an overall health-sector deficit.

Although the global market was growing at a compound annual growth rate of 10% between 1999 and 2006, the reduction in 2009 can be said to be mainly the result of increased competition from generic products and the effects of cost-containment measures across major markets. There are, however, expectations of strong growth in the ten European markets that joined the European Union in 2004 and continued double-digit market growth in China, which has been forecasted to become the seventh largest sales market by 2010.

"In many respects, 2009 will reflect the new shape of the global pharmaceutical market, the result of market factors that have gained momentum over the past several years," according to Murray Aitken, senior vice president, Healthcare Insight, IMS. "Pharmaceutical growth in 2009 will hold steady at 2008 levels. The market will continue to contend

Dhaka University Institutional Repository

with a number of forces - among them, the shift in growth from developed countries to emerging ones, specialist-driven products playing a larger role, blockbuster drugs losing patent protection, and the rising influence of regulators and payers on health care decisions. Layered on top is the uncertainty in the global economic environment and its effect on demand," he had added.

The sector is expected to feel the impact of the economic climate, but to a lesser extent than many other industries, through 2010. While the pharmaceutical market is expected to rebound as the global economy recovers, an unprecedented level of potential patent expirations in 2011 and 2012 will curb sales growth (the latest release of IMS Market Prognosis™). The global compound annual growth rate (CAGR) for

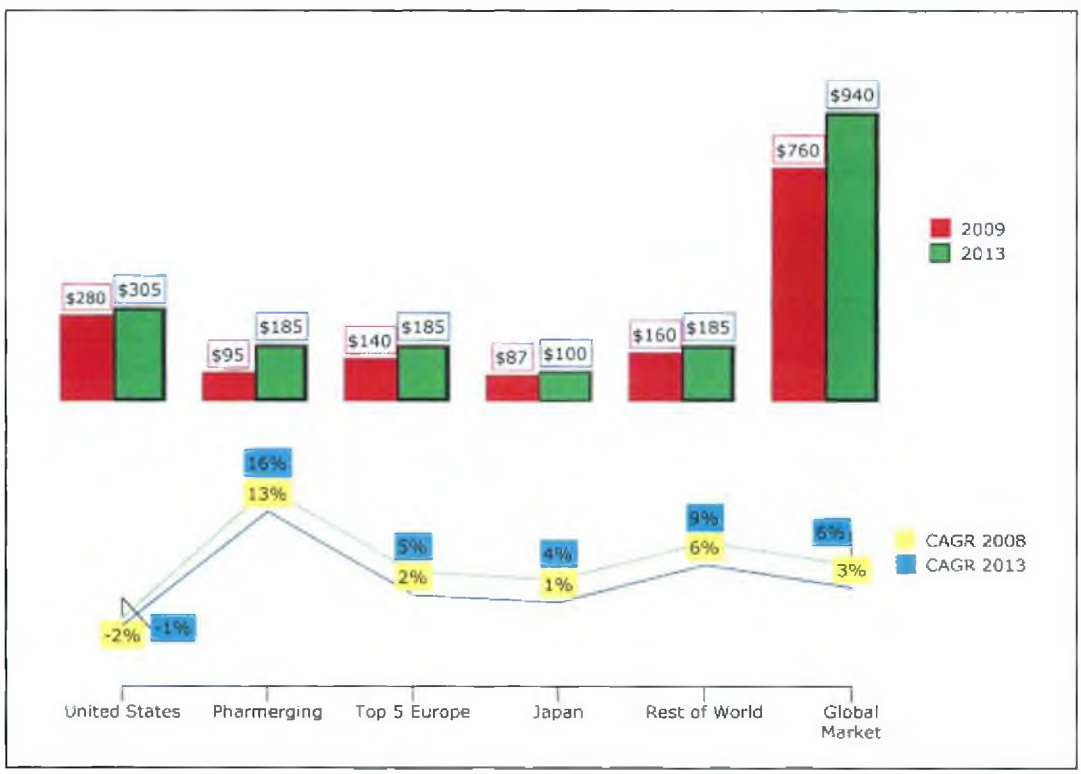


Figure 1: Forecasted Sales in Key Markets

Source: IMS Health

Dhaka University Institutional Repository

pharmaceutical market growth is forecast to be 3 - 6 percent through 2013 (Fig 1).

As alternative medicines are generally purchased directly by patients, whereas the price of most ethical drugs to the patient is heavily subsidized by either the state or health insurers, these substitutes may be regarded as more expensive. There is thus a weak threat of the substitutes in the global pharmaceutical market.

In its latest analysis, IMS has also identified the following key market dynamics:

1.6.1 The Pharmaceutical Industry

The pharmaceutical industry is characterized by large, branded multinational enterprises (MNEs) engaging in research and development (R&D), production and marketing, as well as smaller companies that produce and market generic medicines.

The industry all over the world is highly competitive and is responsible for utilizing considerable resources and coming up with new cures and treatment options to combat a myriad of illnesses and diseases affecting the community (Durrant, 2001). It is one of the vital and distinct industries as it deals with the lives of the people. At present, pharmaceutical drugs are the most preferred therapeutic treatments for the global population of 6.58 billion. The industry plays an active role in policy-making which involves the research, discovery, and development of new medicines and modification of the existing medicines (Facing the Challenge, a report by GSK). Along with this commitment, the

Dhaka University Institutional Repository

pharmaceutical industry must also take an active role in helping to ensure that the appropriate patients receive access to their products and the scientific advancements through their marketing efforts. The various players involved in drug development and introduction, which include the pharmaceutical industry, physicians, advocacy groups and regulatory bodies, need to work even harder today to ensure patient access to quality care (Durrant, 2001). While issues such as drug acquisition cost and marketing are often given a high profile, this may cloud perceptions of the industry's commitment to deliver both old and new medicines and solutions to the patients and healthcare systems that need them.

The apparently opposing interests of R&D-based and generic production business models have become more politicized in recent years with regard to access to medicines. In reality, many of the larger pharmaceutical companies produce both patented and generic products as part of their business and risk management strategies. Generic companies perform a useful function in reducing costs of older, off-patented drugs to make extra budgets for innovation.

The pharmaceutical industry is known to be a knowledge-driven industry and heavily dependent on R&D for new products and growth. In spite of that, the global generics market is undergoing significant change, with intense merger and acquisition activity, a number of upcoming patent expiries and new legislation being enacted to promote generic prescription in the major markets. Competition in the global generics market at present is becoming increasingly intense, with the low cost producers expanding globally and branded pharmaceutical products becoming involved through subsidiaries or via authorized generic agreements. The wave of consolidation that swept through the generics market is a consequence of this competition and is unlikely to end soon.

Study of the pharmaceutical sector of the world, particularly of Asia, also shows the attractiveness of the sector market and a path to invest (Liew KL, 2006).

With all this happening, the global pharmaceutical marketplace is undergoing huge changes (Pharma2020, 2007). These changes will have a major bearing on the kind of business models that the pharmaceutical companies employ. For example, even the largest pharmaceutical companies may need to collaborate with other organizations to develop or market the effective medicines more economically, help patients manage their health and ensure that the products and services they provide really make a difference. Partnerships (vertical and/or horizontal integration) broaden capabilities and also increase funds.

The pharmaceutical sector also has a network of national and international industry associations, representing and advocating their interests at the national and international level. As mentioned earlier, it is one of the most highly regulated sectors in the world. Typically, governments intervene throughout the product cycle, from manufacturing, product registration or approval, distribution, pricing and to the sale to patients. The route to market for medicines is complex and varies from country to country. The pharmaceutical industry is responsible for utilizing considerable resources and coming up with new cures and treatment options to combat a myriad of illnesses and diseases affecting the community (Durrant, 2001). It is one of the vital and distinct industries as it deals with the lives of the people. At present, pharmaceutical drugs are the most preferred therapeutic treatments for the global population of 6.58 billion. The industry plays an active role in policy-making which involves the research, discovery, and development of new medicines and modification of the existing medicines (Facing the

Challenge, a report by GSK). Along with this commitment, the pharmaceutical industry must also take an active role in helping to ensure that the appropriate patients receive access to their products and the scientific advancements through their marketing efforts. The various players involved in drug development and introduction, which include the pharmaceutical industry, clinicians, advocacy group and regulatory bodies, need to work even harder today to ensure patient access to quality care (Durrant, 2001). While issues such as drug acquisition cost and marketing are often given a high profile, this may cloud perceptions of the industry's commitment to deliver both old and new medicines and solutions to the patients and healthcare systems that need them.

Pharmaceutical companies provide significant socio-economic benefits to society through the impact of products on the health of individuals, through job creation, returns to investors, through supply chains in various communities and nations, and through community development and investment projects (Zadek, 2006). Pharmaceutical companies also play an important role in technological innovation, which can reduce costs of economic activity elsewhere in the economy. There are expectations, however, by some stakeholders that pharmaceutical companies should contribute more to economic development, through their own activities and indirectly, through improvements in health care infrastructure and capacity. This reflects the complex role of companies in healthcare, as well as the special obligation inherent in a sector whose products and services are needed by people when they are most vulnerable. In least developed nations, the barriers to drug access are not solely economic. National regulatory systems for market approval are being used to prevent external pharmaceutical manufacturers from participating in a national market.

Dhaka University Institutional Repository

This industry provides employment for millions and ensures that essential drugs at affordable prices are available to the vast population of this world. At a fundamental level, pharmaceuticals serve two roles: both as a cure for disease and as a product (Eliason, 2007). As a cure for disease, a drug's value cannot be quantified because it saves lives. As a product, profit analysis shapes every step of a drug's progression to market. The economic impacts of pharmaceutical products - through product development, use and delivery of medicines – on the communities that are affected by them, are diverse depending on the business activities of the companies of the different countries. They include both production-side economic impacts and consumption side product-related economic impacts. Production-side impacts include research and development (R&D), employment in facilities, and sourcing from suppliers. While the impact of these activities is important, the most significant economic impacts are likely to accrue to patients. Consumption-side impacts relate directly to the availability and affordability of medicines to the community.

The pharmaceutical industry is currently managing through a period of unprecedented challenges and entering a new era of opportunities for innovation, whether producing new drugs or marketing the drugs to the consumers. Therefore, competition in the pharmaceutical industry is occurring on two levels: the development of new drugs (R&D) and the sale of drugs (marketing). Companies compete to be the first to market a drug to meet an unmet medical need or a drug that is safer or more effective in treating a condition or disease than the current treatments. The first to market will often gain a substantial first-mover advantage, largely as a result of establishing standard physician prescribing practices (Scherer et. al, 1990).

Dhaka University Institutional Repository

Several different market participants are involved today in purchasing pharmaceuticals, which may complicate market definition analyses. The patient is the ultimate consumer, but patients in most countries (developed and developing) cannot obtain prescription pharmaceuticals without a physician's prescription. Traditionally, physicians select the drugs for their patients sometimes without even considering price. The scenario is not exactly the same everywhere. In Bangladesh, a 10 year old boy can walk in a pharmacy and buy any medicine he wants to without a prescription from a physician since there is no implementation of regulations as well as differentiation of OTC and prescription-only drugs. Pharmaceutical companies all over the world and also in countries like Bangladesh, still expend substantial sums on physician-directed marketing efforts, including so-called "detailing" visits by sales representatives, free samples, advertising in scientific and medical journals, and sponsorship of continuing medical education (Morse, 2003). These expenditures, like advertising in other industries, are viewed as pro-competitive by some and as wasteful by others.

1.6.2 Impact of Economic conditions on markets.

The extent of the economic impact on each pharmaceutical market is influenced by the healthcare cost burden borne by patients, and the short- and long-term policy responses that governments implement. Countries where patients directly pay a high portion of their drug costs - such as China, Brazil and the U.S. - already are seeing the impact of changing consumer spending behavior. In more publicly funded markets including Turkey, Japan and France, policy responses may differ - from stimulus programs that can have an indirect positive impact on pharmaceutical market growth, to the imposition of price cuts in response to budgetary constraints. In aggregate, expectations for 2009 economic growth in the

Dhaka University Institutional Repository

15 key developed and emerging countries have declined by 3.4 percentage points since IMS's October 2008 Market Prognosis Report -- driving most of the two percentage point decline in the 2009 forecast since that time.

1.6.3 Status of the U.S. pharmaceutical market.

Pharmaceutical sales in the U.S. will decline by 1 - 2 percent in 2009, a historic low. While growth will return during parts of the forecast period, the overall five-year CAGR will be essentially flat. As the cost of medication shifts increasingly to patients, consumers are being forced to make difficult decisions about starting or continuing treatment. The health care reform is at the present a major topic of concern and dispute. Federal policies may bolster demand for medicines over the forecast period, but the expiration of several blockbusters in 2011 will impact growth to the end of the forecast period in 2013.

1.6.4 Expansion of the Pharmerging Markets.

The seven countries IMS Health dubs "pharmemerging markets" - China, Brazil, Mexico, Turkey, India, South Korea and Russia - will expand by 13-14 per cent in 2009, accounting for half of all global growth and sustain an average 40 percent contribution through 2013. China, which is currently the sixth-largest pharmaceutical market, will become the third largest by 2011. The pharmerging markets also will experience some unfavorable changes due to the economy, and local responses will vary.

1.6.5 Contribution of the Mature markets.

Among the developed markets of Japan, France, Germany, Italy, the U.K., Spain and Canada, their CAGR over the next five years will be 1 -

Dhaka University Institutional Repository

4 percent. Each market reflects a unique set of mechanisms to manage healthcare access and costs, including a growing emphasis on regional decision making, promotion of generic drug usage, and price reductions.

1.6.6 New Launches for narrow patient populations.

Approximately 50 - 60 new chemical or biological products are expected to be launched over the next two years. About two-thirds of these products will be specialist-driven, and many of them are aimed at niche indications and narrow patient populations. In 2009, patients can expect new treatment options for diabetes, rheumatoid arthritis, psoriasis, insomnia, thrombosis, acute coronary syndrome, various types of cancer and meningitis. Potential launches in 2010 include therapies for resistant hypertension, osteoporosis, asthma, and pneumococcal disease. Some of these products are first-in-class with novel mechanisms of action, while others offer different modes of treatment likely to improve efficacy and patient compliance. There are 6 - 10 potential blockbusters among expected launches in 2009 and 2010.

According to Mr. Aitken (senior vice-president, Healthcare Insight, IMS), "the global economic crisis is adding another layer of complexity to an already challenging pharmaceutical market environment". "To strengthen their resilience, pharmaceutical manufacturers must adapt their strategies and tactics in order to re-evaluate their commercial models, pursue opportunities in emerging markets, and strengthen the value proposition of their medicines in ways that resonate with patients."

The pharmaceutical market is also characterized by substantial concentration within a few very large transnational corporations; ten of them account for nearly 50% of the total market. This market consists of

off-patent generics and contract manufacturing, respectively (Rao, 2008). Two-thirds of these drugs are now exported to the developed world, although potentially threatened by enhanced patent protection (likely to drive prices up unless voluntary or compulsory licences to continue production are granted), making the TRIPS and TRIPS-plus process essential (Steinbrook, 2007). Noteworthy, Ranbaxy— India's largest pharmaceutical company and ranked among the top ten generic companies worldwide—was sold to the Japanese company Daichi-Sankyo in June, 2008, raising concerns for generic manufacture and access to generic medicines, within India and several other countries in which Ranbaxy has operations (Smith et al, 2009).

Such examples with the neighboring countries are numerous. Given the importance of the pharmaceutical industry to the health of nations, firms in rich and poor countries alike will continue to come under public pressure to develop and market the needed drugs at affordable prices. The most important point to consider immediately is how Bangladesh can take lessons from the different strategies used by the different countries and use it to its benefit since it has 2 advantages over other LDCs and which are, having a strong manufacturing base and a large cheap labor resource.

1.6.7 Value Chain of the Pharmaceutical Industry

The pharmaceutical value chain can be classified into four major components as follows —

discovery and development (R&D),

manufacturing,

marketing, and

distribution (The Global Pharmaceutical Industry).

Dhaka University Institutional Repository

the major element of foreign investment in health (Smith et. al, 2009). The top 20 transnational corporations, based in the USA, the UK, Germany, Switzerland, and France, each have an average of more than 100 foreign affiliates in more than 40 countries (including 19 developing countries), with average sales of over $20 billion (UNCTAD, 2005). However, the sales market is similarly concentrated, with North America, Europe, Japan, and Latin America accounting for more than 85% of sales. For most developing countries and the LCDs, the domestic industry is small, usually focused on generic production and traditional medicines. These countries consequently have to pay high prices for imported medicines, and are affected by intellectual-property rights, especially TRIPS and TRIPS-plus standards. For the developed and developing countries, the escalating cost of medicines—even those recognized as essential— point to the fact that some aspects of the pharmaceutical industry, trade, TRIPS, and TRIPS-plus are a major global concern at the moment (Kinnon et. al, 1998).

There are some exceptions to the current situation of the developing countries— eg, Brazil, Thailand, and India - that have substantial capacity to produce generic medicines. If we consider India, its competitive domestic pharmaceutical industry is found to have kept the price of the generic products at amongst the lowest in the world. This was mainly possible because India completely utilized its transition period to its benefit, which was till 2005. The strategic response of pharmaceutical firms in the two emerging economies - India and China - to the new patent regime was to develop multiple competencies and position themselves to simultaneously compete and collaborate globally with the MNEs; large firms rapidly moved towards discovery and development of new drugs, and the medium and small firms engaged in the production of

Dhaka University Institutional Repository

off-patent generics and contract manufacturing, respectively (Rao, 2008). Two-thirds of these drugs are now exported to the developed world, although potentially threatened by enhanced patent protection (likely to drive prices up unless voluntary or compulsory licences to continue production are granted), making the TRIPS and TRIPS-plus process essential (Steinbrook, 2007). Noteworthy, Ranbaxy— India's largest pharmaceutical company and ranked among the top ten generic companies worldwide—was sold to the Japanese company Daichi-Sankyo in June, 2008, raising concerns for generic manufacture and access to generic medicines, within India and several other countries in which Ranbaxy has operations (Smith et al, 2009).

Such examples with the neighboring countries are numerous. Given the importance of the pharmaceutical industry to the health of nations, firms in rich and poor countries alike will continue to come under public pressure to develop and market the needed drugs at affordable prices. The most important point to consider immediately is how Bangladesh can take lessons from the different strategies used by the different countries and use it to its benefit since it has 2 advantages over other LDCs and which are, having a strong manufacturing base and a large cheap labor resource.

1.6.7 Value Chain of the Pharmaceutical Industry

The pharmaceutical value chain can be classified into four major components as follows —

discovery and development (R&D),

manufacturing,

marketing, and

distribution (The Global Pharmaceutical Industry).

Dhaka University Institutional Repository

The pharmaceutical industry is found to be going through a lot of change across the value chain with various players active in each section of its value chain. In order to survive in the market today, it is extremely important to have an integrated demand-supply chain culture for the development of the sector. The pharmaceutical companies are therefore considering various strategic alliances and licensing arrangements in order to exploit the best ways to exploit economies of scale. Strategic alliances take a variety of forms, ranging from a simple contract to joint venture (OCED, 2001). This is creating a new industry picture with different success factors than its traditional business model.

1.6.8 Regulatory Issues in the Pharmaceutical Industry

As a result of the Thalidomide disaster of the late 1950s and early 1960s, medicines - products of this industry – have become one of the most highly regulated products in the world (Slater, 1996). Data demonstrating their safety and efficacy must be filed with government agencies in order to move through clinical development, to obtain approval to sell a new drug and at regular intervals thereafter. Each country has its own regulatory authority and laws governing the development and sale of medicines. In addition, in Europe, there is a regulatory agency at the European level (EMEA). Internationally, there is regulatory co-operation between Europe, the USA and Japan (ICH). Some of the major regulatory bodies are therefore MHRA, FDA, EMEA, ICH, etc. Each company is required to know the laws of the respective regulatory bodies and strictly abide by them in order for them to enter the international market.

The pharmaceutical industry has today become a large and very complex enterprise. A national pharmaceutical policy is shaped by both the local and international environment of unequal distribution of economic and

Dhaka University Institutional Repository

political power in a national scenario of competing demands for scarce resources. Therefore, this necessitates an inspection of the national market conditions at all times (Reich, 1993). Standards and regulations profoundly influence the operating environment of pharmaceutical companies across most aspects of activity. The regulatory environment varies significantly amongst countries, affecting the cost of R&D, who companies sell to, and how they produce and market their products, etc.

The industry is required to

- recognize the benefits of staying current with the regulatory issues facing it,
- identify characteristics of the major influencers in the pharmaceutical regulatory environment,
- recognize the elements of key regulatory compliance and risk management systems.

Dhaka University Institutional Repository

1.7 PHARMACEUTICAL MARKETING STRATEGY

The pharmaceutical industry worldwide is currently found to be undergoing substantial change and experiencing a number of new market factors (Shaw and Burgess, 2002).

Since the pharmaceutical industry is a market-driven organization, it also demands the close integration of operations and marketing strategy in the context of the current global environment. Like every other industry, each and every pharmaceutical industry needs to address the following two issues, along with profitability –

- customer needs
- how to allocate the company's scarce resources to the selected customer needs.

For over twenty-five years, competition has been at the heart of corporate strategy. Today, one can hardly speak of strategy without involving the language of competition: competitive strategy, competitive benchmarking, building competitive advantages, and beating the competition. In today's global environment, no pharmaceutical company will be able to 'profit alone'. Thus, in order for a company to achieve competitive advantage, it will need to join forces with a wide range of organizations, eg, academic institutions, hospitals, technology providers, companies offering patient compliance programmes, nutritional advice, stress management, physiotherapy, exercise facilities, health screening and other such activities.

1.7.1 What is Strategy?

Johnson and Scholes have defined strategy as follows:

Dhaka University Institutional Repository

"Strategy is the direction and scope of an organization over the long-term: which achieves advantage for the organization through its configuration of resources within a challenging environment, to meet the needs of markets and to fulfill stakeholder expectations". (Exploring Corporate Strategy). In other words, strategy is about:

- Where is the business trying to get to in the long-term? (direction)
- Which markets should a business compete in and what kind of activities are involved in such markets? (markets; scope)
- How can the business perform better than the competition in those markets? (competitive advantage)
- What resources (skills, assets, finance, collaborations, technical competence, facilities) are required in order to be able to compete? (resources)
- What external, environmental factors affect the businesses' ability to compete? (environment)
- What are the values and expectations of those who have power in and around the business? (stakeholders)

An organization's strategy describes how it intends to create value for its shareholders, customers, and citizens (Robert et. al, 2004). Strategies exist at several levels in any organisation - ranging from the overall business (or group of businesses) through to individuals working in it. It is one thing to formulate a strategy and it is quite another to successfully implement it (Bonama 1984, Mokwa 1999). In a pharmaceutical industry,

Dhaka University Institutional Repository

like every other industry, attaining optimum strategy at every level is extremely essential for it to be successful. It is not enough for a company to get smaller and better and faster always, as important as these tasks may be; but a company must also be capable of fundamentally regenerating its core strategies, and of reinventing its industry. In short, a company must also be capable of getting different (Hamel et. al, 1994).

Pharmaceutical Industry is one of the most intense "Knowledge Driven" industries, which is continually in a state of dynamic transition. Diversities in life forms and diseases pose stiff challenge to the design and marketing of specific and targeted solutions. The process of 'drug discovery/invention' is elaborate requiring on an average 8-10 years at a cost of US $300 million to reach a new drug to the market. After that, successful marketing of the product must be done in order for it to meet the needs of the population. It is, therefore, very important for the companies to be able to strategically develop their marketing plans accordingly, in order to compete in this competitive environment.

1.7.2 Strategic Management

In its broadest sense, strategic management is about taking "strategic decisions" - decisions that answer the above questions. In practice, a thorough strategic management process has three main components, which are inter-related as shown in the figure below (Fig 2):

Dhaka University Institutional Repository

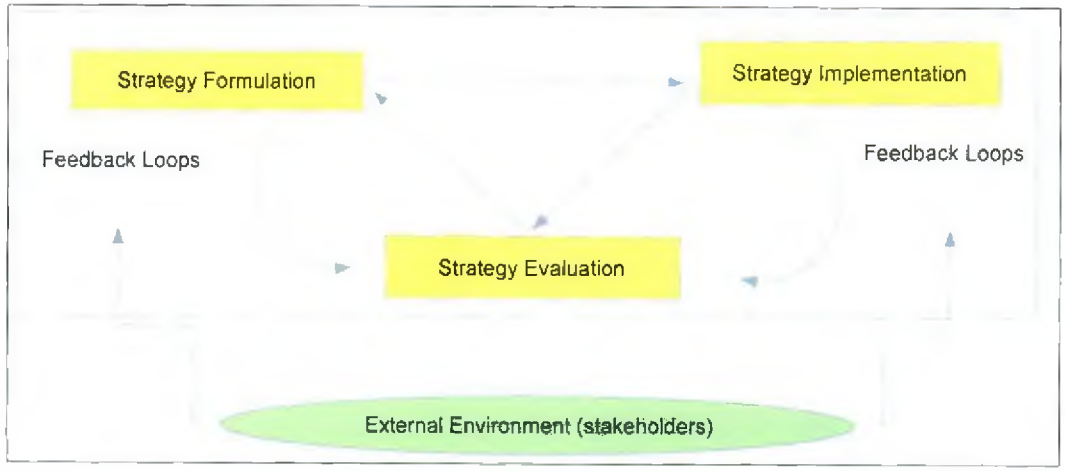


Figure 2: Strategic Management

1.7.2.1 Strategic Formulation

This is all about analyzing the strength of the company and understanding the important external factors that may influence that position by using tools such as PEST analysis, SWOT analysis, Five Forces Analysis, etc. It then involves understanding the nature of stakeholder expectations (the "ground rules"), identifying the strategic options, evaluating and finally selecting the strategic options.

1.7.2.2 Strategy Implementation

This is often the hardest part. When a strategy has been analyzed and selected, the task is then to translate it into action.

1.7.2.3 Strategy Evaluation

This involves ensuring the strategy has been implemented properly in light of changing organization and market conditions (Sherman et. al).

Dhaka University Institutional Repository

1.7.2.4 Importance of Strategy Implementation

For most pharmaceutical companies, there's a big difference between the growth markets expected of them and the growth they can deliver through sales of their products. Top managers can close the gap by identifying the areas of strategic opportunity. Managers competing in the pharmaceutical business normally choose among three distinct ways to fight. They can fortify their marketing plan and defend it; they can nurture and leverage unique resources; or they can flexibly pursue fleeting opportunities within simple rules (Eisenhardt and Sull, 2001). Each approach requires different skill sets and works best under different circumstances. Strategic alliances, expected to further increase market share, can lead to competitive advantage which include co-marketing, research, technology sharing, manufacturing, etc.

Successful organizations now more than ever recognize the importance of strategic planning in achieving desired business results. Companies clearly have a competitive advantage when they can develop an effective strategic plan and implement it (Bergeron, 2004). Most business leaders recognize the importance of strategic planning, but few succeed in translating their strategies into business results.

Strategic planning is a proactive move that puts an organization in a better position than one that only reacts to emerging events. Its ultimate objective is to close the gap between where the organization is now, and where it would like to be. It sets the direction for decision making so that subsequent decisions at the subunit level can be made in harmony (Gooderham, 1998). This is because reaction alone leads nowhere. Action in the short term reality has no meaning unless it takes place in the long term context of a plan (Godet, et al., 1996). Strategic planning process

Dhaka University Institutional Repository

(part of the strategy formulation process) should lead to the necessary adaptiveness or survival of an organization in the future (Glister & Falshaw, 1999).

The use of strategic management is not optional in any sector any more. It is perceived as a mandatory decision in front of serious challenges that organizations are now experiencing. Global changes such as globalization, technology advancement, deregulation, emerging of new markets and industries, and economic restructuring have greatly increased the organization's need to develop its unique strategy. As expressed by Wilson, navigation through such an environment requires a strategic compass. There were high costs to the approach that organizations applied previously while using strategic management, resulting in the loss of the strategic direction of a company (Wilson, 1998). While strategic planning is still evolving, researchers and practitioners have been working hard to solidify it and finalize their divergent approaches.

1.7.3 Strategic Positioning

Strategic positioning is the positioning of an organization (or unit) in the future, taking into account the changing environment, as well as the systematic realization of that positioning. That is, it includes the devising of the desired future position of the company on the basis of present and foreseeable developments, and the making of plans to realizing that positioning. It also attempts to achieve sustainable competitive advantage by preserving what is distinctive about a company. It means performing activities different from rivals, or performing similar activities in different ways (Porter, 1996).

Dhaka University Institutional Repository

A brilliant strategy, blockbuster product, or breakthrough technology can put a company (or product) on the competitive map, but only solid execution can keep the company (or product) there (Neilson et.al, 2008). Execution is the result of thousands of decisions made every day by employees acting according to the information they have as well as their own self-interest. In the case of pharmaceutical products, although R&D is also very important, successful marketing of the company and its products can only be achieved by the strategic positioning of the product in the minds of their customers.

1.8 PHARMACEUTICAL MARKETING

Marketing can never be an exact science, since it depends on the reactions of countless diverse and complex human beings over whom the seller has no immediate influence or with who he may not even be in direct contact (The fundamentals and practice of marketing, 2002). But that should not be a reason for not trying to make it as precise as possible. The need is for greater knowledge of the individuals who make up the particular seller's market segment – how they think and feel and what is their level of satisfaction; and not just how many customers there are!

Pharmaceutical markets differ from markets for most other commodities, and even from markets for health care. This partly relates to the fact that drugs are a rather special commodity. Used appropriately they can save lives and improve health; used inappropriately they can be very harmful (WHO, 1997). The market forces logic is less applicable in the pharmaceutical industry than others, since unlike other consumer goods, drugs are not purchased by the consumer on his preference, rather on the advice of the medical profession. For this reason, the different drug companies have created a market for their drugs through an extensive

Dhaka University Institutional Repository

marketing network, with their main promotional activities targeted at physicians.

The pharmaceutical market is very complex and highly competitive. The special nature of drugs and of health care has led to these complex market structures. The coverage of the market is on the basis of therapeutic segments to which the drugs belong (Biosimilars, 2009-2014). Besides complexity and intense competition, the market has been found to suffer from a number of problems (known as market failure) which include:

- informational imbalances between different players in the sector;
- competition created by brand loyalty, market segmentation and patent protection;
- unethical marketing practices by pharmaceutical companies to capture market share.

In addition, unregulated drug markets also create substantial inequity, particularly in terms of access to drugs (WHO, 1997). To offset market failure, governments have been found to be engaged in financing a few companies, eg, the company Essential Drugs in Bangladesh.

Although the pharmaceutical market is undergoing significant change, the role of marketing in the pharmaceutical industry is and will always remain to be different from the consumer goods market. In pharmaceutical business marketing works only around certain parts of the marketing mix – as Thomas Ebeling who came from Pepsi to Novartis stated – "..you cannot change the product as you can with soft drinks, you cannot change pricing too quickly and you cannot change the packaging easily" (Bednarik, 2005).

Dhaka University Institutional Repository

Globalization is inevitable in most industries, and the pharmaceutical industry is no exception. The global pharmaceutical marketplace is currently undergoing huge changes (Pharma2020: The Vision, 2007). These changes will have a major bearing on the kind of business models pharmaceutical companies of each country need to employ. For example, even the largest pharmaceutical companies will have to collaborate with other organizations to develop or market the effective medicines more economically, help patients manage their health and ensure that the products and services they provide really make a difference. Moreover, they may have to step outside the sector to find some of the partners they need. Since Bangladesh is a signatory of the WTO, the pharmaceutical marketplace of Bangladesh can also be expected to undergo similar changes very soon.

1.8.1 The Positioning Paradigm for the Pharmaceutical Industry

Pharmaceutical industry researchers have been found to focus on two areas where effective strategic management can create competitive advantage for the firm. These areas are namely 'R&D' and 'marketing' on the basis that new technologies and the successful marketing of products improve the competitiveness of the firm (Cunningham, 2000 and Orsenigo, 2001). Unlike R&D, promotional marketing strategies are impacted by factors such as product lifecycle stage, market positioning, disease area and competitive activity, which are always changing. The one constant factor in marketing activities is the physicians who will ultimately have to write the prescription, which is why they have been the focus of most marketing campaigns. But, today, the environment in which physicians are operating is also changing and they are increasingly influenced by many different groups and individuals with a stake in the choice of treatment.

Dhaka University Institutional Repository

No matter what the critical commercial question under consideration is, one of the more fundamental building blocks underneath any viable commercial strategy is a sustainable and facile brand positioning paradigm. Such a paradigm describes what makes the product a successful brand, what the product stands for to its customers – physicians, retailers, patients, etc – and what is the best, proven way to describe the benefits delivered by the product to its customers. Without a well-defined positioning paradigm, it is hard for a product to serve its intended purpose and survive in the competitive demanding marketplace of today, let alone thrive against severe environmental odds. The scientific historian Thomas Kuhn gave the term paradigm its first contemporary meaning. To develop an effective positioning paradigm for an in-line pharmaceutical product in the context of the commercial challenge described above, Kuhn's definition would ask the following questions:

1. Is the drug (new or old to the market) sufficiently different from others like it on dimensions that matter?
2. Will the drug serve the needs of a sufficiently large number of patients?
3. Will potential customers of the drug utilize it for the right reasons?
4. How can the sources of value accrued because of the product best be communicated?
5. What is the likely impact of such communication on customer behavior?
6. Can we build a system that best approximates the cause and effect phenomenon attributable to the paradigm?

Dhaka University Institutional Repository

The story behind any successful product is to always seek to answer such questions at a variety of points in its life cycle with varying emphasis. A rigorous effort to develop insight from addressing such questions leads to developing a highly specific and actionable positioning strategy that can be the fundamental basis for effective commercialization and marketing. Once the company identifies its strategic position, the most important question is how well it can execute this strategy (Brylawski, 2004).

Answering such questions is sometimes viewed skeptically. It is found to be more common to strategize on how best to market the next 'revolutionary blockbuster' than how best to make effective therapeutics available to more patients who deserve to be treated. It is harder to commercialize a better product but late entrant in a competitive market than a first in-the-market product: order of entry effects are usually a function of a variety of factors such as existing shares of choice, perceived differentiation, product pricing, patient proclivities and the extent to which share of marketing influences share of choice (Rao, 2009). An old school of thought in the pharmaceutical industry subscribes to the notion that drugs are creations of science, and do not need to be marketed; or that crafting an identity to describe and market a pharmaceutical entity is uncalled for because a good drug should 'sell itself'. However, effective commercialization, however, is much more than meeting confined demand and the objective should be to spread the benefits of a clinical entity to the widest eligible patient population possible. With all the changes that are taking place today as a result of globalization, it is getting more and more difficult for the pharmaceutical industry all over the world to keep up with the changing pace.

To the modern pharmaceutical marketer, developing a clear positioning strategy is about ensuring that vast numbers of patients quickly and

Dhaka University Institutional Repository

effectively receive the medication that best meets their therapeutic needs. A strong, clear positioning strategy crafted early in the marketing plan must include the proper selection of the customer and accordingly, define the future of the particular drug product. This is why marketing strategy is critical to the development of the competitive advantage of a pharmaceutical product.

1.8.2 Marketing Communications and Promotional System

Pharmaceutical marketing is different from other forms of marketing because the *end user* is not the only decision maker, nor he or she determines the products they will consume. The end users (patients) consult their physicians which at the same time helps patients to guarantee the safe administration of the medicine. As a result of the influence process, pharmaceuticals promote their products mainly to the physicians and sometimes to the end users (target consumers) through the use of campaigns.

The marketing strategies employed in the pharmaceutical industry differ significantly from those typically adopted by other industries for various reasons. First, the pharmaceutical industry is highly regulated. Second, the marketed products (prescription drugs) are credence goods (i.e., physicians prescribe and patients consume them). Finally, manufacturers are required by law to obtain approval from the government (by FDA in the United States, by DDA in Bangladesh, etc) before a drug can be marketed (Carter et. al, 2009).

The pharmaceutical industry uses marketing communications to disseminate a firm's marketing messages to its target market, regardless of the media used. This is a reason why companies use different

Dhaka University Institutional Repository

marketing strategies and tactics to market their products. Additionally, marketing strategies are often the source of a firm's competitive advantage (Anderson, 2003).

Surveillance of physicians' prescribing patterns through the interactions of pharmaceutical salesmen (PSRs), pharmaceutical marketers and individual physicians is used to fine-tune a sales pitch or allocate marketing resources (Greene JA, 2007). The goal of medical education by the companies is the provision of accurate, objective, and useful information to physicians who will use it to provide the highest possible quality of care to their patients. Objectivity and accuracy are essential in both research and teaching to maintain the integrity of this information. Medical information should be expected to come from sources whose only motivation is the benefit of patients. However, in the real world, a variety of complicating factors and competing objectives not only pose risks to the quality of information, but even complicate the process by which that quality can be assessed. Physician often face the difficult challenge of sorting through this information to determine what is of value for their patients (Chren, 1994). On the other hand, medical schools do little to train physicians to understand the difference between marketing and medical education, or how to ethically and responsibly interact with industry representatives as individuals or in professional groups (Jibson, 2007).

1.8.3 The Physician (the Customer)

We typically think of consumers as one of two types, those who buy for their own consumption, or those who buy for someone else. The strategy of the marketers is generally to position their messages to target one of these two types of consumers. In the case of pharmaceutical marketing,

Dhaka University Institutional Repository

given the unique nature of the physician as the consumer, the marketing strategies which are used by the pharmaceutical industry are very different from those used by other product industries. The primary reason being for this is that the physician in most cases is the decision maker who diagnoses the patient's problem, identifies the product category (therapeutic plan), and selects a brand from the alternatives within that category on the patient's behalf. While it is the physician (the agent or advocate for the patient) who makes the decision, it is still the patient who uses the product, and ultimately takes responsibility for payment of the product (Gonul, 2001). Their reward for prescribing the product may be indirectly provided through seeing the health of the patient (the ultimate consumer) improving or, in some situations, through incentives from the manufacturers.

The physicians have become the target of the marketing activities of the pharmaceutical companies due to their role as intermediaries and the key decision makers in the prescribing process. The metric against which the industry measures the success of their marketing effort is the volume of drugs sold (market share), or more specifically, the number of prescriptions written by the physician. The actual writing of a prescription is thus indicative of a physician's recognition that the product is the best alternative to address the patient's condition, or is at least a good alternative, worthy of closer evaluation.

Marketing clearly affects physicians' practices. Physicians interact with the pharmaceutical industry frequently and in multiple settings and fashions, eg, in the form of CMEs, conference travels, research funding, etc (Wazana, 2000). It is, however, difficult to ascertain the degree to which that influence is in the best interest of the patients. Legitimate marketing factors include the notification of physicians about clinical

Dhaka University Institutional Repository

efficacy data, interactions interaction and safety data, and cost effectiveness data of their pharmaceutical products that are available. It is appropriate for physicians to receive and review these data and to allow them to influence clinical decision-making.

Pharmaceutical marketing should avoid the use of any unethical factors in reference to patient care. These include personal relationship with the MICs, unnecessary gifts and other incentives, biased information, and motivational activities. Although these are standard and acceptable practices within the field of marketing, medical ethics clearly demand the exclusion of these factors from clinical decision making, as they may lead to the prescription of unnecessary expensive drugs or less rational medication choices. The primary reason for marketing visits should be that the physicians receive the latest information regarding the manufacturer's drug products. Interestingly, the physicians are not bound by the regulations in these visits or in their use of medications. The physicians may choose to hear the sales representative's marketing pitch, designed to highlight the positive factors regarding the drug but should also take the time to review all the accompanying safety and contraindication data and should not accept biased marketing claims at face value (Jibson, 2007). These interactions should primarily be governed by the regulatory body, and also by policies of the companies that seek to keep their employees within regulatory laws.

Physicians and the pharmaceutical industry are found to share a convergence of interest in providing safe and effective medications to patients, but differ in their practices. Interactions between them are necessary and unavoidable, but sometimes create conflicts of interest (Kerridge, 2008). Pharmaceutical manufacturers and other proponents of drug promotion claim that it informs and educates consumers and

Dhaka University Institutional Repository

physicians about health conditions and available treatments, promotes increased diagnosis and treatment of diseases, and improves compliance with medical care (Batchlor, 2003). Marketing and medical education are fundamentally different and must not be confused with one another. Gifts to physicians have been the subject of extensive controversy, research, and occasional guidelines or policy action. A clear consensus among the researchers in this area is that gifts influence physicians, even when they do not believe it to be so and even when the gifts are of negligible value (Katz et. al, 2003). Patients' perceptions of gifts have been found to be negative, more so than most physicians recognize (Gibbons et al, 1998).

Somewhat more ambiguous are free samples, which do not benefit the physicians directly but may be of great value to the patients who are unable to afford a potentially helpful medication (Jibson, 2007). Free samples of legally available drug products, if necessary, may be provided in modest quantities to the prescriber, on request (WHO: Criteria for Medicinal Drug Promotion, 1986).

1.9 THE PHARMACEUTICAL INDUSTRY TODAY

The environment of the industry is changing rapidly and many advances have taken place over the past 25 years. The industry will continue to develop and evolve at an ever-increasing pace with the discovery of new drugs, new technologies and new product-related and disease-related services (Shapiro et al, 1987).

Today, the pharmaceutical industry is one of the largest and most exciting sectors to be working in. Since pharmaceuticals can be quite profitable, many countries are trying to develop the infrastructure necessary for drug companies in their countries to become larger and to compete on a

Dhaka University Institutional Repository

worldwide scale. On the other hand, drug companies are also found to be changing their model in order to be able to survive in the current environment. The industry has also come to be characterized by outsourcing (The Economic Times, February 2010). That is, many companies contract with specialty manufacturers or research firms within their own countries or even in other countries to carry out parts of the drug development or manufacturing process for them. Others try to retain most of the processes within their own company. Since the pharmaceutical industry is driven largely by profits and competition, the company strives to be the first to either find cures for specific diseases or to market the generic versions of these products efficiently (Strongin, 2002).

It is therefore required to redefine the following:

- the value chain of the industry
- where the industry is now and what issues are likely to be faced in the future?
- what does the industry want to achieve?

While many pharmaceutical companies have successfully deployed a plethora of strategies to target the various customer types, recent changes in the business and customer trends are creating new challenges and opportunities for increasing profitability as well as for survival. In the pharmaceutical industry, a complex web of decision-makers determines the nature of the transaction (prescription) for which the direct customer (doctor) of the pharmaceutical industry is responsible, although essentially, the end-user (patient) pays the cost and consumes the product. Use of medical representatives for marketing products to physicians and to exert some influence over others in the hierarchy of decision makers is

Dhaka University Institutional Repository

a common tradition of this industry. Typically, sales force expense comprises an estimated 15 percent to 20 percent of annual product revenues, the largest line item on the balance sheet. Despite this expense, the industry is still plagued with some very serious strategic and operational level issues. For example, the relationship between the pharmaceutical companies, the medical profession and the public is found to be at a critical juncture. The public perception of the industry and doctors is at an historic low and to restore their trust, the sector needs to set a path forward that will encourage ethical collaboration and discourage activities by the industry, researchers, or practicing doctors that place financial benefit above patients (BMJ, 2009).

Dhaka University Institutional Repository

CHAPTER 2. BANGLADESH

2.1 HISTORY OF BANGLADESH

Bangladesh emerged as an independent and sovereign country in 1971 following a nine-month war of liberation. It is one of the largest deltas in the world with a total area of 147,570 sq. km. With a unique communal harmony, Bangladesh has a population of about 150 million, making it one of the densely populated countries of the world and representing about 2.5% of the world population (Bangladesh, IMF country report no 08/335, 2008). Similar to India, the population is young with an increasing proportion at working age. The UN forecasts that the working age (15-64) population as a percentage of the total will keep rising, peaking at 67.9% in 2045 (United Nations Report: World Population to 2300).

The per capita income of only $520 (2007) and all the challenges associated with the limited financial resource also make Bangladesh one of the poorest nations. Bangladesh is regarded as a low-income country by World Bank and a country with low human development index by UNDP (Michel J, 2005).

Adequate secondary or tertiary care is beyond the reach of all but a few people. It was recently estimated that only 5% of kidney patients can afford treatment, with the majority (64%) raising funds for treatment through the sale of their property. On the other hand, government hospitals and clinics have been found to suffer from severe shortages of trained staff. The available data for 2009 (Health Bulletin, 2009; DGHS) show the following:

- No. of hospitals in Health Sector 589

Dhaka University Institutional Repository

- No. of non govt hospitals (regd by DGHS) 2271
- No. of beds in health sector (functioning) 38,171 (Dec, 2008)
- No. of beds in private sector (functioning) 36,244
- No. of registered physicians 49,994

The data also show

- Population per physician 2860
- Population per bed (public and private) 1860
- Physician to Nurse ratio 2:1
- Population per nurse 5720

This scenario needs to change in order to improve the health sector. At present, there is a growing private hospital sector, largely based in Dhaka, which caters for the ones who can afford it. It is in the private sector where the most advanced services are located, and where large pharmaceutical demand is found (primary source).

Access to even the most basic of healthcare provision continues to be sub-standard, despite the ongoing efforts of the government, aided by considerable international assistance (The Medical Device Market: Bangladesh, espicom 2010). The affordability of treatments will remain an issue in this poverty-stricken country if operational and systemic constraints are not immediately addressed and simultaneously, if the infrastructure is not made stronger and modern.

2.2 THE PHARMACEUTICAL SECTOR OF BANGLADESH

The definition of a pharmaceutical sector may differ from the standards used in different parts of the world, but the following is one suitable for

Dhaka University Institutional Repository

the Bangladesh Pharmaceutical Sector. It comprises the production, the development of and the trade in the product groups listed below:

- Medicinal products (medicaments)
- Natural products (eg, homeopathic, unani, biochemic, ayurvedic)[1]

The product groups of the sector are also connected with other sectors, particularly with the chemical industry. The international trend in the pharmaceutical sector is presently heading towards the research and development of drugs, as well as homeopathic medicines for the treatment of widespread modern-day illnesses, cardiovascular disorders, immune system diseases, etc. The Pharmaceutical sector is becoming more and more competitive due to the decreasing number of new drugs in the pipeline, the increasing spread of generic drugs, the progressive increase of production outsourcing to the Far East with lower labor cost and continually improving quality, number of takeovers and mergers, etc.

All over the world the different players in the pharmaceutical sector include: brand-name drug manufacturers, generic drug manufacturers, firms developing biopharmaceutical products, non-prescription drug manufacturers, firms undertaking research on a contract basis, universities, and hospitals. Research centers also play a role in the R&D activities of this sector. A key determinant of the business model of the pharmaceutical sector is whether, and to what extent, companies are

[1] A detailed study of the supply and demand on pharmaceuticals and natural products of Bangladesh has been done and published in 2005 for the South-South Trade Promotion Programme.

Dhaka University Institutional Repository

engaged in R&D since there are companies that only manufacture and market generic products. For companies that rely on innovation as a key aspect of their business model, the regulatory and scientific framework critically affects their ability to fund ongoing investment in R&D and to protect income streams of commercialized medicines for as long as possible, through pricing policies and intellectual property rights (IPR). But for the companies that only manufacture and market the generic products, the business model is significantly different.

The Pharmaceutical sector of Bangladesh falls under the Ministry of Health and Family Welfare (MHFW), rather than the Ministry of Industry and Commerce (or Ministry of Science and Technology), which is generally the case in other countries. The Bangladesh Pharmaceutical sector is found to be expanding drastically in the last two decades. This is mainly due to the advancement of the pharmaceutical industry, along with the development of new hospitals in the private sector, increasing patient awareness, etc. But to further develop this growing sector in effectiveness and efficiency, it is essential to

- study and integrate its demand-supply chain and the integrated logistics activities
- improve production efficiency and flexibility
- redesign the product quality and process control system (in which everybody is involved in assuring the maintenance of zero defect conditions ensuring the product quality delivered to the customers)
- improve distribution system in order to satisfy customers, and
- implement intensive benchmarking or monitoring system to identify gaps and potential recovery areas

Dhaka University Institutional Repository

In the most recent economic policies, the sector has not been a leading one that seeks to provide a variety of incentives for exports, although the government had enacted a New Drug Policy (2005) and a National Biotechnology Policy (2005) and is in the process of establishing the API park. The National Drug Policy (2005) was formulated with the aim of expanding the pharmaceutical sector beyond the national horizon into the international markets; to attract foreign investments into this sector; and

i. to make it more applicable, effective and adaptive to the technological advancements that have been made in the medicine world
ii. to guide the drug sector of Bangladesh to perform better in the competitive world market
iii. to make the country a producer and exporter of good quality drugs in the world.

Although the policy formulated was definitely a strong one, it is not clear how this alone will help in the absence of institutional incentives that promote knowledge intensive activities, such as human skills. The Directorate of Drug Administration (DDA) is the department in charge of the sector, and is supported by the Institute of Public Health, in supporting public health activities, quality control, and production of biomedical products, training and research. Both organizations are severely under-equipped and under-funded.

The sector consistently creates job opportunities for highly qualified people, although it is also been found to suffer from a lack of coherent policy regime. The Drug Control Ordinance of 1982 was in several ways, very similar to India's policy initiative of a similar kind that triggered self-reliance in its pharmaceutical sector. Unfortunately, this policy has

Dhaka University Institutional Repository

not yet been supported by complementary industry measures to totally support the sector of Bangladesh. Although the NDP of 1982 had promoted the growth of the sector, its present deficiencies can be traced back to the absence of a consistent, strategic policy framework in order to steer it into a profitable and competitive trajectory. Even if the New Patent Law of 2007 that incorporates Doha flexibilities for pharmaceutical patents in Bangladesh until 2016 is enacted, strategic policy support is required to promote API and reverse engineering skills amongst the local firms, in order for them to effectively supply low cost generic versions of the patented drugs to the local market as well as other markets.

2.3 THE PHARMACEUTICAL INDUSTRY OF BANGLADESH

2.3.1 History of the Industry

During the Pakistan regime most MNCs had their production facilities in West Pakistan. With the liberation of Bangladesh in 1971, the country had inherited a poor pharmaceutical industry (primary source). For several years even after its liberation, millions of people had little access to essential life saving drugs (Investment Analysis: Pharmaceutical Industry in Bangladesh Part 2, 2008). It was the Drug (Control) Ordinance of 1982 that removed many useless, unnecessary and harmful medicinal products from the market instigating the availability of selected essential drugs at the minimum affordable price.

In the early 1970s the 7 MNCs operating in Bangladesh – Pfizer, Ciba-Geigy, Glaxo, Squibb, Fisons, Hoescht (Lab) and BPI (May &Baker) – were mostly involved in imports. The MNC, SK&F, came in after 1975. The local companies that were operating at the time were mostly regional

Dhaka University Institutional Repository

and not at a national level, the prominent ones at the time being namely Pharmadesh, Square, Albert David, Gaco, Alco, Edruc, Acme, Sharma Chemicals, Huqsans and Techno (primary source).

Before the Drug (Control) Ordinance of 1982, there were about 4,170 brands of various types of drugs being produced under Drug Act of 1940 (DDA). The Drug Act of 1940 and its rules formed the basis of the country's drug legislation. But this Act was extremely inadequate for control of prices of both the pharmaceutical raw materials and the finished products. It also failed to control the availability of substandard, harmful and spurious drugs in the market. The pharmaceutical industry was dominated by the foreign companies and there was

- no list of essential drugs
- uncontrollable price of the drug products
- lack of market audit
- only perception of product quality
- no technology transfer

Out of the 166 licensed Pharmaceutical companies operating in Bangladesh at the time, the above-mentioned 8 MNCs were responsible for the production of about 75% of the total drugs, which included mostly low-dose antibiotics like amoxicillin, pain killers, dermatological crèmes and ointments, vitamin preparations, cough mixtures, tonics, etc. The medium sized local companies produced 15% of the total products and the remaining 10% were produced by other 133 small local companies. All the companies were mainly involved in formulation using imported raw materials. At the time, Bangladesh was found to be spending about taka 300 million on importing finished medicinal products. Unani, ayurvedic, homeopathic and biochemic medicines were exempted from

Dhaka University Institutional Repository

control under the legislation but was later included. Even in the allopathic market there were extemporaneous preparations dispensed from retail pharmacies (Investment Analysis: Pharmaceutical Industry in Bangladesh Part 2, 2008).

The National Drug Policy was formulated in 1982, following which the local pharmaceutical industry has witnessed an increase in growth. Bangladesh started to import only the pharmaceutical raw materials and finished drugs which were not being produced in the country. The value of locally produced medicine rose from taka 1.1 billion in 1981 to taka 16.9 billion in 1999. And then, according to the Directorate of Drug Administration records, local production met about 95% of the overall demand for drugs and 100% of that of essential drugs in 2005. Increased competition helped maintain prices of selected essential drugs at the minimum and affordable level.

Following the Drug (Control) Ordinance of 1982, a number of the local pharmaceutical companies improved the range and quality of their products considerably. This led to a major change in the landscape of the Bangladeshi pharmaceutical companies. The National Drug Policy was further revised in 2005 to emphasize the need for updating the essential drug list in line with the WHO model, for developing a balanced pricing mechanism and mainly, to in order to keep pace with the changed circumstances globally. At present, among the top 20 companies of Bangladesh, only four of which are multinationals and the rest 16 are local companies, account for about 84% of the pharmaceutical business in Bangladesh (IMS data, 2009). Local companies (LCs) have managed to increase their share from 25% to almost 88% on total annual production between 1981 and 2009. Almost all the life saving imported products and

Dhaka University Institutional Repository

new innovative molecules are now channeled into and marketed in Bangladesh through these companies.

2.3.2 Structure of Business

2.3.2.1 The Pharmaceutical Companies

The current pharmaceutical sector is fairly competitive, with over 20 local pharmaceutical manufacturers capturing the major share of the small domestic market and seeking entry into new export markets (Table 1). Prior to 1981, local companies were contributing to only 25% of the total market. At present, there are approximately over 250 registered pharmaceutical companies in Bangladesh with 140 of them actively involved in the manufacture or marketing of pharmaceutical products. In 2009, the top 10 pharmaceutical companies in Bangladesh contributed to 66.57% of the total market share and the top 20 companies contributed 83.79% of the total market share. A gradual increase is observed if we look at the 2008 data; the top 10 companies contributing 65.18% and the top 20 companies contributing to 82.53% of the market share. Similarly, in 2007, 2006, 2005 and 2004 the top 10 companies had contributed to 64.07%, 62.29%, 58.61% and 56.77% respectively and the top 20 companies contributed to 81.92%, 80.42%, 78.64% and 77.74%, respectively (IMS data).

Dhaka University Institutional Repository

Table 1: Market Share of top 20 pharmaceutical companies

		% Market Share				
		2008	2007	2006	2005	2004
1	SQUARE	20.06	18.98	16.40	14.70	15.18
2	INCEPTA PHARMA	7.53	7.17	7.13	6.30	4.89
3	BEXIMCO	7.09	8.51	10.12	9.82	9.71
4	ACME	5.25	5.57	5.27	5.03	5.22
5	ESKAYEF	4.64	4.72	4.31	4.45	4.36
6	A.C.I.	4.52	3.90	3.31	3.35	3.35
7	OPSONIN PHARMA	4.30	3.64	3.96	4.09	4.32
8	RENATA	4.22	3.56	3.71	3.67	3.71
9	ARISTOPHARMA	4.18	4.07	3.37	3.30	2.49
10	DRUG INTERNATIONAL	3.39	3.95	4.71	3.90	3.54
Top 10 companies		65.18	64.07	62.29	58.61	56.77
11	SANOFI AVENTIS	3.15	3.63	3.67	4.13	5.21
12	GLAXOSMITHKLINE	2.42	2.65	3.04	3.36	3.99
13	ORION LAB.	1.87	2.20	2.25	2.69	2.43
14	GENERAL	1.76	1.75	1.75	2.14	1.67
15	HEALTHCARE PHARMA	1.67	1.59	1.35	1.07	0.82
16	SANDOZ	1.67	1.61	1.60	1.68	1.92
17	IBN SINA	1.52	1.39	1.14	1.27	1.30
18	NUVISTA PHARMA	1.17	1.20	1.35	1.42	1.52
19	NOVO NORDISK	1.12	0.86	0.99	1.02	0.85
20	NOVARTIS	1.00	0.97	0.99	1.25	1.26
Top 20 companies		82.53	81.92	80.42	78.64	77.74

Total manufacturing companies 200+, with top 10 companies having 65% of the total market and top 20 companies having 82.5% of the total market in 2008

Source: IMS, Bangladesh

Dhaka University Institutional Repository

Table 2: Ranking of the top 25 companies in 2008

COMPANY	SALE (Mill tk)	SHARE (%)	Gr (%)
SELECTED TOTAL	47,016	100.00	6.68
SQUARE	9,431	20.06	12.71
INCEPTA PHARMA	3,542	7.53	12.10
BEXIMCO	3,334	7.09	-11.08
ACME	2,469	5.25	0.62
ESKAYEF	2,179	4.64	4.73
A.C.I.	2,126	4.52	23.58
OPSONIN PHARMA	2,020	4.30	26.09
RENATA	1,986	4.22	26.60
ARISTOPHARMA	1,965	4.18	9.68
DRUG INTERNATIONAL	1,592	3.39	-8.57
TOP 10	30,644	65.18	96.40
SANOFI AVENTIS	1,479	3.15	-7.45
GLAXOSMITHKLINE	1,137	2.42	-2.74
ORION LAB.	879	1.87	-9.30
GENERAL	828	1.76	7.49
SANDOZ	787	1.67	11.14
HEALTHCARE PHARMA	786	1.67	11.95
IBN SINA	716	1.52	17.04
NUVISTA PHARMA	550	1.17	3.53
NOVO NORDISK	528	1.12	39.69
NOVARTIS	469	1.00	9.68
TOP 20		82.53	
BIO PHARMA	427	0.91	26.92
UNIMED & UNIHEALTH	367	0.78	20.71
POPULAR PHARMA	353	0.75	75.81
GLOBE	349	0.74	18.19
SMC	325	0.69	19.07

Source: IMS

Dhaka University Institutional Repository

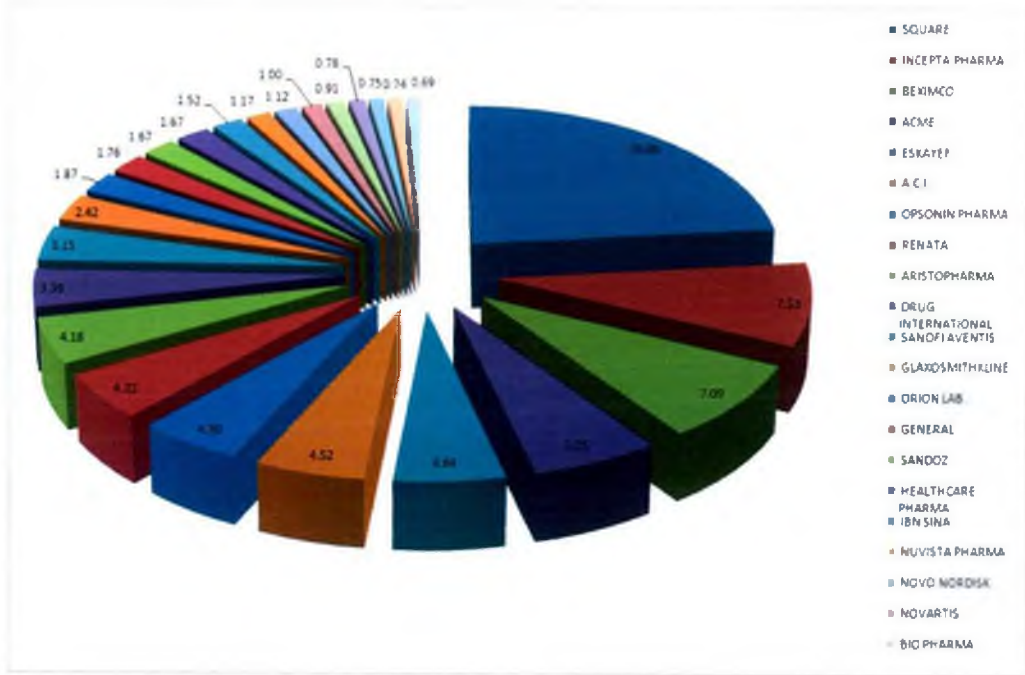


Figure 3: Top 25 companies operating in Bangladesh, 2008

From Table 2 and Figure 3, it can clearly be inferred that Square Pharma is still the market leader, followed by the next two major leaders - Incepta and Beximco. These two major leaders can be grouped together and named market challenger 1. The next nine companies - Acme, Opsonin Pharma, Eskayef Renata, A.C.I., Aristopharma, Drug International, General Pharma, Sanofi-Aventis and GSK – can be grouped in the next category and be named market challenger 2. The rest of the companies can be grouped accordingly and be named market follower and market niche, depending on the company.

2.3.2.2 Infrastructure of the industry

Over the last two decades the pharmaceutical industry has made considerable progress with modern manufacturing and improved infrastructure. There are presently over 250 registered pharmaceutical companies in Bangladesh with 140 of them actively involved in the

Dhaka University Institutional Repository

manufacturing or marketing of pharmaceutical products. These companies produce about 6149 different brands of medicines in over 14,500 dose strengths and formulations (primary source). This is sufficient to meet the requirements for 97% of the population of Bangladesh. Although imports, mostly of raw materials still exceeds export of finished products there is no doubt that Bangladesh has made significant progress in developing the pharmaceutical export market. Between 2003 and 2008, pharmaceutical exports have increased to about 71 countries and from Taka 630 million to Taka 360 crore (IMS, Bangladesh).

There are three public sector drug manufacturing units, the productions of which are mostly used in government hospitals and institutions (primary source). Two of them are the Dhaka and the Bogra units of Essential Drug Company Ltd. (EDCL), functioning as a public limited company under the Ministry of Health and Family Welfare. In 2008, EDCL has been found to have produced medicines worth Tk 120 crore. The third public sector is involved in the manufacturing of large volume IV fluids production units under the Institute of Public Health (IPH).

The Bangladesh Association of Pharmaceutical Industries (BAPI) is the main professional association for the sector, and has 150 member companies that promote the government for policy changes, among other activities. However, although the annual per capita drug consumption in Bangladesh is one of the lowest in the world, the industry has been a key contributor to the Bangladesh economy since independence. With the development of healthcare infrastructure and increase of health awareness and the purchasing capacity of people, this industry is expected to grow at an even higher rate in future. This could be considered as a strategy for the Bangladesh Pharmaceutical Industry to build on in order to maximize

Dhaka University Institutional Repository

its performance. A healthy growth and ethical competitiveness is likely to encourage the pharmaceutical companies to introduce newer drugs and newer research products into the market.

In 2000, there were 210 licensed allopathic drug-manufacturing units in the country, out of which only 173 were on active production; others were either closed down on their own or suspended by the licensing authority for drugs due to non compliance to GMP or drug laws. They manufactured about 5,600 brands of medicines in different dosage forms. At the time, there were also 261 unani, 161 ayurvedic, 76 homeopathic and biochemic licensed manufacturing units producing medicines worth US$ 17.1 million (Tk 1.2 billion). There were, however, 37,700 retail drug license holders in Bangladesh at the time (DDA).

According to a working document of International Trade Center (UNCTAD/WTO), in 2004 the Bangladesh market size for pharmaceuticals and natural products then increased to US$ 517 million and the total herbal medicine to about US$ 50 million. Local companies satisfied 95% of domestic demand with a 10% contribution from multinational companies. The number of companies was subdivided into pharmaceutical units (232), ayuvedic, homeopathic, biochemic units (308), and herbal and unani-related units (295). In 2009, this number has increased to 295 unani, 204 ayurvedic, 77 homeopathic and biochemic licensed manufacturing units producing medicines worth US$ 86 million. The pharmaceutical sector has been found to be the second largest sector (after agriculture) in terms of national revenue, with an employment of about 75,000.

The combined capacity of the industry for the pharmaceutical formulation is huge and a number of companies have recently got approval from

Dhaka University Institutional Repository

UNICEF as its global as well as local supplier of pharmaceutical products. As part of efforts to improve healthcare facilities in Bangladesh, the Minister for Health and Family Welfare announced in March 2009 that the government plans to improve the efficiency of the country's community clinics in collaboration with already existing Upazila health complexes (Research and Markets: Bangladesh Pharmaceuticals and Healthcare Report Q3 2009; primary source). Under government proposals, efforts will be made to gradually improve the standard of healthcare facilities in all the Upazila health centers, district hospitals and tertiary medical units located in all of the major cities around the country.

2.3.2.3 Regulatory Framework of the Sector: Regulations and Regulatory Agency

The Directorate of Drug Administration (DDA) under the Ministry of Health and Family of Bangladesh is the counterpart of FDA. It oversees and controls the manufacturing, import, distribution and sale of drugs and all other pharmaceutical services and industries in Bangladesh. The basis of its control over the pharmaceutical sector and services is the following regulations:

- The Drugs Act, 1940 (as modified up to 20th September, 1964)
- The Bengal Drug Rules, 1946 (as amended by the Government of East Bengal up to December 1952). It has been supplemented by several Gazette notifications.
- National Drug Policy of 1982
- The Drugs (Control) Ordinance, 1982
- The Drugs (Control) Ordinance, 2004
- National Drug Policy, 2005

Dhaka University Institutional Repository

The Drugs Act of 1940 and its rules formed the basis of the country's drug legislation (Ministry of the Government of Bangladesh).

2.3.2.4 Drug Testing Facilities in Bangladesh

Despite a successful industry that is growing and contributing to the health and welfare of Bangladeshi citizens, there are both internal and external challenges that the Bangladesh healthcare and pharmaceutical industry faces. Where the primary responsibility for drug quality control in Bangladesh should have been the government, it is found to be the pharmaceutical manufacturers' responsibility. In Bangladesh, the Directorate of Drug Administration (DDA) and the government's Drug Testing Laboratories (DTL) are supposed to have an essential monitoring and supervisory role. There are two government drug testing laboratories (DTL) - one in Dhaka which is in the Institute of Public Health and the other in Chittagong, a regional DTL which is under DDA. The DDA is also responsible for registration of drugs as well as for inspection of premises and for the licensing of medicines for sale in Bangladesh (DDA). However, the limited resources of both the DTL and DDA make it difficult to cope with the necessary workload. This is but one factor why the quality of locally produced medicines cannot be uniformly ensured.

The national drug policy and the regulatory control policies are yet to achieve results in order for the pharmaceutical industry to have a healthier and sustainable growth. Introduction of new research molecules or new generic products is difficult mainly due to slow registration process leading to discouragement of the foreign investors to come forward to invest in Bangladesh. Although the fixed mark-up system of pricing has helped keep the prices of pharmaceutical products low, on the

Dhaka University Institutional Repository

other hand this has made it difficult to cover costs of marketing and distribution. The fixed mark-up system also discourages some companies to invest for cGMP and assurance of high quality production. Some important therapeutic classes of the pharmaceutical market (eg, oral vitamins) are only open to the local companies even after 20 years of the drug ordinance. To some investors this policy has been found to be discriminatory and also contrary to the investment policy of the government.

Bio-equivalence of medicines is not a requirement to produce and market medicines in Bangladesh which is why the companies do not always take the extra necessity for bio-equivalence test of their products. But leading companies of Bangladesh, as well as the MNCs have bio-equivalence test reports of their original research products. These tests were done in their original R&D centers in countries of Europe, USA, Japan, China, Australia, etc. Information on bio-availability/bio-equivalence report of APIs is also sometimes unavailable since these tests are found to be done only with the different formulations (tablet, capsule, syrup, injections, etc.). The question is whether this Bangladesh can remain like this forever!

Monitoring compliance with GMP in the pharmaceutical sector and monitoring the quality and safety of drugs in the market has been mandated to the Directorate of Drug Administration as the regulatory authority. The outcome of repeated inspections of the manufacturing facilities of local suppliers (who had expressed interest to be recognized as UN pre-qualified suppliers) organized by UNICEF, was that only a limited number of the local manufacturers were able to fulfill the international GMP requirements. Therefore, having a functional National Regulatory Authority equipped with essential resources and expertise is

Dhaka University Institutional Repository

vital for meeting the challenge of ensuring compliance with GMP in the pharmaceutical sector.

2.3.2.5 Innovation and Competitiveness in the Pharmaceutical Sector

There has been a lot of speculation in the context of access to medicines and the TRIPs Agreement within the pharmaceutical sector of Bangladesh in recent times. With India becoming TRIPs-compliant in 2005, the sector in Bangladesh could potentially fill the vacuum created by the Indian firms, but only if the local firms are able to produce generic versions of important medicines at globally competitive rates.

A protective local policy regime was established (the NDP of 1982 and the amended DP of 2005) to give the local companies a chance to increase the local manufacture of drugs and enhance access in the local market. Although some of the companies were able to achieve this, most of them failed to technologically upgrade their production and enhance competitiveness. The pharmaceutical sector of Bangladesh is found to be currently focusing extensively on retaining the gains that accrue from their dominant position in the domestic market. This narrow focus, attenuated by the policy environment, fails to create appropriate incentives for the firms to strategically invest in acquiring reverse engineering skills required for the production of APIs. Industrial policy for the sector will need to resolve the paradox of creating appropriate incentives for technological upgrading within the firms since failing to and merely extending the TRIPs deadline will not help realize the potential of the sector (currently the TRIPs deadline for the LDCs is 1st January, 2016).

Dhaka University Institutional Repository

2.3.2.6 Intellectual Property Rights

The global pharmaceutical sector is extremely patent intensive, and the different firms rely on product, process and formulation patents to protect their innovations. Pharmaceutical IPRs have been found to raise a number of issues for firms in the developing countries and the LDCs, the most important ones being the restriction of reverse-engineering possibilities and its implications, higher prices of the drugs and access to medicines and technologies.

Under the present patent regime in Bangladesh (the Patents and Designs Act of 1911), patents are available for a period of sixteen years, and extendable for another ten years but only if applied for extension at least six months before the time limited for the expiration of the patent (Ministry of Law, Justice and Parliamentary Affairs, 2008; Dr M Ahsan, et al, Intellectual Property Law and Contemporary Bangladesh). The present patent regime grants both product and process patents to pharmaceuticals.

2.3.3 Operations

2.3.3.1 Manufacturing Capability of the Industry

The large national companies, as well as the multinational companies are found to follow current good manufacturing practices (cGMP) including rigorous quality control of their products.

In general, pharmaceutical manufacturing consists of two steps:

- production of APIs, which requires chemical synthesis skills and is commonly referred to as 'reverse-engineering' capabilities

Dhaka University Institutional Repository

- final formulations, which is a manufacturing activity and involves the mixing of APIs with other non-active ingredients into pills, tablets, or other forms of administration (Bumpas, 2007).

The pharmaceutical firms in Bangladesh are yet to build capacity in the more knowledge-intensive processes of reverse engineering APIs since they are mainly engaged in formulation of APIs requiring manufacturing skills only. A remarkable progress the local industry has made in recent times is the phenomenal increase in the local production of basic chemicals. There are now 13 drug manufacturing units, which also manufacture certain basic materials. These include paracetamol, ampicillin trihydrate, amoxycillin trihydrate, diclofenac sodium, aluminium hydroxide dried gel, dextrose monohydrate, hard gelatin capsule shell, chloroquine phosphate, propranolol hydrochloride, benzoyl metronidazole, sodium stibogluconate (Stibatin) and pyrantel pamoate. However, most of these are confined to the last stage of synthesis.

As mentioned earlier, one of the major positive impacts of Drug (Control) Ordinance was the rapid development of local manufacturing capability. Almost all types of possible dosage forms include tablets, capsules, oral and external liquids (solutions, suspensions, emulsions), ointments, creams, injections (small volume ampoules/dry fill vials/suspensions and large volume IV fluids), and aerosol inhalers are now being produced in the country.

At present, there are over 250 registered pharmaceutical companies (including 5 multinationals) in Bangladesh with approximately 140 of them actively involved in the manufacture or marketing of pharmaceutical products. These companies produce about 6149 different brands of medicines in over 14,500 dose strengths and formulations

Dhaka University Institutional Repository

(primary source). The local companies produce a wide range of products that include antiulcerants, fluoroquinolones, antirheumatic non-steroid drugs, non-narcotic analgesics, antihistamines, and oral diabetic drugs. This is sufficient to meet the requirements for 97% of the population of Bangladesh (Begum, 2007). Many of the bigger firms have also started the production of anti-diabetic drugs, anti-cancer drugs, anti Bird Flu drugs, and anti-retroviral drugs for the treatment of HIV/AIDS.

2.3.3.2 GMP Standards

There is no law prescribing GMP standards for the pharmaceutical drugs that are sold in the local market. Around 10 pharmaceutical companies have WHO-prequalified facilities for manufacturing, and another 4 are presently in the process of acquiring WHO prequalification (Director, Drugs Administration, 2009). The New Drug Policy of 2005 states in its objectives that the sector requires the enactment of good manufacturing standards in order to promote safety and efficacy of drugs for the local market. There is therefore the immediate need to implement rules that promote this objective in order to boost the export of the pharmaceutical products, as well as to ensure the safe and effective access to medicines in the local market (Gehl Sampath 2007).

2.3.3.3 Technologies Used

Firms mainly use process development technologies to manufacture generic formulations. They are found to import between 95 to 100 % of their machinery and almost 90 to 100% of all production inputs from foreign sources which mainly include India, China, Korea, Germany and the USA. Although a small number of active pharmaceutical ingredients are produced in Bangladesh, 95% of the APIs are sourced from a range of

Dhaka University Institutional Repository

countries including India, China, Italy, Spain, Germany, United Kingdom, France and the USA (primary source).

The local pharmaceutical companies in Bangladesh are yet to master the complete process of manufacturing APIs. The few firms in Bangladesh that are presently producing the small number of APIs locally are only able to perform the last few steps in the process with help from technologies bought from Indian firms (primary source). The lack of capability to locally produce APIs is one of the main reasons of reducing the competitiveness of the firms enormously, since between 40 and 50 per cent of the production cost of the drugs is because of the expense of buying APIs from external sources (Bumpas, 2007). A few top local companies have started to secure the skills and the infrastructure in order to start API production and reverse engineering. However, lack of adequate physical and scientific infrastructure which includes factors like incapacity of domestic research and development institutes (RDIs) and universities in assisting the firms in developing these chemical synthesis due to under-funding of research, under-developed human resources, etc make it very difficult for these companies to achieve this (Gehl Sampath, 2007). The lack of API production capabilities reduces their competitiveness substantially even for the manufacture of generics. Although Bangladesh has cheap labor costs as their main advantage in the international markets, but this is not sufficient to capture markets in the African and Asian countries as they do not possess the reverse engineering skills as their Indian counterparts (primary source).

However, a few of the top Bangladesh firms are also found to be investing huge sums in setting up production facilities that meet exporting requirements to the regulated markets like the United Kingdom and the United States, but the absence of infrastructure support to conduct

Dhaka University Institutional Repository

bioequivalence tests, etc are barriers to firms seeking to focus on exporting to regulated markets (primary source).

2.3.3.4 Outsourcing of Research and Manufacturing Activities

Outsourcing of pharmaceutical research and manufacturing is a global trend. The big corporations are turning towards third world countries to carry out many of their activities with the objective of cutting R&D and manufacturing costs in order to be competitive in the global market. It is extremely essential for Bangladesh to immediately position and promote itself as possible service provider in this potential.

2.3.4 Finance

2.3.4.1 Pricing of the Products

Under the Drug (Control) Ordinance, the maximum retail prices (MRP) of 117 essential drug chemical substances has been fixed by the government. Drugs other than these essential ones are priced through a system of indicative prices. This rule applies on the locally manufactured products only. For imported finished products, a fixed percentage of markup is applied on the C&F price to arrive at the MRP, regardless of whether they are within the list of essential 117 molecules or not. It is interesting to note that, even with the withdrawal of price control from many products, prices have not shot up due to competition, which has been keeping the prices within affordable levels (Price Fixation Policy, Bangladesh).

2.3.4.2 Firm Size

The pharmaceutical industry includes

Dhaka University Institutional Repository

- local large companies, some with international links;
- smaller local companies;
- a few specialized multinational companies.

Out of the total 250+ registered companies in Bangladesh, around 140 are only estimated to be in a functional state (DDA, 2009).

2.3.4.3 Market Capitalization

The pharmaceutical sector is the third largest in terms of the Bangladesh market, capturing near about 12% of market capitalization (AT Capital Research, 2008; Fig. 4). On the other hand, the turnover from the pharmaceutical sector is encouraging, which is about 14% of the total industry turnover. About 200,000 people are working in this specific sector. Employee turnover ratio is between 10 - 15% per annum, majority of this coming from the sales & marketing areas (primary source).

The total market capitalization at DSE reached Tk. 1,043.8 billion in December 2008 with 412 listed securities consisting of 276 companies, 16 mutual funds, eight debentures, 111 Government bonds, and one corporate bond. The capital market reached new heights in terms of market capitalization. At the end of 2008, market capitalization at DSE was 19.3 percent of the country's GDP compared with 15.7 percent in December 2007. During 2008, total issued capital rose by Tk. 33.2 billion of which Tk. 16.5 billion was through bonus and right issues and Tk. 16.7 billion was by new issues. During the year, 15 companies were listed in DSE of which five were listed through the direct listing route.

Dhaka University Institutional Repository

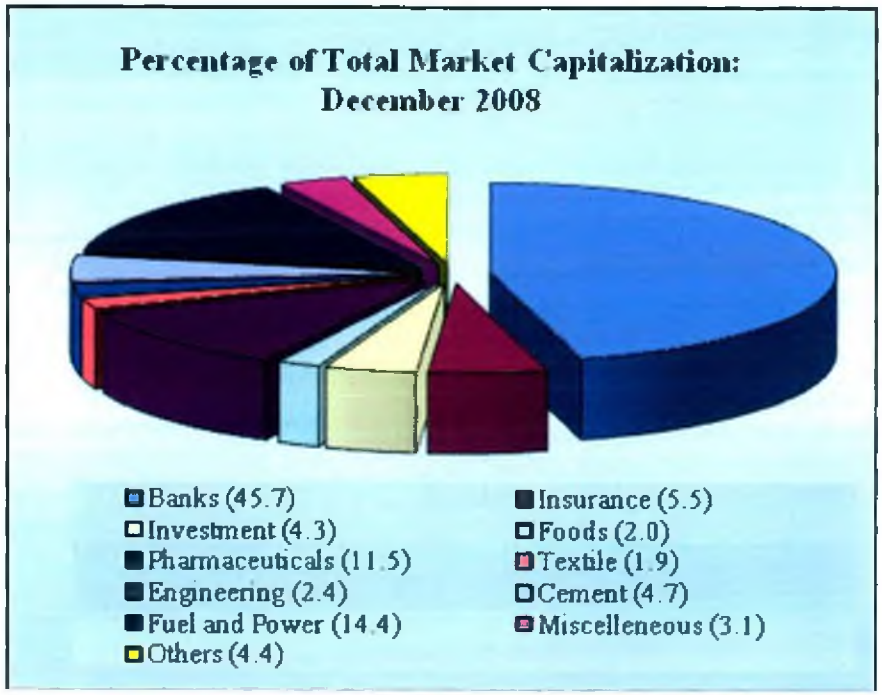


Figure 4: Sector-wise Composition of Market Capitalization in DSE

Note: Figures in parentheses show the share of the sub-sectors in total market capitalization of listed companies. Source: *The Monthly Review,* Dhaka Stock Exchange, December 2008.

2.3.5 Marketing

Pharmaceutical marketing communication is mainly concerned with the general behavior and perceptions of the organizations that are promoted to their MICs, primarily focusing on product and service; and concerned with demand generation and positioning. It is one of the primary drivers of sales in the pharmaceutical industry. Thus, the pharmaceutical companies need to integrate the marketing communications accordingly in order to develop an optimal combination of communication elements and finally, establish long-term relationships.

Dhaka University Institutional Repository

2.3.5.1 The Pharmaceutical Market

The Bangladesh market is highly unregulated and dominated by cheap, locally produced generic drugs used for the treatment or prevention of basic illnesses and conditions (primary source). From the marketing point of view, Bangladesh has been following a mixed economy that operates on free market principles. Self-medication and the availability of prescription drugs as OTC products remain a key issue in Bangladesh. This also means many consumers have only a vague notion of the difference between OTC and prescription products; an area where extensive educating is extremely essential.

Bangladesh is one of Asia Pacific's promising opportunities for drug makers. The Bangladesh Pharmaceutical Market has shown a growth of 6.68 in 2008 from a -2.38 in 1999 (Table 3 and Figure 5), with many of the 258 pharmaceutical companies recording double digit growth (IMS, 2008).

Table 3: Bangladesh Pharmaceutical Market at a glance from 1981-2008

Year	Market Size (taka in millions)	Growth (%)
1981	1730	-
1982	2160	24.86
1983	2260	4.63
1984	2830	25.22
1985	3300	16.61
1986	3500	6.06
1987	4050	15.71
1988	4380	8.15
1989	5000	14.16

Dhaka University Institutional Repository

1990	5300	6.00
1991	5500	3.77
1992	6400	16.36
1993	7800	21.88
1994	9204	18.00
1995	10050	9.19
1996	10200	1.49
1997	12839	25.87
1998	14855	15.70
1999	14501	-2.38
2000	16986	17.14
2001	21276	25.26
2002	23623	11.03
2003	25905	9.66
2004	28742	10.95
2005	33812	17.64
2006	39223	16.00
2007	44074	12.37
2008	47016	6.68

Source: IMS

Dhaka University Institutional Repository

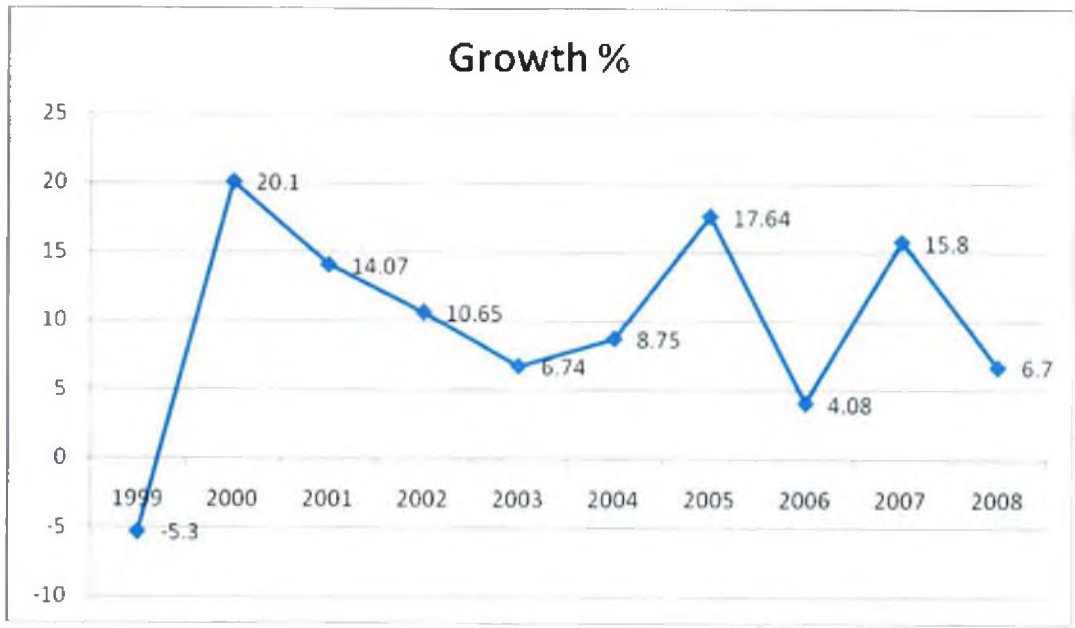


Figure 5: Growth of the Bangladesh Pharma Market between 1999 and 2008
Source: IMS

The pharmaceutical market of Bangladesh was also valued by BMI as US$700mn in 2008 (US$ 720mn by WHO and US$ 686mn, Figure 6); and is expected to reach US$1.77bn in 2012 (IMS).

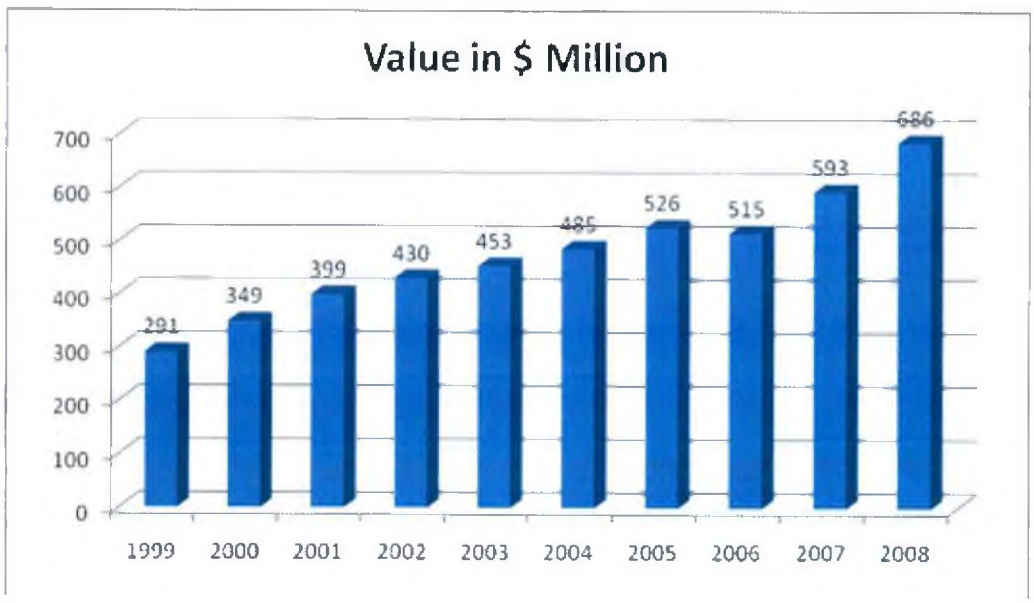


Figure 6: Value (in million dollars) of Bangladesh Pharma Market between 1999 and 2008
Source: IMS

Dhaka University Institutional Repository

This forecast has been increased over the last quarter owing to an upwardly revised GDP forecast. According to BMI report of June 2009, the sales of medicines in Bangladesh increased by 22.6% last year (2008) reaching a total of US$858mn (BDT 59,330.7 million). As a result, BMI had forecasted a pharmaceutical market growth rate of 21.9% for 2009, which is slightly below the figure proposed for the previous year. Most significantly, the growth rate and investment environment has been deemed highly attractive.

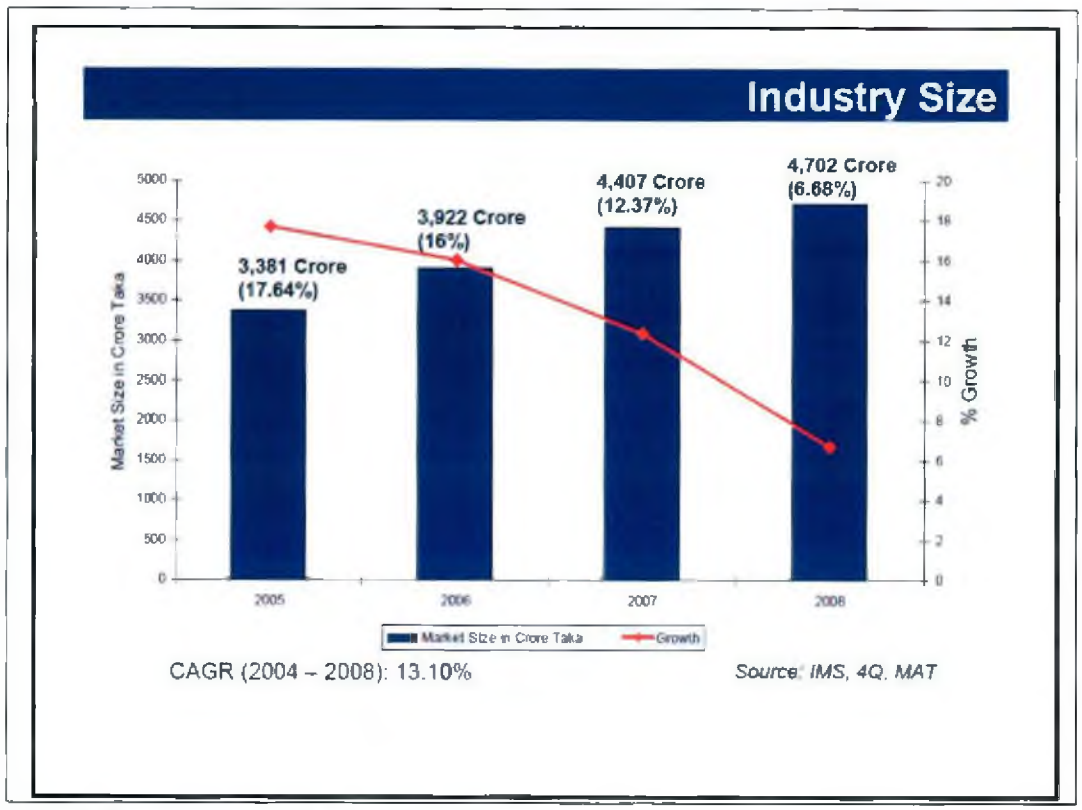


Figure 7: Size and Growth of the Bangladesh Pharma Market

Most of the sales for even the largest firms accrue from the local market, but the size of the local market is quite small (Fig 7). The policy framework protects the local firms from the import of drugs that can be locally manufactured; but the present marketing and sales incentives for

Dhaka University Institutional Repository

firms are such that there seems to be very little incentive to enhance competitiveness. The few firms that are found to be in the process of expanding their range of activities to include API and reverse engineering skills are focusing on the export markets, and will need a lot of institutional support to achieve them.

Several aspects of the health sector in the country, especially those related to drug procurement and sales contribute to the low competitiveness of the local firms of Bangladesh. The internal market is characterized by branded competition: each product being a generic and competing on the basis of brand names. In a not-well regulated market as well as in the absence of control mechanisms that check for bioequivalence of the drugs marketed locally, unethical marketing practice, etc, a drug distribution system that is organized around pharmacies and doctors offer ample scope for the sale of low quality drugs at high prices. Drugs sold in retail shops very often do not contain information leaflets, thus lacking indication of composition and dosage and are also sold by personnel who are not qualified pharmacists (primary source). The current extent and percentage of spurious drugs in the market is also unclear. This offers a basis to conclude that the present protected environment for the local firms is perhaps running at odds with the objective of safe and accessible drug supplies (Bumpas, 2007).

2.3.5.2 Pharmaceutical Products

A study of the market segmentation by therapeutic class gives a picture of the usage of the industry products by the end consumers (patients). In the late 90s up to mid-2000s, anti-infective was the largest therapeutic class of locally produced medicinal products, distantly followed by antacids and anti-ulcerants (alimentary products). Other significant therapeutic

Dhaka University Institutional Repository

classes included non-steroidal anti-inflammatory drug (NSAID), vitamins, central nervous system (CNS) and respiratory products (Investment Analysis: Pharmaceutical Industry in Bangladesh Part 2, 2008; primary source). But the scenario of the market was found to change after that and to be dominated by the sales of the alimentary system, followed by anti-infective and central nervous products (Fig. 8).

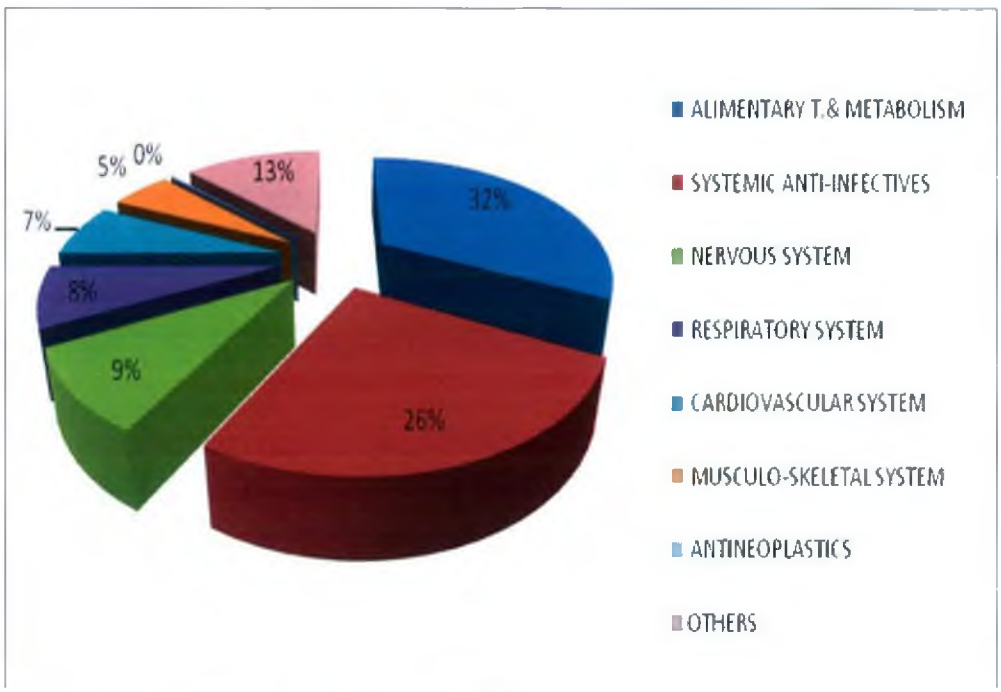


Figure 8: Market Segmentation by % share in 2008

Please note that market segmentation can be done in various ways. The rationale for this particular segmentation was based on a broad classification of the data available in Bangladesh for 2008.

Dhaka University Institutional Repository

The figures (Fig. 9) below shows how the market is controlled by the top 20 companies since for each of the major therapeutic groups – alimentary tract, anti-infectives, nervous system, cardiovascular system, etc – where the market share for the top 20 companies is above 80%.

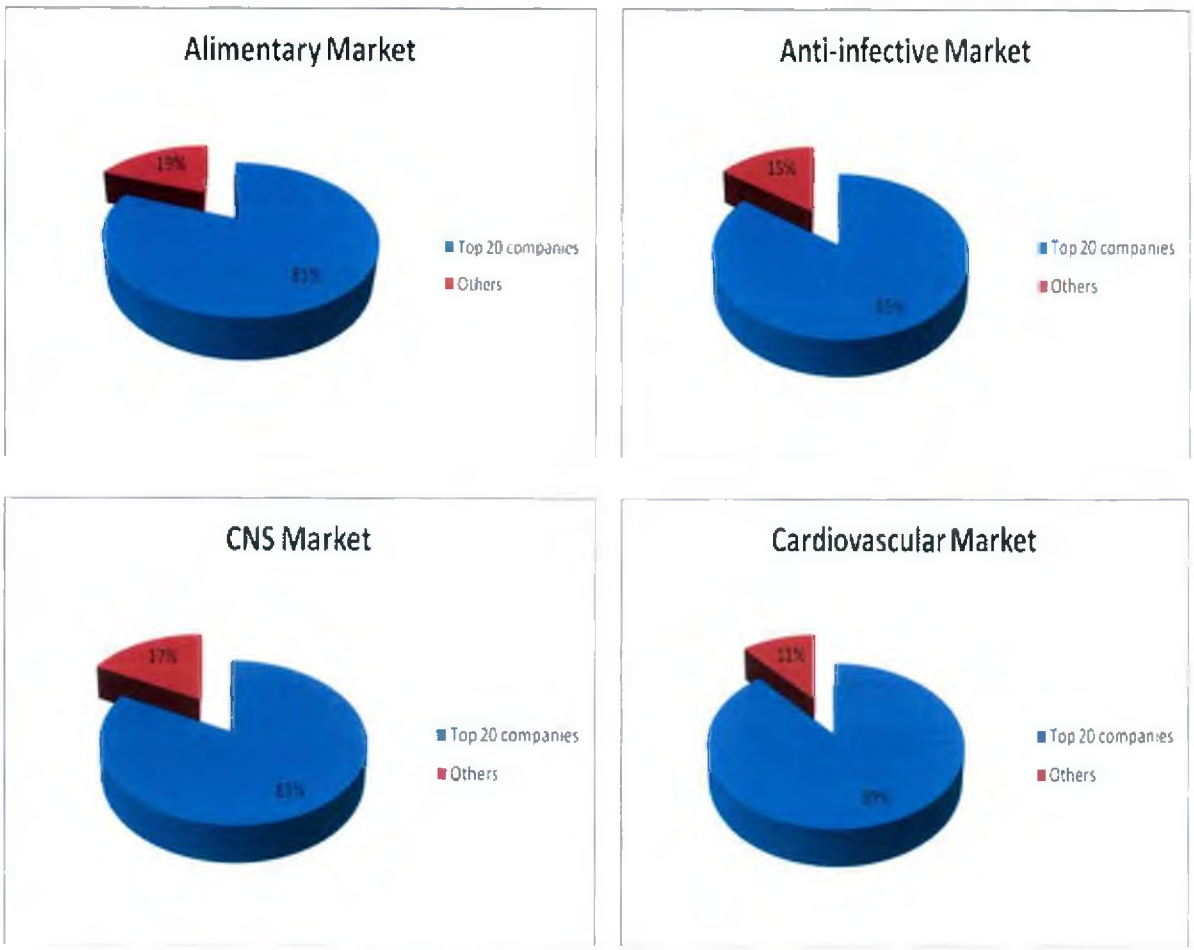


Figure 9: A comparison of the top 20 companies with the rest of the companies in the industry in 2008

Dhaka University Institutional Repository

Table 4: Name and Number of Companies in top 100 Brands in 2008

Name and Number of Companies in top 80 Brands in 2008
Square Brands= 30
Beximco Brands= 9
Incepta Brands= 8
Acme Brands= 6
Opsonin Brands= 2
Eskayef Brands= 6
Renata Brands= 7
ACI Brands= 5
AristoPh. Brands= 3
Drug Intl. Brands= 4

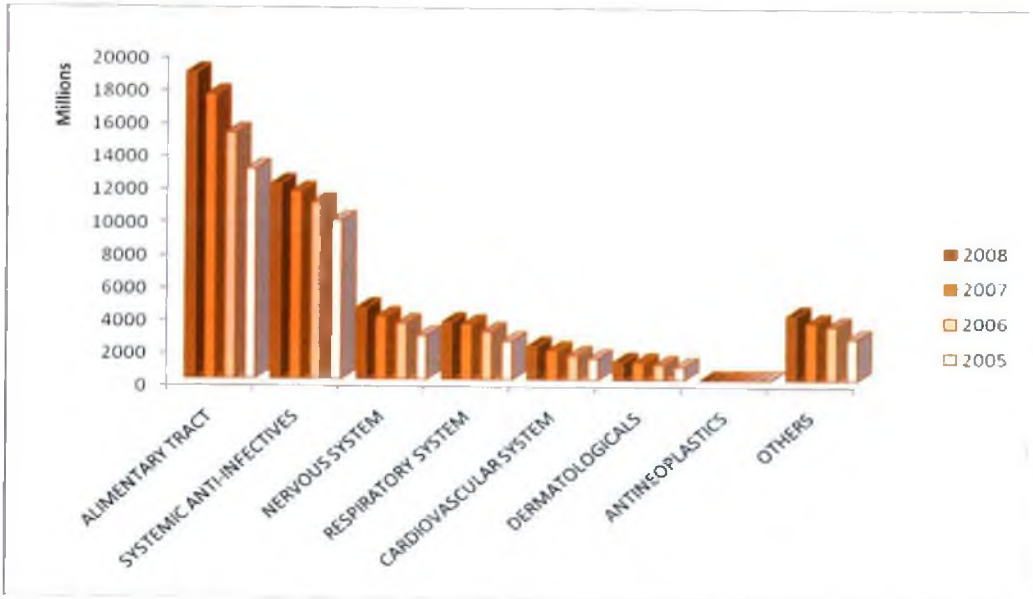
Tables 4 and 5 gives a clear picture of the pharmaceutical market of Bangladesh according to therapeutic segmentation and company brand. It also shows that the top 80 brands in 2008 belong to the top 20 companies of Bangladesh. The leading therapeutic classes are alimentary tract products (proton pump inhibitor and H2-receptor antagonist) and anti-infectives with Square, Beximco, Eskayef and Incepta brands leading in the market. The data also show that the top companies are targeting the

same therapeutic group and that that all the companies can be said to be competing in the same area and following red ocean strategy.

Table 5: Top 20 brands in the Bangladesh Market in 2008

Rank	Brand	Company	Value in Crore Taka
1	Seclo	Square	67.91
2	Neotack	Square	48.34
4	Neoceptin R	Beximco	46.60
3	Ciprocin	Square	45.96
7	Losectil	Eskayef	40.39
5	Napa	Beximco	35.39
6	Pantonix	Incepta	34.83
8	Cef-3	Square	33.77
9	Lebac	Square	29.19
11	Ranitid	Opsonin	28.04
10	Fimoxyl	Aventis	27.54
12	Entacyd Plus	Square	25.75
13	Xeldrin	ACI	24.96
14	Ceftron	Square	24.37
15	Zimax	Square	23.97
17	Flucox	ACI	20.91
16	Moxacil	Square	20.30
18	Alatrol	Square	19.55
19	Ranidin	Acme	19.02
20	Orsaline-N	Social Mkt.	18.78

Dhaka University Institutional Repository



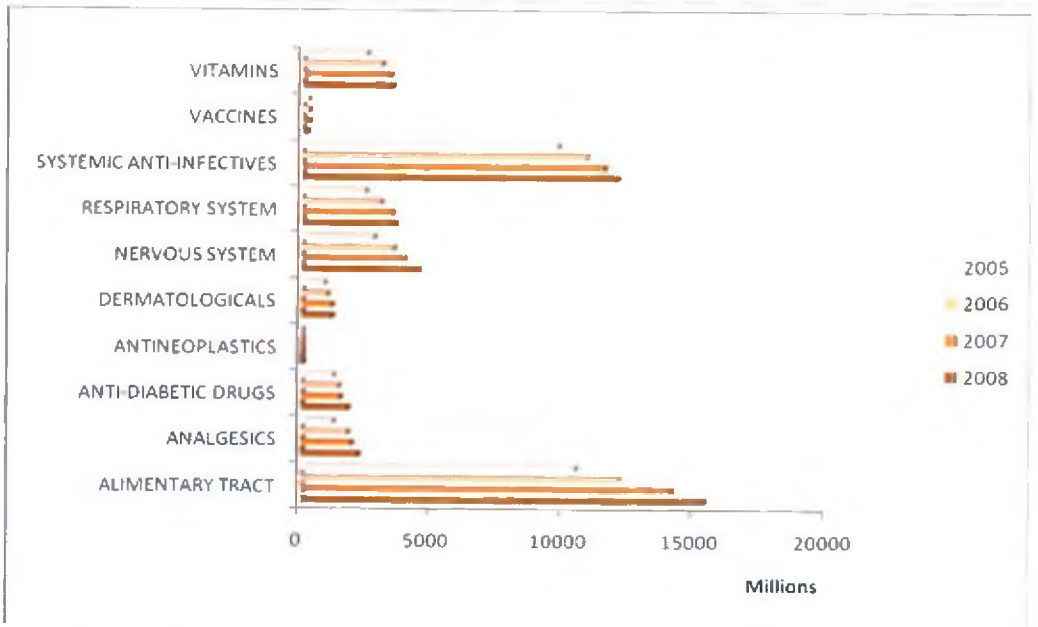


Figure 10: Market share (in taka million) of the major therapeutic groups in Bangladesh

Source: IMS Health

Figure 10 clearly show that there is a market segment that hasn't been completely met as yet (eg, for antineoplastics, vaccines) and some of the companies can come out of the red ocean (the market or therapeutic area where all the companies are competing for) and target a new market segment (255). In other word, the companies can start considering

Dhaka University Institutional Repository

specializing or targeting in other therapeutic segments, eg, neoplastic, anti-diabetics, vaccines, etc if they have havent started already.

2.3.5.3 The MICs of the Pharmaceutical Industry

Demand for pharmaceuticals is driven by physician, retailers and to some extent, the patients (Bednarik, 2005). Despite recent developments in the global marketplace, medical practitioners in Bangladesh still play simultaneous roles of users, influencers and deciders while retailers play the role of influencers and the patients perform the role of buyers and users. The role of patients in the treatment decision still remains secondary, in spite of the patients' recent emancipation in many ways. Doctors and retailers represent an additional layer between the patient and the company (Fig 12). Since the doctors are the main decision makers for the patients in buying the company's product, marketers attempt to identify the universe of physicians who are most likely to prescribe a given drug. Historically, this has been done all over the world by measuring the number of total prescriptions (TRx) and new prescriptions (NRx) per week that each physician writes. This information can be collected either by the company itself or by a third party, commercial vendors. The physicians are then "deciled" into different groups based on their writing patterns. The deciles are selected and targeted according to the company's marketing strategies. The pharmaceutical companies in recent times have been using different types of information for their marketing strategies such as:

- profitability of a prescription,
- accessibility of the physician,
- tendency of the physician to use the pharmaceutical company's drugs,

Dhaka University Institutional Repository

- effect of available formularies on the ability of the physician to prescribe a drug,
- the adoption sequence of the physician (that is, how readily the physician adopts new drugs in place of older, established treatments), and
- the tendency of the physician to use a wide choice of drugs
- influence of the colleagues on the physicians
- influence of the retailers on the patients when they go to buy the product

Although marketing plays a major role in companies' "promotional activities" in the Bangladesh market and is seen to support the predominant sales activities, sales efforts may reach a saturation level as the industry consolidates.

2.3.5.3.1 The Physician (the decision-maker)

Access to doctors has become increasingly difficult with multiple representatives targeting the same doctors. Currently, there are approximately 25,000 pharmaceutical sales representatives in Bangladesh pursuing some 40,000 to 43,000 pharmaceutical prescribers (physicians). A pharmaceutical representative often attempts to see a given physician every week. Representatives of some companies often have a call list of about 140 physicians with 120 targets that should be visited in 1-2 week cycles, depending on the company strategy, the products and the specialization of the physicians (primary source). Therefore, relationship marketing can play an important part in bridging the gap. It helps in building a rapport with doctors and the PSRs.

Dhaka University Institutional Repository

It may no longer be possible in the future to rely so much on merely promotional activities by the PSRs targeted towards the physicians or by increasing the number of sales representatives promoting a product (Moss & Schuiling, 2004). It may be required to change the existing promotional tools or strategies that are used to pass on the product message to the company's MICs.

2.3.5.3.2 The Retailer (the influencer)

In Bangladesh, the retailers have been found to either influence the patients into buying a company's product other than the one prescribed by the physician or even suggest a drug product for the symptoms described to them by the patient (Fig 11). Effectively navigating this influencer group needs in-depth market research. A country's healthcare system, legal and regulatory environment, culture and socio-economic differences will impact the influencer group. Apart from these factors, in order to define, understand and target them effectively, the current research has included the study of the following areas:

- What is the role of the retailers as influencers and at what stage of the treatment decision process are they involved?
- What motivates them?
- Which information channels do they routinely use?

Dhaka University Institutional Repository

- How do they like to be talked to? For example hypertension, morbidity and mortality may mean a lot to physicians, but to most influencers who are not medically trained, high blood pressure may be more relevant and meaningful than hypertension.

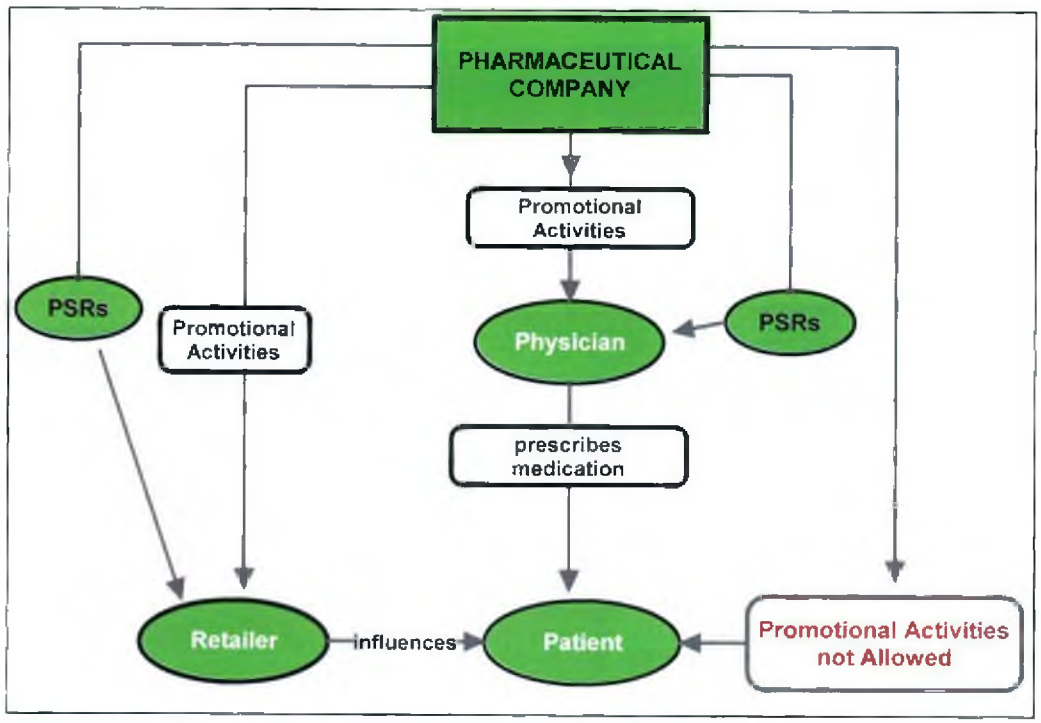


Figure 11: Marketing Activities and Relationships in Bangladesh

2.3.5.3.3 Pharmaceutical Sales Representatives (the interface between the company and the physician)

Optimizing sales investment is a key business driver for the pharmaceutical companies (Flavin, 2009). At some point - as the portfolio of drugs expands, competition intensifies, and sales forces increases – the business environment starts to become significantly complex. In a branded generic market like Bangladesh, there are a number of other factors that also affect business which include marketing strategies to

Dhaka University Institutional Repository

position the products, price of the products, product packaging, relationships with physicians and branding (Perry, 2006).

Pharmaceutical companies are now found to rely more heavily than ever on their sales forces and, with the growth in size and spread of the sales force, it is essential to ensure a consistent quality, ability and motivation of those people who are relied upon to hit the right doctors with the right messages (Butler, 2002). Because of the large size of the pharmaceutical sales force and the number of physicians, the measurement of effectiveness of the sales force is a significant business challenge. Management tasks are usually broken down into the areas of physician targeting, sales force size and structure, sales force optimization, call planning, and sales forces effectiveness. In terms of skills development, sales effectiveness is critical. Pharmaceutical companies have realized that training sales representatives on high science alone is not enough, especially when most products are similar in quality. Thus, training sales representatives on relationship selling techniques in addition to medical science and product knowledge, can make a difference in sales force effectiveness. Specialist physicians are relying more and more on specialty sales people for product information because they are more knowledgeable than primary care people. Companies are thus starting to realize the need for a comprehensive sales monitoring database for their successful marketing.

Marketers always need to decide on the appropriate size of a sales force needed to sell a particular portfolio of drugs to the target universe. The most essential task is to design the optimal reach (how many physicians to see) and frequency (how often to see them) for each individual physician. It is also required to decide how many sales representatives will be devoted to office and group practice and how many devoted to

Dhaka University Institutional Repository

hospital accounts. Additionally, customers are broken down into different classes, with each class differentiated by their prescription behavior and of course, their business potential.

Direct marketing to patients is against the rules and regulations of pharmaceutical marketing in Bangladesh. Therefore in the midst of the regulatory environment of today's dynamic health sciences market, being able to do successful product positioning in the minds of the physicians is extremely essential for the pharmaceutical companies since the industry's main priority is to provide medicines to treat and prevent diseases, ease sufferings and improve peoples' quality of life.

Pharmaceutical companies still rely on the "pinball wizard" sales model: sales representatives bounce from one doctor's office to another with hopes of catching a few moments with physicians and influencing which drugs they prescribe. The model has without doubt been successful, increasing the physician's awareness of the range of medicines available and providing pharmaceutical companies with rising sales and the highest margins of any mainstream industry. In recent years the changing dynamics of the business have prompted a massive expansion of sales forces. The resulting system is costly, sometimes inefficient, and rife with dissatisfaction. Sales representatives complain that they are under rewarded; district managers are overburdened; physicians feel under constant assault; and the drug companies face the rising costs. On top of all that, there also seems to be a lot of criticism in sales practices such as paying for the physicians' international conferences or training seminars.

The role of medical or pharmaceutical marketing has historically been to prepare sales messages and detail aids that would enable the sales force to get the marketing messages across to the targeted physicians. The

Dhaka University Institutional Repository

following are the different materials used in Bangladesh for their pharmaceutical marketing/promotional activities (primary source):

Folder/File Cards which are of two types -

- Printed Literature (Information for Physicians) in different shapes and sizes
    - Flash card (no fold)
    - Bi-fold, Tri-fold, etc
    - Pocket Guides
    - Disease Guides
    - Posters
    - Stickers
- Detail Aid (detailing pad)
    - Pocket pads
    - Empty pads of different shapes and sizes for the physicians to write on

2.3.5.4 Packaging

The pharmaceutical industry of Bangladesh has grown in the last two decades at a considerable rate, along with the development of auxiliary industries for producing glass bottles, plastic containers, aluminium tubes and caps, infusion sets, disposable syringes, and corrugated cartons. Printing and packaging industries consider the pharmaceutical industry a key driving force for their growth.

The packaging industry is divided into two types – primary and secondary. The primary packaging includes blisters (tablet strip), aluminium foil printing, glass and pet (plastic) bottles, PVC film, bottle

Dhaka University Institutional Repository

caps, saline bags and flips of seal. Bottle labels, plastic wrapper, cardboard boxes and cartons are part of the secondary industry. The industry is headed towards being self-sufficient in packaging and meets more than 90% of the need, which was previously import-dependent. All types of primary and secondary packaging, except PVDC film (transparent foil) and aluminium foil, are produced by local companies in Bangladesh.

2.3.5.5 Distribution Network

The pharmaceutical distribution network tends to be more retail-oriented and bulk of the distribution is done by the companies themselves. Pharmaceutical companies distribute their products from their own warehouses located in different parts of the country, as no professional distribution house is available. Wholesalers (total number in Bangladesh about 300; DDA, 2009) play a limited role in this regard since companies supply goods mainly to retailers (total number in 2009 was reported to be 85,500; DDA, 2009; Table 6). A large number of illegal and unlicensed drug stores are also known to exist in cities, towns, rural bazaars, which leads to the unnecessary sale of often poorly-manufactured pharmaceuticals.

465057

The distribution of the products by a separate distribution company has only recently started in Bangladesh, eg, the products of Glaxo SmithKline and RAK Pharmaceuticals Ltd are distributed by the international company, Zuellig Pharma; the products of Novo Nordisk (a MNC), Servier (a French pharmaceutical company) and Eskayef (a national pharmaceutical company) are distributed by a local distribution company, Transcom Distribution Co. Ltd. (pharma)[primary source].

ঢাকা বিশ্ববিদ্যালয় গ্রন্থাগার

Dhaka University Institutional Repository

Table 6: Number of Pharmaceutical Retailers in Bangladesh

	2000	2008
Number of retail drug license holders	37,700	85,000

Source: DDA

2.3.5.6 New Market Entry of the Existing Companies

A few of the leading local companies of Bangladesh have had new market entry in 2008. Beximco Pharmaceuticals became the first Bangladesh company to receive Good Manufacturing Practice (GMP) clearance from Australia's Therapeutic Goods Administration (TGA) for its manufacturing facilities in the latter country, and Square Pharma became the first Bangladesh company to receive clearance from the Medicines and Healthcare products Regulatory Authority (MHRA) – an executive agency of the UK Department of Health – to export pharmaceutical products to Hong Kong (primary source).

Incepta received the certificate of GMP compliance from the EC and from Kenya (two certificates - one for the general facility and the other for the cephalosporins from The Pharmacy and Poisons Board; Ministry of Health). In 2009 Incepta received GMP certification from the following countries: Turkey, Ethiopia, Congo; and in November of the same year, has signed a technology transfer agreement with a company in North Africa, to produce Incepta brands under license from Incepta Pharmaceuticals Ltd. Incepta shall thus be the driving force in developing

their manufacturing technology for pharmaceutical manufacturing (primary source).

Domestic pharmaceutical manufacturer Eskayef Bangladesh Ltd. has also recently announced that it has won accreditation from the UK Medicines and Healthcare Products Regulatory Agency (MHRA) for its new production plant at Tongi. The accreditation will now allow Eskayef to export tablets, capsules and granules to the UK and other European countries as well as facilitate entry into the highly regulated markets of Australia, South Africa and the Gulf Cooperation Council (GCC) nations. At present, Eskayef is in the process of exporting finished drugs to Europe. Another major announcement was the signing of a deal on 10 November, 2009 with the world's biggest insulin maker Novo Nordisk. The company is expected to set up an exclusive filling and packaging facility near Dhaka for the Novo Nordisk insulin (primary source).

Presently top pharmaceutical companies in Bangladesh are also in the process of getting into bulk drug production with collaborative technology, technology transfers and joint venture basis.

2.3.5.7 New Players in the Pharmaceutical Industry

Although 2008 proved a challenging year for Bangladesh drug makers - as a result of increasing costs and the global economic recession - a number of new players appeared on the country's pharmaceutical scene. Novus Pharmaceuticals, a recently established subsidiary of the Abdul Monem Group, one of the largest conglomerates in the country, plans to commence operations in late 2009, with a portfolio of 40 medicines, and the company anticipated to export products before 2011 (primary source). Recent new companies that have entered the market include RAK Pharma

Dhaka University Institutional Repository

and Sharif Pharmaceuticals. The evolution of Bangladesh's pharmaceutical sector is increasingly being characterized by aggressive sales and marketing strategies. According to the President of the Bangladesh Association of Pharmaceutical Industries (BAPI), M Shafiuzzaman, the market is becoming more and more competitive in terms of price and quality.

AFC (Active Fine Chemicals), a private sector enterprise, started manufacturing raw materials and chemical reagents for the pharmaceutical industry with a view to lessening import dependency and cutting down time and costs (primary source). It also said that although the Bangladesh Pharmaceutical Industry has advanced in its value chain in many ways, backward linkage of this industry is not yet very strong. A few pharmaceutical companies which produce raw materials in the country can produce only 5% of the total requirement but most of these produced are used by themselves (primary source).

2.3.6 Human Resource Management

There has been a tremendous amount of focus around discovery, development, and lifecycle management of the 'product' pipeline, but not as much focus on discovery, development, and lifecycle management of the 'people' pipeline. In the present times, managing the talent at all levels is more important particularly for the pharmaceutical industry, where the most innovative people will create the most innovative products, services and the marketing tactics, and not vice versa.

Since the pharmaceutical industry is a professional services industry, apart from supplying quality products to the customers, the key resources

Dhaka University Institutional Repository

are generally its people and the key processes are naturally people related training and development (Johnson et.al, 2008).

Although the basic strength of Bangladesh is manpower and the country's 40+ universities build up thousands of pharmacists, biochemists, doctors and engineers every year, training and research in the universities and RDIs is not found to be done at the level and rate required for the development of the sector. The laboratory facilities available in Bangladesh for both pharmaceutical sciences and biotechnology research are also not enough to create the human skills that can be directly deployed by the industry. It is commonly required to train the graduates in areas of chemical synthesis, clinical pharmacy, marketing and other related fields for at least 6 months after they are employed by a company. This is due to lack of the facilities available mainly as a result of lack of funding and lack of focus in the different academic institutions (Professors, Faculty of Pharmacy, University of Dhaka, 2008). The government has been allotting only 12 crore takas (equivalent to US$ 1.75 million) for public sector research for the entire country which are to be shared amongst universities, RDIs, NGOs, and other public sector institutions. The infrastructure of even the top university departments and RDIs are also not sufficiently supportive towards developing local API skills (marketing directors of top pharmaceutical companies).

2.3.7 International Trade

2.3.7.1 Pharmaceutical Exports

With regard to exports, figures compiled by the Bangladesh Association of Pharmaceutical Industry (BAPI) and the Dhaka Chamber of Commerce and Industry (DCCI) show local pharmaceutical companies

Dhaka University Institutional Repository

exported medicines with a value of US$28.1mn during 2007; a 47% rise from the previous year. This increase came from the concerted efforts taken by Bangladesh drug makers and can therefore be considered to look further afield for growth opportunities.

Bangladeshi pharmaceutical exports are relatively small at around US$44m in 2008 but with impressive CAGR of greater than 43% (exports double every two years at this rate) and approvals from the most well regulated healthcare markets' authorities already gained or in the process, the export of pharmaceuticals is expected to increase greatly in the near future, say industry analysts (Murad, 2009).

Bangladesh is now exporting a wide range of pharmaceutical products covering major therapeutic classes and dosage forms like tablets, capsules and syrups. Bangladesh is also exporting specialized products like HFA inhalers, suppositories, hormones, steroids, oncology and immunosuppressant products, nasal sprays, injectibles and IV infusions. Some of the most stringent regulatory authorities in the world have approved a few Bangladeshi pharma companies for export of some of their products (Murad 2009). The GCC's Gulf Central Committee for Drug Registration, Therapeutic Goods Administration of Australia, UK's MHRA, Brazil's ANVISA, Chile's ISPCH and Austria's EMEA have issued GMP clearance to many local companies. At present Bangladesh exports formulated medicines to 71 countries in the world (Table 7), of which some of the countries are: Afghanistan, Austria, Belize, Belgium, Bhutan, Botswana, Brazil, Cambodia, Canada, Colombia, Chili, Curacao, Djibouti, Denmark, Ecuador, Ethiopia, France, Fiii, Georgia, Germany, Ghana, Gambia, Guatemala, Hong Kong, Macao Honduras, Hungary, India, Indonesia, Iran, Jordan, Japan, Kenya, Korea (South), Kinbati, Lebanon, Malaysia, Mexico, Mozambique, Myanmar, Nepal,

Netherlands, New Zealand, Norway, Russia, Nicaragua, Pakistan, Papua New, Guinea, Philippines, Singapore, Slovenia, Somalia, South Africa, Spain, Sri Lanka, Sudan, Sweden, Syria, Solomon Island, Taiwan, Tanzania, Thailand, Togo, UAE, Ukraine, UK, USA, Venezuela, Vietnam, Yemen, Zimbabwe etc (DDA, 2009).

However, despite the growth in export revenue, pharmaceutical exports from Bangladesh are outweighed by imports. The most recent breakdown figures (2006) from the International Trade Centre (ITC) reveals that finished drugs (US$33.21mn) accounted for the majority of imports, followed by Active Pharmaceutical ingredients or APIs (US$1.20mn), and other preparations (US$0.14mn). By 2013, BMI expects the exports to have overtaken imports, reaching a value of US$493mn and US$390mn, respectively. It is also envisaged that over the next five years, sales of pharmaceutical products are expected to grow from US$858mn to US$1.88bn, thus representing a compound annual growth rate (CAGR) of 17.08% (BMI).

Table 7: Pharmaceutical Export Statistics of Bangladesh

Year	Finished Products (in taka millions)	Number of Countries
2003	545.46	51
2004	1400.00	62
2005	1421.00	67
2006	2519.00	61
2007	2347.10	67
2008	3131.07	71

Source: DDA, Bangladesh

2.3.7.2 Bangladesh and WTO: Global Trade Liberalization and Patent Flexibility

The growth and development of a firm depend on its ability to introduce new products (whether new or generic) into the market over time (Nerkar and Roberts, 2004). To do this successfully, it must assimilate a range of technological inputs into novel combinations, and it must ensure that these new products effectively meet the needs of the market (Fleming, 2002).

Recently, external challenges have included international political issues such as the World Trade Organization's (WTO) Trade Related Aspects of Intellectual Property Rights Agreement (TRIPS) on a global level. Prior to this, many developing countries considered patent protection limited access to cheap medicinal products to the poorest in society. Despite the

huge pressures from the developed countries such as the United States, Canada and the European nations to protect the research and development costs incurred by their pharmaceutical industries, the TRIPS agreement allowed certain flexibilities to accommodate the public health needs in poor countries. It defined all nations as Developed, Developing and Least Developed Countries (LDCs). The successful completion of the Uruguay Round Agreement in 1994 and the establishment of the WTO in 1995 were expected to have crucial implications for the LDCs such as Bangladesh.

Bangladesh, a signatory of WTO, is one of the 39 least developed countries and consequently is exempted from the trade-related intellectual property rights until 2016. This allows the companies operating in Bangladesh to produce the API & FG that are otherwise patent protected in the rest of the world. In other words, till 2016 Bangladesh, as an LDC, can produce any of the patented medicines and market them locally or globally up to 2015. This is a great opportunity for the Bangladesh Pharmaceutical Industry, which they should capitalize on. Local companies are trying to register and bring into the market as much new-patented products as possible before 2016, so that they can continue them beyond 2016. They have similar plans to do with the APIs. To make this process fast, local companies are known to be bringing technologies and experts from China, India, Korea, even some countries of Europe (primary source). The MNCs of Bangladesh are also known to have plans to launch patent protected generics (of other companies) in the Bangladesh market with permission of their parent companies.

Progressive patent expiration and implementation of trade agreements present promising growth opportunities for pharmaceutical manufacturers in Bangladesh as part of Asia and, are expected to further underline the

Asian region's potential for production. In this context, effective supply chain management and reliance on strategic alliances through outsourcing, subcontracting and other forms of linkages and partnerships definitely lead to comparative advantages. However, restriction on patent rights discourages foreign investors to come forward actively in the pharmaceutical market in Bangladesh. The NDP of 1982 had been reviewed and amended in 2005, with the objective of the start of a new era for Bangladesh by suggesting some new provisions including permission to foreign pharmaceutical companies to manufacture drugs in Bangladesh. The year 2016 will mark the end of TRIP regulations that has allowed Bangladesh to copy world-renowned pharmaceutical products at a cheaper price. This competitive advantage should be utilized to the maximum by supporting the pharmaceutical companies to the maximum.

The Bangladesh Pharmaceutical sector is one of the most developed sectors in terms of technology contributing to the country's economy. It was after the promulgation of the 1982 Drug Control Ordinance that the development of this sector was accelerated. The professional knowledge, thoughts and innovative ideas of the pharmacists and related-business executives working in this sector are the key factors for these developments. Recent developments of this sector have led to the export of the products to the global market including the European market, after providing 95% of the total medicine requirement of the local market. Leading local Pharmaceutical Companies are also expanding their business with the aim to expand export market. Recently few new industries have been established with world-standard equipments and professionals that will enhance the strength of this sector.

2.3.7.3 Bangladesh Pharmaceutical Market and the Global Market

The size of the market maybe small by global standards (Fig. 12 and Table 8) but numerous factors mask the true size and potential for growth of the domestic pharmaceutical industry. The general population in Bangladesh often seeks relief from ailments through traditional herbal medicines especially when allopathic treatments are comparatively expensive or out of reach. Some estimates put the size of the domestic traditional medicines market at a quarter of the allopathic pharmaceuticals market which means the size of the actual medicinal market could be worth US$1.1 billion. Even so, it is estimated that with a CAGR of over 18%, the Bangladeshi domestic allopathic pharmaceuticals market will be worth over US$1.88b by 2013.

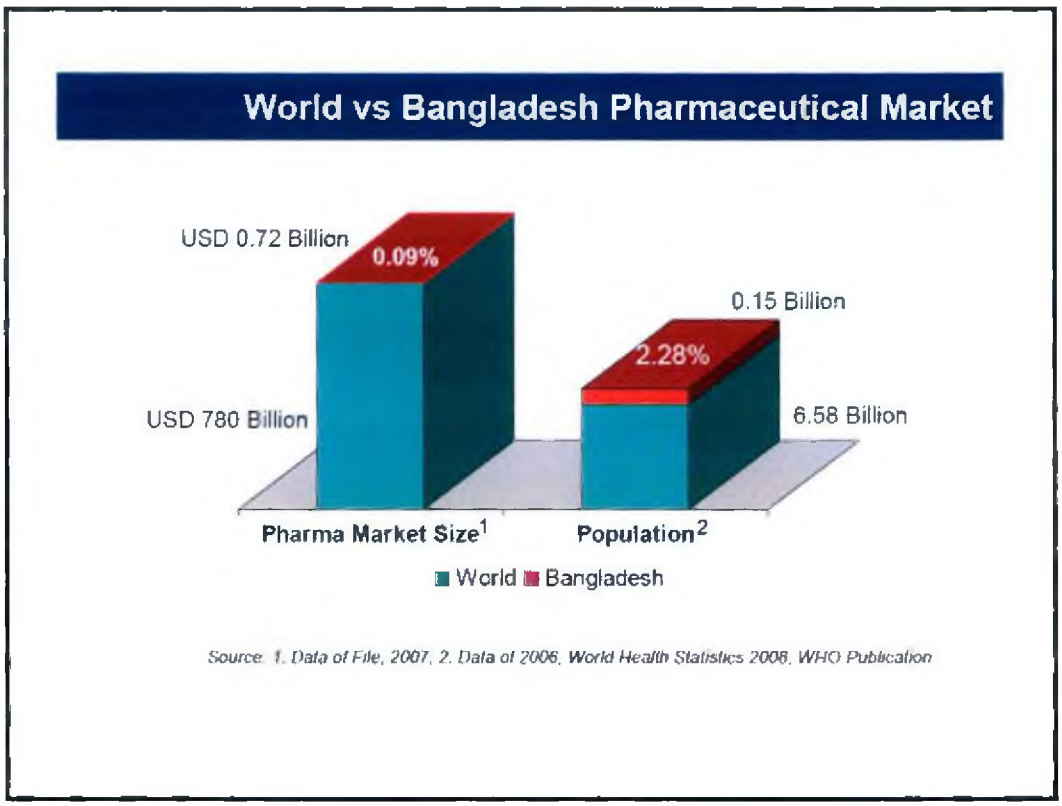


Figure 12: A comparison between the world and Bangladesh Pharmaceutical Market

Given the country's lack of spending power, the pharmaceutical market,

at US$785 million in 2009, remains tiny in comparison with the size of the population (Bangladesh pharmaceutical market intelligence report: 2008). In order to meet the needs of the population, an effective increase in the public health allocation is required which is a challenging task (Bangladesh: WHO Country Cooperation Strategy, 2008-2013). Pharmaceutical spending is amongst the lowest everywhere in the world in per capita terms. Bangladesh is no exception. Steadily improving economic performance, combined with a general determination to boost the quality of healthcare, should lead to a modest market growth. An increase in investment in Bangladesh by multinational pharmaceutical manufacturers was also anticipated which would lead to a growth in the sector. The revised National Drug Policy was introduced in 2005 with this hope of encouraging foreign multinational investment and revitalizing the health sector in the long term. The importance of global competitiveness of the pharmaceutical industry in Bangladesh is found to be steadily increasing, and therefore the manufacturers require effective corporate strategy to achieve further sustainable competitive advantages.

Dhaka University Institutional Repository

Table 8: Bangladesh Pharma Market in Comparison to Other Important Pharma Market in 2008

Country	Sales, $(millions)	Share of World Sales, $(%)	Growth (%)
USA	290980	40.1	1
Japan	68567	9.5	3
France	42200	5.8	2
Germany	41128	5.7	5
Italy	25569	3.5	4
Spain	22393	3.1	8
UK	22323	3.1	3
China	19634	2.7	27
Canada	18723	2.6	6
Brazil	12467	1.7	12
Turkey	10518	1.5	11
South Korea	9627	1.3	11
Australia	9032	1.2	10
Mexico	8549	1.2	2
India	7743	1.1	10
Poland	7360	1	9
Russia	6247	0.9	10
Belgium	6162	0.9	6
Greece	6016	0.8	10
Netherlands	4852	0.7	-4
Bangladesh	686	0.09	7

Source: IMS, Bangladesh

Dhaka University Institutional Repository

CHAPTER 3. CONCEPTUAL FRAMEWORK of the RESEARCH

3.1 OBJECTIVES AND SCOPE OF THE STUDY

3.1.1 Objectives

One of the main issues that need to be addressed urgently by the Pharmaceutical Sector of Bangladesh is the question of affordability and accessibility to medicines after 2015 when Bangladesh will need to comply with the WTO terms. Most pharmaceutical companies, regardless of size and location, face a common challenge: how to appropriately invest to maximize the number of therapies brought to market without sacrificing shareholder value. It is noticed that whenever there is mention of TRIPs in particular, although patenting of the drugs is the first thing that comes in mind, the discussion ultimately leads to generic brands rather than to patents since the pipeline is getting exhausted. As a result, the new paradigm for the pharmaceutical industry today is found to be focusing more on innovative way of doing business - selling the same medicines but requiring a fundamental shift in perspective for pharmaceutical companies and service providers alike.

The problem statement of the research is: No strategic issues relating to the forward linkage of the value chain of the Pharmaceutical Sector of Bangladesh have been found to be documented and made available in order for the industry to capitalize on and create more opportunities and different sources of value for the industry's competitive landscape to be transformed to a more advantageous position.

Dhaka University Institutional Repository

Broad objectives of the study are:

- To assess the objectives, focus, effectiveness (performance), differentiation and competitiveness of the different pharmaceutical companies operating in Bangladesh.
- To examine the existing business practices and strategy of the pharmaceutical industry expressed by survey informants (executives of both domestic and multinational pharmaceutical companies of Bangladesh).
- To examine the social issues faced and practiced by the different pharmaceutical companies operating in Bangladesh.
- To design a strategic pharmaceutical marketing model (PPM) for the sector which will suggest how to improve the pharmaceutical industry, particularly in areas related to marketing (profitability) and competitiveness, both locally and globally to give it a competitive advantage bearing in mind that Bangladesh will need to abide by the regulations established by WTO since it is a signatory of WTO.

3.1.2 Scope of the Study

The purpose of this study is to develop a strategic PPM that will recommend ways of improving the industry after analyzing the different marketing dimensions of the pharmaceutical industry of Bangladesh and identifying opportunities in order for it to attain a competitive advantage in order to sustain itself after 2016. The goal of the analysis is to also obtain a complete understanding of the marketing activities of the Bangladesh pharmaceutical industry by studying the different factors which are responsible for the different companies to take their strategic decisions.

Dhaka University Institutional Repository

Considering the value chain of a pharmaceutical industry having the four major components (section 1.6), the backward linkage of the value chain of Bangladesh is different in the sense that the industry at the moment is involved only in the manufacture of the generic version of the products using mainly imported API and in the import of finished products. The pharmaceutical industry of Bangladesh is yet to invest in API production and in R&D. Secondary data showed that a detailed analysis on the backward linkage of the value chain of Bangladesh has been done and documented – that is, on the manufacturing capabilities of the pharmaceutical industry, distribution network of the industry, packaging of the pharmaceutical products, improving pharmaceutical quality in Bangladesh (Bangladesh Development Series, 2008), as well as the necessity and possibilities of setting up a API park in Bangladesh (Alauddin, 2009). Secondary data study also showed that a documented analysis of the forward part of the value chain of the Pharmaceutical sector of Bangladesh (the marketing part of the value chain of the pharmaceutical industry of Bangladesh) is yet to be made available, which led to the focus of this research.

The study has covered all data and information up to 2008.

Dhaka was considered to be the source for sample selection for several reasons:

- per capita consumption is highest in Dhaka city
- Dhaka constitutes or represents all the strata
- major number of hospitals and clinics are in Dhaka
- the market is highly unregulated (primary source)

Dhaka University Institutional Repository

3.2 INDUSTRY

The following 5 important factors were identified and an industry information framework (Fig. 13) prepared. These factors (or dependent variables) will be examined to better understand the marketing activities taking place in the pharmaceutical sector of Bangladesh

- Corporate issues (internal)
- Corporate issues (external)
- Opportunities
- Product management
- Marketing or Promotional factors (targeting the MIC)

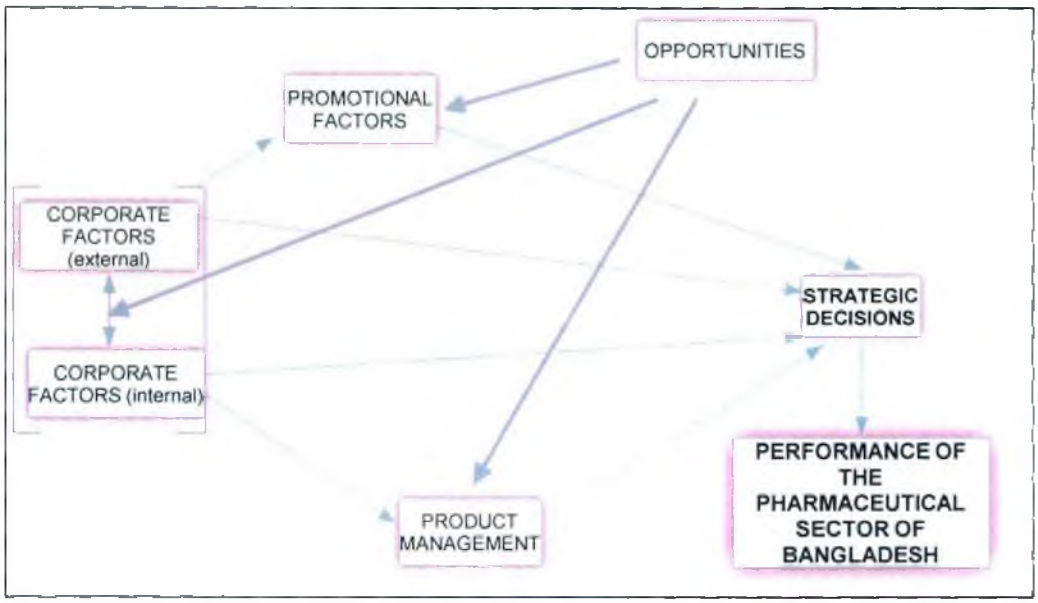


Figure 13: INDUSTRY INFORMATION FRAMEWORK: The framework for explaining the associations between the different factors that influence the strategic decisions taken by the pharmaceutical industry of Bangladesh which in turn affects the performance of the industry
Note: 'opportunities' indicates a future event

3.3 PHYSICIAN

After the study of the different dimensions of the industry was complete, the physician theoretical framework (Fig. 14) which was found to involve

Dhaka University Institutional Repository

4 main factors was drawn. Direct factors are those that are directly related to the physicians' intent to prescribe, such as the physician's experience with the medication, formularies, price of the drug, etc. Indirect factors are those that influence physician's intent to prescribe indirectly, yet are as significant as those direct factors. Indirect factors are peer influence (colleagues' and KOLs' opinions), clinical data, PSRs, etc. The physician framework involved the following factors:

- Direct Factors
- Indirect Factors
- Opportunities
- Patient

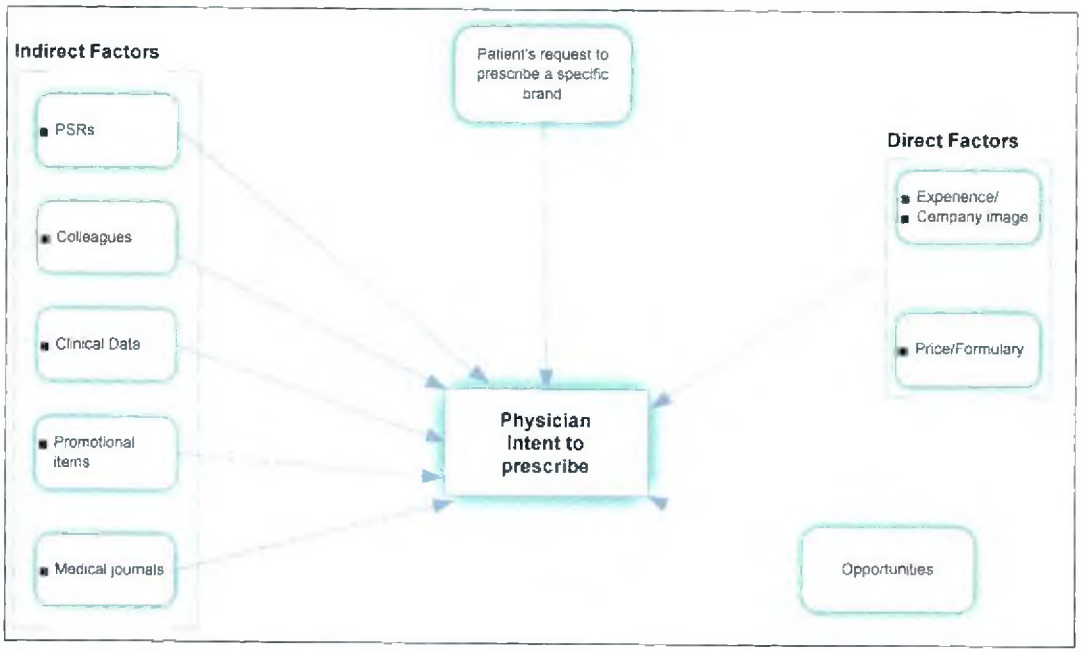


Figure 14: PHYSICIAN INFORMATION FRAMEWORK. The framework for explaining the associations between physician's intent to prescribe, patient diagnosis, direct and indirect methods, patient's request and opportunities

Note: 'opportunities' indicates a future event

The attempt by this research to evaluate the prescribing habits of the physicians can be related to the innovation-decision process proposed by

Dhaka University Institutional Repository

Rogers, who proposed the 5 stages through which an individual passes en route to adoption: knowledge, persuasion, decision, implementation, and confirmation (Rogers, 1983). Considering that the pharmaceutical market of Bangladesh is a branded generic one leading to a huge competition amongst the large number of therapeutically equivalent drugs (me-too drugs), one of the critical stages for the physician's prescribing habit adoption is persuasion, defined as the point where the physician forms a favorable or unfavorable attitude towards the product. This stage typically involves the evaluation of the drug through trial, either by providing the free samples to the patients or writing prescriptions for a small number of patients to evaluate the drug prior to adoption (that is, broader application to his/her patient population). This trial, or persuasion period, of the physicians is thus very important to the different pharmaceutical companies.

3.4 RETAILER

The retailer information framework (Fig. 15) was found to encompass the following 4 important factors:

- Corporate (supply, product portfolio, PSRs)
- Customer (patients/end users)
- Policy
- Opportunities

Dhaka University Institutional Repository

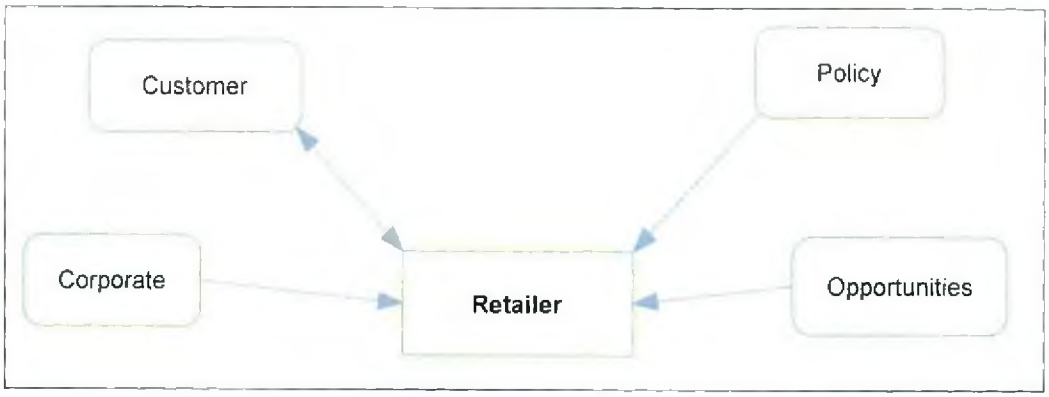


Figure 15: RETAILER INFORMATION FRAMEWORK: The framework for explaining the associations between retailer's sales, corporate marketing activities (PSRs), customers, policy and opportunities

Note: 'opportunities' indicates a future event

3.5 PSRs

The PSRs information framework (Fig. 16) was found to encompass the following 4 important factors:

- Corporate factors (salary, benefits, company policy, work support, etc.)
- Opportunities
- Customer (physicians and retailers)

Dhaka University Institutional Repository

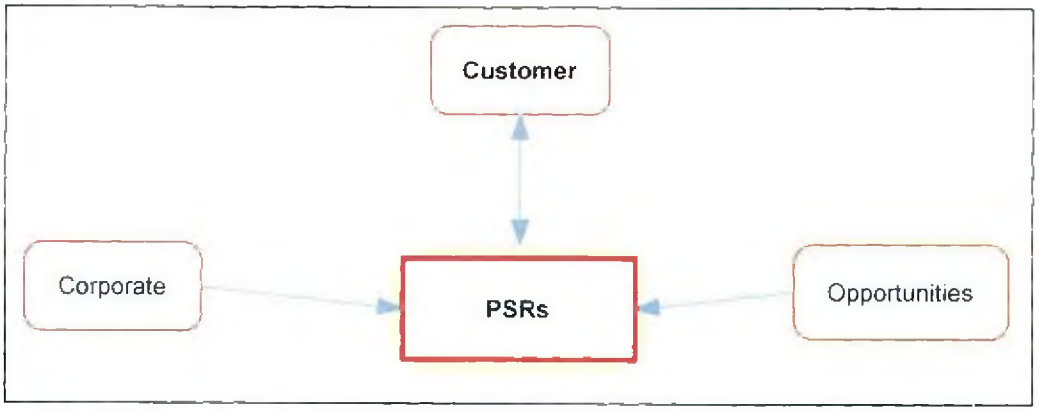


Figure 16: PSRs INFORMATION FRAMEWORK: The framework for explaining the associations between PSRs satisfaction, corporate factors, customers, and opportunities

3.6 CONCEPTUAL MODEL

The industry, physician, retailer and the PSRs' framework were taken and together linked in order to draw a conceptual model (Fig. 17) of the different factors that influence the final buying of a drug product by the end consumer.

Dhaka University Institutional Repository

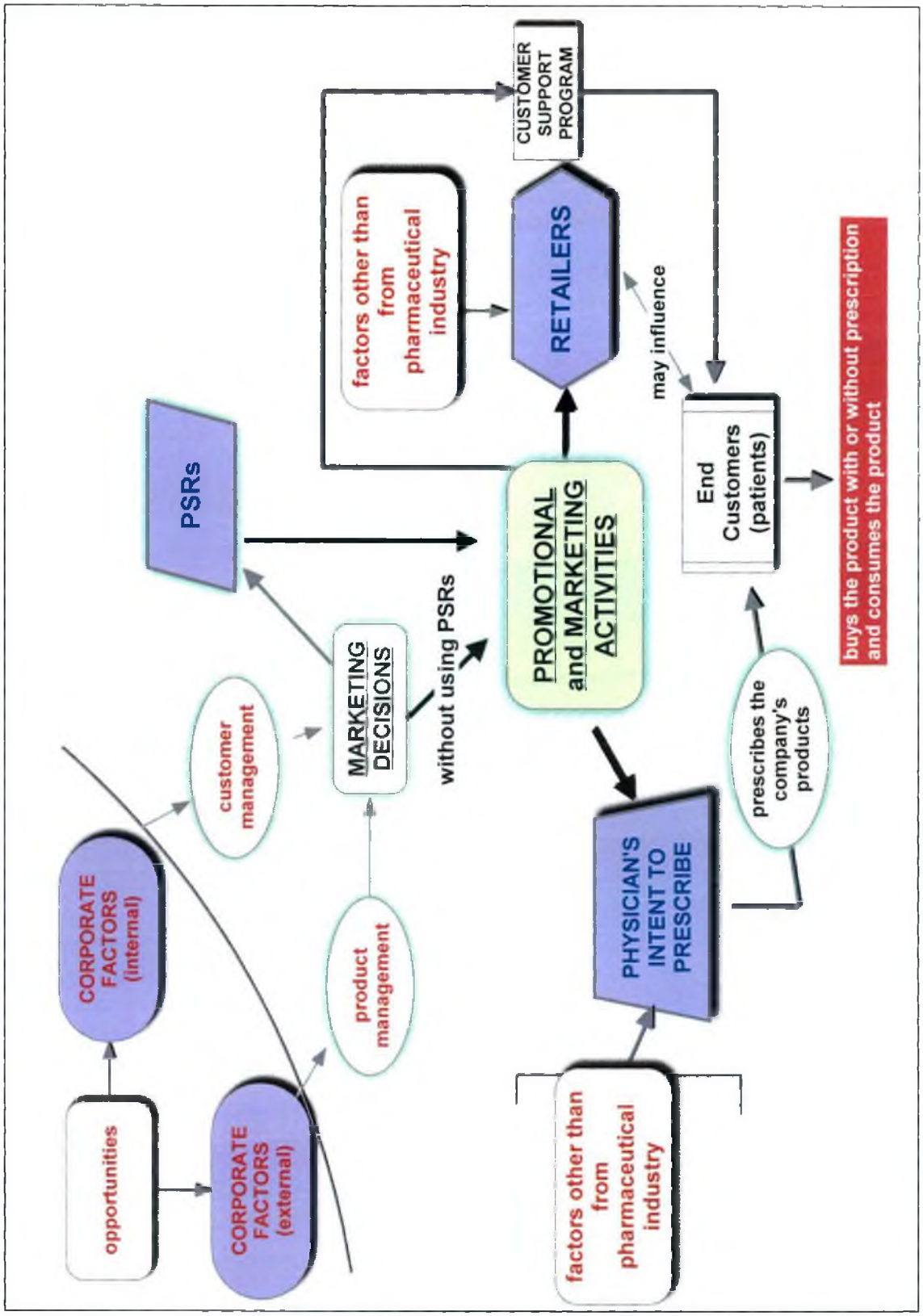


Figure 17: Conceptual Model: Marketing Activities of the companies towards Physicians and Retailers for sales and use of their products

Dhaka University Institutional Repository

CHAPTER 4. RESEARCH DESIGN AND METHODS

4.1 INTRODUCTION

Based on the theoretical evidence as well as the conceptual model outlined in the previous chapters, this section presents the research questions and hypotheses that were developed in order to explore how the performance of the pharmaceutical company of Bangladesh is affected by the activities of the companies, the PSRs and the practice characteristics of their MICs.

The study was accordingly divided into the following five broad phases:

1. exploratory research in order to address the broad objectives of the study using secondary data;
2. any gaps in the secondary data study or answers that were not obtained were then addressed by specific research questions using primary data;
3. a qualitative primary data collection based on in-depth personal interviews;
4. different statistical analyses of the data collected to build a pharmaceutical marketing model (PMM) that will explain the impact of the variables on the industry performance; and
5. finally, the use of all the data obtained to develop a strategic model that will recommend or suggest further improvement of the existing pharmaceutical sector of Bangladesh.

4.2 RESEARCH DESIGN

The design of the research was thus developed using the following steps:

Dhaka University Institutional Repository

(a) formulation of the research questions and research hypotheses

(b) formation of the information framework for the industry, physicians, retailers and PSRs

(c) pretesting for sample selection as well as for final development of the measurement instrument

(d) formation of the measurement instruments, using the theoretical frameworks, for data collection

(e) sample selection

(f) collection of data

(g) input of data and statistical analysis of the data using SPSS

(h) model output

(i) strategic model (PMM) building to recommend further improvement of the existing pharmaceutical sector of Bangladesh

The process flow chart of the entire research is shown in Figure 18.

Dhaka University Institutional Repository

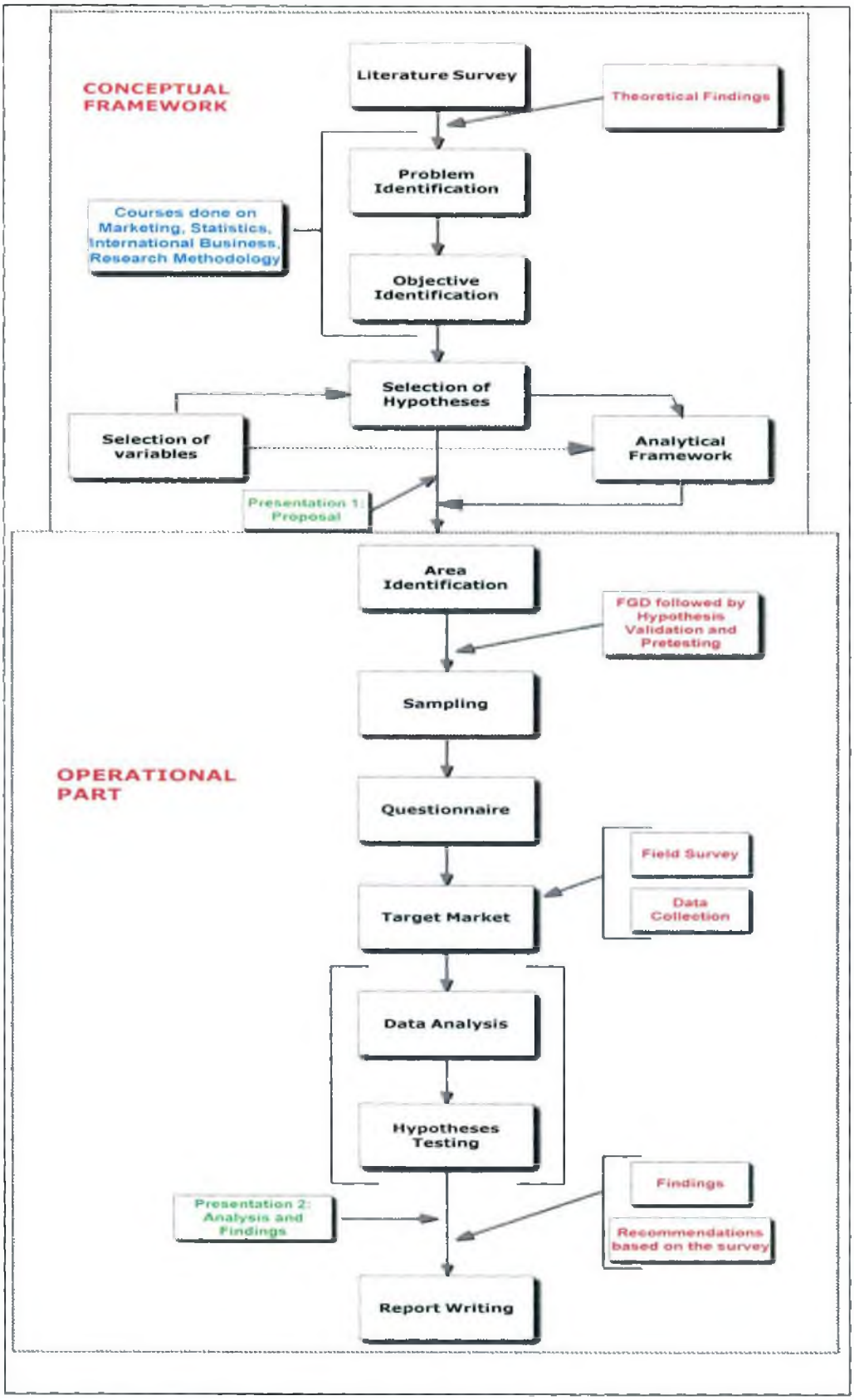


Figure 18: Process Flow Chart: Timeline included in Appendix - 1

Dhaka University Institutional Repository

4.3 RESEARCH QUESTIONS AND SPECIFIC RESEARCH OBJECTIVES

4.3.1 Broad Objectives

Broad objectives of the study are:

- To assess the focus, effectiveness (performance), differentiation and competitiveness of the different pharmaceutical companies operating in Bangladesh.
- To examine the existing business practices and strategy of the pharmaceutical industry expressed by survey informants (executives of both domestic and multinational pharmaceutical companies of Bangladesh), as well as by physicians and retailers towards the industry's products and promotional activities.
- To examine the social issues faced and practiced by the different pharmaceutical companies operating in Bangladesh.
- To design a strategic model (PMM) for the sector which will suggest how to improve the pharmaceutical industry, particularly in areas related to marketing (profitability) and competitiveness, both locally and globally to give it a competitive advantage bearing in mind that Bangladesh will need to abide by the regulations established by WTO since it is a signatory of WTO.

4.3.2 Research Questions

In order to address the broad objectives of the study, several major research questions were initially presented. The major part of the answers to the questions were answered by secondary research and the questions

Dhaka University Institutional Repository

that were not validated by the secondary data were looked into and then answered through specific research questions and quantified formulated hypothesis (primary data) in order to address the proposed research statement.

The questions to be answered are:

1. Where is the industry now and what issues are likely to be faced in the future?
2. What are the mostly used pharmaceutical marketing communications techniques (decisional factors) implemented by the Bangladesh Pharmaceutical industry that affect industry performance?
3. Which are the decisional factors used by medical practitioners that affect the drug selection process?
4. Which are the main sources of information used by medical professionals through which they learn about drugs and pharmaceutical products?
5. What impact do pharmaceutical marketing communications have on physician prescribing practices?
6. What are the social and ethical issues between the health professionals and the pharmaceutical industry?
7. What does the industry want to achieve or what are the factors that the Bangladesh Pharmaceutical Industry should consider in order to take it to competitive platform?

In the following paragraph we will try to objectively answer these questions, and test the related hypothesis by answering to the ten research objectives.

Dhaka University Institutional Repository

4.3.3 Specific Research Objectives

The specific research objectives were directed towards the primary research of the study.

- Determine the capabilities of the pharmaceutical industry of Bangladesh (to answer research question one and seven).
- Determine the plans of the industry of how to eventually face the patent regime (to answer research question one and seven).
- Identify which are the most used and impacting marketing communications techniques utilized by the pharmaceutical industry and evaluate how these practices influence prescribing practices (to answer research questions two and five).
- Determine the main sources of information used by medical practitioners to become informed about pharmaceutical products (to answer research question four).
- Determine which type of communication relationship exists across the customer groups including the pharmaceutical industry representatives and evaluate if there is an apparent ethical conflict in this relationship (to answer research question six).
- Evaluate the influencing factors that affect physicians prescribing practices and drug selection process, across the board, emphasizing PSR's case (to answer research question three).
- Evaluate the factors that are responsible for the satisfaction of the PSRs when carrying out their work assigned by the companies (to answer research question five).
- Identify the necessity of collaborations between the different pharmaceutical companies and with the research-based institutions (eg, university) in order to improve the performance of the pharmaceutical industry (to answer research question seven).

- Identify the significance of strategic decisions taken by the industry with regard to WTO (to answer research question one and seven).
- Identify the resources available in Bangladesh in order for the pharmaceutical industry to be able to bring it to a more competitive position for the pharmaceutical companies of the developed countries to outsource their products (to answer research question seven).
- Identify what is being done and what is not being done but should be done in order for the industry to be able to further improve its competitive platform for the pharmaceutical companies of the developed world to outsource their products (to answer research question one to seven).

Based on its design, the study has taken the attempt to evaluate the findings and recommend alternative ways in which the pharmaceutical marketing communication practices towards the medical professionals could be approached in order to take the industry to a more competitive platform so that it can provide quality medicine to the entire population of Bangladesh, as well as attract foreign investors for collaboration or strategic alliances, keeping in mind that the sector will need to enter into the patent regime in 2016.

4.3.4 Hypotheses

From the ten specific research questions, the following 56 hypotheses were developed by addressing the questions above, of which 39 hypotheses are for the industry data, 11 for the physician, 3 for the retailer and 3 for the PSR (appendix – 3).

Dhaka University Institutional Repository

Hypothesis 1: There is a significant relationship between operating decisions and company performance.

Hypothesis 2: There is a significant relationship between company reputation and physician's intent to prescribe.

Hypothesis 3: There is a significant relationship between access to resources and company performance.

Hypothesis 4: There is a significant relationship between product focus and company performance.

Hypothesis 5: There is a significant relationship between TQM and company performance.

Hypothesis 6: There is a significant relationship between portfolio depth and company performance.

Hypothesis 7: There is a significant relationship between R&D and company performance.

Hypothesis 8: There is a significant relationship between product packaging and company performance.

Hypothesis 9: There is a significant relationship between a company's manufacturing facility and its performance.

Hypothesis 10: There is a significant relationship between price of the product and physician's intent to prescribe.

Hypothesis 11: There is a significant relationship between corporate reputation (company image) and retailer's intent to sell.

Dhaka University Institutional Repository

Hypothesis 12: There is a significant relationship between product quality and retailer's intent to sell.

Hypothesis 13: There is a significant relationship between product portfolio and retailer's intent to sell.

Hypothesis 14: There is a significant relationship between distribution network and company performance.

Hypothesis 15: There is a significant relationship between supply chain and company performance.

Hypothesis 16: There is a significant relationship between locally produced API and company performance.

Hypothesis 17: There is a significant relationship between human resource management and company performance.

Hypothesis 18: There is a significant relationship between brand management and company performance.

Hypothesis 19: There is a significant relationship between CSR and company performance.

Hypothesis 20: There is a significant relationship between value-added services for the MICs and company performance.

Hypothesis 21: There is a significant relationship between customer engagement and company performance.

Hypothesis 22: There is a significant relationship between e-detailing and company performance.

Dhaka University Institutional Repository

Hypothesis 23: There is a significant relationship between e-detailing by the company and physician's intent to prescribe.

Hypothesis 24: There is a significant relationship between value-added services by the company and physician's intent to prescribe.

Hypothesis 25: There is a significant relationship between the different services given by the PSRs and physician's intent to prescribe.

Hypothesis 26: There is a significant relationship between customer retention and company performance.

Hypothesis 27: There is a significant relationship between promotional tracking (benchmarking) and company performance.

Hypothesis 28: There is a significant relationship between product name recall by PSR and physician's intent to prescribe.

Hypothesis 29: There is a significant relationship between product data distribution to MICs and company performance.

Hypothesis 30: There is a significant relationship between sponsorships (in medical journals, etc) and company performance.

Hypothesis 31: There is a significant relationship between knowledge of the market and company performance.

Hypothesis 32: There is a significant relationship between study of physician prescribing habits and company performance.

Hypothesis 33: There is a significant relationship between KOL's (or colleague's) opinion and physician's intent to prescribe.

Dhaka University Institutional Repository

Hypothesis 34: There is a significant relationship between strategic alliance and company performance.

Hypothesis 35: There is a significant relationship between collaborations (with universities and research organizations) and company performance.

Hypothesis 36: There is a significant relationship between product positioning (a promotional strategy) and company performance.

Hypothesis 37: There is a significant relationship between product name selection and company performance.

Hypothesis 38: There is a significant relationship between maintaining regular contact with retailers and company performance.

Hypothesis 39: There is a significant relationship between the distribution of free samples to MICs and company performance.

Hypothesis 40: There is a significant relationship between advertising to patients and company performance.

Hypothesis 41: There is a significant relationship between CME sponsorship by the company and company performance.

Hypothesis 42: There is a significant relationship between CME sponsorship by the company and physician's intent to prescribe.

Hypothesis 43: There is a significant relationship between information in medical journals and physician's intent to prescribe.

Hypothesis 44: There is a significant relationship between regulations and company performance.

Dhaka University Institutional Repository

Hypothesis 45: There is a significant relationship between favorable import/export policy and company performance.

Hypothesis 46: There is a significant relationship between regularity in government approvals and company performance.

Hypothesis 47: There is a significant relationship between drug testing and company performance.

Hypothesis 48: There is a significant relationship between regular training of PSRs and company performance.

Hypothesis 49: There is a significant relationship between training and job satisfaction of the PSRs.

Hypothesis 50: There is a significant relationship between the number of PSRs reaching the MICs and company performance.

Hypothesis 51: There is a significant relationship between the motivation and knowledge of PSRs reaching the MICs and company performance.

Hypothesis 52: There is a significant relationship between PSRs' detail marketing and physician's intent to prescribe.

Hypothesis 53: There is a significant relationship between salary and job satisfaction of the PSRs.

Hypothesis 54: There is a significant relationship between superior/boss and job satisfaction of the PSRs.

Hypothesis 55: There is a significant relationship between product differentiation (specialty-driven therapies) and company performance.

Dhaka University Institutional Repository

Hypothesis 56: There is a significant relationship between the enforcement of health awareness and company performance.

4.4 INFORMATION FRAMEWORK

4.4.1 Source of Information (Sampling)

Apart from the study of the industry perspective, it was also required to identify who the most important customers are to the pharmaceutical industry (Table 9). This was done by answering the following three questions:

- If there is a problem or issue, who is responsible for taking the action required to rectifying the situation?
- Who stands to lose the most financially if there is a problem?
- Who is the most likely to recognize the value provided by the company's product or service? (Nina and Lynda, 2007)

Accordingly, it was found that the physicians were the MICs for the pharmaceutical industry. Although the physicians were found to be the MICs of the pharmaceutical industry, the retailers' knowledge and practices were studied since they are known to influence the patients at the point of buying a particular company's product.

Dhaka University Institutional Repository

Table 9: Identification of Most Important Customers

Stakeholders in the value chain of the Pharmaceutical Industry	If there is a problem or issue, who is responsible for taking the action required to rectifying the situation?	Who stands to lose the most financially if there is a problem?	Who is the most likely to recognize the value provided by the company's product or service?
PHYSICIANS	-	X	X
RETAILERS	-	X	-
PATIENTS	-	-	X
SUPPLIERS	-	X	-

The PSRs of the different pharmaceutical companies of Bangladesh were also studied in order to understand their work load and satisfaction since they are the representatives of the company when dealing the company's MICs.

Therefore, the following are the four approaches to analysis that were considered:

- the different activities and opportunities of the pharmaceutical companies,
- the physicians as the unit of analysis,
- the retailers as the unit of analysis[2], and
- the PSRs.

[2] A unit is considered the action (prescription, intervention, etc) of the physician or retailer at a set period in time given the immediate influence of related variables (patient, environment, etc).

Dhaka University Institutional Repository

4.4.2 Sample Selection

The sample size was selected in order to assure an adequate sample size to perform statistical analyses at a confidence level of 95% (two-sided). The minimum sample size (appendix - 9) or required number of subjects interviewed that will represent the population has been found to be

i. 34 for the industry
ii. 379 for the physicians
iii. 380 for the retailers
iv. 378 for PSRs (Table 10)

Dhaka University Institutional Repository

Table 10: Sample Selection

	Confidence Level	Population	Sample size
Industry	95%	60	34
Physicians	95%	28300	379
Retailers	95%	35000	380
PSRs	95%	25000	378

Pretesting indicated that pure probabilistic sampling methods cannot be used for the present study since non-response rates would have been extremely high. Therefore, non-probability sampling methods were used. However, care was taken that population representation was ensured.

The selection for subjects for industry data was based on Judgement and Snowball Sampling Method, where the selection criteria was based on rational judgement of experts about the sample study, representative of the population under study.

The sample selection for physicians was Convenience Sampling, followed by Snowball Sampling. Snowball Sampling Method is a type of non-probability sampling technique in which the selection of additional

Dhaka University Institutional Repository

respondents is based on referrals from the initial respondents. The sample selection for retailers and the PSRs was also Convenience Sampling, followed by Snowball Sampling.

Therefore, all the data collected for the study was based on multi-staged non-probabilistic sampling.

4.4.3 Type of Information (measurement)

4.4.3.1 Development of the Instrument

A preliminary questionnaire was developed in English in line with the constructs of the hypotheses. Marketing executives of different pharmaceutical companies, physicians from different specializations, retailers of different pharmacy shops of Dhaka city, and PSRs of the different companies working in Dhaka was selected for use in this study. Four different self-response questionnaires were developed for the four different groups of participants. The questions were meticulously designed to identify

- the different factors affecting the performance of the pharmaceutical companies,
- the factors influencing the prescribing habits of the physicians
- retailers' perception of the pharmaceutical market of Bangladesh
- job satisfaction of the PSRs.

The questionnaires clearly mentioned that the survey would not require respondents to provide their personal details and that the data provided by them would be dealt with confidentiality. It was also mentioned that they could refrain from answering any specific question or even quit the survey at any point of the interview.

Dhaka University Institutional Repository

4.4.3.2 Pretesting

Pretesting of the questionnaires was done in order to ensure that every effort was made to avoid biasness in the manner the questions were carefully worded and ordered, the scales used for measurement was accurate for the respondent, and also to ensure the correct categorization of the sample so that it will be representative of the population. The questionnaires were pre-tested and each time revised with 20 industry executives, 30 physicians, 25 retailers and 35 PSRs all over Dhaka which took almost 3 months.

The 7-point interval scales (Osgood et al. 1957) were used in the structured format for the industry executives with verbal statements, such as not at all important/strongly disagree and extremely important/strongly agree, anchored to the numerals of 1 to 7. The participants (were clearly explained that each response level of the scale was equally spaced. For both the physicians' and the PSRs' questionnaires, a 7-point interval scale was initially used with verbal statements, such as not at all important/strongly disagree and extremely important/strongly agree, anchored to the numerals of 1 to 7. But after pretesting, it was changed to a 5-point interval scale with the verbal statements anchored to the numerals of 1 to 5 since the respondents had expressed confusion with the 7-point scale but was comfortable with the 5-point scale. The usage of 5-point interval scale therefore made better sense considering the exposure of the sample base. Thus, standardization of the scales was needed to be done for the physicians and PSRs questionnaires. For the retailers, the items asked to be answered were simply Yes/No questions since during pretesting they had expressed the inability to relate to the 5-point or 7-point scales. During pretesting, it was also observed that the industry executives, physicians and PSRs had no problem answering the survey

Dhaka University Institutional Repository

questionnaires in English, unlike the retailers. As a result, the questionnaire for the retailers was translated in Bengali which was then pretested several times as well.

A few open-ended questions were also used to encourage the four different groups of respondents to freely state their opinions.

4.5 FIELD PLAN

After the instrument of measurement (the questionnaire) was pretested, a final questionnaire was developed and distributed to 60 pharmaceutical companies, 500 physicians, 500 retail pharmacy shops, and 500 PSRs all over in Dhaka.

4.5.1 Industry Executives

In the present study, top 60 companies operating in Bangladesh were selected for the following reasons:

i. the market share of the top 60 represent over 95%
ii. the companies below them either do not do marketing on a large scale or do not have a robust strategy for marketing, which was identified during pretesting.

The industry executives therefore chosen to be surveyed were fully or partially responsible for setting the marketing strategy in the health care marketplace. The companies surveyed included all the top 20 companies, which represent approximately 86% of the market share of Bangladesh.

4.5.2 Physicians

The physicians that were interviewed were fully responsible for their decisions, since the respondents were key decision-makers for their

Dhaka University Institutional Repository

organizations/profession. The sample groups appropriate for this survey were physicians from different clinics and hospitals of different sizes, both public and private based in Dhaka.

4.5.3 Retailers

Field operators (trained over a period of 2 months) were sent to fill the questionnaires from the retailers since the retailers were found to be more responsive with them during pretesting. The retailers that were interviewed were fully responsible for their decisions. Thus, the respondents were key decision-makers for their retail shops and the sample groups appropriate for this study.

The data was collected from retailers operating in different retail shops all over Dhaka city, eg, Gulistan, Wari, Chawk Bazak, Motijheel, University area, Elephant Road, Azimpur, Farmgate, Dhanmondi, Lalmatia, Kalabagan, Mohammadpur, Mirpur, Cantonment, Mohakhali, Banani, Gulshan, Badda, Uttara, Tejgaon, Shajadpur, Jatrabari, Maghbazar, Malibagh, etc.

4.5.4 PSRs

Field operators (trained over a period of 2 months) were also sent to fill the questionnaires from the PSRs since they were found to be more responsive with the field operators during pretesting. All available PSRs were surveyed initially in order to avoid any negative impact. In the stages of data entry, sorting was done based on years of experience and only data from respondents with a job experience of over 2 years and more was taken for analysis.

4.6 DATA ENTRY

Dhaka University Institutional Repository

A total of completed questionnaires from 34 different companies, 382 physicians, 396 retailers and 410 PSRs were returned, resulting in an overall return rate of 68%, 76.4%, 79.2% and 82% approximately. The data collected was used to test the related hypotheses, ultimately providing useful insight into the research statement.

The statistical program SPSS™ (Statistical Package for the Social Sciences) for Windows, version 13.0, was used for statistical analysis and data management of the present study. All numerical data was entered into a personal computer and data was cleaned by proof reading and by running reliability scale tests and descriptive analysis of the data to identify erroneous values.

Dhaka University Institutional Repository

CHAPTER 5. ANALYSIS OF THE RESULTS

Considering the fundamentals of bivariate and multivariate analysis, the challenge is to select the appropriate dependent (forecast) variables, against which the selected independent variable predicts the likelihood of a response. Considering the question addressed through the research statement, namely, to what extent is the pharmaceutical company performance affected by the marketing activity of the companies, the challenge was not just to identify the marketing factors in terms of the company's ROI but also to consider the patient's (end consumer) welfare and affordability since the pharmaceutical product is uniquely different from any other product since if used appropriately can save lives but if misused, can also damage lives.

Data from the pharmaceutical industry executives, physicians, retailers and the PSRs were thus analyzed which are explained in the following sections.

5.1 INDUSTRY

The data for the 39 industry hypotheses (obtained through questioning the marketing executives of the industry) were plugged into SPSS in order to answer the following specific research objectives:

- Determine the capabilities of the pharmaceutical industry of Bangladesh.
- Determine the plans of the industry of how to eventually face the patent regime.
- Identify which are the most used and impacting marketing communications techniques utilized by the pharmaceutical industry and evaluate how these practices influence prescribing practices.

Dhaka University Institutional Repository

- Determine which type of communication relationship exists across the customer groups including the pharmaceutical industry representatives and evaluate if there is an apparent ethical conflict in this relationship.
- Identify the necessity of collaborations between the different pharmaceutical companies and with the research-based institutions (eg, university) in order to improve the performance of the pharmaceutical industry.
- Identify the significance of strategic decisions taken by the industry with regard to WTO.
- Identify the resources available in Bangladesh in order for the pharmaceutical industry to be able to bring it to a competitive advantageous position for the pharmaceutical companies of the developed countries to outsource their products.
- Identify what is being done and what is not being done but should be done in order for the industry to be able to further improve its competitive platform for the pharmaceutical companies of the developed world to outsource their products.

5.1.1 Descriptive Analysis

The descriptive analysis of the data was undertaken in order to identify any erroneous values.

5.1.2 Reliability Testing

The validity of the instrument or questionnaire was first determined using the reliability test by finding out the value of Cronbach's alpha and was found to be 0.970.

Dhaka University Institutional Repository

5.1.3 Hypothesis testing

The testing in this research involved two concurrent steps. The first step, bivariate analysis, involved the evaluation of all of the independent variables against the dependent variable, identifying those variables that support the hypothesis or reject it. Pearson product-moment correlation coefficient was used for the analysis of the data at this stage, with values of $P< 0.05$ considered to be significant and taken in the next step. This was effectively an exploratory stage to gain insight into the data and those variables that may ultimately play a role in the development of a predictive algorithm in the final step of the analysis.

The final step was multivariate in nature, combining those variables that provided the greatest predictive power or support for the dependent variable. The variables that had a significant relationship with the dependent variable were taken and used in the linear regression analysis. In this analysis, stepwise method was used since it eliminates the insignificant variables stepwise from the model.

5.1.4 Regression Model

After running the regression model with all the independent variables (50 items), we got 6 models and after comparing the adjusted R Square for the 6 different models, the 6^{th} model was found to have the highest R Square (appendix - 10). In other words, this model explains the highest percentage of variation of the dependent variable or 77% of the total variation of the dependent variable (the company performance or sales in taka crores in 2008). Therefore, this model can be considered as the optimum or best model for the study. The ANOVA table (appendix - 10)

Dhaka University Institutional Repository

also justifies this conclusion since the p-value for the model is less than 0.01.

A general regression model is (appendix - 8):

$$\hat{Y} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots\ldots + \beta_k X_k + \epsilon,$$

where β_0 = constant or intercept, ϵ = error

The regression model obtained can be written as

$$\hat{Y} = -14278.8 + 1082.8\ X_1 + 806.6\ X_2 + 608.8\ X_3 + 562.9\ X_4$$

t =	(-9.63)	(4.4)	(2.4)	(2.6)	(2.4)
S.E =	(1482.8)	(249.2)	(342.4)	(230.9)	(233.0)
P-value=	(0.00)	(0.00)	(0.025)	(0.013)	(0.022)

where X_1 = continuous assessment of promotional strategy

X_2 = brand/product management

X_3 = human resource management

X_4 = operating decisions

From the regression model obtained, the following specific research objectives have been answered:

- Determination of the capabilities of the pharmaceutical industry of Bangladesh.
- Identification of the most used and impacting marketing communications techniques utilized by the pharmaceutical industry and evaluate how these practices influence prescribing practices.

Dhaka University Institutional Repository

- Identification of the resources available in Bangladesh in order for the pharmaceutical industry to be able to bring it to a more competitive position for the pharmaceutical companies of the developed countries to outsource their products.

5.1.5 Relationship of the independent variables with the dependent variable (company performance or market share)

The following section is a compilation of the percentage of respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market, and which was obtained through the questionnaires (survey instrument) of the study. The figures (Fig 19, 20, and 21) indicate the following:

100% of the respondents agreed that TQM is significantly and directly related to the company performance.

100% of the respondents agreed that product focus improves the company performance.

82% of the respondents agreed that successful human resource management improves the company performance.

88% of the respondents agreed that having significant company resources is significantly and directly related to the company performance.

79% of the respondents agreed that CSR is important for company reputation and therefore company performance.

59% of the respondents agreed that operating decisions is significantly and directly related to the performance.

Dhaka University Institutional Repository

100% of the respondents agreed that market competition is significantly and directly related to the performance.

94% of the respondents agreed that market knowledge is significantly and directly related to the performance.

68% of the respondents agreed that competitive prices are significantly and directly related to the performance.

21% of the respondents agreed that marketing specialty products is significantly and directly related to the performance.

74% of the respondents agreed that rural focus is significantly and directly related to the company performance.

100% of the respondents agreed that the production capability of its company is significantly and directly related to the performance.

91% of the respondents agreed that its product portfolio is significantly and directly related to the company performance.

100% of the respondents agreed that the constant availability of quality product is significantly and directly related to the company performance.

94% of the respondents agreed that successful brand management is significantly and directly related to the company performance.

68% of the respondents agreed that segmentation of the company's MIC (physicians) and study of prescribing habits is significantly and directly related to the company performance.

59% of the respondents agreed that product positioning in the minds of MICs significantly increases the company performance.

Dhaka University Institutional Repository

94% of the respondents agreed that product name selection (for name recollection easily) is significantly and directly related to the company performance.

100% of the respondents agreed that CMEs are significantly and directly related to the company performance.

100% of the respondents agreed that giving free samples is significantly and directly related to the company performance.

100% of the respondents agreed that value-added services are significantly and directly related to the company performance.

100% of the respondents agreed that distributing information/data about the product (literature distribution) is significantly and directly related to the company performance.

82% of the respondents agreed that benchmarking or promotional tracking (regular review of company's promotional strategy followed by frequent modifications) is significantly and directly related to the company performance.

94% of the respondents agreed that customer retention is significantly and directly related to the company performance.

76% of the respondents agreed that number of PSRs reaching the MICs successfully preempting competitors in critical markets significantly increases the company performance.

100% of the respondents agreed that the knowledge/motivation of PSRs reaching the MICs is significantly and directly related to the company performance.

Dhaka University Institutional Repository

76% of the respondents agreed that strategic alliance will improve company performance.

68% of the respondents agreed that alliance with medical device companies can improve company performance.

71% of the respondents agreed that improvement of the packaging industry will further improve company performance.

18% of the respondents agreed that e-detailing can improve company performance.

91% of the respondents agreed that strengthening statutory regulations at par with WTO will improve company performance.

65% of the respondents agreed that drug testing facilities will improve company performance.

56% of the respondents agreed that development in biotechnology can improve company performance.

59% of the respondents agreed that collaboration with university/research institutes will improve company performance.

74% of the respondents agreed that implementation of mandatory health insurance can improve company performance.

91% of the respondents agreed that favorable export/import policy can improve company performance.

91% of the respondents agreed that regular and fast government approvals can improve company performance.

Dhaka University Institutional Repository

79% of the respondents agreed that immediate API park construction can improve company performance.

71% of the respondents agreed that R&D can improve company performance.

94% of the respondents agreed that medical journal sponsorships can improve company performance.

100% of the respondents agreed that regular PSR training can improve company performance.

82% of the respondents agreed that maintaining relationships with KOLs can improve company performance.

97% of the respondents agreed that maintaining regular contact with retailers can improve company performance.

100% of the respondents agreed that creating awareness among members of the pharmaceutical sector can improve company performance.

100% of the respondents agreed that increasing health awareness can improve company performance.

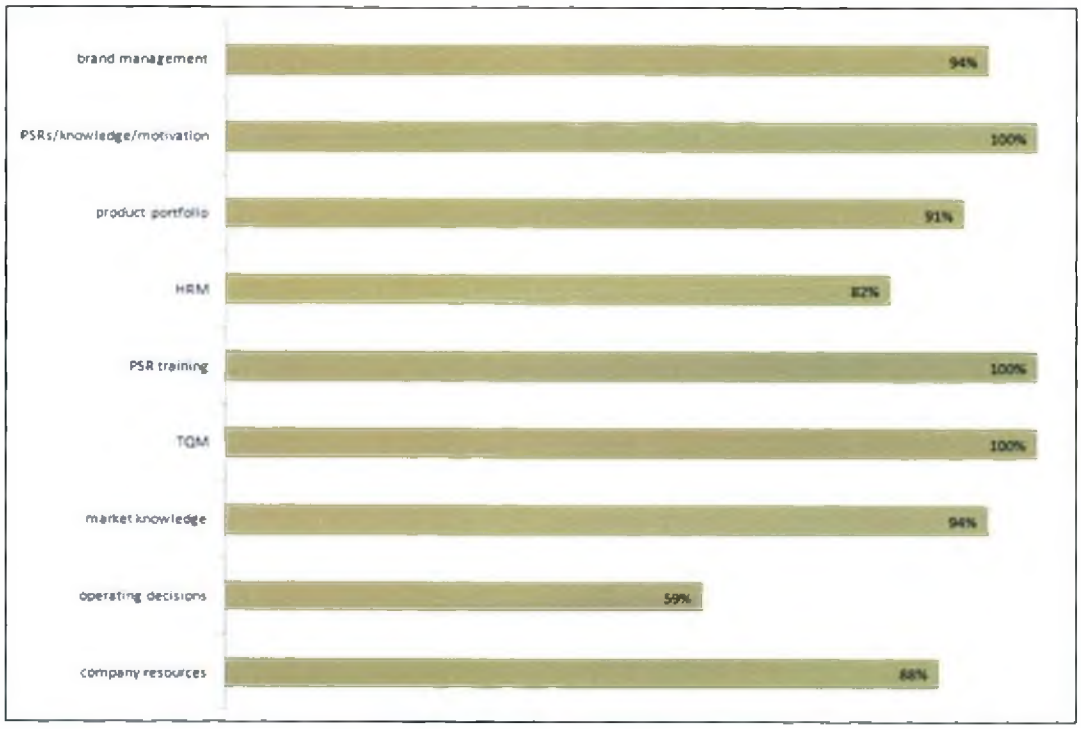
100% of the respondents agreed that wide distribution network is directly related to company performance.

21% of the respondents agreed that creating consultative PSRs can improve company performance.

74% of the respondents agreed that implantation of immediate health insurance can improve company performance.

Dhaka University Institutional Repository

CORPORATE FACTORS (internal)



CORPORATE FACTORS (external)

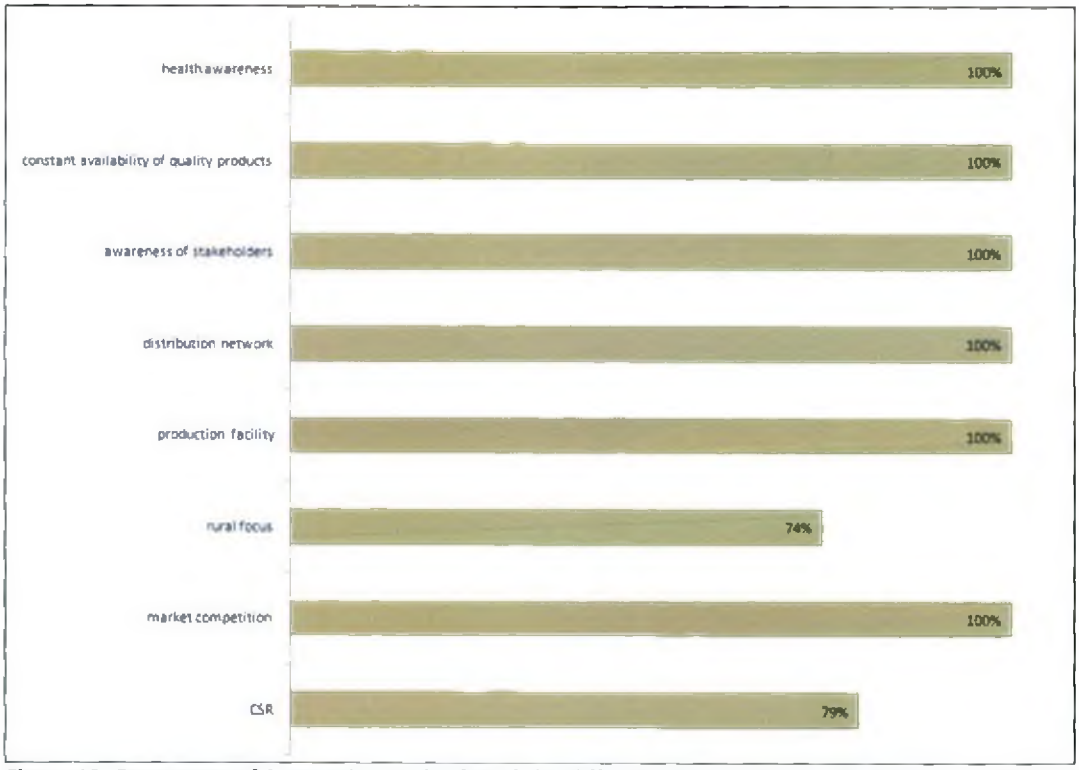
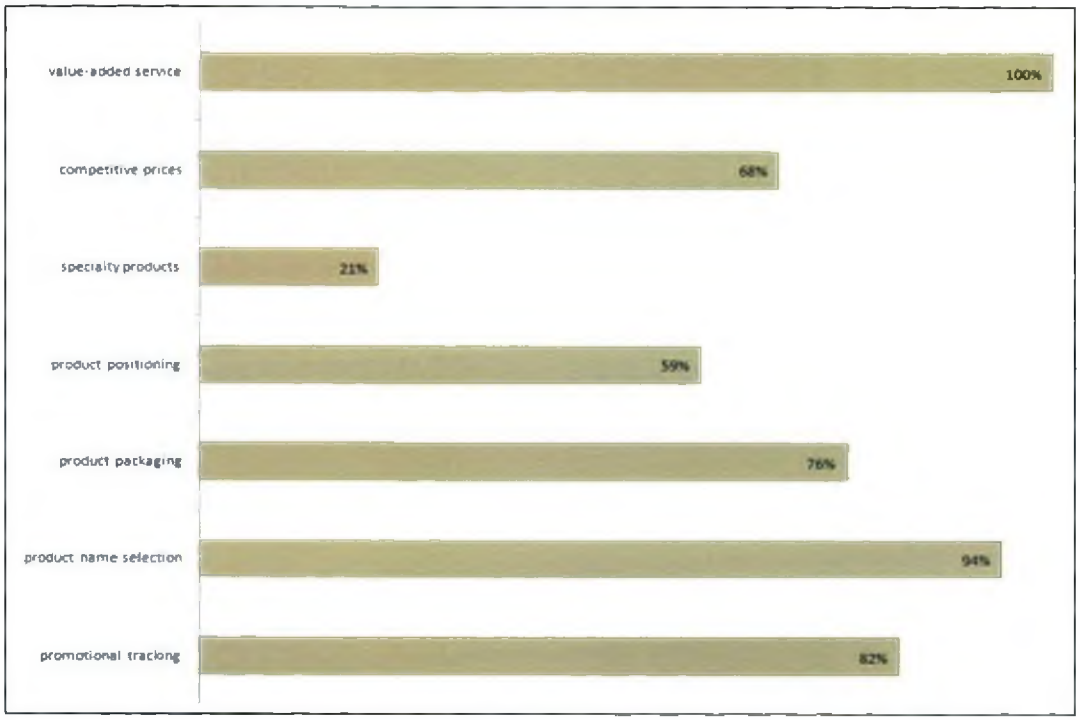


Figure 19: Percentage of Respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market moderately to very influential

Dhaka University Institutional Repository

PROMOTIONAL STRATEGY (product management)



PROMOTIONAL STRATEGY (customer management)

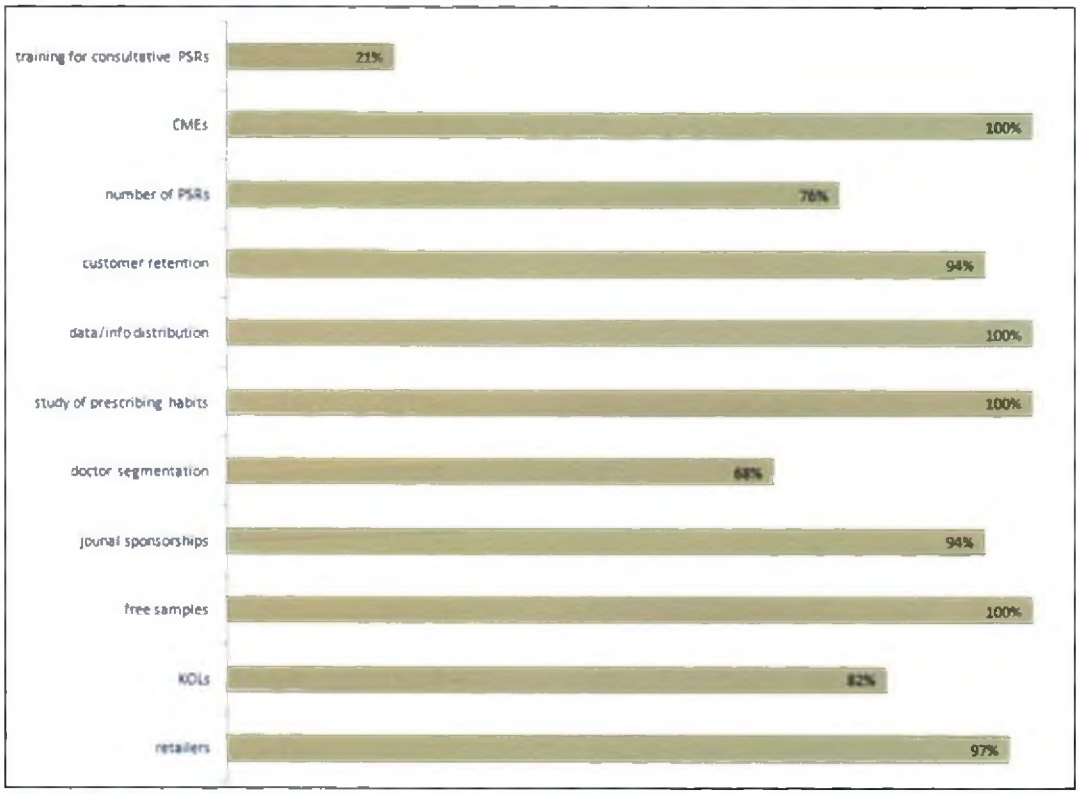


Figure 20: Percentage of Respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market moderately to very influential

Dhaka University Institutional Repository

OPPORTUNITIES

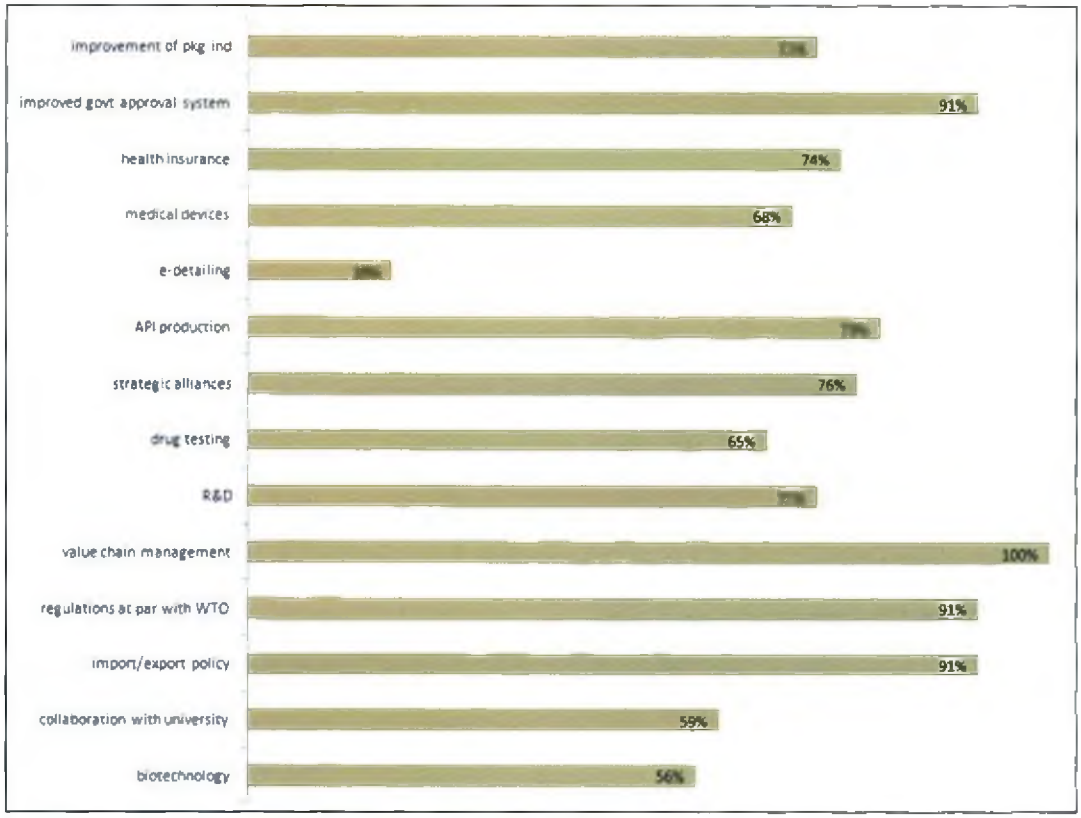


Figure 21: Percentage of Respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market moderately to very influential

5.2 PHARMACEUTICAL INDUSTRY (excluding Square Pharmaceuticals)

Although the company, Square Pharmaceuticals, has been the market leader in Bangladesh for over 15 years, an analysis was carried out in exactly the same way as in section 6.1 with the only exception of excluding this company since it has been found to be an outlier (Fig 22).

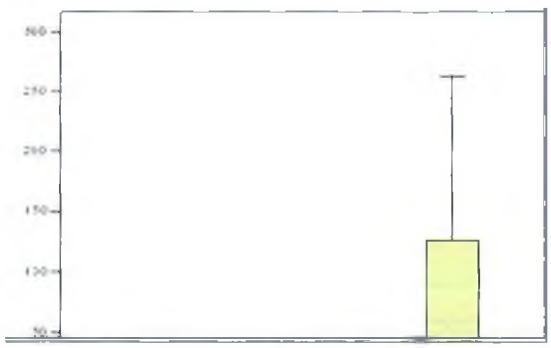


Figure 22: Boxplot of the market share of the companies taken into the study

Dhaka University Institutional Repository

The data for the 39 industry hypotheses (obtained through questioning the marketing executives of the industry) were plugged into SPSS in order to answer the following specific research objectives:

- Determine the capabilities of the pharmaceutical industry of Bangladesh.
- Determine the plans of the industry of how to eventually face the patent regime.
- Identify which are the most used and impacting marketing communications techniques utilized by the pharmaceutical industry and evaluate how these practices influence prescribing practices.
- Determine which type of communication relationship exists across the customer groups including the pharmaceutical industry representatives and evaluate if there is an apparent ethical conflict in this relationship.
- Identify the necessity of collaborations between the different pharmaceutical companies and with the research-based institutions (eg, university) in order to improve the performance of the pharmaceutical industry.
- Identify the significance of strategic decisions taken by the industry with regard to WTO.
- Identify the resources available in Bangladesh in order for the pharmaceutical industry to be able to bring it to a competitive advantageous position for the pharmaceutical companies of the developed countries to outsource their products.
- Identify what is being done and what is not being done but should be done in order for the industry to be able to further improve its competitive platform for the pharmaceutical companies of the developed world to outsource their products.

Dhaka University Institutional Repository

5.2.1 Descriptive Analysis

The descriptive analysis of the data was undertaken in order to identify any erroneous values.

5.2.2 Reliability Testing

The validity of the instrument or questionnaire was again determined using the reliability test by finding out the value of Cronbach's alpha and was found to be 0.968.

5.2.3 Hypothesis Testing

As in the earlier case (in section 6.1.3), Pearson coefficient was used for the analysis data, with values of $P< 0.05$ considered significant and taken in repeated multiple linear regression.

5.2.4 Regression Model

After running the regression model with the 50 independent variables or items, we got 9 models and after comparing adjusted R Square for the different models, the 9^{th} model was found to have the highest R Square (appendix - 10). In other words, this model explains 88% of the total variation of the dependent variable (the company performance or sales in taka crores in 2008). Therefore, this model can be considered as the optimum or best model for the study. The ANOVA table (appendix - 10) also justifies this conclusion since the p-value for the model is less than 0.01.

This time, the model can be written as

$$\hat{Y} = -7648.6 + 372.5\ X_1 + 188.8\ X_2 + 414.5\ X_3 + 294.3\ X_4 + 502.8\ X_5 - 435.7\ X_6 + 294.9X_7$$

t = (-10.57) (3.41) (1.91) (3.80) (3.52) (4.10) (-4.44) (2.46)

S.E = (1482.8) (109.2) (98.95) (109.08) (83.62) (122.53) (98.05) (119.97)

P-value= (0.00) (0.00) (0.07) (0.001) (0.002) (0.000) (0.000) (0.021)

where X_1 = continuous assessment of promotional strategy

X_2 = specialty-driven therapies or product differentiation

X_3 = motivation and knowledge of the PSRs

X_4 = product positioning

X_5 = number of PSRs reaching the MICs

X_6 = lack of implementation of regulations

X_7 = value-added services (understanding customer needs)

From the regression model obtained, the following specific research objectives have been answered:

- Determination of the capabilities of the pharmaceutical industry of Bangladesh.

Dhaka University Institutional Repository

- Identification of the most used and impacting marketing communications techniques utilized by the pharmaceutical industry and evaluate how these practices influence prescribing practices.
- Identification of the resources available in Bangladesh in order for the pharmaceutical industry to be able to bring it to a more competitive position for the pharmaceutical companies of the developed countries to outsource their products.

5.2.5 Relationship of the independent variables with the dependent variable (company performance or market share)

The following section is a compilation of the percentage of respondents (without market leader) who found the different elements to be affecting the Bangladesh Pharmaceutical Market, and which was obtained through the questionnaires (survey instrument) of the study. The figures (Figures 23, 24 and 25) indicate the following:

100% of the respondents agreed that TQM is significantly and directly related to the company performance.

100% of the respondents agreed that product focus improves the company performance.

82% of the respondents agreed that successful human resource management improves the company performance.

88% of the respondents agreed that having significant company resources is significantly and directly related to the company performance.

79% of the respondents agreed that CSR is important for company reputation and therefore company performance.

Dhaka University Institutional Repository

58% of the respondents agreed that operating decisions is significantly and directly related to the performance.

100% of the respondents agreed that market competition is significantly and directly related to the performance.

94% of the respondents agreed that market knowledge is significantly and directly related to the performance.

68% of the respondents agreed that competitive prices are significantly and directly related to the performance.

18% of the respondents agreed that marketing specialty (differentiation) products is significantly and directly related to the performance.

74% of the respondents agreed that rural focus is significantly and directly related to the company performance.

100% of the respondents agreed that the production capability of its company is significantly and directly related to the performance.

91% of the respondents agreed that its product portfolio is significantly and directly related to the company performance.

100% of the respondents agreed that the constant availability of quality product is significantly and directly related to the company performance.

94% of the respondents agreed that successful brand management is significantly and directly related to the company performance.

66% of the respondents agreed that segmentation of the company's MIC (physicians) and study of prescribing habits is significantly and directly related to the company performance.

Dhaka University Institutional Repository

58% of the respondents agreed that product positioning in the minds of MICs significantly increases the company performance.

94% of the respondents agreed that product name selection (for name recollection easily) is significantly and directly related to the company performance.

100% of the respondents agreed that CMEs are significantly and directly related to the company performance.

100% of the respondents agreed that giving free samples is significantly and directly related to the company performance.

100% of the respondents agreed that value-added services are significantly and directly related to the company performance.

100% of the respondents agreed that distributing information/data about the product (literature distribution) is significantly and directly related to the company performance.

82% of the respondents agreed that benchmarking or promotional tracking (regular review of company's promotional strategy followed by frequent modifications) is significantly and directly related to the company performance.

94% of the respondents agreed that customer retention is significantly and directly related to the company performance.

76% of the respondents agreed that number of PSRs reaching the MICs successfully preempting competitors in critical markets significantly increases the company performance.

Dhaka University Institutional Repository

100% of the respondents agreed that the knowledge/motivation of PSRs reaching the MICs is significantly and directly related to the company performance.

76% of the respondents agreed that strategic alliance will improve company performance.

67% of the respondents agreed that alliance with medical device companies can improve company performance.

70% of the respondents agreed that improvement of the packaging industry will further improve company performance.

76% of the respondents agreed that proper product packaging is directly related to company performance.

18% of the respondents agreed that e-detailing can improve company performance.

91% of the respondents agreed that strengthening statutory regulations at par with WTO will improve company performance.

63% of the respondents agreed that drug testing facilities will improve company performance.

58% of the respondents agreed that development in biotechnology can improve company performance.

58% of the respondents agreed that collaboration with university/research institutes will improve company performance.

74% of the respondents agreed that implementation of mandatory health insurance can improve company performance.

Dhaka University Institutional Repository

91% of the respondents agreed that favorable export/import policy can improve company performance.

88% of the respondents agreed that regular and fast government approvals can improve company performance.

79% of the respondents agreed that immediate API park construction (for API production) can improve company performance.

70% of the respondents agreed that R&D can improve company performance.

94% of the respondents agreed that medical journal sponsorships can improve company performance.

100% of the respondents agreed that regular PSR training can improve company performance.

82% of the respondents agreed that maintaining relationships with KOLs can improve company performance.

97% of the respondents agreed that maintaining regular contact with retailers can improve company performance.

100% of the respondents agreed that creating awareness among members of the pharmaceutical sector can improve company performance.

100% of the respondents agreed that increasing health awareness can improve company performance.

100% of the respondents agreed that wide distribution network is directly related to company performance.

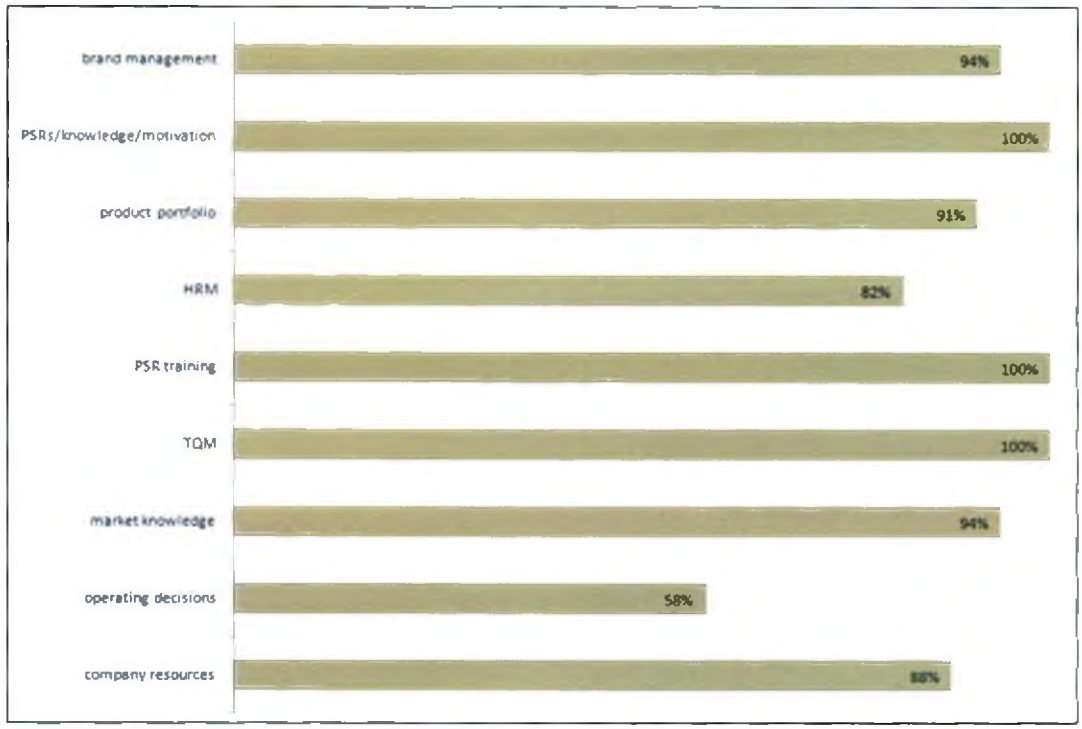
Dhaka University Institutional Repository

21% of the respondents agreed that creating consultative PSRs can improve company performance.

73% of the respondents agreed that implantation of immediate health insurance can improve company performance.

Dhaka University Institutional Repository

CORPORATE FACTORS (internal)



CORPORATE FACTORS (external)

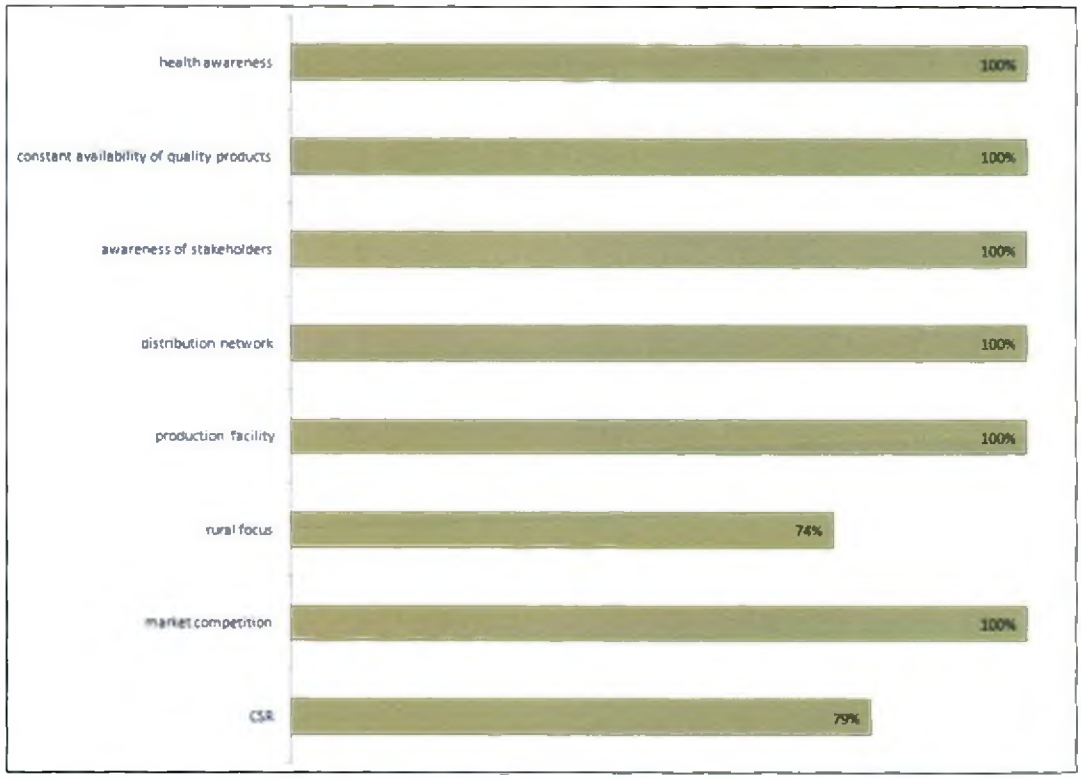
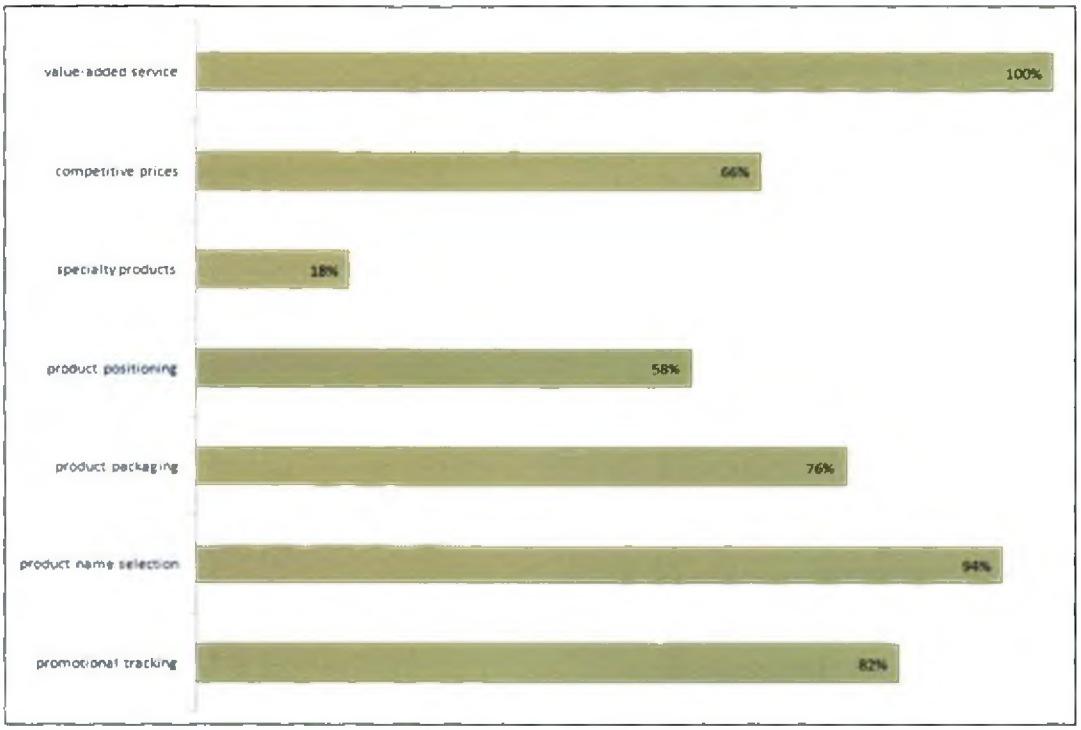


Figure 23: Percentage of Respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market moderately to very influential

Dhaka University Institutional Repository

PROMOTIONAL STRATEGY (product management)



PROMOTIONAL STRATEGY (customer management)

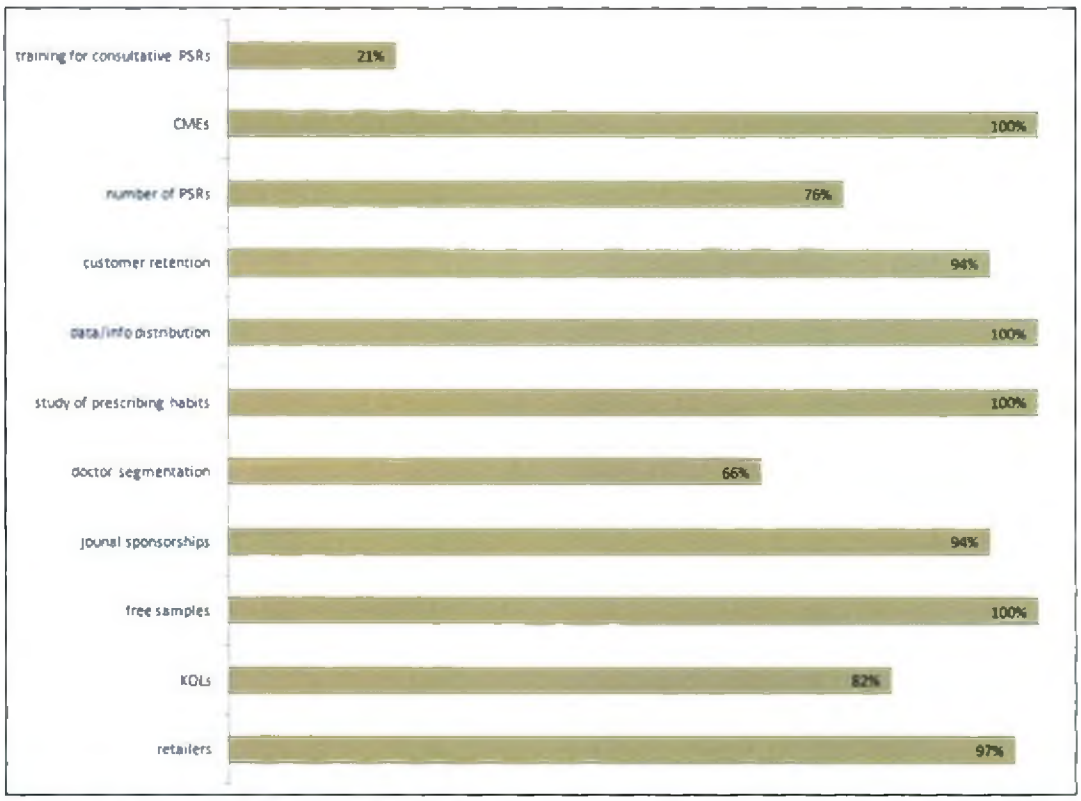


Figure 24: Percentage of Respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market moderately to very influential

Dhaka University Institutional Repository

OPPORTUNITIES

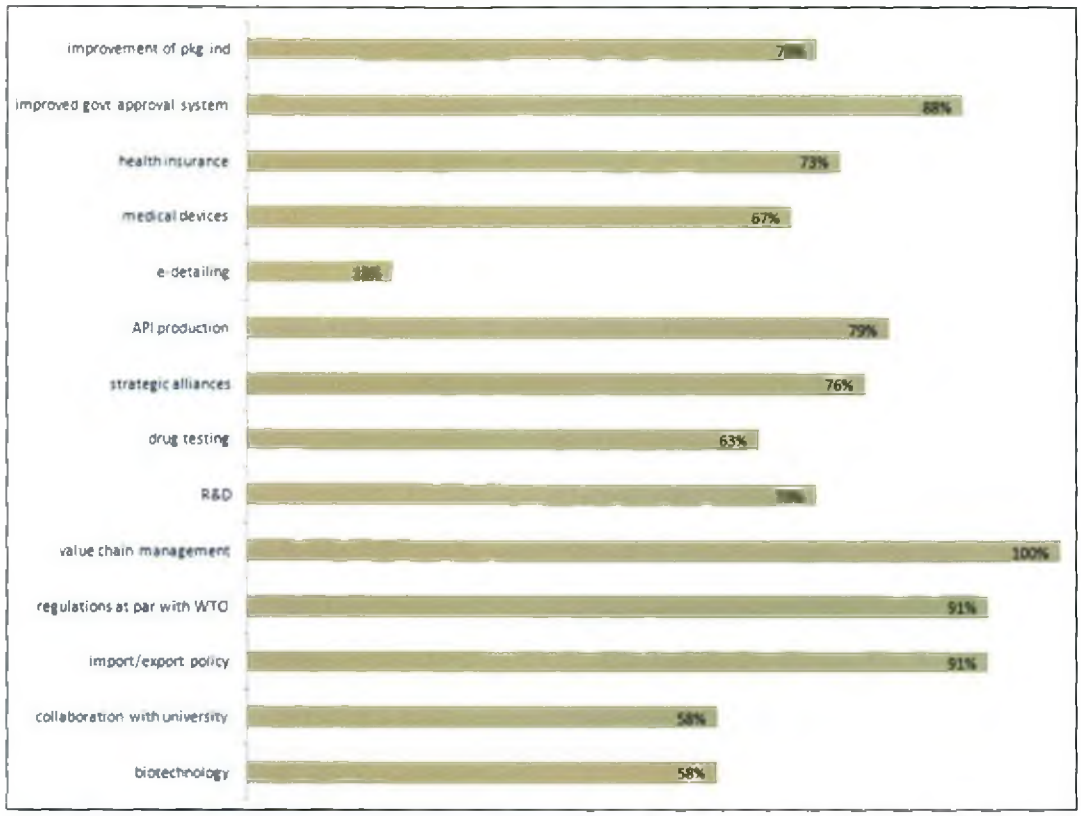


Figure 25: Percentage of Respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market moderately to very influential

5.3 PHYSICIANS

The data for the 11 physician hypotheses (obtained through questioning the physicians) were plugged into SPSS in order to answer the following specific research objectives:

- Identify which are the most used and impacting marketing communications techniques utilized by the pharmaceutical industry and evaluate how these practices influence prescribing practices.
- Determine the main sources of information used by medical practitioners to become informed about drugs and pharmaceutical products.

Dhaka University Institutional Repository

- Determine which type of communication relationship exists across the customer groups including the pharmaceutical industry representatives and evaluate if there is an apparent ethical conflict in this relationship.
- Evaluate the influencing factors that affect physicians prescribing practices and drug selection process, across the board, emphasizing PSR's case.
- Identify the necessity of collaborations between the different pharmaceutical companies and with the research-based institutions (eg, university, medical schools, etc) in order to improve the performance of the pharmaceutical industry.
- Identify what is being done and what is not being done but should be done in order for the industry to be able to further improve its competitive platform for the pharmaceutical companies of the developed world to outsource their products (to answer research question one to seven).

5.3.1 Descriptive Analysis

The descriptive analysis of the data was undertaken in order to identify any erroneous values.

5.3.2 Reliability Testing

The validity of the instrument or questionnaire was first determined using the reliability test by finding out the value of Cronbach's alpha which was found to be 0.71.

5.3.3 Hypothesis Testing

The data collected from the physicians were purely categorical and was based on their satisfaction towards the different promotional tools directed to them by the marketing team of the different pharmaceutical companies in Bangladesh. These 41 items or independent variables were first found whether they were significantly related to the dependent variable (satisfaction of the physicians) at a confidence level (α) of 10% level, using Crosstabs analysis. The 14 independent variables identified in the Crosstabs analysis were then used in binary logistic regression analysis in order to find which tools used by the industry executives have an impact on the physicians of Bangladesh.

Logistic regression is used to predict a categorical variable from a set of predictor variables. With the categorical dependent variable (whether or not the physician is satisfied), logistic regression was chosen since the predictor variables are a mix of continuous and categorical variables (it does not make any assumptions about the distributions of the predictor variables). From the model, the predictor variables which were not significant were removed and the regression was run again to get the final optimum model.

5.3.4 Regression Model

The Block 0 (appendix – 11) output is for a model that includes only the constant (or intercept). Given the base rates of the two decision options (69/382 = 18.1% were dissatisfied, and 81.9% were satisfied), the conclusion from the model obtained would be that the overall physicians in Dhaka are satisfied with the pharmaceutical companies of Bangladesh. Using this model, this inference would be correct 82% of the time.

Dhaka University Institutional Repository

The Block 1 output (appendix - 11) includes all the predictor variables of the study. The Hosmer and Lemeshow chi-square test of goodness of fit is the recommended test for the overall fit of a binary logistic regression model. Since the H-L goodness-of-fit test statistic for the model is 0.685 (greater than 0.05), the null hypothesis that that there is no difference between observed and model-predicted value, is rejected. In other words, this implies that the model's estimate fit the data at an acceptable level. Omnibus Tests of Model Coefficients (an alternative to the H-L test) gives a Chi-Square of 193.026 on 13 df, significant beyond 0.001. This is also a test of the null hypothesis that adding the predictor variables to the model has not significantly changed the inference that the 82% physicians are satisfied 82% of the time.

Under Model Summary the -2 Log Likelihood statistic is 167.845. This statistic measures how poorly the model predicts the satisfaction – the smaller the statistic the better the model. The value of the statistic (since value is not that low) shows that the model is a satisfactory one to predict satisfaction of the physicians, but cannot be determined only by the marketing strategies of a company. There are other unidentified factors affecting the satisfaction of a physician, for example, salary, reputation, work area, reputation, degrees obtained, etc.

The Cox & Snell R^2 (0.397) can be interpreted like R^2 in a multiple regression. In other words, this model explains 40% of the total variation of the independent variable (satisfaction of the physicians).

From the Variables in the Equation output, the following variables or predictors were identified to be significantly affecting the dependent variable (physician satisfaction which leads to prescribing the company's product):

Dhaka University Institutional Repository

G3 = knowledgeable PSRs can influence prescribing decisions [Exp (B = 0.087)]

CR = company reputation based on quality, reliability and consistency [Exp (B = 5.55)]

pm10 = brand name recall by PSRs [Exp (B) = 0.96]

pm13 = company-sponsored CMEs are very useful [Exp (B) = 17.35]

pm20 = value-added services of the companies [Exp (B) = 17.7]

pm22 = PSRs provide useful (scientific) information on new and old products which help in prescribing decisions [Exp (B) = 11.2]

5.3.4.1 Explanation of the Model

The reference group for the model is the physicians who strongly agreed to the independent factors:

PSRs (G3): From the model, the physicians who did not know whether the PSRs influence prescribing decisions are found to be more than 90 times less likely to be satisfied than the ones who had strongly agreed. Also, the likelihood of the reference group of being satisfied is significantly different from the other groups since the P-value of the reference group is found to be less than 5% (p = 0.005).

CORPORATE REPUTATION (CR): From the model, the physicians who agree that the reputation of the company is important when they prescribe a product are found to be almost 6 times to be more likely to be satisfied than the ones who had strongly agreed. The ones who only

Dhaka University Institutional Repository

agreed added that quality, reliability and consistency of the products of a company were also an important factor, apart from company reputation.

PRODUCT/BRAND RECALL by PSRs (pm10): From the model, the physicians who did not know whether the reminder of the name or importance of the product/brand by PSRs is important when they prescribe a product are found to be 90 times less likely to be satisfied than the ones who had strongly agreed. Also, the likelihood of the reference group of being satisfied is significantly different from the other groups since the P-value of the reference group is found to be less than 5% ($p = 0.002$).

VALUE-ADDED SERVICES OF THE COMPANIES (pm13): From the model, the physicians who agreed that value-added services of the companies (eg, giving patient support) is important when they prescribe a product are found to be 17 times more likely to be satisfied than the ones who had strongly agreed. Also, the likelihood of the reference group of being satisfied is significantly different from the other groups since the p-value of the reference group is found to be less than 5% ($P = 0.000$).

CMEs SPONSORED BY THE COMPANIES (pm22): From the model, the physicians who disagreed that CMEs sponsored by the companies are important determinants when they prescribe a product are found to be more than 17 times more likely to be satisfied than the ones who had strongly agreed. Also, the likelihood of the reference group of being satisfied is significantly different from the other groups since the P-value of the reference group is found to be less than 1% ($p = 0.005$).

PSRs SUPPLY USEFUL INFORMATION (pm20): From the model, the physicians who did not know that the information supplied by the PSRs is

Dhaka University Institutional Repository

an important determinant when they prescribe a product are found to be 11 times more likely to be satisfied than the ones who had strongly agreed.

Therefore, from the above model analysis of the physicians we can draw the conclusion that the following 6 factors are significant determinants of the pharmaceutical industry satisfying the physicians, thus having an impact on the prescription volume:

- knowledge of the PSRs
- company reputation based on quality, reliability and consistency;
- brand name recall by PSRs;
- value-added services of the companies;
- company-sponsored CMEs; and
- information/data supplied by the PSRs

From the regression model obtained, the following specific research objectives have been answered:

- Identification of the marketing communications techniques utilized by the pharmaceutical industry and evaluation of which of these practices influence prescribing practices.
- Determination of the main sources of information used by medical practitioners to become informed about drugs and pharmaceutical products.
- Determination of the type of communication relationship that exists across the customer groups including the pharmaceutical industry representatives and evaluation of any apparent ethical conflict in this relationship.

Dhaka University Institutional Repository

- Evaluation of the influencing factors that affect physicians prescribing practices and drug selection process, across the board, emphasizing PSR's case.
- Identification of what is being done and what is not being done but should be done in order for the industry to be able to further improve its competitive platform.

5.3.5 Relationship of the independent variables with the dependent variable (satisfaction of the physicians)

The following section is a compilation of the percentage of respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market, and which was obtained through the questionnaires (survey instrument) of the study. The figures (Fig 26- 29) indicate the following:

73% of the respondents agreed that patient opinion is considered when prescribing a product.

62% of the respondents agreed that prescribing a product is affected by company-sponsored CMEs.

60% of the respondents agreed that value-added services of a company are found to be affecting the prescribing of a product.

66% of the respondents agreed that prescribing a product is affected by income of the patient.

71% of the respondents agreed that company image is considered when prescribing a product.

Dhaka University Institutional Repository

75% of the respondents agreed that prescribing a product is affected by the visits made by the PSRs.

64% of the respondents agreed that journals and research papers are sources of drug information.

81% of the respondents agreed that the national formulary is a source of drug information.

67% of the respondents agreed that they are satisfied with the knowledge of the PSRs.

78% of the respondents agreed that the PSRs assist them with any complaint related to the product or disease.

64% of the respondents agreed that journals and research papers are sources of drug information.

64% of the respondents agreed that promotional activities by the PSRs are useful.

Dhaka University Institutional Repository

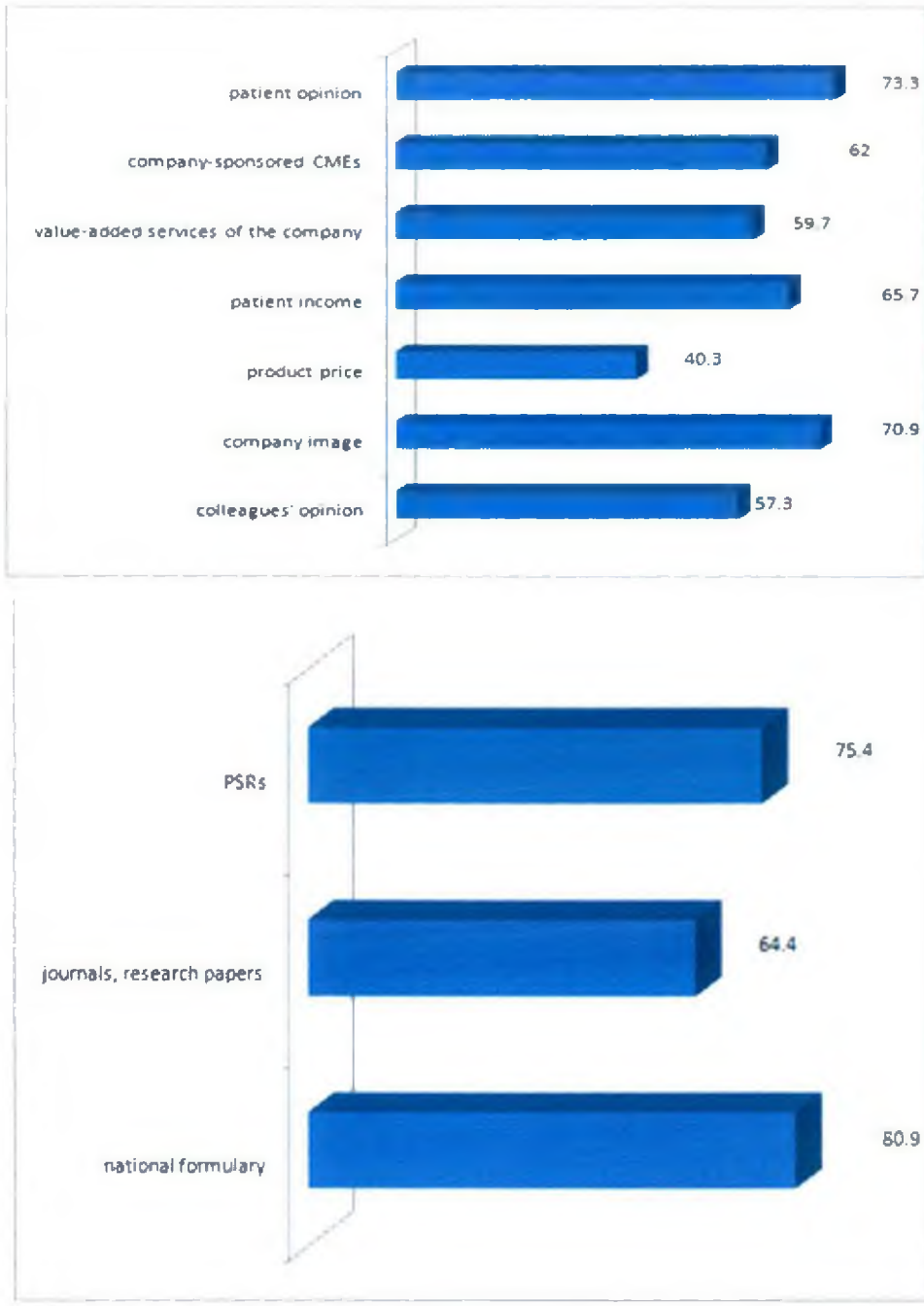


Figure 26: Percentage of Respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market moderately to very influential

Dhaka University Institutional Repository

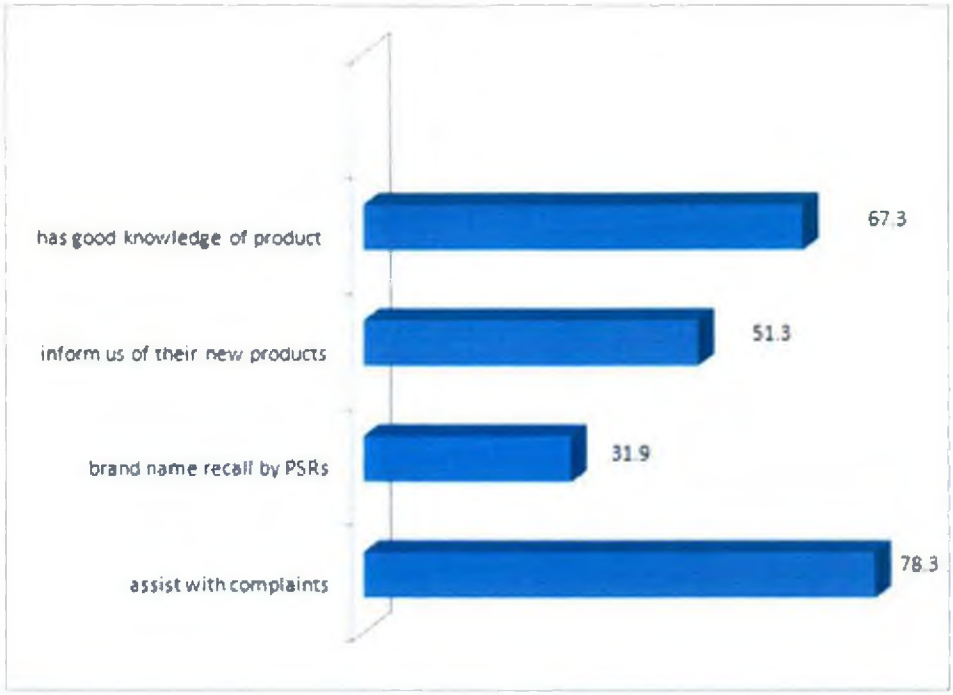


Figure 27: Percentage of Respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market moderately to very influential

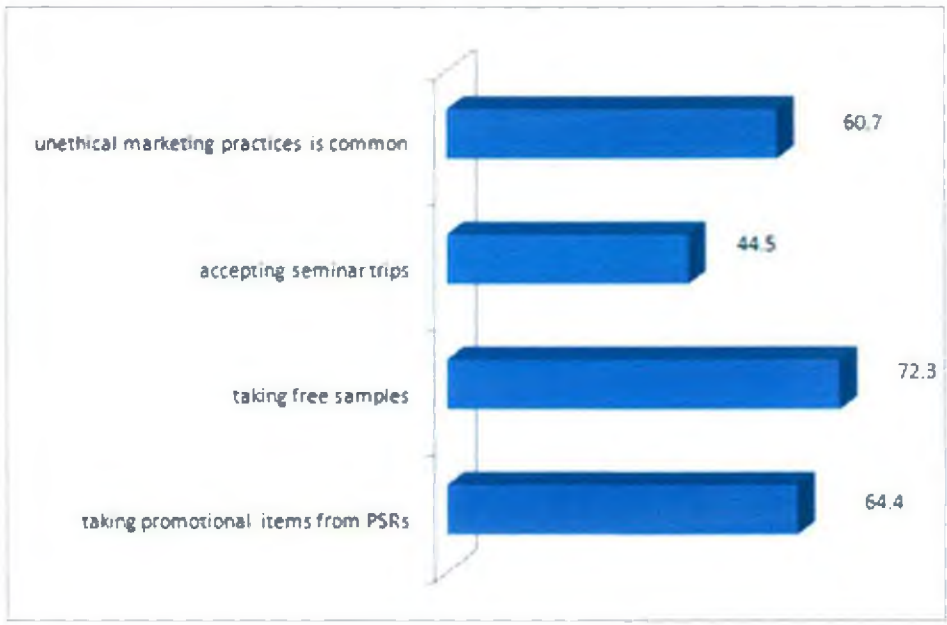


Figure 28: Percentage of Respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market moderately to very influential

Dhaka University Institutional Repository

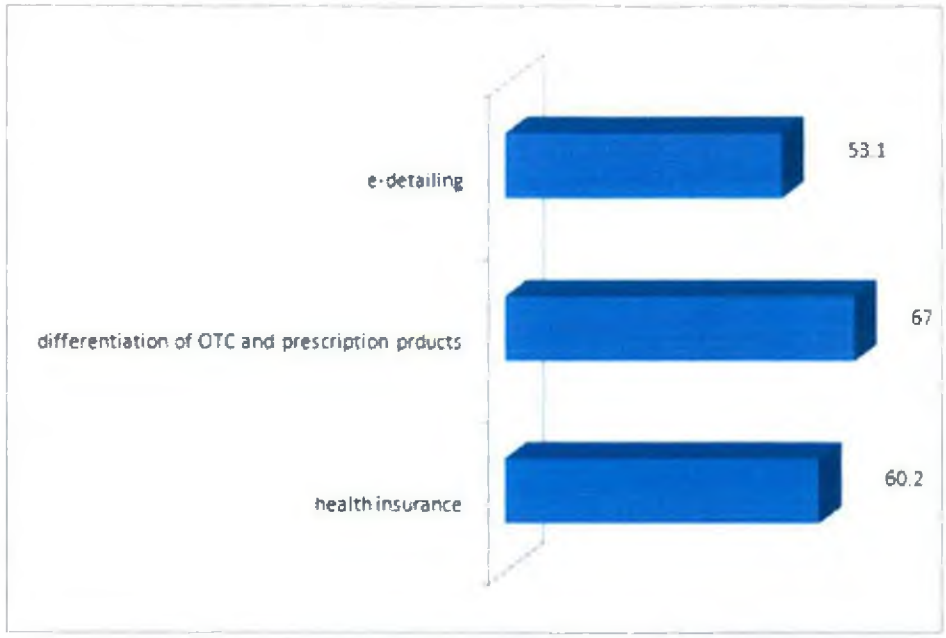


Figure 29: Percentage of Respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market moderately to very influential

5.4 RETAILERS

The data for the 3 retailers hypotheses (obtained through questioning the retailers) were plugged into SPSS in order to answer the following specific research objectives:

- Which are the most used and impacting marketing communications techniques utilized by the pharmaceutical industry?
- What type of communication relationship exists across the customer groups including the pharmaceutical industry representatives and is there is an apparent ethical conflict in this relationship?
- What is being done and not being done but should be done in Bangladesh in order for the pharmaceutical industry to be able to bring it to a competitive advantageous position for the

Dhaka University Institutional Repository

pharmaceutical companies of the developed countries to outsource their products?

5.4.1 Descriptive Analysis

The descriptive analysis of the data was undertaken in order to identify any erroneous values.

5.4.2 Reliability Analysis

The validity of the instrument or questionnaire was first determined using the reliability test by finding out the value of Cronbach's alpha which was found to be 0.746.

5.4.3 Hypothesis Testing

The data collected from the retailers were purely categorical and was based on their satisfaction towards the different promotional tools directed to them by the marketing team of the different pharmaceutical industry of Bangladesh. These 18 items (independent variables) were first found to have a reliability test statistic of 0.746 and then found whether they were significantly related to the dependent variable (satisfaction of the retailers) at a confidence level (α) of 10% level, using crosstabs analysis. The 3 independent variables identified in the crosstabs analysis were then used in binary logistic regression analysis in order to find which tools used by the industry executives have an impact on the retailers of Bangladesh.

5.4.4 Regression Model

The Block 0 (appendix – 11) output is for a model that includes only the constant (or intercept). Given the base rates of the two decision options

(110/396 = 27.8% were dissatisfied, and 72.2% were satisfied), the best conclusion would be that the overall retailers in Dhaka are satisfied with the pharmaceutical companies of Bangladesh. Using this model, this inference would be correct 72% of the time.

The Block 1 output (appendix - 11) includes all the predictor variables of the study. Omnibus Tests of Model Coefficients gives a Chi-Square of 51.7 on 3 df, significant beyond 0.001. This is a test of the null hypothesis that adding the predictor variables to the model has not significantly changed the inference that the 72% retailers are satisfied 72% of the time.

From the Equation output, the following variables or predictors that were identified to affect the satisfaction of the retailers based on the sales of their retail shops in Dhaka (i.e., product is sold on the basis) are:

- data and information given by the PSRs/companies is important
- immediate differentiation of products into OTC and prescription products
- stringent regulations must be enforced and monitored

5.4.4.1 Explanation of the Model

The reference group for the model is the retailers who agreed to the independent factors:

INFORMATION BY THE COMPANIES (s1): From the model, it is seen that the retailers who disagreed that data and information given by the PSRs and/or companies are more than 90 times less likely to be satisfied than the ones who had agreed. Also, the likelihood of the reference group of being satisfied is significantly different from the other groups since the P-value of the reference group is found to be less than 1% (p = 0.000).

Dhaka University Institutional Repository

IMPLEMENTATION AND MONITORING OF REGULATIONS (s2): From the model, the retailers who disagreed that stringent regulations must be enforced and implemented are found to be 3 times more likely to be satisfied than the ones who had agreed. Also, the likelihood of the reference group of being satisfied is significantly different from the other groups since the P-value of the reference group is found to be less than 1% ($p = 0.000$). This means that most of the retailers (38%) are satisfied with the way they currently run their business, that is, without stringent regulations.

DIFFERENTIATION OF OTC AND PRESCRIPTION DRUGS (s3): From the model, it is seen that the retailers who disagreed that immediate differentiation of drugs into OTC and prescription products is needed are more than 90 times less likely to be satisfied than the ones who had agreed. Also, the likelihood of the reference group of being satisfied is significantly different from the other groups since the P-value of the reference group is found to be less than 1% ($p = 0.000$).

Therefore, from the above model analysis of the retailers we can draw the conclusion that the following three factors are significant determinants of the pharmaceutical industry satisfying the retailers, thus having an impact on the sales:

- data and information given by the PSRs/companies
- requirement of the immediate differentiation of products into OTC and prescription products, and the
- implementation and monitoring of regulations.

From the regression model obtained, the following specific research objectives have been answered:

Dhaka University Institutional Repository

- What are the marketing communications techniques utilized by the pharmaceutical industry?
- What type of communication relationship exists across the customer groups including the pharmaceutical industry representatives and is there is an apparent ethical conflict in this relationship?
- What is being done and not being done but could be done in Bangladesh in order for the pharmaceutical industry to be able to bring it to a more competitive advantageous position.

5.4.5 Relationship of the independent variables with the dependent variable (satisfaction of the retailers)

The following section is a compilation of the percentage of respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market, and which was obtained through the questionnaires (survey instrument) of the study. The figures (Figure 30) indicate the following:

93% of the respondents reported that they sell their products to everyone, irrespective of age or prescription.

89% of the respondents agreed that there is no implementation of regulations.

88.9% of the respondents reported that they are satisfied with the promotional activities by the companies.

99 % of the respondents agreed that implementing health insurance is needed.

Dhaka University Institutional Repository

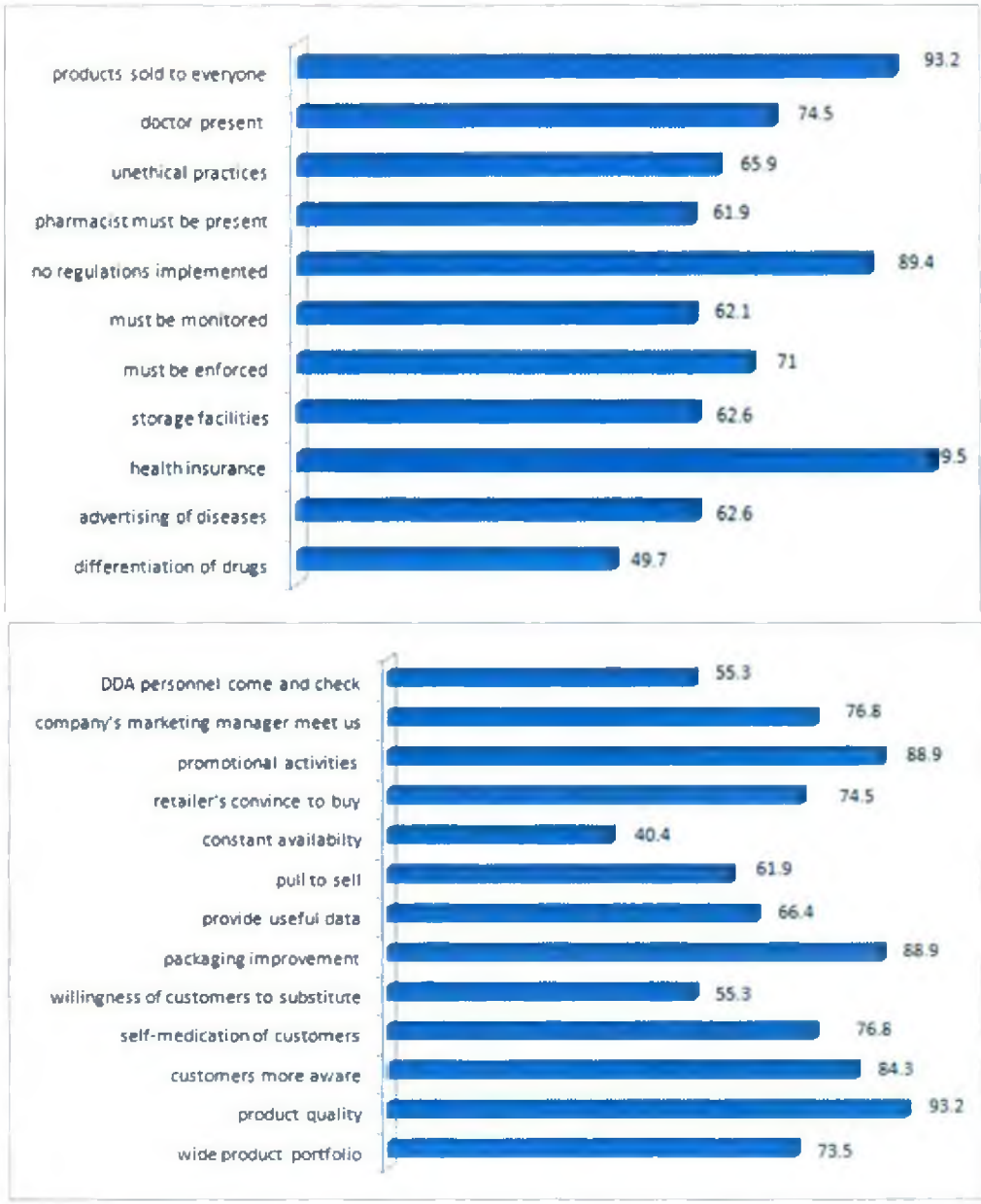


Figure 30: Percentage of Respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market moderately to very influential

5.5 PSRs

The data for the 3 retailers hypotheses (obtained through questioning the retailers) were plugged into SPSS in order to answer the following specific research objectives:

Dhaka University Institutional Repository

- Determine which type of communication relationship exists across the customer groups including the pharmaceutical industry representatives and evaluate if there is an apparent ethical conflict in this relationship.
- Evaluate the factors that are responsible for the satisfaction of the PSRs when carrying out their work assigned by the companies (to answer research question five).
- Identify what is being done and what is not being done but should be done in order for the industry to be able to further improve its competitive platform for the pharmaceutical companies of the developed world to outsource their products.

5.5.1 Descriptive Analysis

The descriptive analysis of the data was undertaken in order to identify any erroneous values.

5.5.2 Reliability Testing

The validity of the instrument or questionnaire was first determined using the reliability test by finding out the value of Cronbach's alpha which was found to be 0.771.

5.5.3 Hypothesis Testing

The data collected from the PSRs were purely categorical and was based on their job satisfaction in the different pharmaceutical companies of Bangladesh. These 37 items or independent variables were first found whether they were significantly related to the dependent variable (satisfaction of the physicians) at a confidence level (α) of 10% level, using Crosstabs analysis. The 15 independent variables identified in the

Crosstabs analysis were then used in binary logistic regression analysis in order to find whether the PSRs are satisfied with their job and working conditions.

Logistic regression is used to predict a categorical variable from a set of predictor variables. With the categorical dependent variable (whether or not the PSRs is satisfied), logistic regression was chosen since the predictor variables are a mix of continuous and categorical variables (it does not make any assumptions about the distributions of the predictor variables). From the model, the predictor variables which were not significant were removed and the regression was run again to get the final optimum model.

5.5.4 Regression Model

The Block 0 output (appendix –11) is for a model that includes only the constant (or intercept). Given the base rates of the two decision options (74/410 = 18% were dissatisfied, and thus 82% were satisfied), the conclusion from the model obtained would be that the overall PSRs in Dhaka are satisfied working in the pharmaceutical companies of Bangladesh. Using this model, this inference would be correct 82% of the time.

The Block 1 output (appendix - 11) includes all the predictor variables of the study. The Hosmer and Lemeshow chi-square test of goodness of fit is the recommended test for the overall fit of a binary logistic regression model. Since the H-L goodness-of-fit test statistic for the model is 2.43 (greater than 0.05), the null hypothesis that that there is no difference between observed and model-predicted value, is rejected. In other words, this implies that the model's estimate fit the data at an acceptable level.

Dhaka University Institutional Repository

Omnibus Tests of Model Coefficients (an alternative to the H-L test) gives a Chi-Square of 108.330 on 21 df, significant of 0.00. This is also a test of the null hypothesis that adding the predictor variables to the model has not significantly changed the inference that the 82% physicians are satisfied 82% of the time.

Under Model Summary the -2 Log Likelihood statistic is 278.818. This statistic measures how poorly the model predicts the satisfaction – the smaller the statistic the better the model. The value of the statistic (since value is not that low) shows that the model is a satisfactory one to predict satisfaction of the PSRs, there are other unidentified factors affecting the satisfaction of PSRs, for example, market dynamics, economic conditions of the country, etc.

The Cox & Snell R^2 (0.232) can be interpreted like R^2 in a multiple regression. In other words, this model explains 23 % of the total variation of the independent variable (satisfaction of the PSRs).

The reference group for the model is the PSRs who strongly agreed to the independent factors:

From the Variables in the Equation output, the following variables or predictors were identified to be significantly affecting the dependent variable (satisfaction of the PSRs):

psr2 = training frequency [Exp (B = 6.6)]

psr10 = job security [Exp (B = 2.6)]

psr13 = job advancement [Exp (B) = 1.2]

psr14 = active involvement of boss [Exp (B) = 2.8]

Dhaka University Institutional Repository

psr17 = working environment [Exp (B) = 0.5]

psr18 = treatment from doctors [Exp (B) = 0.6]

psr30 = regular meetings with boss [Exp (B) = 4.989]

psr31 = regular meetings with Marketing Directors of their company [Exp (B) = 0.75]

psr32 = company support for work [Exp (B) = 3.2]

psr33 = salary [Exp (B) = 0.376]

psr34 = access to company-sponsored seminars [Exp (B) = 12.1]

psr35 = trainings are very useful [Exp (B) = 0.209]

psr36 = seminars are very useful [Exp (B) = 0.796]

5.5.4.1 Explanation of the Model (reference group for the model is the physicians who strongly agreed to the independent factors):

TRAINING FREQUENCY (psr2): From the model, the PSRs who agreed that training frequency is sufficient are found to be more than 6 times more likely to be satisfied than the ones who had strongly agreed. Also, the likelihood of the reference group of being satisfied is significantly different from the other groups since the P-value of the reference group is found to be less than 5% (p = 0.000).

JOB SECURITY (psr10): From the model, the PSRs who agree that the there is job security are found to be almost 3 times to be more likely to be satisfied than the ones who had strongly agreed.

Dhaka University Institutional Repository

JOB ADVANCEMENT (psr13): From the model, the PSRs who were satisfied with their job advancement are found to be 1 times more likely to be satisfied than the ones who had strongly agreed.

ACTIVE INVOLVEMENT OF BOSS (psr14): From the model, the PSRs who agreed that active involvement of their boss is important are likely to be almost 3 times more likely to be satisfied than the ones who had strongly agreed.

WORKING ENVIRONMENT (psr17): From the model, the PSRs who are satisfied with their working environment are found to be 50 times less likely to be satisfied than the ones who are most satisfied.

TREATMENT FROM DOCTORS (psr18): From the model, the PSRs who are satisfied with the treatment from the doctors are 40 times less likely to be satisfied than the ones who are most satisfied.

REGULAR MEETINGS WITH BOSS (psr30): From the model, the PSRs who are neutral (neither agree nor disagree) when asked that meetings with their boss was regular are found to be almost 5 times more satisfied than the ones who strongly agree.

COMPANY SUPPORT FOR WORK (psr32): From the model, the PSRs who agree that the company provides for all the necessary support for their goal achievement are found to be almost 3 times more satisfied than the ones who strongly agreed.

SALARY (psr33): From the model, the PSRs who agree that their salary is not enough are found to be almost 68 times less likely to be satisfied than the ones who strongly agreed.

Dhaka University Institutional Repository

ACCESS TO COMPANY-SPONSORED SEMINARS (psr34): From the model, the PSRs who agree that there is access to company-sponsored seminars are found to be almost 12 times more satisfied than the ones who strongly agreed.

TRAININGS ARE VERY USEFUL (psr35): From the model, the PSRs who agree that trainings are very useful are found to be almost 79 times less likely to be satisfied than the ones who strongly agreed.

Therefore, from the above model analysis of the PSRs we can draw the conclusion that the following factors are significant determinants of the pharmaceutical industry satisfying the PSRs, thus having an impact on the prescription volume –

- training frequency
- job security
- job advancement
- active involvement of boss
- working environment
- treatment from doctors
- regular meetings with boss
- regular meetings with Marketing Directors of their company
- company support for work
- salary
- trainings
- seminars.

From the regression model, the following research questions have been answered:

Dhaka University Institutional Repository

- Determination of the type of communication relationship that exists across the customer groups including the pharmaceutical industry representatives and evaluation of any apparent ethical conflict in this relationship.
- Evaluation of the factors that are responsible for the satisfaction of the PSRs when carrying out their work assigned by the companies (to answer research question five).

Identification of what is being done and what is not being done but should be done in order for the industry to be able to further improve its competitive platform for the pharmaceutical companies of the developed world to outsource their products.

5.5.5 Relationship of the independent variables with the dependent variable (job satisfaction of the PSRs)

The following section is a compilation of the percentage of respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market, and which was obtained through the questionnaires (survey instrument) of the study. The figures (Figures 31 and 32) indicate the following:

- 65 % of the respondents agreed that they are satisfied with their salary.
- 70 % of the respondents agreed that job security is very important for their job satisfaction.
- 69 % of the respondents reported that their workload is too much.
- 56 % of the respondents reported that they have access to regular trainings.

Dhaka University Institutional Repository

- 25 % of the respondents reported that they have regular meeting with their boss (the managers).
- 73.9% of the respondents agreed that proper working environment is required for job satisfaction.
- 70.7 % of the respondents agreed that well-organized targets are important for job satisfaction.
- 64.1 % of the respondents agreed that support system of the company is required for job satisfaction.

Dhaka University Institutional Repository

Figure 31: Percentage of Respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market moderately to very influential

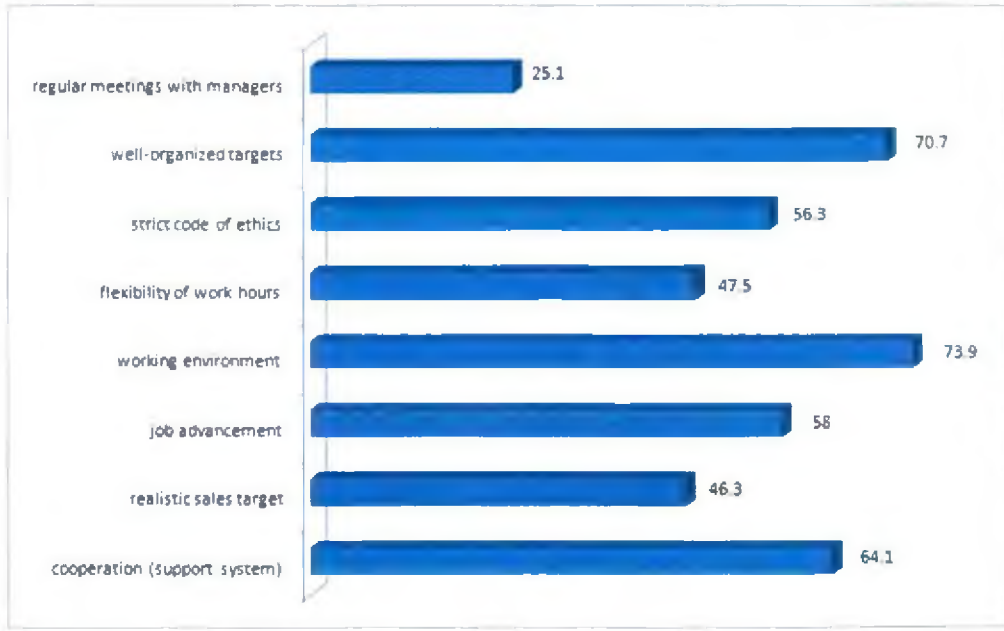


Figure 32: Percentage of Respondents who found the different elements to be affecting the Bangladesh Pharmaceutical Market moderately to very influential

Dhaka University Institutional Repository

5.6 RESULT OF THE ANALYSIS

The results of this study regarding the opinion of the pharmaceutical industry marketing executives of Bangladesh as well as their MICs (the physicians prescribing their products) have been found to be similar to previous studies (Seirles, 2005 and Hopper, 1997).

5.6.1 Answering to the Objectives

There were 11 specific research objectives (from the 11 specific research questions) and the ultimate objective of the research was to answer to all of the 11 objectives:

- Capabilities of the Industry
- Plans to face the Patent Regime
- Marketing communications techniques used by the industry
- Main sources of information used by the physicians
- Communication relationship amongst the physicians, retailers and the companies
- Influencing factors that affect the prescribing practices of the physicians
- Factors affecting the job satisfaction of the PSRs
- Existence of collaborations between the different pharmaceutical companies of Bangladesh and research-bases institutions (eg, university, etc)
- Strategic decisions taken by the industry with regard to WTO
- Resources available in Bangladesh in order for the pharmaceutical industry to be able to bring it to a competitive advantageous position for the pharmaceutical companies of the developed countries to outsource their products.

Dhaka University Institutional Repository

- What is being done and not being done but should be done in order for the industry to be able to further improve its competitive platform for the pharmaceutical companies of the developed world to outsource their products.

5.6.1.1 Industry Data

The data collected from the marketing executives of the industry addressed the following specific research objectives:

- Determine the capabilities of the pharmaceutical industry of Bangladesh.
- Determine the plans of the industry of how to eventually face the patent regime.
- Identify which are the most used and impacting marketing communications techniques utilized by the pharmaceutical industry and evaluate how these practices influence prescribing practices.
- Identify the necessity of collaborations between the different pharmaceutical companies and with the research-based institutions (eg, university) in order to improve the performance of the pharmaceutical industry.
- Identify the significance of strategic decisions taken by the industry with regard to WTO.
- Identify the resources available in Bangladesh in order for the pharmaceutical industry to be able to bring it to a competitive advantageous position for the pharmaceutical companies of the developed countries to outsource their products.
- Identify what is being done and what is not being done but should be done in order for the industry to be able to further improve its

Dhaka University Institutional Repository

competitive platform for the pharmaceutical companies of the developed world to outsource their products.

5.6.1.2 Physician Data

The data collected from the physicians addressed the following specific research objectives:

- Identify which are the most used and impacting marketing communications techniques utilized by the pharmaceutical industry and evaluate how these practices influence prescribing practices.
- Determine which type of communication relationship exists across the customer groups including the pharmaceutical industry representatives and evaluate if there is an apparent ethical conflict in this relationship.
- Identify the necessity of collaborations between the different pharmaceutical companies and with the research-based institutions (eg, university, medical institutes, etc) in order to improve the performance of the pharmaceutical industry.
- Identify what is being done and what is not being done but should be done in order for the industry to be able to further improve its competitive platform for the pharmaceutical companies of the developed world to outsource their products.

5.6.1.3 Retailer Data

The data collected from the retailers addressed the following specific research objectives:

- Determine the plans of the industry of how to eventually face the patent regime.

Dhaka University Institutional Repository

- Determine which type of communication relationship exists across the customer groups including the pharmaceutical industry representatives and evaluate if there is an apparent ethical conflict in this relationship.
- Identify what is being done and what is not being done but should be done in order for the industry to be able to further improve its competitive platform for the pharmaceutical companies of the developed world to outsource their products.

5.6.1.4 PSRs

The data collected from the PSRs addressed the following specific research objectives:

- Determine which type of communication relationship exists across the customer groups including the pharmaceutical industry representatives and evaluate if there is an apparent ethical conflict in this relationship.
- Identify what is being done and what is not being done but should be done in order for the industry to be able to further improve its competitive platform for the pharmaceutical companies of the developed world to outsource their products.

5.6.2 The Output Model

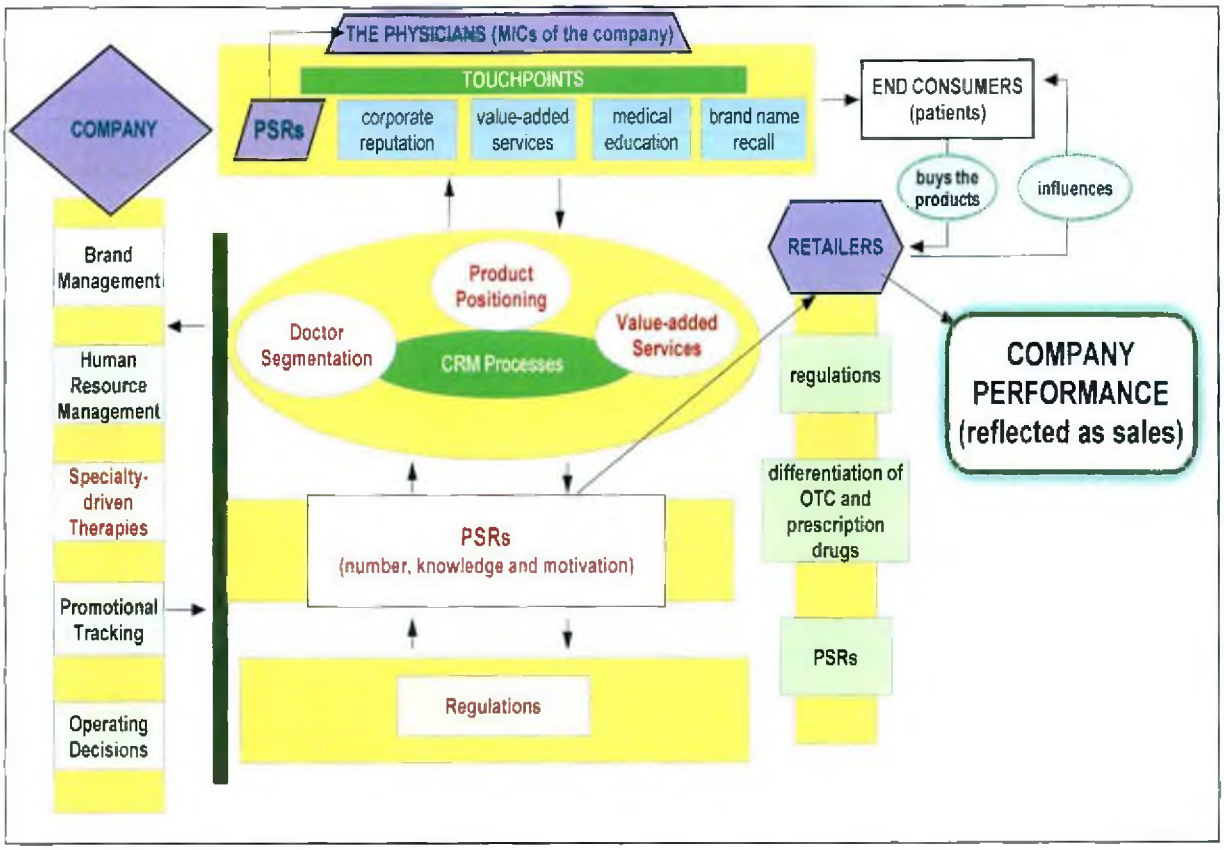


Figure 33: The Output Model for the Industry's MICs

NOTE: the letters in red denote variables affecting company performance when a market leader has been excluded

Figure 33 is a model showing all the factors (dependent variables) that have been found to have a significant relationship with company performance (the independent variable of the study) in the present study.

Although several factors influence sales performance, such as drug quality, company resources, market competition, etc, the factor that stood out in the regression model as having the greatest impact were (in alphabetical order):

- brand management

Dhaka University Institutional Repository

- CMEs
- corporate reputation (based on quality, reliability and consistency)
- correct operating decisions
- differentiation of OTC and prescription products
- doctor segmentation
- human resource management
- information supplied by the PSRs
- job satisfaction of the PSRs.
- number and motivation of the PSRs reaching the MICs
- product positioning
- promotional tracking
- regulations
- specialty-driven therapies
- value-added services

That is, the variables have been found to be significant determinants in the successful performance of the pharmaceutical industry of Bangladesh.

Focusing on these variables will improve the performance of the industry.

Dhaka University Institutional Repository

CHAPTER 6. STRATEGIC ANALYSIS OF THE SECTOR

6.1 INTRODUCTION

The best way to predict the future is always to invent it. The primary objective of this study is, therefore, the development of a contingency model (PMM) after exploration into the current organizational strategies and the opportunities available across the pharmaceutical sector of Bangladesh. The model (PMM), which is a combination (integration) of the existing strategies along with new techniques, applications or opportunities, will provide the industry a guide to capitalize on its resources in order to take the industry to a more competitive platform. This is because ultimately, what matters is not how resources of the company are allocated but how the customers respond to the resources directed to them.

Estimates suggest that only half the patients take their medication as directed and doctors are discussing adverse events only 35% of the time (USA Today, 2007). Only a third of surgical patients can name even one risk factor of their surgery (Kriwanek, 1998). Patients are frustrated, and sometimes desperate. If this is the scenario in a country like America where health-care facilities are so good, what about the facilities in Bangladesh? What about the physicians in Bangladesh? Some of them no longer completely control how they practice, what they prescribe, or how much to charge. This is, in fact, the case with the doctors of private hospitals of Bangladesh today and have already compound the problem of access to quality care.

In response to the changes to the health-care system, patients are now found to be beginning to take greater ownership and responsibility for

their own health. Patients are seeking information, sharing their data and opinions, and selecting their treatments more than ever before.

Thus, the pharmaceutical industry of Bangladesh should accordingly change their promotional campaigns. To realize and achieve such goals, many current practices and policies will need to change.

6.2 THE STRATEGIC MODEL

The variables that were assessed were taken and a strategic pharmaceutical model (Figure 34) as well as a strategic model framework (Figure 35) developed using both the current and viable options which could be used by the industry in order to take it to a more competitive platform.

The quality of relationship between the four different planning variables (shown in Figure 35) influences the performance of the pharmaceutical company.

Dhaka University Institutional Repository

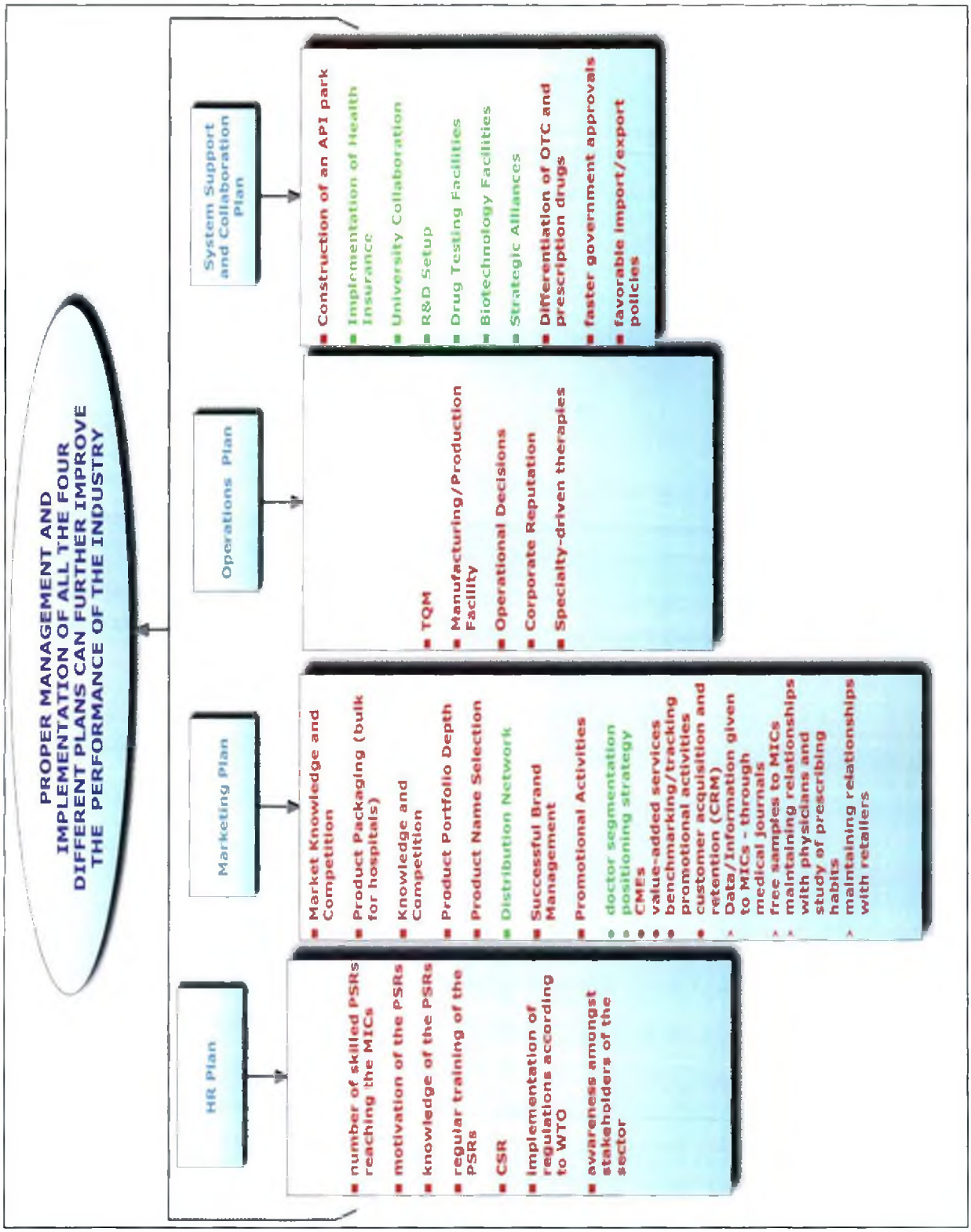


Figure 34: The Strategic Model for the Pharmaceutical Sector of Bangladesh
NOTE: the ones in red denote the respondents had found the variables to be affecting the Bangladesh Pharmaceutical Market moderately to very influential and the ones in green are important variables identified from secondary data but have not been identified as important in the primary study or in the model or as being implemented at some level in Bangladesh

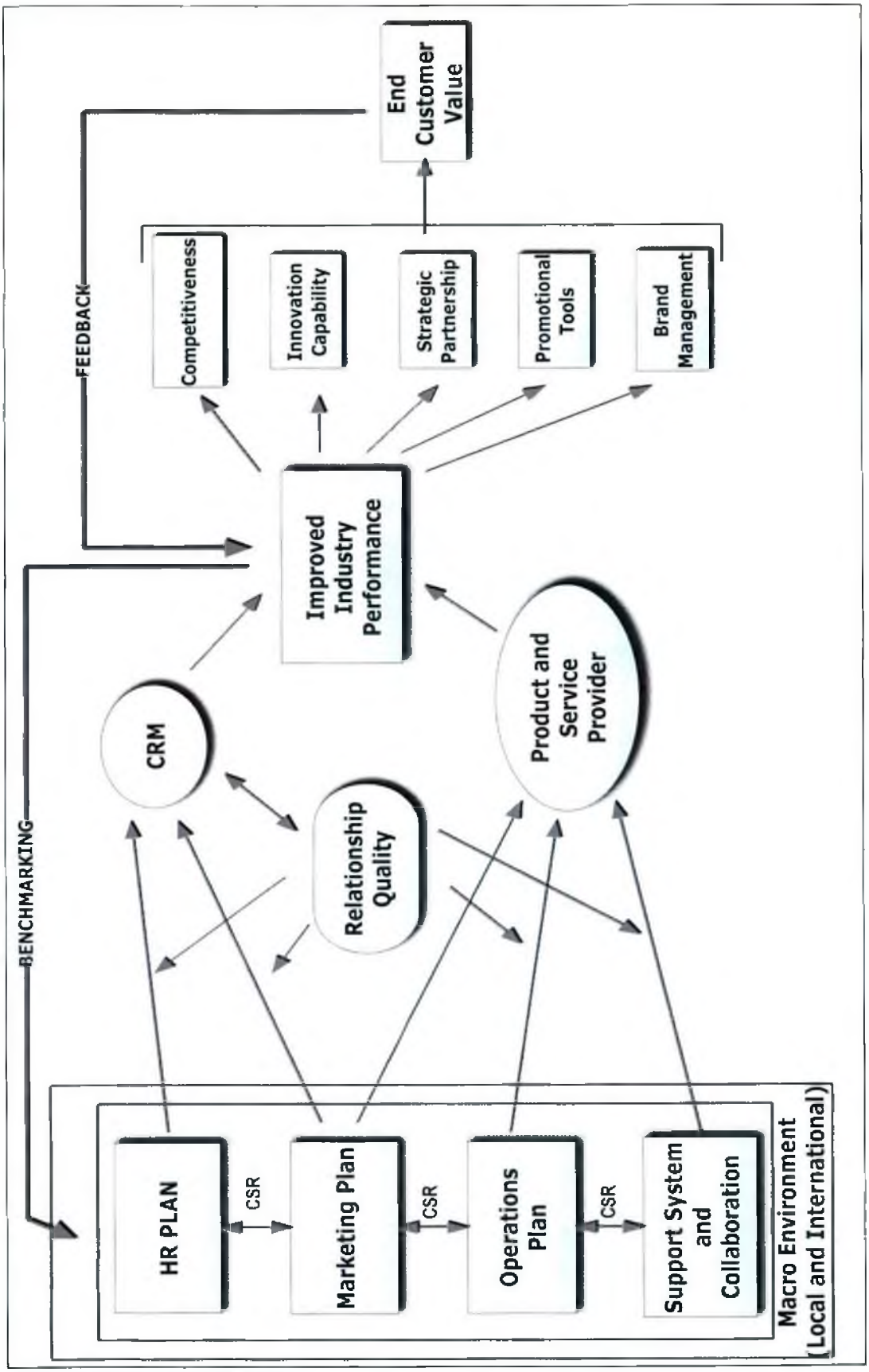


Figure 35: Strategic Plan Flowchart.

Dhaka University Institutional Repository

6.3 STRATEGIC PLAN

The real measure of a product's success is how well the company's customer (the physician) has been convinced about the product and then has convinced the 'patient' to take the product correctly over the long term and then to continue to take it since surveys report that over 50% of patients do not take the medicine properly (primary source). This often results in the product not having the chance to prove its true 'effectiveness'. The physicians (the MICs of the pharmaceutical company) may then decide that the product does not work, switch the patient to another company's product, and be less likely to prescribe that product to another patient. Therefore, for successful customer retention (both physicians and patients), it is important for the companies to first ensure the constant supply of high-quality products in a wide range and also that the physicians and the patients receive information that they can believe and understand, that they start to take their medications correctly and on time. That is, the sector must start to understand clearly that the patient is more than just an Rx. The medicines prescribed by the physicians must also be available at all times at the retail shops for the end consumers to be able to buy them.

This management of the company's customers (also known as CRM) is both a tool, and a perspective, that involves a long process in developing a true relationship (Lundstrom, 2005). CRM technology allows the firm to gather information at the 'touch points' of the relationship for use in better serving the client (customer) and increasing lifetime value. But the ultimate use of CRM should be the gathering of intelligence (promotional tracking) that will be used in the development and implementation of the firm's business customer-driven strategy having the goal of strong customer loyalty (see appendix - 7).

Dhaka University Institutional Repository

In order to do that, the PSRs who are the hub of the company must also be well trained and motivated to be able to position their products correctly and successfully for creating long term relationships with the MICs. Traditionally, "carrying the bag" – referring to the briefcases that sales representatives carry throughout the day – is still the primary way to provide physicians with product information and updates in Bangladesh. But certain changes need to be considered and integrated into its marketing model (PMM), such as training of the PSRs, improvement of company support systems, and the introduction of technology which can start to provide the sales representatives and communication channels for the physician audiences. This is mainly due to the fact that above 75% of the physicians have agreed that they get their drug information from the PSRs who visit them and about 81% of them take from national formulary, etc (fig. 28).

Looking at the PSRs' overall satisfaction level, although found to be moderately high, further improvement is evidently required. Only 65.4% of the respondents are satisfied with their salary, 56% with their medical benefits, 75% with family benefits, and 74% with pension benefits (Fig 33). Also, only 69.5% of the PSRs are satisfied with their workload, 47.5% with flexibility of their work hours, 46.3% with their sales target given, 64.1 % with cooperation from their company to achieve target (support system), along with 56.8 % of them having mentioned the involvement of their boss with them, and 61.7% of them having some form of communication with the top executive of their company (Figs. 33 and 34). When asked about training, 56.1% of the PSRs have informed their accessibility to trainings and 51.2 about the availability of frequent training programs. Analysis of these figures clearly suggest that the

Dhaka University Institutional Repository

companies need to immediately focus on their PSRs and increases their satisfaction and therefore, motivation level by another 25 -30 %.

The variables that were included in the strategic model all lead to creating long-term customer value, thus improving the performance of the industry. Therefore, the current research can suggest a strategic plan for the pharmaceutical industry of Bangladesh to use as a guideline or planning map for further improvement of the sector bearing in mind that Bangladesh might need to abide by the WTO regulations after 2015. The different elements of the strategic plan are as follows:

1 HR Plan:

a. Human Resource Management

There is a link between the business strategy pursued by the firm and its human resource policies and practices (Kamalanabhan, 2003). In order to be a successful pharmaceutical industry, the companies should have only one corporate strategic principle – that is, everyone in an organization, the executives in the front office as well as people in the operating units, can knowingly work toward the same strategic objective without being rigid about how they do so that decisions can be made fast if required (Gadiesh et. al, 2001).

The issue of attracting and retaining the best people in the industry is both critical to the success of any organization and also a very real problem in the pharmaceutical industry of Bangladesh at the moment. Developing the skills of employees is now seen as one of the attractions of a good employer and ensuring good personal skills development acts as a retention tool for good people (Butler, 2002).

Dhaka University Institutional Repository

b. Number of Skilled PSRs reaching the MICs

The number of skilled PSRs reaching the MICs has always been an advantage for the pharmaceutical companies in Bangladesh. Large pharmaceutical companies are known to have a large sales force. The large numbers of sales force and on top of that, limit time of the busy doctors in the country has made less time available with the doctor. Access to doctors has become increasingly difficult with multiple representatives targeting the same doctors. Therefore, relationship marketing can play an important part in bridging the gap. It helps in building a rapport with doctors and PSRs. That can be done now through customer relationship management (CRM) activities; it can be an effective tool for emotive marketing and aids in breaking the barrier between doctors and representatives. CRM improves the effectiveness of sales performance, the receptivity, and the brand recall (Srivastava, 2007).

The right combination of sales force attributes creates a positive image of a pharmaceutical company of Bangladesh. The most important sales force drivers have been found to be:

- Providing objective data
- Being knowledgeable about their products
- Being responsive to a physician's request
- Providing valuable information to physicians
- Respecting the time of physicians
- Respecting the physician's staff's time.

Dhaka University Institutional Repository

c. Motivation of the PSRs

The motivation of PSRs has been directly linked to the sales performance of the pharmaceutical company of Bangladesh.

Marketing is one of the primary drivers of sales in the pharmaceutical industry. It is, therefore, a fact that marketing activities run on establishing long-term relationships. The companies today are known to be devoting time and attention to developing relationships with their customers. By better understanding customers on an individual level and delivering information and products targeted to their specific needs, PSRs can develop long-term relationships. This can be achieved only if the PSRs are motivated to do their job (or, sales performance) according to their job description. In order to do that, the companies must understand and respect the needs, work hours, etc of the PSRs and give them all the necessary support to achieve the intended and realistic sales goal.

d. Knowledge of the PSRs

Since gifts and free samples are no longer the only options to get in front of a physician in Bangladesh and stay there, pharmaceutical representatives must be able to convince their customers with knowledge and information. This can only occur when the PSR is as knowledgeable as the physician in regards to the therapeutic, disease area and competitor products. This has been very clearly expressed by the physicians.

e. Regular Training of the PSRs

Training of PSRs in Bangladesh is not always regular and frequent across the industry. The frequency and type of training depends on the company and thus, different standards of PSRs are found to be visiting the

Dhaka University Institutional Repository

physicians and causing negative perception regarding the knowledge of the PSRs amongst the physicians. The PSRs should be regularly trained to be able to address the evolving needs of the company's MICs as well as understanding of the shifting demographics of healthcare professionals and the growing number of healthcare provider types. As an integral part of the team, PSRs must collaborate with all functions of the business in delivering value to the customers and lead the creation of an environment in which people across the organization see them as members of a customer-facing team (Colletti et. al, 2006).

f. Corporate Social Responsibility (CSR)

Many companies in Bangladesh today recognize that achieving excellence in environmental, safety, health, employment, and community practices are also part of long-term value-creating strategies. At a minimum, achieving good regulatory and social performance is a long-term objective that enables companies to manufacture, market, sell, and distribute their products and services. Beyond just complying with local regulations and expectations, however, companies that excel in critical regulatory and social processes can enhance their reputations among customers and investors, and also help to attract and retain employees who take pride in their companies' roles in improving the environment, the workplace, and the community.

Although a universally accepted definition of CSR is yet to emerge, CSR can be defined as a business commitment to contribute to sustainable economic development, working with employees, their families, the local community and society at large to improve their quality of life. Corporate social responsibility can thus be understood as the socio-economic

Dhaka University Institutional Repository

product of the organizational division of labor in a complex modern society (Leisinger, 2005).

The pharmaceutical industry has a responsibility towards the society in the prevention, control and treatment of all types of diseases corporate. Thus, measures need to be taken to increase awareness of diseases, availability and accessibility of the company products in order to improve adherence, lower resistance and thus facilitate better disease management.

g. Implementation of Regulations according to WTO

Product safety (quality) can never be underestimated and is an obvious cornerstone to building the right positioning and strong relationships with consumers. It is essential that the pharmaceutical marketing team must share as much information as possible. Transparency is increasingly critical in building trust with their MICs. Compliance laws and policies governing pharmaceutical representative access and interactions with healthcare professionals exist at the state level in the form of 'Code of Pharmaceutical Marketing Practices'. The pharmaceutical companies have also created their own policies regarding pharmaceutical representative access and interactions with healthcare professionals as a 'code of ethics', which they monitor themselves.

When pharmaceutical representatives fail to comply with these laws and policies there should be consequences, the degree of severity depending on the company involved. Violating healthcare policies result in loss of access to providers and damage a pharmaceutical company's corporate reputation. But this is not so well implemented by all the companies in Bangladesh which may result in a slow decline of public trust. Therefore, it is absolutely essential that each company should make sure that their

Dhaka University Institutional Repository

products are consistently of a high quality and that the PSRs do not give any exaggerated or incorrect information regarding their product just to achieve their sales target. There are various ways to ensure that the guidelines for marketing practice in Bangladesh are not violated, some of which are listed below (primary source):

- an unrealistic sales target should not be given to the PSRs in order to increase the company's market share
- a robust system for monitoring the performance of the PSRs
- zero tolerance of the company towards any unethical marketing practice by the PSR
- no authority given to the PSRs to give any form of gifts, samples, etc to the physicians

h. Awareness amongst stakeholders of the sector

From the research, it has been identified that not too many players (people or stakeholders) in the sector are completely familiar or aware about WTO, TRIPs, patent regime or what could happen to the pharmaceutical sector after 2015. This is an extremely important issue for the sector to consider since without awareness and knowledge, the people in the sector will not be able to work collectively for the improvement of the industry.

2 Marketing Plan

a. Market Knowledge and Competition

In order to determine customer needs and to implement marketing strategies and programs aimed at satisfying those needs, marketing managers need information. They need information about customers,

Dhaka University Institutional Repository

competitors, and other forces in the market place. In recent years, many factors have increased the need for more and better information. As firms have become national and international in scope, the need for information on larger and more distant markets has increased. As consumers have become more affluent and sophisticated, marketing managers need better information on how they will respond to products and other marketing offerings. As competition has become more intense, managers need information on the effectiveness of their marketing tools. As the environment changes more rapidly, marketing manages need more timely information.

The task of marketing research is to assess the information needs and provide management with relevant, accurate, reliable, valid, current and actionable information. Today's competitive marketing environment and the ever-increasing costs attributed to poor decision making require marketing research to provide sound information. Sound decisions are not based on gut feeling, intuition, or even pure judgment. In the absence of sound information, an incorrect management decision may be made.

The unavailability of market knowledge across the industry is a major disadvantage for the companies to operate. The companies of Bangladesh have been found to do their own market research and accordingly lay out their strategic plans to survive in the competitive market. Some organizations have their own research wing and others depend upon third party research organizations for such data.

Market competition, though is very useful in keeping the price of the products within the reach of the majority of the population, can also be a disadvantage when the companies undertake unethical means of capturing

Dhaka University Institutional Repository

market share. The companies must keep competition within a limit only to ensure top-quality products reach the patients at all times.

b. Product Packaging (bulk packaging, particularly for hospitals)

Although the packaging industry for the pharmaceutical industry of Bangladesh is evolving tremendously, the requirement of bulk packaging of products for hospitals is not yet available and has been expressed as a necessity by pharmacists and medical personnel at the different private hospitals of Bangladesh. This is an area where the pharmaceutical sector of Bangladesh can look into and include in its strategic plan in order to improve the competitive landscape of the industry.

c. Product Portfolio

Product Portfolio is a collection of the products offered by a company as a whole. A balanced product mix or depth might contain some good old standby products, some new products that have already shown promise, and some products that may be a bit risky but have a high payoff potential. It is up to the marketing manager to consider the interrelationships and cash flows for the entire mix of products rather than concentrating on isolated problems of the individual members of that mix.

The principal pharmaceutical products may be directed to different therapeutic areas. An analysis of sales by these therapeutic areas or the evaluation of a company's or strategic business unit's product mix is called product portfolio analysis.

Having the optimum product portfolio will definitely increase the performance of the company.

Dhaka University Institutional Repository

d. Product Name Selection

Since the pharmaceutical companies of Bangladesh market mainly generic drug products, name selection is a critical stage of their marketing strategy. The product name needs to be selected with such consideration and tactfulness so that the doctors can remember and relate them easily with the patient's therapeutic problem when prescribing.

Another important issue to consider is since the companies are marketing the same products to the same group of doctors, they must be very skillful and precise in choosing a name for each of their products for the doctors to be able to easily differentiate between the products.

Product Name Selection is an important marketing element for an industry anywhere in the world. The different respondents (above 90%) of the current study have also expressed the necessity of this element in the improvement of the company performance.

e. Availability and Proper Utilization of Company Resources

Company Resources, mainly human resources, although available are not properly utilized in line with the expectations of their customers' expectations. This is mainly due to the fact that most marketers are taking advantage of the present situation and getting maximum benefit out of it in terms of sales without looking deeper into what customers are actually expecting.

Companies and their field forces must focus on what the customer wants. Product-centric sales interactions can no longer be enough, and must be replaced with customer-focused interactions that provide true value to the healthcare professionals. This requires the PSRs to not only know what

Dhaka University Institutional Repository

they are talking about (scientifically/clinically trained PSRs), but also how to talk about and navigate complex topics, while understanding the needs of the customers (consultative PSRs).

f. Distribution Network through an external company

The distribution network of a pharmaceutical industry consists of warehouses and retail distribution channels, which are synchronized to acquire raw materials, produce finished goods, and distribute products to retailers (Shang et. al, 2009).

Reaching out to the customers (physicians and retailers) and convincing them about the quality of the product through the PSRs, as well as ensuring a constant availability of consistent top-quality products is a result of a robust and wide distribution network.

The distribution network of Bangladesh consists of a few warehouses owned by the companies, but mainly of the companies distributing their products to the retail shops themselves. A few of the companies in Bangladesh are starting to partnering with contract sales organization (CSOs) or other distribution companies (external to their own companies) to speed up their entry to market and therefore capture the market. In the current branded generics-market environment of Bangladesh, the paradigm of 'first in, last out', translated as its being critical both to be first to market to capture market share and to be cost competitive to sustain profitability once the market has fully formed is becoming more and more true.

Dhaka University Institutional Repository

g. Successful Brand Management

Pharmaceutical products are no longer just drugs — they are brands. Neotack, Fimoxyl, NAPA, Ventolin, Lipitor, Prozac, etc are all widely recognized pharmaceutical products that demonstrate the effectiveness of marketing and branding. Through a brand it is possible to communicate a promise, an essence, and aspiration. Branding of the product as well as the pharmaceutical company also builds loyalty. In most cases brands are created by the entire team, but local market strategies also can build upon this promise by carrying the brand through all elements of the marketing mix. Developing a strong understanding and belief in the brand among the company's sales people will allow the company's products to become even stronger in the minds of the customers (Griffiths, 2008).

Branding represents the sum total of presentation to the audience (employees and customers) that represents image, identity, value, attributes and content in the case of products. It is achieved through moving a person up the brand ladder from awareness to commitment to purchase. Constant attention to communication, price, quality and value messages require building, energizing and shaping the brand in a competitive environment that sees the ebb and flow of new and dying substitutes. The short-term metrics of performance include market share, brand share, revenue growth and position held. What sometimes leads to confusion about branding involves who is deciding the value of the brand, or brand equity (Crosby, 2001). For the finance person, brand equity is a company-based performance metric that measures revenue, share and value for a merger or acquisition beyond book value. The marketer, in contrast, measures brand equity as image, positioning and segment

Dhaka University Institutional Repository

strength and mind share (a marketing productivity measure). And, finally, the customer measures brand equity as consistency, value, price, image, and integrity – an outcome measure reflected in brand commitment, or loyalty.

Since the Bangladesh market, a branded generic market, has not yet implemented the concept of OTC and prescription drug, how do the consumers select their medication? How many consumers have their decision making influenced by brands (Ladha, 2007)? Does branding really play an important role in the arena of pharmaceutical products? These are questions that need to be looked into in order to further improve the pharmaceutical industry of Bangladesh.

h. Promotional Activities

While promotional products take many forms, they may be described as any item which is given as a gift and includes the company name, logo, or advertising message (Nucifora, 1998). These may include advertising specialty products (pens, coffee mugs, caps, calendars, etc), awards, incentives, and business gifts (Parker, 2003).

i. Doctor Segmentation and Study of their Prescribing Activities

The selection of customers (segmentation) is one of the four processes of Customer Management, the other three being acquisition of customers, retention of customers, and maintaining relationships with the customers. It is a common practice of the pharmaceutical companies to segment their market in order to understand their target market and target customers. Two layers of customers are observed in the pharmaceutical market:

Dhaka University Institutional Repository

- the doctor, or the intermediate Customer, who prescribes the product (the medicine)
- the patient who is the final customer or more appropriately, the consumer of the pharmaceutical product.

In recent years, pharmaceutical companies have however attempted to do more with less by tracking physician prescribing patterns and adjusting their promotional strategies accordingly. As pharmaceutical companies place greater emphasis on reducing costs, they are faced with a need to reduce the size of their sales force. As a result, pharmaceutical firms are motivated to examine how they manage the relationship between their sales force and physicians (Carter et. al, 2009). For example, one of the areas of their interest is the utilization of the knowledge of physicians' prescription behavior in improving sales forecasting and marketing-mix strategy and accordingly, segmenting physicians for their target universe.

Segmenting physicians on the basis of prescribing is commonly practiced in Bangladesh. Alternatives to segmenting physicians purely on the basis of prescribing do exist, and the pharmaceutical marketers of Bangladesh can start calling upon strategic partners who specialize in delineating which characteristics of true opinion leadership, a physician does or does not possess. Such analyses can help guide marketers in how to optimize KOL engagements as sincere advisors to a product, and can help shape ultimately patient care. The company needs to understand their chosen target niche on a deep level in order to serve it well and this is where the strategy for true success lies (see appendix - 7).

Companies are mostly found to segment their customer (MICs) group according to therapeutic area. Companies like Schering-Plough is known to structure its sales force according to doctors' needs (Figure 36) instead,

Dhaka University Institutional Repository

which means that individual sales reps carried products from multiple therapeutic areas (HBR, 2006). This structure not only increases the company's marketing flexibility but also gives salespeople more ways to make themselves valuable to their customers. Similar sales strategy has been reported to be carried out in the Bangladesh Market by a few pharmaceutical companies of Bangladesh and can be looked into by the rest of the companies in order to ensure effective segmentation.

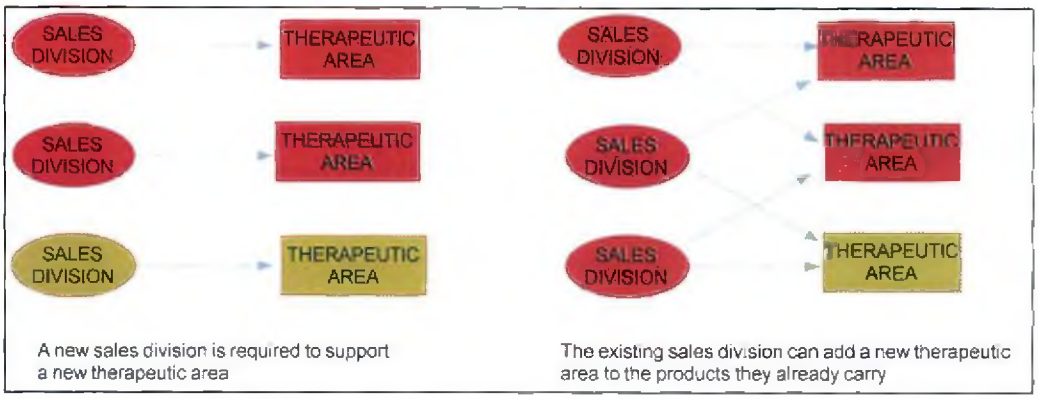


Figure 36: Structuring of a company's sales force according to doctor's needs

j. Customer Acquisition and Retention (CRM)

- Maintaining relationships with physicians and retailers
- Giving Free Samples to MICs
- Data/Information given to MICs through medical journals (maintaining relationship with MICs)

CRM has been categorized by Zablah et al into five major areas in order to understand the essence of CRM: a process, a philosophy, a strategy, a capability and a technology (Zablah et al, 2004). It is generally found that it is in the latter area that most of the emphasis is placed in utilizing CRM as a technological tool to aid the firm in developing a customer

Dhaka University Institutional Repository

intelligence database for managing calls, increasing productivity, and better targeting of physician markets.

CRM technology allows a firm to manage the customer relationship from initiation to the maintenance stage through termination and reclamation of valued customers (Reinartz, 2004).

As a philosophy and strategy, the company must ensure that CRM is implemented across functional departments as a service credo of the firm and represent a culture that epitomizes the priorities of the firm. Integration of CRM technology into the environment of the firm across all functional areas is the foundation for a successful implementation of customer relationship building (Payne, 2004). Therefore, a well-established CRM iniative presents a valuable opportunity for a company to develop relationships with its key audiences – physicians and retailers – and thus eventually, with the patients.

k. e-Detailing

One of the major problems that pharmaceutical companies must contend with:

- Doctors are working over-capacity.
- Physicians' time is stretched tighter and tighter.

Their daily routine is packed with scheduled patients and walk-ins, stacks of paperwork, increasing demands from hospitals, not to mention personal and family obligations. This rigorous agenda often renders drug sales representatives last on doctors' long lists of to-dos. This is true in spite of the fact that 75% of the physicians have agreed that they get their information from the PSRs and accordingly prescribe the company's

Dhaka University Institutional Repository

product. Therefore, for a pharmaceutical company trying to get information and samples through to doctors to increase prescriptions and market share, physician time is extremely important for its future profitability.

Pharmaceutical companies are finding that although the promotional cost of detailing products to physicians is rising, tangible results are not. E-Detailing is a tool that can strengthen the pharmaceutical-physician relationship by offering the physicians an opportunity to improve how they work, cut costs and increase revenues for the companies.

E-detailing saves doctors' time while cutting pharmaceutical companies' cost to serve. When applied effectively, e-detailing gives doctors the information they want faster -- which translates into decreased marketing expenditures for pharmaceutical companies. And though many companies already are thinking of initiating e-detailing, pharmaceutical executives are skeptical as to whether or not physicians will adopt electronic detailing tactics such as telephone support, online physician portals, video conferencing and online drug sample ordering. In spite of the time issue, most companies have built good relationships with doctors based on face-to-face interaction and personal touch.

So how can the pharmaceutical companies of Bangladesh create e-detailing initiatives aimed at gaining greater physician adoption without losing ground they've already achieved? Successful e-detailing is built on the premise of strengthening the physician relationship by helping to improve the way doctors work, enabling them to be faster, smarter and more proactive in an era when patients are demanding better, more informed care. Pharmaceutical executives who want to improve e-detailing effectiveness should consider the following key actions:

Dhaka University Institutional Repository

- **Build in trust**. Doctors want unbiased, up-to-the-minute information that they can use to make informed decisions and serve patients, not the typical rhetoric found in corporate sales materials. Combine data from leading medical journals and professional conferences, as well as personal experiences from other physicians and peer-to-peer discussion capabilities -- along with drug company literature -- to build information sources that physicians value. In order to reinforce a company's brand, physician testimonials plus information and endorsements from recognized and respected journals, associations and opinion leaders in the industry can be used.

- **Understand the needs of physician segments**. Segment variables -- such as age, specialty, practice type and size, location (urban or rural), prescription frequency, tendency to switch products and the relationship with the field sales representative -- affect physician decision making and behavior. Understanding each segment's needs and preferences is key to determining the right e-detailing approach and offering the information and services that a particular segment values most. With the right mix of traditional and e-detailing tactics, tailored to different groups of physicians, it will be possible to focus in on the segments that are most profitable to the company.

- **Apply e-detailing tactics strategically**. E-detailing is not meant to replace, but to support a company's traditional detailing tactics. Effective e-detailing fills in the gaps that traditional detailing leaves open. For instance, while traditional detailing may be best for creating "buzz" for a new drug, e-detailing can be used to augment the outflow of information and increase interest during

Dhaka University Institutional Repository

product launch. Or, in some instances, it can combine traditional and e-detailing methods to educate prescribers on drug features, convert mind share to market share and deliver samples to interested doctors. Strategically applying e-detailing along with traditional detailing gives both physicians and pharmaceutical companies options to improve their efficiency and effectiveness. Doctors have an additional avenue for detailing services at the fingertips, while pharmaceutical companies spend less to promote drugs and benefit from deeper market penetration.

No e-detailing plan or initiative will be truly successful unless it is fully integrated into the company's CRM strategy and execution. E-detailing tactics should share physician information that is integrated across all corporate channels. Integrating sales activities and the information gathered, both electronically and in the field, into the company's marketing systems will go a long way toward strengthening the physician relationship, as well as helping improve the way doctors work (appendix 6: case study). And the more the doctors prescribe their products, the greater is the opportunity for the company to profit in terms of market share.

Although only 18% of the companies have been found to have started to incorporate e-detailing into their company's customer relationship management (CRM) strategy, 53.1% of the physicians have agreed to the fact that e-detailing is a alternate possibility of providing them access to valuable, trusted drug information.

Dhaka University Institutional Repository

Thus, e-detailing is a tool that the companies of Bangladesh could immediately look into to improve their promotional efficiency.

1. Positioning Strategy

Positioning may be defined as the process by which marketers try to create an image or identity in the minds of their target market or their customers (Figure 37).

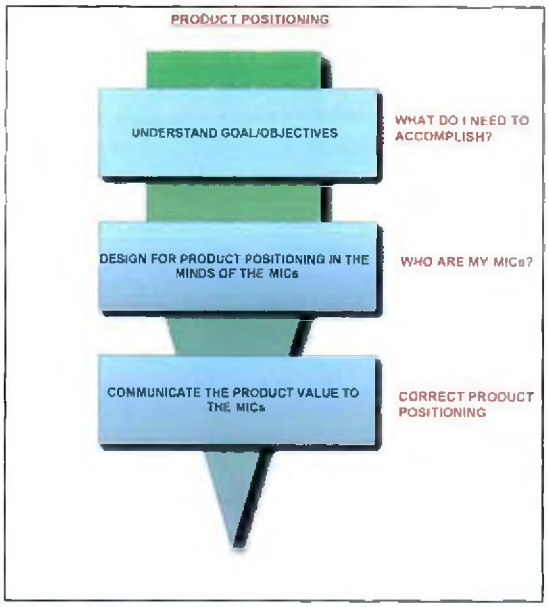


Figure 37: Product Positioning in the minds of the MICs

The pharmaceutical companies have 3 different types of customers: the doctors (intermediate customer who decides what product to consume on behalf of the patients), the retailers (who sell the product) and the patients (final users of their products). Because of this unique relationship, the marketing strategy needs to be carefully planned so that the company can effectively select, acquire and retain their MICs, making sure that their customers are always satisfied.

Dhaka University Institutional Repository

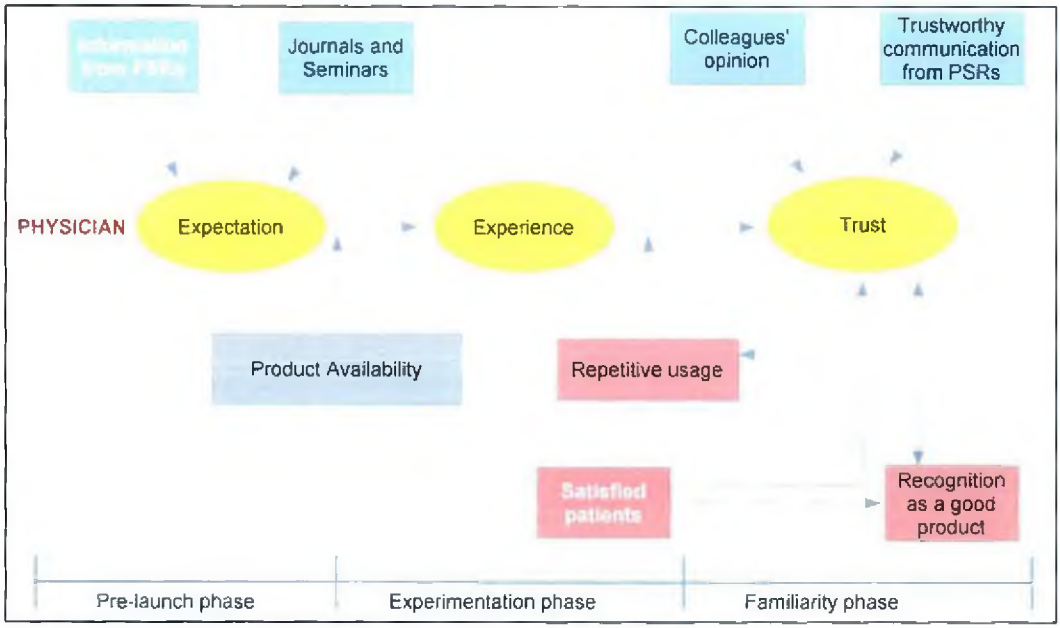


Figure 38: Development of trust in the physicians for the company's product

Devising and continually evolving positioning strategies in order to effectively define and communicate the product value at every stage of its life cycle is the main focus (Rao, 2009). Since clinical experience gained in experimentation phase is one major factor that seems to be decisive for physicians' attitudes towards the product throughout its market presence, it is of vital importance to position the product well in the minds of the MICs and create relevant expectations in both the Pre-launch and Experimentation phase (Figure 38).

When differentiating the company's product through (brand) promise development, the PSRs should link the product clearly to relevant functional benefits and avoid anything that may confuse the MICs. Mistakes made here generally have been found to be hard to repair later. The task difficulty is enhanced by the fact that marketing messages are communicated mostly by the PSRs. Transfer of messages between marketing, sales teams and customers is a process accompanied always to some extent by leakage of messages (noise) in the communication chain

Dhaka University Institutional Repository

(Figure 39). Thorough message development, transfer management and continuous assessment of them is therefore of key importance for effective product positioning (a type of pharmaceutical marketing communication) leading to successful performance of the company (appendix - 7).

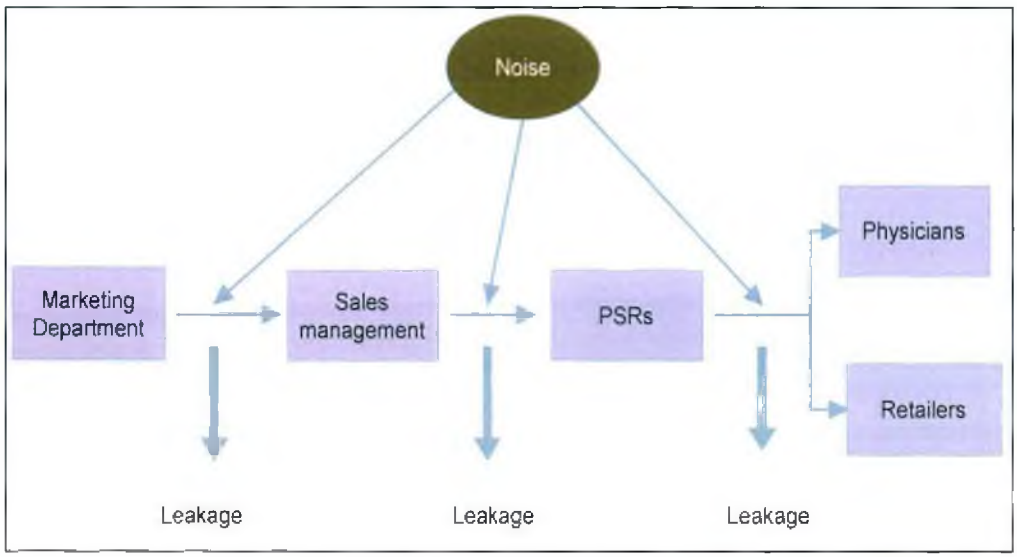


Figure 39: Potential message leakage in pharmaceutical marketing communication chain

A company must also be very careful in how their MICs develop trust or mistrust from positive or negative clinical or promotional experience. Trust is likely to lie in the centre of product-customer relationship (Ambler, 1997); and pharmaceutical companies should therefore be aware that their trustworthiness can play significant roles in trust development within the doctors (Viitanen, 2004). In words of respondents "they should not over-promise or hide product liabilities". This indicates that the customer/product relationship for pharmaceuticals involves both way interaction (Blackstone, 2000).

Dhaka University Institutional Repository

m. CMEs

The pharmaceutical industry is vital to drug discovery and to the education of the health care practitioner. It invests heavily in promotion to physicians, and its influence is substantial. Promotional activities and materials, including pamphlets and educational seminars (continuous medical education), may be a convenient and frequent source of knowledge for health care professionals of Bangladesh. Industry-sponsored materials are considered by the health professionals to be simultaneously promotional and educational and place a significant amount of trust in pharmaceutical company educational events and materials.

n. Value-Added Services

Value-added services, a critical tool of marketing, are variables that can help address customer needs and concerns. It is a term that is used to refer to service options or extra benefits that are complimentary to but also ancillary to a core offering and what differentiates a company's product from its competitors. A value-added service is something extra that is provided to a customer at no additional charge or it is offered to an existing customer as an added service that is available for a small additional fee.

Value-added service is an area where the pharmaceutical companies could focus on in order to improve their performance. When the MICs and the end consumers are presented with opportunities to switch to another company product or even herbal products, it is possible to assess the relative value of value-added services in maintaining customer loyalty. A manufacturer's resources, such as educational programs,

Dhaka University Institutional Repository

product services, and other specialized skills, are value-added services which are valued by the customers of the pharmaceutical companies as revealed by their reluctance to switch to a competitor's product (see appendix – 6: case studies of Bangladesh).

Since this element has come up in several of the regression models of the research, the pharmaceutical industry of Bangladesh can consider concentrating on this particular area to improve its competitive platform.

o. Benchmarking/Tracking Promotional Activities

It is often noticed that companies are not so successful at translating their strategies into performance or being able to find out the common causes and the effective actions in closing the strategy-to-performance gap (Mankins et. al, 2005). In the pharmaceutical market, customers and market share (company performance) also do not stand still. Markets are dynamic and undergo massive changes, mostly because

- new diseases are always evolving
- patients' and physicians' demographics and customers' (physicians) specialization are also constantly changing.

Companies repeatedly discover that the landscape they operate in has altered and the plans and promotional strategies that worked so well yesterday no longer work so well today. Correctly segmenting physicians and developing insights into their prescribing behavior as well as understanding patients' needs are powerful methods of building loyalty, increasing growth and gaining market share. It is also important for the companies to continuously address the following questions:

- Which are the biggest most profitable segments?

Dhaka University Institutional Repository

- How well do the companies meet customers' needs, compared with competitors?

Therefore, it is important to benchmark or track the impact of the promotional activities of the company on their MICs (see appendix - 7). The aim of benchmarking or performance monitoring is using and maintaining a standardized and optimal marketing mix as well as promoting the true image of the products to maximum MICs.

Value chain analysis is a powerful managerial tool for identifying which activities have competitive advantage potential. A firm's competitive edge is based on its ability to perform competitively crucial activities along value chain better than rivals. More than 75 percent of the average firm's market value is derived from intangible assets that traditional financial metrics do not capture. Arguing that firms cannot manage what they cannot measure, Robert S. Kaplan and David P. Norton had introduced a revolutionary performance measurement system called the Balanced Scorecard to enable companies to quantify critical intangibles such as people, information and culture (Kaplan, 2006). There is another tool created by them as well that has turned out to be as important an innovation as Balanced Scorecard itself: strategy maps. This new tool allows the company to create customized strategy maps that allow organizations to:

- Clarify their strategies and communicate them to all employees
- Identify the key internal processes that drive strategic success

Align investments in people, technology, and organizational capital for the greatest impact (Kaplan, 2004).

Dhaka University Institutional Repository

3. Operations Plan

a. TQM

Total Quality Management (TQM) is an approach that seeks to improve quality and performance which will meet or exceed customer expectations. This can be achieved by integrating all quality-related functions and processes throughout the company.

It is required that each company considers TQM as the overall quality measures used by a company including managing quality design and development, quality control and maintenance, quality improvement, and quality assurance. TQM needs to take into account all quality measures taken at all levels and involving all company employees in order to further improve company performance and give the industry a competitive advantage.

The value of pharmaceuticals is nowadays sought and promoted. Firms that have well-managed and well-planned TQM across their company are found to have pharmacoeconomic or outcome research divisions, (Pollard, 1990; Stewart, 1989) and accordingly, explore the notion of disease management (Clouse, 1990) in order to achieve competitive advantage.

b. Manufacturing Facility

Pharmaceutical company leaders face a variety of challenges, from competition with other firms and increased competition from generic drugs, to reductions in the number of sales reps and rumors of replacement by peer-to-peer selling models.

Dhaka University Institutional Repository

Companies that enjoy enduring success have core values and a core purpose that remain fixed while their business strategies and practices endlessly adapt to a changing world. The dynamic of preserving the core while stimulating progress is the reason that companies such as Merck, Johnson and Johnson, etc. were able to achieve superior long-term performance (Collins et.al, 1996). The pharmaceutical industry of Bangladesh can look into this area in order to further improve its competitive platform. The most effective organizations score well on the major strategic decisions – having the optimum manufacturing facilities, which markets to enter or exit, which products to sell, where to allocate capital and talent, etc. But the companies truly excel when it comes to the critical operating decisions requiring consistency and speed – how to drive product and service innovation, the best way to position their products, how to manage channel partners, etc (Rogers et. al, 2006).

c. Corporate Reputation

Corporate reputation is another way of looking at a business. The reputation of any organization has been addressed and identified by the respondents of the study to be influencing the performance of the company.

An organization's reputation is created by the accumulation of all the contacts its various stakeholders have with it. Reputation is not determined by advertising. Advertising can communicate an image, it cannot create one - neither can a new logo or a new corporate name. A good corporate reputation has to be earned by the tangible things the organization does - higher quality products, better customer service. BUT reputation can be enhanced through better management of the emotional attachment that stakeholders have with the organization. The emotional

Dhaka University Institutional Repository

and the rational interact. Customers perceive the products of a company, whom they respect and trust, to be superior to those from a company they believe are not socially responsible or concerned.

The two most important stakeholder groups are customers and customer facing employees (the PSRs). Their views of the organization (image and identity) will interact. A more positive internal view will create a more positive external view, but only if certain other factors are harmonized. The reputation chain shows how this complex interaction can affect the financial performance of the organization.

At the heart of the chain is the product or the brand, that complex of emotional attachments that a company has with superior products, services, and customers. An organization can be a brand. The links in the chain are not always obvious, and certainly not always present. The most critical link is between image and identity. Making this work is the essence of reputation management.

The value systems inside the organization must be compatible with the brand values being promoted and recognized in the market. Finally, if all the employees especially the PSRs are satisfied, then customers will be too.

Corporate reputation should be considered as a business function by the pharmaceutical companies of Bangladesh. It should be regarded as a fusion between aspects of human resource management, marketing, business strategy and corporate communications. Reputation is a way of managing the business strategically; reputation can be lost easily and quickly but it cannot be built or rebuilt overnight.

Dhaka University Institutional Repository

d. Specialty Products

This class of products can be considered as the new and improved versions of the existing "blockbuster" drugs or simply as a product which other companies are not considering to market.

This may be another strategy for a company to come out of the competition where all the other the companies are competing for the same MICs with the same class of products (red ocean) and enter a new marker or area to do business (blue ocean).

e. Operations

Business operations are those ongoing recurring activities involved in the running of the company for the purpose of producing value for the customers. Correct and timely operations decision will further improve the performance of the pharmaceutical companies of Bangladesh.

4. Support System and Collaboration Plan

a. Construction of an API Park

The market share of the local companies in Bangladesh has been evidently increasing after the introduction of the 1982 National Drug Policy. Bangladesh, currently having more than a couple of hundred manufacturing facilities with huge potential in pharmaceutical formulations, is heading on a new path of industry economics for self-reliance. Aiming at minimizing the import dependency on basic drugs, the country's prime concern should now be the manufacturing of active pharmaceutical ingredients (APIs), base materials and other allied industry inputs. Currently, Bangladesh is importing 80% of its pharmaceutical raw materials. However, recent findings also suggest that

Dhaka University Institutional Repository

the Bangladesh pharmaceutical industry is actively involved in the production of Active Pharmaceutical Ingredients (APIs). At present, 21 different companies manufacture 41 such products locally. However, as this is insufficient to meet the growing demand from the domestic market, the government has approved the establishment of an API industrial park in Munshigonj at a cost of US$30bn (Bangladesh Pharmaceuticals and Healthcare Report Q3 2009). Estimates suggest that API products worth US$750mn per annum could be exported over the next five years.

In the current environment, increasingly close relationships between the generics (finished form) manufacturers and API suppliers have become of key strategic advantage. With the possibility of the pharmaceutical industry of Bangladesh entering into the patent regime after 2015, having access to a secure source of API can make a significant difference.

Competition at the finished form level has become intense, particularly in oral solid formulations. Capturing the entire value chain can ensure overall product profitability and cost competitiveness for Bangladesh. This can be ensured by going for strategic alliances with an API-supplying or manufacturing company. Another key option that not only attains the benefits of consolidation but also actually significantly strengthens the level of competitiveness of the firm is a move into active pharmaceutical ingredient (API) production (Erdei, 2004).

b. Implementation of Health Insurance

The number and infrastructure of health facilities and number of the physicians is not sufficient to manage the patients of Bangladesh. Some of them also no longer completely control how they practice, what they prescribe, or how much to charge. This is, in fact, the case with the

Dhaka University Institutional Repository

doctors of private hospitals of Bangladesh today and have already compound the problem of access to quality care. One way to tackle this situation could be the implementation of a well-defined, regulated health insurance system.

The intention of implementing health insurance is to provide access to comprehensive health care services at zero or slight cost at the time of use as well as the free choice of physicians by patients. This can influence costs in two ways. First, if patients have direct access to specialists, they will push up costs by more frequent consultations with more highly paid doctors. Second, freedom of choice will encourage greater numbers of doctors to enter the market and each doctor to become more specialized, leading to multiple consultations by each patient. The requirement to consult a general practitioner before gaining access to a specialist, as in the British system, acts as a control on unnecessary specialist consultations; the risk is that less effective care may sometimes be provided by generalists.

This is an area where the pharmaceutical sector of Bangladesh can look into in order to ensure that the poor majority population can get proper health facilities at the required time.

c. University Collaboration

University collaboration is found to be almost absent within the pharmaceutical sector of Bangladesh. Alliances can be done with universities in order to speed the discovery of new molecules or delivery forms and hence, attain product-leadership or cost-leadership.

Dhaka University Institutional Repository

d. Research and development (R&D) Setup

Research and development is a phrase that has different meanings in different applications. In the world of business, research and development is the phase in a product's life that is generally considered the product's 'conception'. That is, basic science must exist to support the product's effectiveness, and if the science is lacking, it must be discovered - this is considered the research phase. If the science exists, then turning it into a useful product is the development phase. Further terminology refinements might call it engineering to refine production so that the product can be made for a cost that appeals to consumers.

Since the pharmaceutical industry is all about R&D, whether it be a totally new product or a new delivery system of the same molecule or a modification of the molecule, it is imperative that the companies of Bangladesh must immediately consider strengthening their R&D department.

e. Faster Government Approvals

Another interesting issue raised is that the industry needs to fast track regulatory approvals in order to form strategic alliances with foreign companies and gain global market access. These are not necessarily the mega $100 million acquisitions seen by India in recent years but rather, small $5 to $10 million deals (The Indian Pharmaceutical Industry: Collaboration for Growth, KPMG report, 2006).

f. Favorable Import/Export Policy

In order to allow some of the leading corporate of Bangladesh to globalize, the Bangladesh bank could consider allowing a selective,

Dhaka University Institutional Repository

focused and strategic use of a small proportion of the foreign currency reserves to help accelerate growth in the industries with significant export potential. The government should also look into the import and export policies at least every year and make necessary amendments if required for the industry to expand.

g. Drug Testing Facilities

Responders are found to use promotional information for prescribing or decision-making, sometimes being unaware of the ethical implications of promotional interactions and unresponsive to restriction policies (Burashnikova, 2008).

Companies should strive to identify the regulatory objectives and policies that will have the biggest impact for enhancing attraction and retention of employees and customers, the customer value proposition, import and export and ultimately company or financial performance, eg, drug testing facilities, favorable import-export policies, etc. In their investments in communities, company should seek opportunities that leverage their competencies and that enhance their strategic objectives. They should be as diligent and rigorous in assessing their returns from community investments as they are in evaluating the effectiveness of their investments in tangible and intangible assets

h. Biotechnology Facilities

Biotechnology is a field of applied biology that involves the use of living organisms and bioprocesses in medicine, engineering, technology, and other fields requiring bioproducts. The field encompasses a wide range of procedures for modifying living organisms according to human purposes. Biotechnology is having an increasingly important impact on a number of

Dhaka University Institutional Repository

sectors and disciplines. These include scientific, industrial, health and agricultural applications.

Bangladeshi scientists have successfully decoded the crucial genome sequence of jute, opening up a new vista in the development of the golden fibre. With this knowledge-based economy initiative by the Ministry of Agriculture, Bangladesh Government, this major achievement could rejuvenate the multi-million dollar Jute Industry. The significant benefit in upcoming years will help Bangladesh to develop new quality breeds of Jute both in terms of both fibre quality and resistance to various diseases.

Since jute genome-sequencing has also started in Bangladesh, there is a huge scope for biotechnology in the pharmaceutical arena as well, which the industry should consider getting into immediately.

i. Strategic Alliances

To expand product mix and enhance the distribution channels as well as the marketing sales force, pharmaceutical companies have found that acquiring smaller companies, domestic or international, or even merging with another pharmaceutical company is the best strategy to compete in today's world of extreme competition.

The generics industry has its foundation in the finished form area, focusing primarily on the marketing end of the business. Importing API was a viable option all these years for these companies of Bangladesh in order to ensure good quality and timely delivery just for the local market. This avoided the need for large investments in API facilities since also the sector was less developed and consolidated to ensure good runs at an API facility. And now with the TRIPs protection world-wide, the API, which was historically viewed as a commodity, has now become an

Dhaka University Institutional Repository

extremely important part of the value chain. As the abilities and capital base have strengthened, the companies can now consider moving into finished form in the international markets themselves.

There have also been a lot of discussions taking place regarding developing strategies for export diversification, but whether the rhetoric can be translated into policy reality is the question. The industry must try to see whether there is a consistency between the quality of management and companies and their export performance. If the industry is to replicate the Indian experience and become a $500 million plus export sector, then Bangladesh needs to overcome the constraints of financial capital, strategic capital, regulatory capital, and reputational capital as well as to strengthen the regulatory and statutory framework of the sector. The challenge is not only about getting resources to build world-class facilities that can meet the US or European regulatory standards, but to maintain it and also build strategic alliances with globally reputed pharmaceutical companies, for it to gain access to their markets and intellectual property.

j. Differentiation of OTC and Prescription Drug Products

The Bangladesh market is dominated by the selling of the drugs with or without a prescription which leads to the prescription products not being completely in the domain of physicians and healthcare professionals. Even a 10-year old child can walk in a pharmacy and buy any drug he wants to without a prescription! This is due to the inability of implementation of a policy for the separation of the drug products into 'OTC drugs' and 'prescription drugs' in Bangladesh, the absence of a registered pharmacist in the retail outlets, and finally, the lack of implementation and monitoring of the regulations. On top of that, many

Dhaka University Institutional Repository

who influence treatment decisions (eg, the sellers at the retail outlets) are not medically trained and therefore, the prescription products are positioned within a wider consumer environment.

The other challenge that Bangladesh faces is prescription product information being available to the general public. This is mainly due to globalization of the world's media and accessibility of the internet through which information is shared. Availability of this information is not going to change, but pharmaceutical companies can develop strategies that support educational initiatives by other organizations and try to ensure that the accurate information is in the public domain.

All the pharmaceutical companies of Bangladesh must therefore start to reassess their customer service models in order to ensure whether they are keeping up with the expectations of both their customer (physicians and retailers) and consumer (patients) audiences and incorporate e-detailing into their CRM. For example, improved support system physician customer service portals can allow the physicians to download patient education materials, order product samples, and request journal reprints conveniently at any time and any place. Live video detailing, that has emerged, can be used as an additional tool for the physician-PSR relationship – with the majority of doctors connecting with their representative through online video, followed by reporting of the experience. Sales and physician marketing teams should take advantage of their physician targets' diverse channel mix and ensure that these touch points work together for an integrated, full-service experience.

Product sites and physician customer portals can also be tailored with customer information needs and communication preferences in mind. Some sites, such as Merck Services for physicians, have begun

Dhaka University Institutional Repository

implementing features like online customer service reps, and this e-detailing example can be considered by the pharmaceutical industry of Bangladesh in the future. Some of the leading companies of Bangladesh have started to implement the use of online journals (e-journals) mainly targeting the physicians and academicians as part of CME (eg, e-Square, an online healthcare bulletin). This sort of information and communication portals tailored for consumers (the patients) in Bangladesh are now in the planning stage. Although Bangladesh is one of the poorest countries in the world, there have been findings in a recent research conducted by US investment bank Goldman Sachs related to growth in technology (use of mobiles and internet) in Bangladesh (Star Business, 2009).

CHAPTER 7. CONCLUDING REMARKS

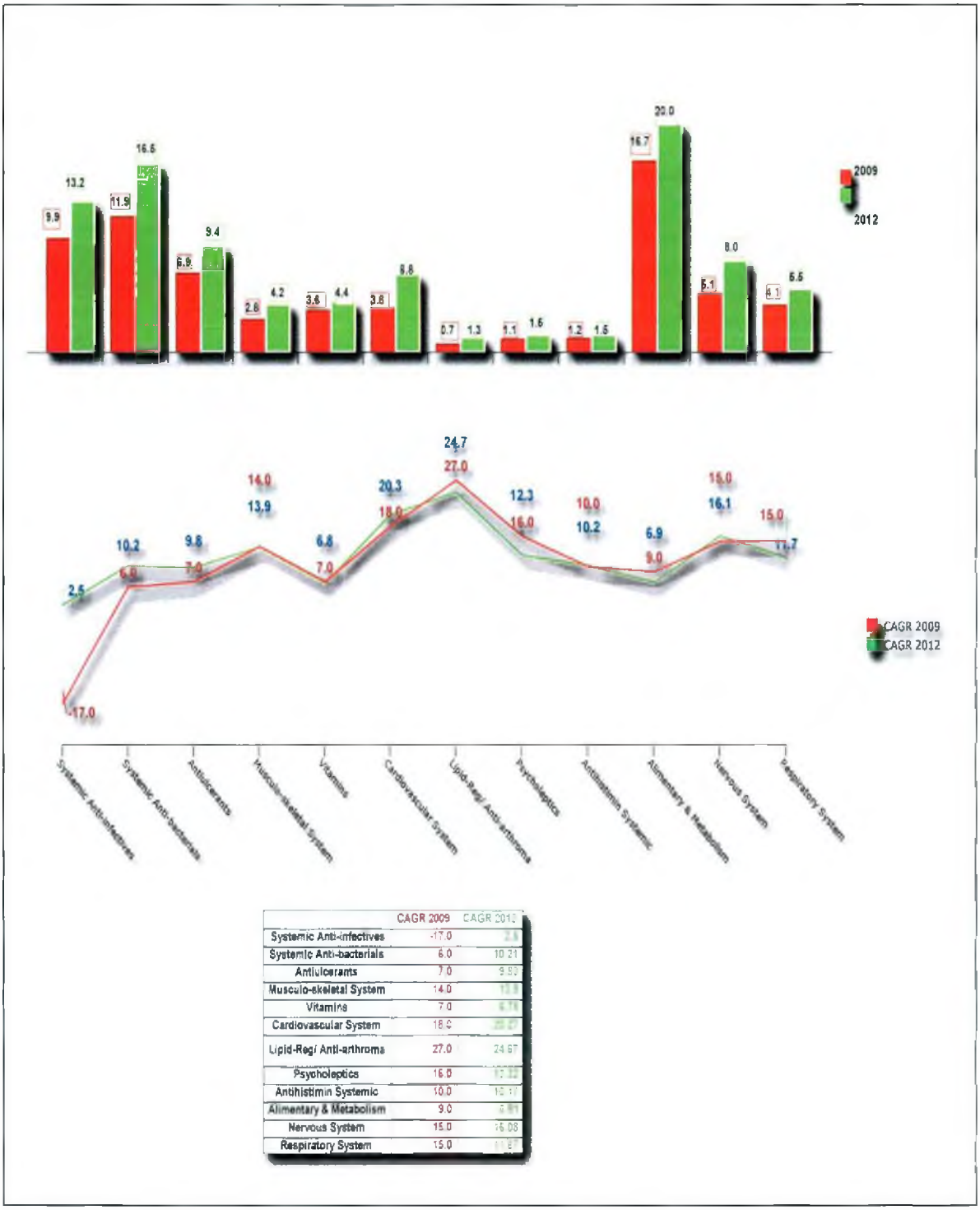
7.1 THE FUTURE OF THE BANGLADESH PHARMACEUTICAL INDUSTRY

The Market Analysis section of a business plan shows the business inside and out and as such is an important part of any good business plan. A market analysis is performed in order to determine who the customers are and what they want from the company. The key elements of a market analysis mainly include the market size, market growth rate, market profitability, distribution channels and market trends. This is why the current research has mainly focused on the study of the marketing strategies used by the companies, as well as the factors related to the satisfaction of the industry's MICs.

Looking at the sales figures of the major therapeutic groups in the Bangladesh Market of 2007, 2008, and the forecasted of 2009, 2010, 2011 and 2012, it is evident that the growth of the systemic anti-infective drug products will decrease and later increase. The reason for the predicted decrease in 2009 (Figure 40) and later increase has been accounted for as follows (derived from assumptions by industry experts and judgmental, based on past market dynamics):

- impact of the lowering of prices of some of the products,
- movement or shift of high-value antibiotics to low-value antibiotics,
- social awareness leading to a momentary decrease in the occurrence of infections.

Dhaka University Institutional Repository



	CAGR 2009	CAGR 2012
Systemic Anti-infectives	-17.0	2.5
Systemic Anti-bacterials	6.0	10.21
Antiulcerants	7.0	9.82
Musculo-skeletal System	14.0	13.9
Vitamins	7.0	6.79
Cardiovascular System	18.0	20.3
Lipid-Regl Anti-arthroms	27.0	24.67
Psycholeptics	16.0	12.32
Antihistimin Systemic	10.0	10.17
Alimentary & Metabolism	9.0	6.91
Nervous System	15.0	15.08
Respiratory System	15.0	11.67

Figure 40: Forecasted Sales (in taka millions) and growth (in CAGR) of some of the therapeutic groups in the Bangladesh Market from 2009 to 2012

Dhaka University Institutional Repository

From the above figure, it can also be seen that with the current marketing strategic plans, the forecasted sales and growth in 2011 and 2012 for the therapeutic groups – systemic antiinfectives and antibacterials - is increasing whereas for groups like psycholeptics, lipid regulators, antihistamines, respiratory system, it is very small and slow. From these or similar data, some of the companies can clearly plan out which markets or products it would like to concentrate and therefore accordingly strategically lay out its marketing plans in order to be able to supply to the needs of the population of Bangladesh.

7.2 ISSUES RAISED BY THE STAKEHOLDERS OF THE SECTOR

- Bureaucratic rigidity leading to slow government approvals, etc.
- Necessity of immediate setting up of API park.
- Formation of strategic alliances with foreign companies in order to fast track regulatory approvals and global market access.
- Support of the Bangladesh Bank to help some of the leading pharmaceutical companies of Bangladesh with significant export potential to globalize and thus accelerate growth of the industry.

Although the industry is optimistic about the extension of the WTO deadline being extended, probably to 2021, there is an urgent need for the

- implementation and stringent monitoring of regulations
- the constant availability of top-quality products to the large population of Bangladesh
- the consistent, frequent and random testing of the drugs that are in the market

Dhaka University Institutional Repository

- the development of the infrastructure of the sector, particularly the human capital
- the availability and transparency of market data for analysis of the market; and above all,
- a drive to flexibility, efficiency and improved or better performance across the industry.
- The necessity of the introduction and implementation of health insurance depending has also been strongly mentioned.

7.3 RECOMMENDATIONS: WHAT THE COMPANIES SHOULD DO

Bangladesh has a thriving pharmaceutical manufacturing sector, though it is generally limited to small molecules. In an effort to move up the value chain, in October 2009 the health minster announced that the government is planning to launch various initiatives to support local vaccine production to serve the country's Extended Immunization Programme, as well as to strengthen the Drug Testing Laboratory and to increase the manpower in the Drug Administration and National Regulatory Authority. The country has also recently secured a license from the World Health Organization (WHO) to develop vaccines locally (BMI, 2009).

From the organizational perspective the most prominent performance related issues identified by this study are enlisted below:

- There is an intense competition in the market for the same therapeutic are or same products.
- Varying perceptions of the customers (doctors and retailers) towards the pharmaceutical companies and products have been identified, which needs to be addressed and rectified.

Dhaka University Institutional Repository

- Unethical marketing practices adopted by some of the companies in the pharmaceutical market of Bangladesh have been reported.
- The absence of a pharmacist available in the retail shops have been identified although it is clearly outlined in the National Drug Policy 2005 that no person without having professional qualification or holding valid professional license should be allowed to stock, distribute or sell drugs and medicines.
- There is an unavailability or a lack of transparency of market data in Bangladesh, mainly with regards to
    - customer acquisition, development and retention strategies,
    - number and the quality of medical representatives operating in the different parts of the country,
    - the level of customer knowledge (retailers and wholesalers),
    - the number and value of prescription given by each doctor and shown at the retail shops for the medicines to be bought.
- A very high attrition rate of the sales personnel across the industry has been identified.
- Busy doctors have been reported by the PSRs to be giving less time for sales calls.

Therefore, for the pharmaceutical sector of Bangladesh to attain a competitive advantage and produce world-quality products, the present study can recommend the following areas of focus for strengthening the industry which can be considered to be an important strategic decision:

- the requirement for, as well as the implementation of, a robust, strong user interface (user-friendly), scale-able and secured database-based web application for the industry's sales and marketing management;

Dhaka University Institutional Repository

- a more clear understanding of the importance of the PSRs' role in sales, company reputation, etc and accordingly motivating and training them as consultative or specialized representatives;
- incorporating e-detailing into the company's CRM;
- addressing unmet therapeutic areas in the Bangladesh Market;
- implementation and monitoring of existing as well as improved regulatory restrictions that shape the local/domestic market;
- immediate benchmarking and renewing the strategy of the industry, particularly in the marketing area;
- immediate removal of institutional barriers in order to implement the organized collaboration of the entire industry with academic institutions, regulatory bodies, policy-bodies in order to create a more unified, supportive, and inclusive community;
- implementation of research and testing facilities;
- implementation of e-detailing;
- the need for strategic alliance;
- bulk-packaging for supplying institutional customers (hospitals)
- looking deeply into the emerging opportunities in key international markets and thus improving the export/import policy;
- future prospects of specialized products within the pharmaceutical market, eg, antineoplastics, vaccines, biotechnology, biosimilar products; and
- lastly, one cannot complete a discussion of the industry changes without addressing the increasing importance of non-personal promotion to reach the physician. In order to overcome the limited face time with the physicians, non-personal promotional tactics such as e-detailing, e-sampling, webinars, webcasts and call centers are just some of the ways the industry can think of implementing.

Although the potential for expanding the marketing activities and therefore economic opportunities of the pharmaceutical companies' through various activities is a significant determinant of the industry's growth, the primary focus of the pharmaceutical industry must always only be the increasing access to top-quality health care to the entire population of Bangladesh.

7.4 LIMITATIONS AND FURTHER SCOPE OF THE STUDY

7.4.1 Limitations

The following are some of the limitations that the study had to deal with:

- Since the physicians practicing in Dhaka were only interviewed, this could be a reason of a geographical limitation, particularly those related to quacks practicing in rural areas.
- Did not consider the impact of informal marketing related to the influx of products across the borders.
- It was more in terms of macro-marketing rather than micro-marketing since this type of research has first time been addressed. Moreover, collection of information on micro-marketing issues was difficult.
- Confidentiality of data was an important barrier that was faced during the conduct of the study. Most companies were found to have data and information that they did not want revealed.
- Information and data (necessary records, publications, etc) was not always either available or accessible. This constraint made the study difficult and time-consuming.

- Unavailability of Respondents: respondents were sometimes found to be busy with work pressure or travelling. Therefore, they were not always available for data collection.

7.4.2 Further Scope of the Study

This thesis raises questions that justify further study:

- doctors practising in Dhaka have only been interviewed.
- retailers based in Dhaka have only been interviewed.
- PSRs working only in Dhaka have only been interviewed.

These can be considered and accordingly data (eg, outside Dhaka) can be collected for further research.

Several important elements were identified in the strategic model and therefore research should be carried out in the following areas and considered for future study:

- Study and immediate setting up of drug testing facilities
- Study of the unmet therapeutic areas in the Bangladesh Market in order to address these areas - eg, nervous system, cardiovascular system, vaccines, antineoplastics, anti-diabetics, etc (Fig 10)
- Implementation of Health Insurance on a national level
- Differentiation of OTC and prescription drug products
- Further study and setting up of R&D facilities
- Collaboration with university or medical research institutes for the improvement of the industry
- Problems at the retail level and their immediate solutions
- The implementation of eDetailing into the company's CRM:
    - Deliver video to doctors using the Video Email Service

- Invite doctors to attend CME courses on the efficacy of new drugs
- Broadcast surveys to doctors to collect marketing and clinical information
- Invite doctors to preview a new E-detailing web site
- Promote a web site that provides drug samples
- Point doctors to a web site that provides drug information
- Announce new product launching
- Offer seminars or promote medical conventions

- Solutions to the control of unethical marketing practices

Dhaka University Institutional Repository

CHAPTER 8. SUMMARY

The global pharmaceutical industry is at the crossroads, where so many parts of the business are changing, and companies are in the middle of making important strategic decisions. Demographic, epidemiological and economic shifts are transforming the pharmaceuticals market. The population is growing and maturing; new areas of medical need are emerging; and the diseases from which people in developing countries and LDCs suffer are increasingly similar to that of people living in the developed world. The pharmaceutical industry, a market-driven organization, thus demands close integration of both operations and marketing strategy. Together these strategies should address two crucial issues –

- customer needs and
- how to allocate the company's scarce resources to the customer's need, making sure that the company also achieves a competitive advantage.

The pharmaceutical market of Bangladesh is a branded generic market and it is imperative for the pharmaceutical industry to be aware of the changes taking place all over the world since the pharmaceutical industry can neither survive nor profit on its own. This study looked into how the pharmaceutical companies of Bangladesh can market their products most successfully to the mass and targeted population and also how it can survive competitively from 2016 onwards (appendix-2) by exploring the corporate practice in the context of marketing. The aim of this research was to build a marketing model (PMM) highlighting the factors that influence and can improve the pharmaceutical marketing decisions. There may also be a major concern for Bangladesh (a signatory member of

Dhaka University Institutional Repository

WTO) as an LDC after 2015, once the transition period of exemption from the WTO (appendix - 2) regulations are over. The general scenario of the pharmaceutical companies in developed countries is to choose to market those products that generally offer the highest return on investment (ROI) but a lack of sustained efforts to develop effective medicines against diseases, like malaria, tuberculosis, etc that predominantly affect the poor people all over the world. This is confirmed by the enormous earnings from drugs for raised cholesterol concentration, depression, and musculoskeletal disorders (Henry and Lexchin, 2002).

The World Health Organization (WHO) has also been found to report disparities in health conditions, incidence and prevalence of disease (WHO, 1999). Despite years of WHO's essential drug programs and the adoption of essential drug lists by many countries, availability of drugs remains highly uneven (WHO, 2009). The World Health Assembly has noted that "one third of the world's population has no guaranteed access to essential drugs" (WHO, 2004-2007). In Bangladesh like other LDCs and many developing countries, individuals and their families are expected to purchase drugs and medicines to treat their illnesses, due to lack of a health insurance system. Weak government regulation and improper prescriptions from doctors have also been found to result in unsafe and ineffective drug use.

For most people of Bangladesh, treatments are either unavailable or unaffordable (primary source). In rural areas the situation is particularly difficult, as the only supplier of drugs is typically either a local hospital or health clinic which often lacks even the most basic drugs to treat common illnesses such as respiratory infections and diarrhea and very rarely has access to new drugs used to treat tuberculosis, cancer, HIV/AIDS, etc.

Only the few wealthy people in Bangladesh can afford anticancer, anti-diabetic, HIV/AIDS drugs, etc independently (primary data). These are significant issues that the Bangladesh health authorities should also consider immediately in order to be able to serve the large and poor population of Bangladesh in the future when the patent laws will be implemented, which will take the prices further beyond the reach of the people.

There has been a lot of debate about the organizational model and what stays centralized in global companies and what happens locally in individual countries. The pharmaceutical industry of Bangladesh is no exception. The industry is undergoing substantial change and is constantly experiencing a number of new market factors (Shaw and Burgess, 2002). New technologies, global economies, emerging diseases, emerging markets and the nature of drug development all provide simultaneous threats and opportunities.

Also noticeable is the way the business thoughts in Bangladesh are being laid out. With respect to the offer (the drug product), initiatives have started to change from being product centric to customer centric with the focus on building brand and brand loyalty. And brand recognition is beginning to include or adopt the customer experiences and needs, along with the scientific and efficacy attributes of the product. This can already be seen in the way marketing works, focusing more on educating the customers and less on pushing the product (primary source).

With all of this change happening, there is some fundamental blocking and tackling that has to be done right in order to make good decisions and since the pharmaceutical industry is a market-driven organization, the study of the marketing strategies is stressed in this study, because that is the lens. The way the financial and strategic decisions are made also need

to be measured continuously and corrective actions taken along the way if they're going to properly translate to shareholder value and customer equity.

Considering the value chain of a pharmaceutical industry (section 1.6.7), the value chain of Bangladesh is different in the sense that the industry at the moment is involved only in the manufacture of the generic version of the products using mainly imported API as well as involved in the import of finished products. The pharmaceutical industry of Bangladesh is yet to invest in API production and in R&D. Secondary data showed that a detailed analysis on the backward linkage of the value chain of Bangladesh has been done and documented – that is, on the manufacturing capabilities of the pharmaceutical industry, distribution network of the industry, packaging of the pharmaceutical products, improving pharmaceutical quality in Bangladesh (Bangladesh Development Series, 2008), as well as on the necessity and possibilities of setting up a API park in Bangladesh (Alauddin, 2009). Secondary data study also showed that a documented analysis of the forward part of the value chain of the Pharmaceutical sector of Bangladesh - the marketing part of the value chain of the pharmaceutical industry of Bangladesh - is yet to be made available, which is the focus of this research.

All of this information from secondary data led to the problem statement of the research and which is: No strategic issues relating to the forward linkage of the value chain of the Pharmaceutical Sector of Bangladesh have been found to be documented and made available in order for the industry to capitalize on and create more opportunities and different sources of value for the industry's competitive landscape to be transformed to a more advantageous position.

Broad objectives of the study were:

- To assess the focus, effectiveness (performance), differentiation and competitiveness of the different pharmaceutical companies operating in Bangladesh.
- To examine the existing business practices and strategy of the pharmaceutical industry expressed by survey informants (executives of both domestic and multinational pharmaceutical companies of Bangladesh, physicians, retailers and PSRs).
- To examine the social issues faced and practiced by the different pharmaceutical companies operating in Bangladesh.
- To design a business strategic model for the sector which will suggest how to improve the pharmaceutical industry, particularly in areas related to marketing (profitability) and competitiveness, both locally and globally to give it a competitive advantage bearing in mind that Bangladesh will need to abide by the regulations established by WTO after 2015 since it is a signatory of WTO.

The purpose of this study was to analyze the different marketing dimensions of the pharmaceutical industry of Bangladesh and identifying opportunities and ultimately develop a strategic model that will recommend ways of improving the industry in order for it to attain a competitive advantage in order to sustain itself from 2016. The goal of the analysis was to also obtain a complete understanding of the marketing activities of the Bangladesh pharmaceutical industry by studying the different factors which are responsible for the different companies to take their strategic decisions.

The study has covered all data and information up to 2008.

Dhaka was considered to be the source for sample selection for several reasons:

- per capita consumption is highest in Dhaka city
- Dhaka constitutes or represents all the strata
- major number of hospitals and clinics are in Dhaka
- the market is highly unregulated (primary source)

The objective of the study was, therefore, to develop a model that will identify and provide useful information, new ideas and additional insights into the multidimensional issues and constraints of the pharmaceutical sector which could be considered as part of the strategic planning of the pharmaceutical industry in order for the Bangladeshi Pharmaceutical Industry to sustain after 2015.

This required analyzing the business competencies currently present in the industry and to determine any gap that may be keeping the sector from achieving a competitive advantage. It was done first by studying the secondary data (exploratory data) available and later by the study of the primary data collected (by comparing the perceptions and opinions of the marketing executives of Bangladeshi pharmaceutical companies, as well as the physicians, the retailers and the PSRs regarding the value chain of the sector, current and future services, marketing practices, and strategies of the pharmaceutical industry) in order to validate and fill in any gaps found in the secondary data.

In the present study, 11 specific research objectives were developed to answer the seven different research questions (section 5.3.2) and from these eleven specific research questions, 56 hypotheses were developed by addressing the questions, of which 39 hypotheses were for the industry

Dhaka University Institutional Repository

data, 11 for the physician, 3 for the retailer and 3 for the PSR, the explanation of which is provided in appendix – 3. The data was collected by means different sets of questionnaires that were developed and pretested for over a period of 3 months, which was then plugged into SPSS and the regression models obtained for each set of data (industry, physicians, retailers, and PSRs).

The process flow chart of the entire research is shown in Figure 41.

Dhaka University Institutional Repository

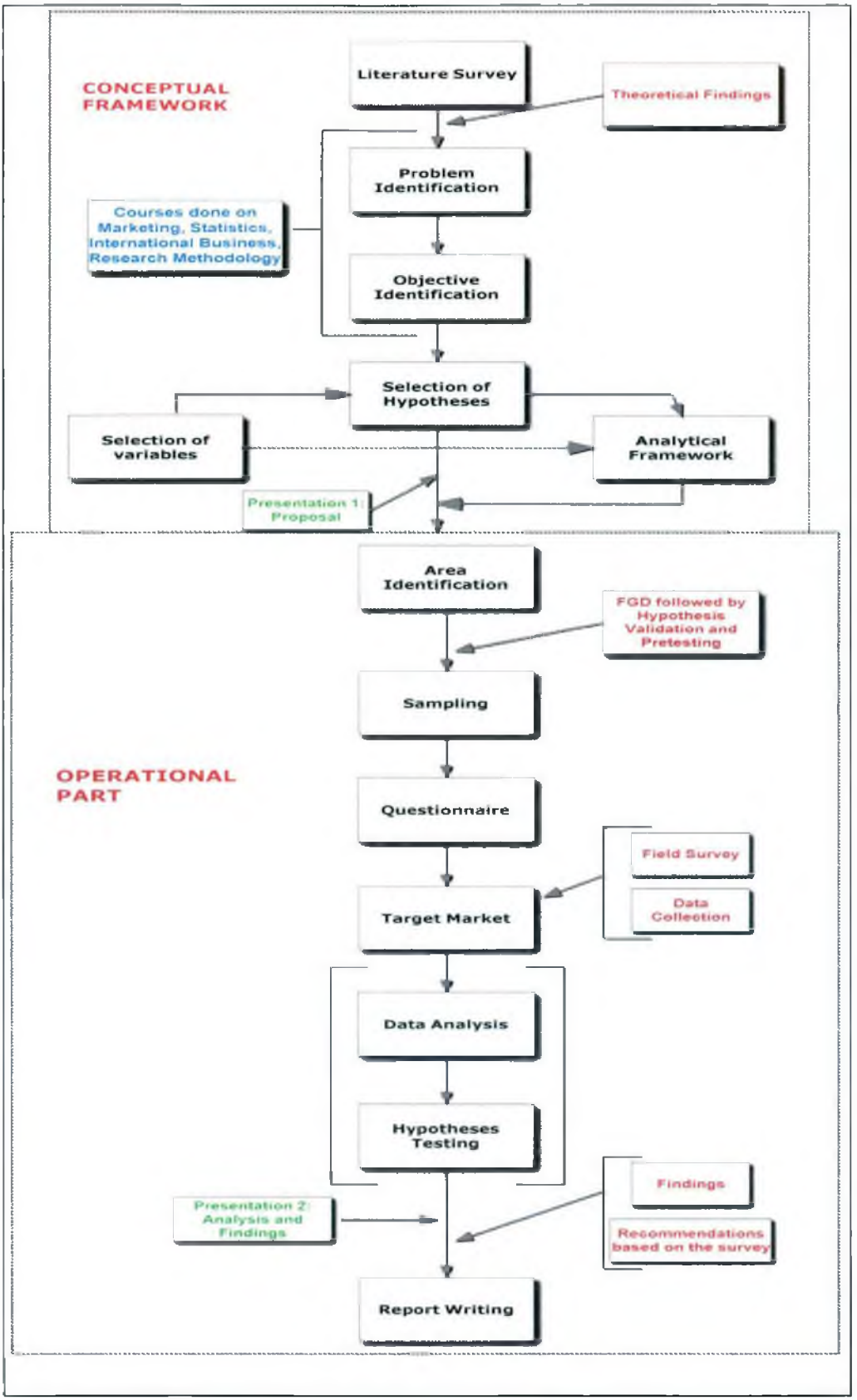


Figure 41: Process Flow Chart
Timeline included in Appendix - 1

Dhaka University Institutional Repository

The results of this study regarding the opinion of the pharmaceutical industry marketing executives of Bangladesh as well as their MICs (the physicians prescribing their products) have been found to be similar to previous studies (Seirles, 2005 and Hopper, 1997). Although several factors influence sales performance, such as drug quality, company resources, market competition, etc, the factors that stood out in the regression models as having the greatest impact (that is, to be significant determinants in the successful performance of the pharmaceutical industry of Bangladesh) were found to be (given in alphabetical order):

- brand management
- CMEs
- correct operating decisions
- differentiation into OTC and prescription products
- Differentiation of OTC and prescription drug products
- doctor segmentation
- human resource management
- Implementation and monitoring of regulations
- job satisfaction (motivation) of the PSRs
- knowledge of the PSRS, benchmarking
- number and motivation of the PSRs reaching the MICs
- product positioning
- promotional tracking/benchmarking
- regulations
- reputation of the company (based on quality, reliability and consistency)
- specialty-driven therapies
- strategic alliances
- training of the PSRs.

- value-added services

The real measure of the success of a drug product is always how well the company's customer (the physician) has been convinced about the product and then has convinced the 'patient' to take the product correctly over the long term and then to continue to take it since surveys report that over 50% of patients do not take the medicine properly. This often results in the product not having the chance to prove its true 'effectiveness'. The physicians (the MICs of the pharmaceutical company) may then decide that the product does not work, switch the patient to another company's product, and be less likely to prescribe that product to another patient. Therefore, for successful customer retention (both physicians and patients), it is important for the companies to ensure that the physicians and the patients receive information that they can believe and understand, at the same time ensuring the constant supply of high-quality products in a wide range. That is, the sector must start to understand clearly that the patient is more than just an Rx. The medicines prescribed by the physicians must also be available at all times at the retail shops for the end consumers (the patients) to be able to buy them.

After looking into the current practices, a strategic model was developed and proposed by the study that can be used by the industry as a guide or map in order to further develop itself and take it to a more competitive platform for it to sustain competitively from 2016 onwards when it might have to enter the patent regime.

The most prominent performance related issues also identified by this study both from secondary and primary sources are enlisted below:

- busy doctors giving less time for sales calls

- intense competition in the market for the same products
- lack of a pharmacist available in the retail shops although clearly outlined in the marketing policies
- the need for an alternate method of product detailing to physicians
- the need for intense and frequent training of PSRs
- unavailability/lack of transparency of market data
    - customer acquisition, development and retention strategies
    - level of customer knowledge (retailers, wholesalers)
    - number and the quality of medical representatives
    - value of prescription from each doctor in the list of each sales person or territory knowledge in terms of business value at medical representative level
- unethical practices adopted by some of the companies
- varying perception of the customers (doctors and retailers)
- very high attrition rate of the sales personnel

All the above variables (identified in the output model and strategic model) lead to creating long-term customer value, thus improving the performance of the industry. Therefore, the current research can suggest the above strategic plan for the pharmaceutical industry of Bangladesh to be used as a guideline or planning map for further improvement of the sector bearing in mind that Bangladesh might need to abide by the WTO regulations after 2015.

In order for the pharmaceutical sector of Bangladesh to attain a competitive advantage and produce world-quality products, the present study can now recommend the following areas of focus for strengthening the industry which can be considered to be an important strategic decision (in alphabetical order):

Dhaka University Institutional Repository

- a more clear understanding of the importance of the PSRs' role in sales, company reputation, etc and accordingly motivating and training them;
- bulk-packaging for supplying institutional customers (hospitals)
- consider using blue-ocean strategy, eg, focusing on value-added services and specialty-driven therapies in order for the companies to go for differentiation and specialization and not compete in the same therapeutic area, same target customers (physicians), same products, etc and not in a red ocean;
- future prospects of specialized products within the pharmaceutical market, eg, anti-cancer drugs, vaccines, biotechnology and biosimilar products;
- immediate benchmarking and renewing the strategy of the industry, particularly in the marketing area;
- implementation of research and testing facilities;
- implementation, monitoring and improvement of statutory requirements;
- looking deeply into the emerging opportunities in key international markets and thus improving the export/import policy;
- strong human resource management since it is people who are responsible of carrying out successful business and marketing plans and not the other way around;
- the need for strategic alliance;
- the requirement for, as well as the implementation of, a robust, strong user interface (user-friendly), scale-able and secured database-based web application for the industry's sales and marketing management;

Dhaka University Institutional Repository

- to initiate joint research programs in order to promote the further development of the pharmaceutical sector of Bangladesh through immediate removal of institutional barriers in order to implement the organized collaboration of the entire industry with academic institutions, regulatory bodies and policy-bodies;
- lastly, one cannot complete a discussion of the industry changes without addressing the increasing importance of non-personal promotion to reach the physician. In order to overcome the limited face time with the physicians, non-personal promotional tactics such as e-detailing, e-sampling, webinars, webcasts and call centers are just some of the ways the industry can think of implementing.

Focusing on these variables will improve the performance of the industry and therefore, take it to a more competitive platform.

The research has also identified the fact that executives of the pharmaceutical industry of Bangladesh need to manage at three levels:

- They need to manage locally and figure out what decisions are made there and how to serve the local environment.
- They have to figure out what to manage centrally, in terms of global standardized decisions and activities.
- And they need to actually build the business processes in order to manage the ecosystem through CSR.

Dhaka University Institutional Repository

REFERENCES

Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr 15, 1994, 33 I.L.M.81, 1994 [hereinafter TRIPs].

Alauddin, R. 2009. Active Pharmaceutical Ingredients (APIs) – Analysis of the API Market and Feasibility of Setting up a Production Facility in Bangladesh. *University College London.*

Bangladesh Development Series, Paper no. 23: Public and Private Sector Approaches to improving Pharmaceutical Quality in Bangladesh; Human Development Unit, South Asia Region, The World Bank, March 2008.

Bangladesh pharmaceutical market intelligence report: quarter II, 2008; *Epsicon Business Intelligence*.

Bangladesh Pharmaceuticals and Healthcare Report Q1 2010, *Business Monitor International*, Nov 2009.

Bangladesh Pharmaceuticals and Healthcare Report Q3 2009, *Business Monitor*, June 2009.

Bangladesh: WHO Country Cooperation Strategy, 2008-2013.

Batchlor, E. and Laouri, M., 2003. Pharmaceutical Promotion. *Advertising and Consumers Health Affairs*. 22(1), 109-111.

Beaglehole, R. and Yach, D. 2003. Globalisation and the prevention and control of non-communicable disease: the neglected chronic diseases of adults. *The Lancet*. 362(9387), 903 – 908.

Bednarik, J. 2005. Does brand differentiate pharmaceuticals? *Neuroendocrinol Lett*. 26 (6), 635-652.

Biosimilars, 2009-2014; marketsandmarkets.com, Report Code LS00110, September, 2009, available at and last visited in January, 2010. http://www.marketsandmarkets.com/search.asp?Search=biosimilars&x=0&y=0.

Burashnikova, I.S., Ziganshin, A.U. and Ziganshina, L.E. 2008. Attitudes to pharmaceutical promotion techniques among healthcare professionals in the Republic of Tatarstan, Russia. *International Journal of Risk & Safety in Medicine*. 20, 253-255.

Butler, G. 2002. Strategic trends facing the pharmaceutical industry and their implications for marketing skills development. *International Journal of Medical Marketing*. 3(1), 65–68.

Carter, F.J. and Chitturi, R. 2009. Segmentation based on physician behavior: implications for sales forecasting and marketing-mix strategy. *Journal of Personal Selling and Sales Management*. XXIX, 81-95.

Carter, F.J., Motley, C., Ogbuehi, A. and Williams, J.A. 2006. An Application of a Repeat-Purchase Diffusion Model to the pharmaceutical industry. *Advances in Business and Management Forecasting*.4, 145-174.

Chren, M.M., Landefeld, C.S. 1994. Physicians' behavior and their interactions with drug companies: a controlled study of physicians who requested additions to a hospital drug formulary. *JAMA*. 271, 684–689.

Clouse, J. 1995. The effect of methodological advances in health economics on the marketplace. *Drug Inf J*. 29, 1429-30.

Code of Pharmaceutical Marketing Practices, Clause no 19.2, DDA.

Colletti, JA and Fiss MA. The Ultimately Accountable Job: Leading Today's Sales Organization, Harvard Business Review, pp125-131, 2006.

Collins, J.C. and Porras, J.I.1996. Building Your Company's Vision, HBR's must-read on Strategy, *Harvard Business Review*. 44-56.

Crosby, L. and Johnson, S.L. 2001. 'Branding and your CRM strategy', *Marketing Management*. 10(4), 6–7.

Cunningham, M.J. 2000. Genomics and proteomics. The new millennium of drug discovery and development, *Journal of Pharmacological and Toxicological Method*. 291-300.

Doctors baffled by patients not taking prescriptions, USA Today, March 29, 2007.

Doctors, patients, and the drug industry: PARTNERS, FRIENDS, OR FOES? *BMJ*. 238: 326, February, 2009.

Durrant, C. The responsibility of the Pharmaceutical Industry. *Journal of Clinical Microbiology and Infectious Diseases*. Wiley InterScience. CMI 7 (6), 2-4.

EFESO and pharmaceutical sector at www.efeso.com/newsite/docup/Phamaceutical_sector.pdf, last visited on 15May, 2010.

Eliason, M.H. 2007. Regulatory Marketing Approval for Pharmaceuticals as a Non-Tariff Barrier to Trade: Analysis Under the WTO's Agreement on Technical Barriers to Trade. *San Diego International Law Journal*, LexisNexis.

Emerging economies, Star Business, pp B4, Dec 16, 2009.

Erdei, T. 2004. M&A strategy within the generic pharmaceuticals sector: Vertical integration into active pharmaceutical ingredients. *Journal of Generic Medicines*. 18, 18-22.

Flavin, M. 2009. Towers Perrin and Synygy Release Survey Findings on Sales Incentive Plan Design and Governance in the Pharmaceutical Industry.

Fleming, L. 2002. Finding the organizational sources of technological breakthroughs: the story of Hewlett- Packard's thermal ink-jet. *Industrial and Corporate Change* 11, 1059–1084.

Gadiesh, O. and Gilbert, J.L. 2001. Transforming Corner-Office Strategy into Frontline Action, HBR's Most-Reads on Strategy, *Harvard Business Review*. 110-120.

Gibbons, R.V., Landry, F.J., et al. 1998. A Comparison of Physicians' and Patients' Attitudes towards Pharmaceutical Industry Gifts. *J Gen Intern Med*. 273, 1296-1298.

Global Disease Elimination and Eradication as Public Health Strategies; vol 48, December 1999, MMWR, CDC.

Gonul, F.F., Carter, F., Petrova, E. and Srinivasan, K. 2001. Promotion of prescription drugs and its impact on physicians' choice behavior. *Journal of Marketing*. 65, 79-90.

Greene, J.A. 2007. Pharmaceutical Marketing Research and the Prescribing Physician, American College of Physicians, *Ann Intern Med.* 146, 742- 748.

Kaplan, R.S. and Norton, D.P. 2004. Operations Management Processes, *Strategy Maps*, Harvard Business School Press, pp. 43-108.

Karwal, V.P. 2006. The changing competitive landscape in the global generics market: Threat or opportunity? *Journal of Generic Medicine*. 3, 269-279.

Katz, D., Caplan, A.L., et al. 2003. All Gifts Large and Small, Towards an Understanding of the Ethics of Pharmaceutical Industry Gift-Giving. *The American Journal of Bioethics*. 3, 39.

Kerridge, I. 2008. Comment: interactions between the medical profession and the pharmaceutical industry in Australia, *Australasian Psychiatry*. 16(3), 166-168.

Kriwanek, S. et al. 1998. Patients' Assessment and Recall of Surgical Information after Laparoscopic Cholecystectomy, *Digestive Surgery*, 15 (6), 669-673.

Ladha, Z. 2007. Are consumers really influenced by brands when purchasing pharmaceutical products? *Journal of Medical Marketing*. 7(2), 146-151.

Lalitha, N. 2002. Indian Pharmaceutical Industry in WTO Regime: A SWOT Analysis. *Economic and Political Weekly*, 37, 3542-3555.

Stewart T.A. and Champion D. 2006. Leading Change from the Top-Line. *Harvard Business Review*. 84, 96-97.

Leisinger, K.M. 2005. The corporate social responsibility of the pharmaceutical industry: Idealism without illusion and realism without resignation. *Bus Ethics*. 15, 577-594.

Griffiths, S. 2008. Pharmaceutical branding: 'To brand or not to brand'. *Journal of Medical Marketing*. 8, 113-118.

Henry, D. and Lexchin, J. 2002. The pharmaceutical industry as a medicines provider. *The Lancet*. 360(9345), 1590 - 1595.

Hopper, J.A., Speece, M.W. and Musial, J.L. 1997. Effects of and educational intervention on residents' knowledge and attitudes toward interactions with pharmaceutical representatives. *J Gen Intern Med*. 12, 639-642.

http://www.reuters.com/article/pressRelease/idUS161299+04-Nov-2009+BW20091104 (last visited on 3May, 2010).

Investment Analysis: Pharmaceutical Industry in Bangladesh Part 2, Report BD.com, 2008.

Jibson, M.D., 2007. Interactions Between Physicians and Industry: A Guide for Clinicians. *The Journal of Life Long Learning in Psychiatry*. 5(4), 398-406.

Johnson, M.W., Christensen, C.M. and Kagermann, H. 2008. Reinventing Your Business Model. HBR's Must-Read on Strategy, *Harvard Business Review*. 57-68.

Kamalanabhan, T.J. and Nagaraj, I.R. 2003. Impact of Strategic Human Resource Practices on Organisational Performance, *Australian Journal of Psychology*. 55, 132.

Kaplan, R.S. and Norton, D.P. 2006. How to Implement a New Strategy Without Disrupting Your Organization, *Harvard Business Review*. 84(3), 100-109.

Dhaka University Institutional Repository

Kaplan, R.S. and Norton, D.P. 2004. Operations Management Processes, *Strategy Maps*, Harvard Business School Press, pp. 43-108.

Karwal, V.P. 2006. The changing competitive landscape in the global generics market: Threat or opportunity? *Journal of Generic Medicine*. 3, 269-279.

Katz, D., Caplan, A.L., et al. 2003. All Gifts Large and Small, Towards an Understanding of the Ethics of Pharmaceutical Industry Gift-Giving. *The American Journal of Bioethics*. 3, 39.

Kerridge, I. 2008. Comment: interactions between the medical profession and the pharmaceutical industry in Australia, *Australasian Psychiatry*. 16(3), 166-168.

Kriwanek, S. et al. 1998. Patients' Assessment and Recall of Surgical Information after Laparoscopic Cholecystectomy, *Digestive Surgery*, 15 (6), 669-673.

Ladha, Z. 2007. Are consumers really influenced by brands when purchasing pharmaceutical products? *Journal of Medical Marketing*. 7(2), 146-151.

Lalitha, N. 2002. Indian Pharmaceutical Industry in WTO Regime: A SWOT Analysis. *Economic and Political Weekly*, 37, 3542-3555.

Stewart T.A. and Champion D. 2006. Leading Change from the Top-Line. *Harvard Business Review*. 84, 96-97.

Leisinger, K.M. 2005. The corporate social responsibility of the pharmaceutical industry: Idealism without illusion and realism without resignation. *Bus Ethics*. 15, 577-594.

Dhaka University Institutional Repository

Levin, M. 2001. Mastering the value chain. An interview with Mark Levin of Millennium Pharmaceuticals. *Harvard Business Review*. 79(6), 108-15.

Liew, K.Y. 2006. Outlook of Asia's Pharmaceutical Sector: Commentaries and Analyses. *APBN*. 10(18).

Lundstrom, W.J. and Wright, R.F. 2005. The CRM-physician interface: Toward a model of physician relationship building. *Journal of Medical Marketing*. 5, 316-323.

Ma, J., Stafford, R. et al. 2003. A statistical analysis of the magnitude and composition of drug promotion in the United States in 1998. *Clin Ther*. 25, 1503-1517.

Mankins, M.C. and Steele, R. 2005. Turning Great Strategy into Great Performance, HBR's Most-Reads on Strategy, *Harvard Business Review*. 121-132.

Mega Deals: $1 billion outsourcing contracts may come to India; The Economic Times, Feb 2010.

Michel, J. 2005. Human Security and Social Development Comparative Research in Four Asian Countries. *Arusha Conference, "New Frontiers of Social Policy"*. pp 10.

Murad, A.H. 2009. *Beximco Pharmaceuticals* Leads the Way For Bangladeshi Pharmaceutical Exports. *Dinar Standard Business Strategies for OIC Markets*.

Dhaka University Institutional Repository

Neilson, G.L., Martin, K.L. and Powers, E. 2008. The Secrets to Successful Strategy Execution, HBR's Must-Reads on Strategy. *Harvard Business Review*. 81-94.

Nerkar, A. and Roberts, P.W. 2004. Technological and Product-Market Experience and the Success of New Product Introductions in the Pharmaceutical Industry. *Strategic Management Journal*. 25, 779–799.

Nina, G. and Lynda, A.S. 2007. 'What does your Most Important Customer Want?' *Research Technology Management*. 26-35.

Organization for Economic Cooperation and Development (OECD) 2001; 'Biotechnology Statistics in OECD member countries: Compendium of existing national statistics', DSTI/EAS/STP/NESTI(2001)2, Second Ad Hoc Meeting on Biotechnology Statistics, Working Party of National Experts on Science and Technology Indicators, OECD, Paris.

Orsenigo, L., Pammolli, F. and Riccaboni, M. 2001. Technological change and network dynamics. Lessons from the pharmaceutical industry. *Research Policy*. 485-508.

Parker, S. and Pettijohn, C.E. 2003. Ethical Considerations in the Use of Direct-To-Consumer Advertising and Pharmaceutical Promotions: The Impact on Pharmaceutical Sales and Physicians. *Journal of Business Ethics*. 48, 279-290.

Payne, A. and Frow, P. 2004. The role of multichannel integration in customer relationship management. *Industrial Marketing Management*. 33, 527–538, 2004.

Perry, G. 2006. The European generic pharmaceutical market in review: 2006 and beyond. *Journal of Generic Medicines*. 4(1), 5.

Pharma 2020: The Vision, the White Paper Pricewaterhouse Coopers International Limited, June 2007.

Pharma Marketing News: Vol. 8, No. 10, pp3: Nov/Dec 2009.

Pollard, M.R. 1990. Managed care and a changing pharmaceutical industry. *Health Aff.* 9, 55-65.

Porter, M.E. 1996. What is Strategy? HBR's must-read on Strategy, *Harvard Business Review*. 2-33.

Price Fixation Policy as adopted by the price fixation committee on 28.05.1992.

Public-Private Roles in the Pharmaceutical Sector: Implications for Equitable Access and Rational Drug Use - Health Economics and Drugs Series, No. 005, WHO, 1997.

Rao, P.M. 2008. The emergence of the pharmaceutical industry in the developing world and its implications for multinational enterprise strategies. *International Journal of Pharmaceutical and Healthcare Marketing*. 2(2), 103 – 116.

Rao, S.K. 2009. A new paradigm for developing bio/pharmaceutical positioning strategy. *Journal of Medical Marketing*. 9(1), 29-39.

Reinartz, W., Krafft, M. and Hoyer, W.D., 2004. The customer relationship management process: Its measurement and impact on performance. *Journal of Marketing Research*. 41, 293–305.

Rogers, B. 2008. Contract sales organizations: Making the transition from tactical resource to strategic partnering. *Journal of Medical Marketing*. 8(1), 39–47.

Rogers, E.M. 1983. Innovativeness and Adopter Categories. *Diffusion of Innovations*. 5th ed. New York: The Free Press. pp. 267-296.

Rogers, P. and Blenko, M. 2006. Who Has the D? HBR's Most-Reads on Strategy. *Harvard Business Review*. 133-143.

Schuiling, I. & Moss, G. 2004. A brand logic for pharma? A possible strategy based on FMCG experience. *International Journal of Medical Marketing*. 4(1), 55 – 62.

Schuiling, I. & Moss, G. 2004. How different are branding strategies in the pharmaceutical industry and the fast-moving consumer goods sector? *The Journal of Brand Management*. 11 (5), 366 – 380.

Sierles, F.S., Brodkey, A.C., Cleary, L.M. et al. 2005. Medical students exposure to and attitudes about drug company interactions. *JAMA*. 294, 1034-1042.

Shang, J., Yildirim, T.P., Tadikamalla, P., Mittal, V. and Brown, L.H. 2009. Distribution Network Redesign for Marketing Competitiveness. *Journal of Marketing*. 73, 146-163.

Shapiro, L.J. and Faust, R.E. 1987. Mega-Trends in Drug Discovery and Development. *Journal of Clinical Research and Regulatory Affairs*. 5(4), 245-264.

Dhaka University Institutional Repository

Shaw, N. and Burgess, T. A. 2002. Competing Edge for the Pharmaceutical Industry: Propagating agile processes throughout the supply chain. *Pharmaceutical Policy and Law*. 5, 197-209.

Slater, A.E. 1996. Recent Developments in regulating the Pharmaceutical Business in the EU. *Journal of European Business Review*. 96 (1:1), 17-25.

Smith, R.D., Correa, C., and Oh, C. 2009. Trade, TRIPS, and pharmaceuticals. *The Lancet*. 373(9664), 684 - 691.

Srivastava, R.K. 2007. Personal Effects. *Marketing Health Services*. 27(4), 29-32.

Stewart, J.H. 1989. Marketing to managed care institutions. *Drug Inf J*. 23, 641-645.

Strongin, R.J. 2002. Hatch-Waxman, Generics and Patents: Balancing Prescription Drug Innovation, Competition and Affordability, *National Health Policy Forum*, George Washington University.

Wilmshurst, J. and Mackay, A. 2002. The fundamentals and practice of Marketing. BH. 4, 376.

The Global Pharmaceutical Industry, International Trade and Contemporary Trends;
http://www.duke.edu/web/soc142/team2/segments.html

The Indian Pharmaceutical Industry: Collaboration for Growth, KPMG report, 2006.

The Medical Device Market: Bangladesh, Opportunities and Challenges; Espicom Business Intelligence, January 2010.

The World Health Care: Primary Health Care – now more than ever; 2-11, 2008.

Trouiller, P., Olliaro, P., Torreele, E., Orbinski, J., Laing, R., and Ford, N. 2002. Drug development for neglected diseases: a deficient market and a public-health policy failure. *The Lancet*. 359, 2188-2194.

Wazana, A. 2000. Physicians and the Pharmaceutical Industry: Is a Gift Ever Just a Gift? *JAMA*. 283(3), 373-380.

World Health Organization, Criteria for Medicinal Drug Promotion, Revised Drug Strategy, 1986.

WTO, http://www.wto.org (WTO website).

Zablah, A., Bellenger, D.N. and Johnston, W.J. 2004. An evaluation of divergent perspectives on customer relationship management: Towards a common understanding of an emerging phenomenon. *Industrial Marketing Management*. 33, 475–489.

Zadek, S. 2006. Responsible competitiveness: reshaping global markets through responsible business practices. *Journal of Corporate Governance*. 6(4), 334-348.

Dhaka University Institutional Repository

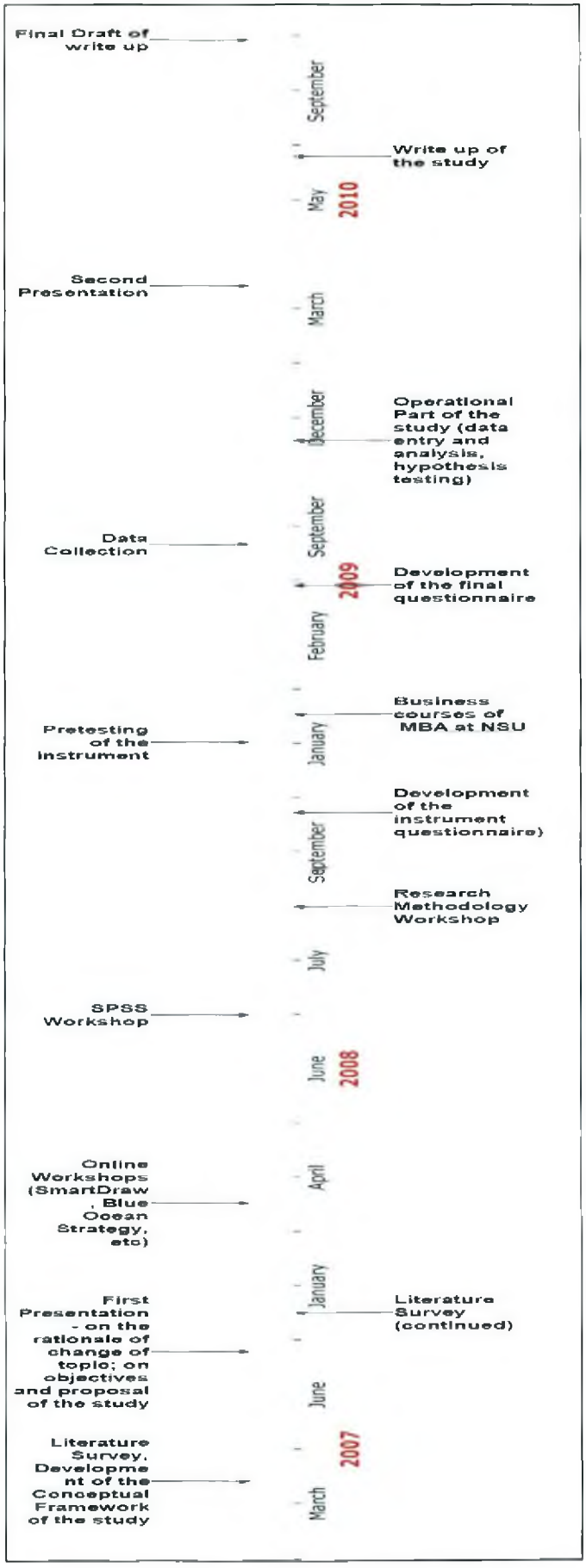
APPENDICES

Dhaka University Institutional Repository

Appendix–1.

Research Timeline

Research started in March 2007 and completed in August 2010.



Dhaka University Institutional Repository

Appendix-2. World Trade Organization (WTO)

Bangladesh (a LDC), as a signatory member of WTO, will need to abide by the patent laws and regulations laid out by WTO.

In brief, the World Trade Organization (WTO) is the only international organization dealing with the global rules of trade between nations. Its main function is to ensure that trade flows as smoothly, predictably and freely as possible.

The result is a more prosperous, peaceful and accountable economic world. Decisions in the WTO are typically taken by consensus among all member countries and they are ratified by members' parliaments. Trade friction is channeled into the WTO's dispute settlement process where the focus is on interpreting agreements and commitments, and how to ensure that countries' trade policies conform with them. That way, the risk of disputes spilling over into political or military conflict is reduced. By lowering trade barriers, the WTO's system also breaks down other barriers between peoples and nations.

At the heart of the system – known as the multilateral trading system – are the WTO's agreements, negotiated and signed by a large majority of the world's trading nations, and ratified in their parliaments. These agreements are the legal ground-rules for international commerce. Essentially, they are contracts, guaranteeing member countries important trade rights. They also bind governments to keep their trade policies within agreed limits to everybody's benefit.

The agreements were negotiated and signed by governments. But their purpose is to help producers of goods and services, exporters, and importers conduct their business.

The goal of WTO is to improve the welfare of the peoples of the member countries.

Dhaka University Institutional Repository

ITS FORMATION

The World Trade Organization came into being in 1995. One of the youngest of

The international organizations, the WTO is the successor to the General Agreement on Tariffs and Trade (GATT) established in the wake of the Second World War.

So while the WTO is still young, the multilateral trading system that was originally set up under GATT is well over 50 years old.

The past 50 years have seen an exceptional growth in world trade. Merchandise exports grew on average by 6% annually. Total trade in 2000 was 22-times the level of 1950. GATT and the WTO have helped to create a strong and prosperous trading system contributing to unprecedented growth.

The system was developed through a series of trade negotiations, or rounds, held under GATT. The first rounds dealt mainly with tariff reductions but later negotiations included other areas such as anti-dumping and non-tariff measures. The last round – the 1986-94 Uruguay Round – led to the WTO's creation.

The negotiations did not end there. Some continued after the end of the Uruguay Round. In February 1997 an agreement was reached on telecommunications services, with 69 governments agreeing to wide-ranging liberalization measures that went beyond those agreed in the Uruguay Round.

In the same year, 40 governments successfully concluded negotiations for tariff-free trade in information technology products, and 70 members concluded a financial services deal covering more than 95% of trade in banking, insurance, securities and financial information.

In 2000, new talks started on agriculture and services. These have now been incorporated into a broader work programme, the Doha

Dhaka University Institutional Repository

Development Agenda (DDA), launched at the fourth WTO Ministerial Conference in Doha, Qatar, in November 2001. The agenda adds negotiations and other work on non-agricultural tariffs, trade and environment, WTO rules such as anti-dumping and subsidies, investment, competition policy, trade facilitation, transparency in government procurement, intellectual property, and a range of issues raised by developing countries as difficulties they face in implementing the present WTO agreements.

DEVELOPMENT AND TRADE

Over three-quarters of WTO members are developing or least developed countries. All WTO agreements contain special provision for them, including longer time periods to implement agreements and commitments, measures to increase their trading opportunities, provisions requiring all WTO members to safeguard their trade interests, and support to help them build the infrastructure for WTO work, handle disputes, and implement technical standards.

The 2001 Ministerial Conference in Doha set out tasks, including negotiations, for a wide range of issues concerning developing countries. Some people call the new negotiations the Doha Development Round.

Before that, in 1997, a high-level meeting on trade initiatives and technical assistance for least-developed countries resulted in an "integrated framework" involving six intergovernmental agencies, to help least-developed countries increase their ability to trade, and some additional preferential market access agreements.

A WTO Committee on Trade and Development, assisted by a Sub-Committee on Least-Developed Countries, looks at developing countries' special needs. Its responsibility includes implementation of the agreements, technical cooperation, and the increased participation of developing countries in the global trading system.

Dhaka University Institutional Repository

One view of obligations under the WTO Agreement is that they are bilateral, that is, they involve legal obligations between two countries. This is premised on the idea that the object of WTO obligations is 'trade'.

INTELLECTUAL PROPERTY

The WTO's Intellectual Property Agreement amounts to rules for trade and investment in ideas and creativity. The rules state how copyrights, patents, trademarks, geographical names used to identify products, industrial designs, integrated circuit layout-designs and undisclosed information such as trade secrets – "intellectual property" – should be protected when trade is involved.

(Source: World Trade Organization, 2009)

Appendix – 3. Hypotheses

INDUSTRY:

Research Question 1: Is there a relationship between corporate leadership and company performance?

H1: There is no significant relationship between corporate leadership and company performance.

H2: There is a significant relationship between corporate leadership and company performance.

Research Question 2: Is there a relationship between the manufacturing facility of a company and its performance?

H1: There is no significant relationship between a company's manufacturing facility and its performance.

H2: There is a significant relationship between a company's manufacturing facility and its performance.

Research Question 3: Is there a relationship between customer engagement and its performance?

H1: There is no significant relationship between customer engagement and its performance.

H2: There is a significant relationship between customer engagement and its performance.

Research Question 4: Is there a relationship between knowledge of the market and company performance?

H1: There is no significant relationship between knowledge of the market and company performance.

H2: There is a significant relationship between knowledge of the market and company performance.

Research Question 5: Is there a relationship between distribution network and company performance?

H1: There is no significant relationship between distribution network and company performance.

H2: There is a significant relationship between distribution network and company performance.

Research Question 6: Is there a relationship between customer retention and company performance?

H1: There is no significant relationship between customer retention and company performance.

H2: There is a significant relationship between customer retention and company performance.

Research Question 7: Is there a relationship between strategic alliance and company performance?

H1: There is no significant relationship between strategic alliance and company performance.

H2: There is a significant relationship between strategic alliance and company performance.

Research Question 8: Is there a relationship between study of physician prescribing habits and company performance?

H1: There is no significant relationship between study of physician prescribing habits and company performance.

H2: There is a significant relationship between study of physician prescribing habits and company performance.

Research Question 9: Is there a relationship between product positioning (promotional strategy) and company performance?

H1: There is no significant relationship between product positioning (promotional strategy) and company performance.

H2: There is a significant relationship between product positioning (promotional strategy) and company performance.

Research Question 10: Is there a relationship between promotional tracking (benchmarking) and company performance?

H1: There is no significant relationship between promotional tracking (benchmarking) and company performance.

H2: There is a significant relationship between promotional tracking (benchmarking) and company performance.

Research Question 11: Is there a relationship between access to resources and company performance?

H1: There is no significant relationship between access to resources and company performance.

H2: There is a significant relationship between access to resources and company performance.

Research Question 12: Is there a relationship between portfolio depth and company performance?

H1: There is no significant relationship between portfolio depth and company performance.

H2: There is a significant relationship between portfolio depth and company performance.

Research Question 13: Is there a relationship between regulations and company performance?

H1: There is no significant relationship between regulations and company performance.

H2: There is a significant relationship between regulations and company performance.

Research Question 14: Is there a relationship between the value chain of the company and company performance?

H1: There is no significant relationship between the value chain of the company and company performance.

H2: There is a significant relationship between the value chain of the company and company performance.

Research Question 15: Is there a relationship between product name selection and company performance?

H1: There is no significant relationship between product name selection and company performance.

H2: There is a significant relationship between product name selection and company performance.

Research Question 16: Is there a relationship between human resource management and company performance?

H1: There is no significant relationship between human resource management and company performance.

H2: There is a significant relationship between human resource management and company performance.

Research Question 17: Is there a relationship between collaborations (with universities and research organizations) and company performance?

H1: There is no significant relationship between collaborations (with universities and research organizations) and company performance.

H2: There is a significant relationship between collaborations (with universities and research organizations) and company performance.

Research Question 18: Is there a relationship between the number of PSRs reaching the MICs and company performance?

H1: There is no significant relationship between the number of PSRs reaching the MICs and company performance.

H2: There is a significant relationship between the number of PSRs reaching the MICs and company performance.

Research Question 19: Is there a relationship between the motivation and knowledge of PSRs reaching the MICs and company performance?

H1: There is no significant relationship between the motivation and knowledge of PSRs reaching the MICs and company performance.

H2: There is a significant relationship between the motivation and knowledge of PSRs reaching the MICs and company performance.

Research Question 20: Is there a relationship between product differentiation (specialty-driven therapies) and company performance?

H1: There is no significant relationship between product differentiation (specialty-driven therapies) and company performance.

H2: There is a significant relationship between product differentiation (specialty-driven therapies) and company performance.

Research Question 21: Is there a relationship between product data distribution to MICs and company performance?

H1: There is no significant relationship between product data distribution to MICs and company performance.

H2: There is a significant relationship between product data distribution to MICs and company performance.

Research Question 22: Is there a relationship between brand management and company performance?

H1: There is no significant relationship between brand management and company performance.

H2: There is a significant relationship between brand management and company performance.

Research Question 23: Is there a relationship between TQM and company performance?

H1: There is no significant relationship between TQM and company performance.

H2: There is a significant relationship between TQM and company performance.

Research Question 24: Is there a relationship between rural coverage and company performance?

H1: There is no significant relationship between rural coverage and company performance.

H2: There is a significant relationship between rural coverage and company performance.

Research Question 25: Is there a relationship between CRS and company performance?

H1: There is no significant relationship between CSR and company performance.

H2: There is a significant relationship between CSR and company performance.

Research Question 26: Is there a relationship between R&D and company performance?

H1: There is no significant relationship between R&D and company performance.

H2: There is a significant relationship between R&D and company performance.

Research Question 27: Is there a relationship between value-added services for the MICs and company performance?

H1: There is no significant relationship between value-added services for the MICs and company performance.

H2: There is a significant relationship between value-added services for the MICs and company performance.

Research Question 28: Is there a relationship between e-detailing and company performance?

H1: There is no significant relationship between e-detailing and company performance.

Dhaka University Institutional Repository

H2: There is a significant relationship between e-detailing and company performance.

Research Question 29: Is there a relationship between sponsorships (in medical journals, etc) and company performance?

H1: There is no significant relationship between sponsorships (in medical journals, etc) and company performance.

H2: There is a significant relationship between sponsorships (in medical journals, etc) and company performance.

Research Question 30: Is there a relationship between regularity in government approvals and company performance?

H1: There is no significant relationship between regularity in government approvals and company performance.

H2: There is a significant relationship between regularity in government approvals and company performance.

Research Question 31: Is there a relationship between the distribution of free samples to MICs and company performance?

H1: There is no significant relationship between the distribution of free samples to MICs and company performance.

H2: There is a significant relationship between the distribution of free samples to MICs and company performance.

Research Question 32: Is there a relationship between maintaining regular contact with retailers and company performance?

H1: There is no significant relationship between maintaining regular contact with retailers and company performance.

H2: There is a significant relationship between maintaining regular contact with retailers and company performance.

Research Question 33: Is there a relationship between the enforcement of health awareness and company performance?

H1: There is no significant relationship between the enforcement of health awareness and company performance.

H2: There is a significant relationship between the enforcement of health awareness and company performance.

Research Question 34: Is there a relationship between favorable import and export policy and company performance?

H1: There is no significant relationship between favorable import/export policy and company performance.

H2: There is a significant relationship between favorable import/export policy and company performance.

Research Question 35: Is there a relationship between locally produced API and company performance?

H1: There is no significant relationship between locally produced API and company performance.

H2: There is a significant relationship between locally produced API and company performance.

Research Question 36: Is there a relationship between advertising to patients and company performance?

H1: There is no significant relationship between advertising to patients and company performance.

H2: There is a significant relationship between advertising to patients and company performance.

Research Question 37: Is there a relationship between drug testing and company performance?

H1: There is no significant relationship between drug testing and company performance.

H2: There is a significant relationship between drug testing and company performance.

Dhaka University Institutional Repository

Research Question 38: Is there a relationship between regular training of PSRs and company performance?

H1: There is no significant relationship between regular training of PSRs and company performance.

H2: There is a significant relationship between regular training of PSRs and company performance.

Research Question 39: Is there a relationship between product packaging and company performance?

H1: There is no significant relationship between product packaging and company performance.

H2: There is a significant relationship between product packaging and company performance.

PHYSICIANS:

Research Question 40: Is there a relationship between PSRs' detail marketing and physician's intent to prescribe?

H1: There is no significant relationship between PSRs' detail marketing and physician's intent to prescribe.

H2: There is a significant relationship between PSRs' detail marketing and physician's intent to prescribe.

Research Question 41: Is there a relationship between KOL's (or colleague's) opinion and physician's intent to prescribe?

H1: There is no significant relationship between KOL's (or colleague's) opinion and physician's intent to prescribe.

H2: There is a significant relationship between KOL's (or colleague's) opinion and physician's intent to prescribe.

Research Question 42: Is there a relationship between product name recall by PSR and physician's intent to prescribe?

H1: There is no significant relationship between product name recall by PSR and physician's intent to prescribe.

H2: There is a significant relationship between product name recall by PSR and physician's intent to prescribe.

Research Question 43: Is there a relationship between company reputation and physician's intent to prescribe?

H1: There is no significant relationship between company reputation and physician's intent to prescribe.

H2: There is a significant relationship between company reputation and physician's intent to prescribe.

Research Question 44: Is there a relationship between CME sponsorship by the company and physician's intent to prescribe?

H1: There is no significant relationship between CME sponsorship by the company and physician's intent to prescribe.

H2: There is a significant relationship between CME sponsorship by the company and physician's intent to prescribe.

Research Question 45: Is there a relationship between value-added services offered to the MICs by the company and physician's intent to prescribe?

H1: There is no significant relationship between value-added services by the company and physician's intent to prescribe.

H2: There is a significant relationship between value-added services by the company and physician's intent to prescribe.

Research Question 46: Is there a relationship between e-detailing offered to the MICs by the company and physician's intent to prescribe?

H1: There is no significant relationship between e-detailing by the company and physician's intent to prescribe.

H2: There is a significant relationship between e-detailing by the company and physician's intent to prescribe.

Research Question 47: Is there a relationship between price of the products and physician's intent to prescribe?

Dhaka University Institutional Repository

H1: There is no significant relationship between price of the products and physician's intent to prescribe.

H2: There is a significant relationship between price of the products and physician's intent to prescribe.

Research Question 48: Is there a relationship between the different services given by the PSRs and physician's intent to prescribe?

H1: There is no significant relationship between the different services given by the PSRs and physician's intent to prescribe.

H2: There is a significant relationship between the different services given by the PSRs and physician's intent to prescribe.

Research Question 49: Is there a relationship between information in medical journals and physician's intent to prescribe?

H1: There is no significant relationship between information in medical journals and physician's intent to prescribe.

H2: There is a significant relationship between information in medical journals and physician's intent to prescribe.

Research Question 50: Is there a relationship between e-detailing offered to the MICs by the company and physician's intent to prescribe?

H1: There is no significant relationship between e-detailing by the company and physician's intent to prescribe.

H2: There is a significant relationship between e-detailing by the company and physician's intent to prescribe.

RETAILERS:

Research Question 51: Is there a relationship between corporate reputation (patient's request for a brand) and retailer's intent to sell?

H1: There is no significant relationship between corporate reputation and retailer's intent to sell.

Dhaka University Institutional Repository

H2: There is a significant relationship between corporate reputation and retailer's intent to sell.

Research Question 52: Is there a relationship between product quality and retailer's intent to sell?

H1: There is no significant relationship between product quality and retailer's intent to sell.

H2: There is a significant relationship between product quality and retailer's intent to sell.

Research Question 53: Is there a relationship between product portfolio and retailer's intent to sell?

H1: There is no significant relationship between product portfolio and retailer's intent to sell.

H2: There is a significant relationship between product portfolio and retailer's intent to sell.

PHARMACEUTICAL SALES REPRESENTATIVES (PSRs)

Research Question 54: Is there a relationship between salary and job satisfaction of the PSRs?

H1: There is no significant relationship between salary and job satisfaction of the PSRs.

H2: There is a significant relationship between salary and job satisfaction of the PSRs.

Research Question 55: Is there a relationship between training and job satisfaction of the PSRs?

H1: There is no significant relationship between training and job satisfaction of the PSRs.

H2: There is a significant relationship between training and job satisfaction of the PSRs.

Dhaka University Institutional Repository

Research Question 56: Is there a relationship between relationship with superior/boss and job satisfaction of the PSRs?

H1: There is no significant relationship between relationship with superior/boss and job satisfaction of the PSRs.

H2: There is a significant relationship between superior/boss and job satisfaction of the PSRs.

Appendix – 4. Questionnaires

INDUSTRY

QUESTIONNAIRE

PLEASE WRITE A NUMBER BETWEEN 1 AND 7 NEXT TO EACH ITEM BELOW: 1 NEXT TO THE ITEM THAT IS LEAST IMPORTANT/COMPLETELY UNIMPORTANT TO YOUR COMPANY AND A 7 NEXT TO THE ITEM THAT IS MOST IMPORTANT/EXTREMELY IMPORTANT.

PLEASE NOTE CAREFULLY THAT THE NUMBERS BETWEEN 1 AND 7 ARE EQUALLY SPACED.

IF YOU HAVE ANY OTHER POINTS YOU WOULD LIKE TO INCLUDE, PLEASE DO SO IN THE 'OTHER...' - MENTIONED ITEM.

Please rate the following items on a scale of 1 to 7.

1. TQM is a strength of my company
2. knowledge of my PSRs helps the physicians
3. Continuous review/ assessment of promotional strategy (benchmarking) is done
4. Product portfolio is a strength of my company
5. Innovation focused on product line extension is a strength
6. Regular training of personnel is important and is done regularly and frequently

Dhaka University Institutional Repository

7. Implementation of regulations is very important for the growth of the industry
8. Production/mfg facility is modern and sufficient
9. Competitive prices is healthy for the growth of the industry
10. Human resource management is very important for the industry
11. Customer retention is my number one objective
12. Value added services/ understanding customer needs is my number one objective
13. Product packaging is very essential and is up to international standards
14. Development in biotechnology should be an area to focus on now
15. API production should be started immediately
16. Advertising to patients for awareness is very essential and should be done
17. PSRs reaching the MICs is crucial for positioning my products in the minds of the MICs
18. Favorable access to resources is important for my production and growth
19. University-company cooperation is important
20. Me-too products is not always healthy for competition
21. Corporate leadership is a strength of my company
22. Specialty-driven therapies is an area we are focusing on
23. Strategic alliances is very important for the growth of this industry

Dhaka University Institutional Repository

24. Literature distributions to MICs is a marketing strategy of my company
25. Industry infrastructure is very essential
26. Lack of awareness of stakeholders is widespread
27. Lack of wide distribution network is an impediment in marketing
28. Political stability is an impediment in marketing
29. Reinvent sales force is an option in the current way of marketing
30. Rural focus is very important
31. Import/export policy should be in favor of the industry and the welfare of the people
32. Maintaining relationships with the MICs is an important marketing strategy for our company
33. CMEs are an important marketing strategy for our company
34. Segmentation of target physician/preempting competitors in critical markets and the continuous study of the prescribing habit of physicians (for product recall) is an important marketing strategy for our company
35. Constant availability of reliable products is an important marketing strategy for our company
36. Drug testing should be implemented immediately
37. Customer engagement is an important marketing strategy for our company
38. Product positioning in the minds of the MICs through PSRs, CMEs, etc is an important marketing strategy for our company

39. Value chain management is an important marketing strategy for our company
40. Market knowledge is very essential
41. CSR is an important marketing strategy for our company
42. Regular contact with retailers is an important marketing strategy for our company
43. Free samples to physicians is an important marketing strategy for our company
44. Growing awareness to health is an important marketing strategy for our company
45. Maintaining relationships with the KOLs is an important marketing strategy for our company
46. Sponsorships(e.g., medical journals) is an important marketing strategy for our company
47. Lack of ethical marketing practices is an impediment for the growth of the industry
48. Product name selection is an important marketing strategy for our company
49. e detailing is a new marketing strategy for our company
50. R&D is an area we should be start looking into
51. Other.....

Dhaka University Institutional Repository

PHYSICIANS

We value your input on the company's programs. The survey is anonymous and your responses will be held in the strictest confidence. We thank you for your feedback.

This survey will take approximately 20 minutes to complete.

Please rate your level of agreement/satisfaction with each of the following:

	5 (strongly agree)	4 (agree)	3 (neither agree nor disagree)	2 (disagree)	1 (strongly disagree)
National formulary					
Journals/research papers					
knowledgeable PSRs can influence our prescribing decisions					
prescribing of drugs is influenced by colleagues' opinion					
product price is important					
patient income					

Dhaka University Institutional Repository

	5 (strongly agree)	4 (agree)	3 (neither agree nor disagree)	2 (disagree)	1 (strongly disagree)
it is ethical to take promotional items from PSRs					
it is ethical to take free samples as a promotional item					
it is ethical to acccept trips to seminars as a promotional item					
it is ethical to take promotional items for name recall such as pens/note/pad etc					
PSRs provide free samples which are very useful for promotion					
PSRs are solely responsible for increasing the presciption share of the company (promotional)					

Dhaka University Institutional Repository

	5 (strongly agree)	4 (agree)	3 (neither agree nor disagree)	2 (disagree)	1 (strongly disagree)
PSRs assists with any complaints(damaged, expired product)					
e-detailing is a new concept found to be very useful (PSRs point doctors to interactive sites that teach them about new drugs, etc)					
PSRs supply useful educational materials for health professionals/physicians					
reminder of the company or brand name by PSRs (brand name recall) influences us to prescribe a company's product					
PSRs inform us of new products introduced in the market					

Dhaka University Institutional Repository

	5 (strongly agree)	4 (agree)	3 (neither agree nor disagree)	2 (disagree)	1 (strongly disagree)
PSRs give us sample of new products					
value-added services of the company					
companies invite you to visit their factories					
products are cost effective					
PSRs knowledge of their products are good					
i take drug information from written sources that PSRs leave					
pharmaceutical companies should include patient educational material insert with each product					
companies take your opinion					
PSRs provide useful (scientific) information					

on drugs (old and new) and understand our needs which help us to prescribe the product					
	5 (strongly agree)	4 (agree)	3 (neither agree nor disagree)	2 (disagree)	1 (strongly disagree)
company's advertising their products to patients directly only about disease states is acceptable					
company-sponsored CMEs (seminars, workshops,etc) influence you to prescribe a company's product					

Dhaka University Institutional Repository

RETAILERS

রিটেলারস্

১। ঔষুধের দোকানের অবস্থান

২। প্রতিদিন কত সংখ্যক ঔষুধ কোম্পানীর সেলস্ রিপ্রেজেনটেটিভ আপনার দোকানে সাক্ষাৎ করেন।

৩। আপনি কি ঔষুধ কোম্পানি গুলোর বিষয়ে সন্তুষ্ট?

৪। সেলস্ রিপেজেনটেটিভ গণ যেসব তথ্য আপনাকে দিচ্ছে, সেগুলো কি দরকারী ও আপনার কাজের লাগে?

৫। ঔষুধ বিষয়ক আইন কানুনগুলো কঠোরভাবে প্রয়োগ ও পরিচালানা করা দরকার বলে মনে করেন কি?

৬। সেলস্ রিপ্রেজেনটেটিভগন কি তাদের কোম্পানীর পণ্য বিক্রয় বৃদ্ধির চেষ্টা করে?

৭। অতি দ্রুত ওটিসি ও প্রেসক্রিপশন ঔষুধ গুলোকে আলাদা শ্রেণী হিসেবে প্রতিষ্ঠা করা প্রয়োজন মনে করেন কি?

৮। ঔষুধ পণ্যের নিয়মিত সরবরাহ পান কি?

৯। রোগ-ব্যাধি বিষয়ে সতর্কতা মূলক বিজ্ঞাপন দোকানে রাখার কি দরকার আছে?

১০। আপনি কি রোগীদের কখনো বিশেষ কোনো কোম্পানীর পন্য কেনার জন্য উদ্বুদ্ধ করে থাকেন?

১১। অতি দ্রুত ঔষুধ বিষয়ক আইন কানুন গুলো কার্যকরী করা কি প্রয়োজন?

১২। কোম্পানী গুলো পন্য বিক্রয়ের জন্য যে কৌশল গুলো আবলম্বন করে, সে গুলো যথেষ্ট কিনা?

১৩। বর্তমান ঔষুধ বিষয়ক আইনগুলো কার্যকর করা হচ্ছে না। আপনার কি ধারণা?

১৪। প্রতিটি দোকানে একজন ফার্মাসিস্টের প্রয়োজন আছে। আপনার কি ধারণা।

১৫। কোম্পানী গুলোর বিশেষ কোনো লক্ষন বা চিকিৎসায় ব্যবহারের জন্য যে পন্য সম্ভার প্রস্তাব করে থাকে, তার সবগুলোই আপনিকি দোকানে রাখেন?

১৬। ঔষুধ কোম্পানী গুলোর পণ্যের গুনগত মান উৎকৃষ্ট শ্রেণীর কিনা কি মনে করেন?

১৭। আপনি কি মনে করেন যে ক্রেতাগণ ঔষুধ ও রোগ বিষয়ে আরো বেশী সতর্ক ও শিক্ষিত হয়ে উঠছে?

১৮। আপনি কি মনে করেন যে ক্রেতাদের নিজের বিবেচনায় ঔষুধ গ্রহনের প্রবনতা আছে।

PSRs

We value your input on the company's programs. The survey is anonymous and your responses will be held in the strictest confidence. We thank you for your feedback.

This survey will take approximately 15 minutes to complete.

Please rate your level of satisfaction with each of the following:

	5 (very satisfied)	4 (somewhat satisfied)	3 (neither satisfied nor dissatisfied)	2 (somewhat dissatisfied)	1 (very dissatisfied)
Overall satisfaction with your job					
training type					
Training frequency					
Relationship with top executives of your company					
Communications with top executives of your company					
Workload					
Family education benefits					

Dhaka University Institutional Repository

	5 (very satisfied)	4 (somewhat satisfied)	3 (neither satisfied nor dissatisfied)	2 (somewhat dissatisfied)	1 (very dissatisfied)
Medical Benefits					
Access to company sponsored training					
Job security					
Realistic sales target					
Opportunity for advancement					
Active involvement of my boss regarding my work					
Communication with my boss					
Relationship with my boss					
Flexibility of work hours					
Working environment					
Treatment from doctors					

	5 (very satisfied)	4 (somewhat satisfied)	3 (neither satisfied nor dissatisfied)	2 (somewhat dissatisfied)	1 (very dissatisfied)
Relationship with the doctors					
Treatment from doctors chambers/hospitals					
Family medical benefits					
company benefits are clearly explained					
Pension benefits					
My boss gives me time					
My company is very strict with code of ethics					
My direct boss is very helpful					
Always clear what I am supposed to do					
Jobs are well-organized and					

Dhaka University Institutional Repository

coordinated					
	5 (very satisfied)	4 (somewhat satisfied)	3 (neither satisfied nor dissatisfied)	2 (somewhat dissatisfied)	1 (very dissatisfied)
Clearly explains codes of ethics regularly					

Dhaka University Institutional Repository

Appendix – 5. Outlook of Asia's Pharmaceutical Sector

Commentaries & Analyses (Kou-Yew Liew, Assistant Vice President, Life Sciences, Asia, Rabobank International)

1042 APBN • Vol. 10 • No.18 • 2006 (www.asiabiotech.com)

In 2005, Asia's pharmaceutical market size was approximately US$106.8 billion, with Japan making up about half of the market with a domestic consumption of about US$58 billion. The average per capita consumption in Asia, which has a population of 3 billion people, stood at US$36 per person. In contrast with the US at US$839 and Europe at US$439, the industry in Asia offers much room for growth. Asia's economy has been growing much faster than that of the US and Europe over the past 5 years. In 2004–2005, the Asian economy as a whole grew by 4.9%, compared to 3.5% in the US and a tepid growth of 1.7% in Europe. Propelled by the combination of a low per capita consumption and a rapidly growing economy, the industry is expected to sustain a double-digit growth over the next decade. Major Western pharmaceutical companies, faced with shrinking opportunities in their home markets, will thus have to focus their attention on Asia for their next phase of growth.

Asia today is a net importer of pharmaceuticals, mainly from Europe, with which it had a trade deficit of US$7 billion in 2004 (although it enjoyed a small trade surplus of US$640 million with the US). In 2004, the major net exporter of drugs in Asia was India, with a total net export of about US$2 billion. According to preliminary data, India's position as the main net exporter in Asia is now being contested by Singapore, which has shown a strong track record backed by years of substantial government investment. Singapore achieved a total export and import of US$2.4 billion and US$1.04 billion, respectively, in 2005. Given Japan's position as the world's second largest market, it comes as no surprise that

Dhaka University Institutional Repository

it is also Asia's largest net importer with a deficit of US$3.5 billion, the majority of it with Europe.

Most countries in Asia are developing economies, with the exception of Japan and the four newly industrialized economies (NIEs) of South Korea, Taiwan, Hong Kong, and Singapore. The disease profile of the developing economies is significantly different from that of the more developed economies of US, Europe, and Japan. Asia has a lower incidence of lifestyle diseases such as cardiovascular and central nervous system (CNS) conditions, although the incidence of these is beginning to rise in the urban centers of India and China. Antibiotics, most of which are locally manufactured generics, are the main therapeutics consumed in these developing economies. These therapeutic drugs are usually regulated under government price controls to ensure that essential drugs are affordable to large segments of the poor, as countries like China and India lack a comprehensive health insurance system. The economic development in these economies is, however, creating a new class of affluent consumers, who can afford and demand the novel patented treatments being peddled by the pharmaceutical majors.

The attractiveness of the market and the concomitant implementation of IP protection have encouraged the pharmaceutical majors to invest in Asia in order to develop novel drugs and grow their markets. The cost of hiring a scientist in India is about a quarter of what it would cost to hire a similarly qualified person in the US. However, this advantage is gradually being eroded by rising wages and other business costs.

The challenges facing the Asian pharmaceutical industry are as varied as its countries. The challenge for Japan is to start looking outside its domestic markets for future growth as the market reaches saturation. Future growth for Japan will have to come from Asia, both as a market and as a source of innovation. Major pharmaceutical companies like

Novartis and Pfizer have looked increasingly to countries such as China, India, and Singapore to outsource the development of innovative drugs so as to overcome the huge costs of bringing a drug to the market; The Boston Consulting Group has tagged this cost at a staggering US$880 million. According to the consulting arm of KPMG, the cost of developing a similar drug and filling a new drug application (NDA) is about one tenth of this amount if done in India.

The pharmaceutical industry in China today is too fragmented to be competitive. Over 6000 companies exist and the top 10 companies hold less than 15% market share, whereas the market share of the top 10 companies in India is more than 30%. Excessive competition among domestic pharmaceutical companies is resulting in a potential "downward spiral" syndrome (i.e. paper-thin margins), thereby starving the companies of much-needed cash to fund process improvements or drug development. In addition, the lack of R&D prevents these companies from developing unique products that could command a higher margin. The Chinese financial regulations exacerbate the situation by making M&A activities difficult, thus hindering the consolidation of the industry. Chinese pharmaceutical companies will need to follow India in raising their production quality to achieve US FDA compliance. This would allow them to export and market their drugs to the developed markets like the US and EU, where margins are higher.

The eventual rise of China (it is not a question of if, but when) will inevitably challenge India's position as a low-cost producer. In fact, according to Bain & Co., nearly 90% of the pharmaceutical executives interviewed from US and European firms believe that China has become the preferred location for low-cost drug manufacturing rather than India.

Indian pharmaceutical companies need to invest more in R&D to maintain their competitive advantage and develop their own novel drugs,

Dhaka University Institutional Repository

even as they are seeking to expand their reach in the generic markets by aggressively acquiring companies in Europe. In 2005, the average R&D expenditure of leading Indian pharmaceutical companies was only 5.7% of their net sales, compared to 7.9% by Teva (the world's largest generic company) and 14.5% by Merck & Co. Fortunately for India, the legacy and financial regulatory issues faced by China provide India with a brief respite, allowing the latter to accumulate cash in the generics sector to invest in R&D.

Singapore has adopted a rather unique strategy in the face of its negligible domestic market. The government and the powerful Economic Development Board decided a decade ago to enter the industry by focusing on high-end R&D. Alongside generous grants and tax incentives, billions of dollars were invested to attract pharmaceutical and biotech MNCs to set up R&D operations in Singapore. The flagship of this initiative was the formation of Biopolis, a US$1 billion self-contained biotech park. Singapore faces a unique challenge in its lack of a strong and robust domestic pharmaceutical manufacturing base, which would limit its ability to exploit the fruits of its research. As such, Singapore needs to develop an approach to keep these companies in Singapore in order to drive a self-sustaining ecosystem, where profits earned from the sale or licensing deals of these novel drugs are reinvested in Singapore.

We expect to see the continued growth in the Asian pharmaceutical sector moving forward, with its size likely to exceed that of Europe and the US within the next few decades. Asia, led by Japan and India, will also start developing a robust pipeline of novel drugs that will address the needs of both Asia and the rest of the developed world (such as the US and Europe). The various countries in Asia will undeniably face a multitude of challenges as they develop their industries. However, given their

Dhaka University Institutional Repository

traditional resourcefulness and determination, it is beyond doubt that Asia's place within the global pharmaceutical industry over the next few decades will grow in rapid prominence.

Appendix -6. Case Studies

CASE STUDY 1: Role of Diabetes Educator at VIP Lounge:

For diabetes management, sanofi-aventis is known to always be a pioneer and is playing a unique role in this regard. Since the introduction of Lantus, a new chapter has started in Bangladesh. A proper coordination that means proper education was required between the disease and patient and for this purpose, a new position was created known as the Diabetes Educator.

The primary duty of a Diabetes Educator is to support the diabetic patients to achieve their glycaemic targets through regular follow-up and counseling. But when the activities had started, it was found that the relationship was not only confined between a doctor and a patient. A patient was found to be depending upon the Educator with all his or her emotions and expressions. This led to the main consultant to remain relaxed after sending a patient to Lantus Department.

The main way to control a subject completely is to know the subject specifically and in details and in this way. a diabetic patient is shown the way to control diabetes. In addition, the patient also gets the device training of Lantus.

For any insulin regular titration and follow up is very essential. For this important fact, a diabetic patient gets help from his/her Diabetes Educator. A certain period follow up report is regularly provided to the main consultant, in order for him to have the confidence on Lantus. And it is for this service alone, Diabetes Educators and sales team work together like a team.

Another important duty of the Diabetes Educator is to organize patient meetings where the diabetic patients can discuss with their consultant

and can have their blood sugar test. There the patients can share their experiences with one another.

Arrangement of Diabetes Awareness Program in different institutions, e.g. schools, colleges, universities, etc. as well as in different corporate offices is another of the multiple responsibilities of the Diabetes Educator. Arrangement of Continuing Medical Education (CME) on different academic topics and Round Table Discussion (RTD) on important health related issue is also part of the duties of Diabetes Educator.

Diabetes Educator also plays role in publishing of clinical papers on diabetes, related complications and their management and in arrangement of health campaign through out the country in National and International Days.

Thus a Diabetes Educator is sometimes a physician, sometimes a marketing person, sometimes a sales person, but always a friend, a brother.

CASE STUDY 2: Creating a virtual future (a value-added service)

At Beximco Pharma information technology is being used where it is most profitable to use-a proactive decision support tool for its managers and automating processes which do not require human judgment. For quite some time now company has been field testing field sales promotion, where the sales people promote products using laptop computers and CD-ROMs instead of printed literatures/brochures. Beximco was the first pharmaceutical company in the world to use this technology for actual product detailing to the doctors. Response from the doctor has been overwhelming.

Since its early days, the company has been maintaining a strong commitment to the advancement of the medical education in the country.

BPL has been known also to be the first in the country to create a Medical Service Department whose sole function was to provide information services to the professions. Over the years the department's activity expanded as the medical profession continued to appreciate the value of these services. Its service included publication of quarterly medical journal which is distributed free among the medical community, a well stocked medical video library, collaborative clinical research with renowned institutions and the holding of regular seminars and symposiums.

On Medical topics which are always well attended, "Continued Education Programme" Run by the company for busy General Practitioners (GP's) and taught by specialists from country's medical institutions received unprecedented response from the participants. Innovative use of information technology enabled the company to extend this service to medical students.

The company has already installed "Medical Information Kiosk" in two medical institutions. These Kiosks placed in the libraries of these institutions, are operated simple by touching the computer monitor and are packed with important medical information on a variety of topics including rare video clips on topics like cardiac bypass surgery and brain surgery. The entire system which uses extremely sophisticated computer based multimedia technology was designed and developed in-house. It provides a very simple but effective supplementary learning tool for students to learn at their own time and own pace.

(Excerpt from BPL Annual report 1996)

CASE STUDY 3: e-Square

The variable – e detailing or healthcare online - although a new concept and its use not yet widespread in the Bangladesh market environment, is

already been found to be started by Square Pharmaceuticals Ltd. under the name of e-Square directed towards medical professionals. It has been found to be a significant determinant for the physicians' satisfaction level in the present research study. The physicians have expressed the necessity of this kind of detail marketing since it could be a feasible alternative to them not being able to give time to the company PSRs. It is an effective tool and is expected to be used more often by physicians in the future. (primary source: Marketing Director, Square Pharmaceuticals Ltd.)

The industry could therefore take these factors into consideration for improving the performance of the other companies. Following are some examples of how the firms could do eDetailing:

- Deliver video to doctors using the Video Email Service
- Invite doctors to attend CME courses on the efficacy of new drugs
- Broadcast surveys to doctors to collect marketing and clinical information
- Invite doctors to preview a new E-detailing web site
- Promote a web site that provides drug samples
- Point doctors to a web site that provides drug information
- Announce new product launching
- Offer seminars or promote medical conventions

CASE STUDY : 4. Bangladesh to introduce countrywide "telehealth care services"

DHAKA, Jan. 7 (Xinhua) -- The Bangladesh government will introduce "Telehealth Care Services" across the country from next month aiming at providing health care facility to all the people, a senior official said Wednesday.

Dhaka University Institutional Repository

Director General of Health Services under Bangladesh's Health Ministry Md Abul Faiz said that all public hospitals at the country's 481 sub-districts will be provided required logistics including mobile phones for establishing a unit of telehealth care center.

"Through telehealth system, we'll be able to provide medical care closer to home for all," he said.

Doctors will be on duty in each unit of telehealth centers to receive phone calls from patients. The telehealth centers will remain open for 24 hours, he said.

Faiz said all hospitals authorities have already been asked to complete necessary formalities by this month so that the operations in telehealth centers can be started at the beginning of the next month.

More than half of Bangladesh's 144 million population, who can't avail health care facility due mainly to poverty, are expected to be immensely benefited from the services as they will not require to pay any fee, Faiz said.

The telehealth system will also help the mass people to be aware of non-communicable diseases (NCDs), Faiz said. The World Health Organization estimated that by 2010 NCDs would be responsible for 59 percent of deaths in the country compare with 40 percent in 1990.

Underlying factors that contribute to the increasing burden of NCDs include unplanned urbanization, changing dietary habits, unregulated tobacco consumption, air pollution, road traffic injury and lack of awareness about health behavior, Faiz said.

Editor: Zhao Yanchen

Source: Xinhua 01-08-2009 08:41

Appendix – 7. Explanation of the Variables used in the Hypotheses

- BENCHMARKING

The objective of benchmarking the promotional strategy used (or promotional tracking) is continuous improvement: it is used to identify areas for poor planning, poor execution, or both; for improvement and also to establish new priorities and targets.

There are many tools available that can be used to delve deeply into MIC needs and behavior. Choosing the right tool or lenses for looking at the customers is very critical. Finally, increased scrutiny of the decision-making process might lead to better decisions" (Pharma Marketing News, 2009).

- SEGMENTATION

The selection of customers (segmentation) is one of the four processes of Customer Management, the other three being acquisition of customers, retention of customers, and maintaining relationships with the customers. Customer management strategies should include execution along all four processes. Most organizations, acting without an explicit customer management strategy, are found to do poorly on selection and retention processes. Many companies are also found to pay too little attention to retaining customers. They treat sales as transactional events, avoid contact with their MICs, and/or fail to measure whether they are satisfied for long-term relationships.

Generally, pharmaceutical products are segmented for four categories of products:

- consumer or prescription products. The consumer or prescription market includes the consumers who can only purchase medicines using a prescription given by the doctor.
- OTC (over-the-counter) or non prescription products. OTC market includes consumer who purchases certain medicines that do not require a prescription from the doctor.
- institutional market products. The institutional market comprises of large hospitals who purchase in bulk and directly from the companies. Pharmaceutical companies need to identify the profitable hospitals on the basis of their size and how much business they can generate. The companies may even have a separate department or division to cater to the needs of institutional market.
- industrial market products. Industrial market comprise of buyers of bulk drugs or active pharmaceutical ingredients. It also includes pharmaceutical machinery and accessory suppliers.

For pharmaceutical companies what is important is the prescription markets. But as mentioned earlier, the pharmaceutical market structure is very different for Bangladesh since there is no differentiation between prescription and OTC products. Any consumer can buy any product with or without a prescription, which is why the marketing strategy in the Bangladesh market is quite different from the general pharmaceutical market.

Nevertheless, the pharmaceutical market for the products (prescription and OTC together) can be sub-divided into two categories:

- Doctors. They can again be classified on the basis of their
    - Age (old doctors/young doctors/interns)
    - Designation (professor/associate professor)
    - Years of Practice (senior/junior)

- Specialty (cardiologists/diabetologists/orthopedician/ ophthalmologist, etc)
- Place of Practice (urban/rural/government hospital/private clinics)
- Usage rate of prescribing the products (heavy/medium/light)

- Patients. They can be categorized as:
  - Patients with similar kind of illness (eg, diabetic patients)
  - Patients with similar stage of illness (acute illness/chronic illness)
  - Patients according to their age group (pediatric patients/geriatric patients/young patients)
  - Patients according to their gender (male/female)
- According, a company needs to look at all these different factors and accordingly take into account these various factors in order to effectively plan and decide its marketing strategy.

PRODUCT POSITIONING IN BANGLADESH

A doctor has been found to prescribe around 200 brands for 80% of the prescriptions that he writes during his complete career (primary source). These 200 brands have somehow been set in his mind/memory by different factors around him, which may include journal reading, peer influence, promotional tools, etc. Promotional strategies carried out by companies have been found to be very important influencing factors which position their brand in the minds of the physician, eg, in Bangladesh, as a result of successful brand positioning, when a doctor talks of metronidazole, he thinks only of flagyl or filmet or fimoxyl depending on the reminder he gets or on the relationship that has been

Dhaka University Institutional Repository

established with the PSRs or on the trust he has developed with the brand. This is a kind of reflex action. The rest 20% drugs that they prescribe are random – either because it is not regularly used or because he has just had a sales call. Put simply, the list of the medicines he wants to prescribe is set in his mind by brand positioning. And this is exactly what the PSRs of the pharmaceutical companies of Bangladesh are doing – trying to reinforce their own brand/product in the doctor's mind. Once successfully positioned, it is difficult for another company to change that mind set. The reason for this is that in this generic market, the marketing tools are not selling science…rather only selling a brand, unlike in the western or developed world, where the PSRs go to the doctors with a new innovative solution. The challenge lies is how well the PSRs will be able to convince the doctor scientifically that their new product will be more beneficial to the patient than the product already existing in the market. The scenario in Bangladesh is quite different. If we consider a leading product, eg, omeprazole, out of the many different me-too products, which product will the doctor prescribe? The determining factor has been found to depending on whether the doctor likes the PSR, or the company, or whether he is in a good mood, etc.

It is very important to differentiate the PSR in the customer's (the physician) mind – just like it is important to differentiate the products. The typical high-volume general practitioner is usually well known to all the drug companies. He probably sees as many as 50 to 60 different PSRs (if not more) on a regular basis. The doctor will need to decide who he is going to let into his inner circle of trust – and that may be around 15 PSRs. A company must work hard ethically to be in that inner circle. That means making each customer experience more than a typical detail call, in which the PSR gives his scripted presentation and that is it. Standard detail calls program the doctor to treat the PSR as nothing more than an

information conduit. The key or task is to make the relationship value-adding so that the doctor comes to trust the sales rep and looks forward to seeing him.

The company must realize that a trusted salesperson with the right attitude and behavior can be very helpful to doctors. Doctors are much more pressed for time than they used to be, which limits their ability to keep up with new developments. At the same time, patients have started to demand much more information, and so doctors somehow have to stay updated with medical advances and all sorts of other information. Patients today want to know about the drugs they take, and the more sales reps can help doctors handle these questions, the more valuable they will end up being. Differentiating the reps by focusing on science and on the concerns of patients – the doctor's customers – is an important strategy. This means that the PSRs must be responsive and fully knowledgeable about the medicines they sell. And along with that knowledge, they must bring integrity and honesty about the science to their jobs if they are to build trust-based long-lasting relationship with doctors.

As companies attempt to differentiate their products they often stress additional benefits that make the product unique. This sometimes leads to the physicians being unsure about what should the products be used for. It is also seen that to increase the product's potential PSRs often are made to aim to maximize the number of targeted MICs in the market. They tend to focus on the segment with biggest business potential or to add more segments without thorough analysis of the product's properties on one side and doctors' and patients' needs on the other side. Bad experience with unsuitable patients can make the doctors not to prescribe the product for patients that could benefit from it much more.

- OTC and PRESCRIPTION PRODUCTS

OTC drugs are medications that can be purchased at a pharmacy, grocery or convenience store without a prescription to safely consume to treat the symptoms of common colds or pains, such as a headache. On the other hand, prescription drugs are medicines that are prescribed to a patient by a doctor to manage pain, treat or cure a health condition such as pain, mental disease, diabetes, cancer, or common infections. The drugs should be classified and selected accordingly by a regulatory agency (eg, DDA in Bangladesh, FDA in the United States, etc) to ensure which drugs can be safely differentiated into an OTC and a prescription drug.

It is well known that there is no such implementation of differentiating the drug products in Bangladesh. This is a serious matter, which should be taken into consideration immediately. This is one of the main reasons of drug (eg, antibiotic) abuse, which is leading to a major concern in the effective and successful treatment of patients.

- Customer Relationship Management

Healthcare Is Now a Consumer Market

The 2009 Deloitte Survey of Health Consumers found definitively that, '[Health] consumerism is not a fad; it is a trend of enormous significance and a growing numbers of consumers who want to be actively engaged.'

The pharmaceutical industry can never be the same as any other industry. Coupled with governmental pressure to keep prices controlled, the industry's need to sell drug products in managed-care environments is always required to introduce new marketing methods. It is widely accepted that the present prices of medicines in Bangladesh are the lowest in the sub-continent (Price Fixation Policy, Bangladesh). Although this is a major advantage for the population of Bangladesh, it is not the only solution for the industry's competitiveness and sustainability.

Manufacturers that once sold drug products now need to sell solutions to their customers.

- Health Insurance

Health Insurance is, basically, a promise by an insurance company or health plan to provide or pay for health care services in exchange for payment of premiums.

The intention of implementing health insurance is to provide access to comprehensive health care services at zero or slight cost at the time of use as well as the free choice of physicians by patients. This can influence costs in two ways. First, if patients have direct access to specialists, they will push up costs by more frequent consultations with more highly paid doctors. Second, freedom of choice will encourage greater numbers of doctors to enter the market and each doctor to become more specialized, leading to multiple consultations by each patient. The requirement to consult a general practitioner before gaining access to a specialist, as in the British system, acts as a control on unnecessary specialist consultations; the risk is that less effective care may sometimes be provided by generalists.

Some community health insurance schemes in India is given in Table 7 of Health Insurance in India which can be used as examples by Bangladesh in order to implement health insurance for the population.

(http://whoindia.org/LinkFiles/Commision_on_Macroeconomic_and_Health_Health_insurance_in_India.pdf)

Dhaka University Institutional Repository

Appendix – 8. Linear Regression

In a cause and effect relationship, the independent variable is the cause, and the dependent variable is the effect. Least squares linear regression is a method for predicting the value of a dependent variable *Y*, based on the value of an independent variable *X*.

Where there is only one independent variable, it is called simple regression (as opposed to multiple regression, which handles two or more independent variables).

The Least Squares Regression Line

Linear regression finds the straight line, called the least squares regression line or LSRL, that best represents observations in a bivariate data set. Suppose *Y* is a dependent variable, and *X* is an independent variable. The population regression line is:

$Y = B_0 + B_1X_1 + \ldots\ldots$

where B_0 is a constant, B_1 is the regression coefficient, X_1 is the value of the first independent variable, and Y is the value of the dependent variable.

Given a random sample of observations, the population regression line is estimated by:

$\hat{y} = b_0 + b_1x_1 + \ldots\ldots..$

where b_0 is a constant, b_1 is the regression coefficient, x_1 is the value of the first independent variable, and $\hat{y}$ is the *predicted* value of the dependent variable.

Appendix- 9. Sample Size Determination

Sampling Distributions

Suppose that we draw all possible samples of size *n* from a given population. Suppose further that we compute a statistic (e.g., a mean, proportion, standard deviation) for each sample. The probability distribution of this statistic is called a sampling distribution.

Variability of a Sampling Distribution

The variability of a sampling distribution is measured by its variance or its standard deviation. The variability of a sampling distribution depends on three factors:

N: The number of observations in the population.

n: The number of observations in the sample.

The way that the random sample is chosen.

If the population size is much larger than the sample size, then the sampling distribution has roughly the same sampling error, whether we sample with or without replacement. On the other hand, if the sample represents a significant fraction (say, 1/10) of the population size, the sampling error will be noticeably smaller, when we sample without replacement.

Central Limit Theorem

Dhaka University Institutional Repository

The central limit theorem states that the sampling distribution of any statistic will be normal or nearly normal, if the sample size is large enough.

How large is "large enough"? As a rough rule of thumb, many statisticians say that a sample size of 30 is large enough. If you know something about the shape of the sample distribution, you can refine that rule. The sample size is large enough if any of the following conditions apply.

The population distribution is normal.

The sampling distribution is symmetrical, unimodal, without outliers, and the sample size is 15 or less.

The sampling distribution is moderately skewed, unimodal, without outliers, and the sample size is between 16 and 40.

The sample size is greater than 40, without outliers.

The exact shape of any normal curve is totally determined by its mean and standard deviation. Therefore, if we know the mean and standard deviation of a statistic, we can find the mean and standard deviation of the sampling distribution of the statistic (assuming that the statistic came from a "large" sample).

Sampling Distribution of the Mean

Suppose we draw all possible samples of size n from a population of size N. Suppose further that we compute a mean score for each sample. In this way, we create a sampling distribution of the mean.

Dhaka University Institutional Repository

We know the following. The mean of the population (μ) is equal to the mean of the sampling distribution (μ_x). And the standard error of the sampling distribution (σ_x) is determined by the standard deviation of the population (σ), the population size, and the sample size. These relationships are shown in the equations below:

$\mu_x = \mu$ and $\sigma_x = \sigma * \text{sqrt}(1/n - 1/N)$

Therefore, we can specify the sampling distribution of the mean whenever two conditions are met:

The population is normally distributed, or

the sample size is sufficiently large.

Sample Size Determination

The formula for sample size determination is as follows:

$$n = \frac{(z_{\alpha/2})^2 \sigma^2}{E^2} \quad \ldots\ldots\ldots\

Dhaka University Institutional Repository

this equation if we have a preliminary or planning value for σ. In practice, one of the following procedures can be chosen.

Use the sample standard deviation from a previous sample of the same or similar units.

Use a pilot study to select a preliminary sample. The sample standard deviation from the preliminary sample can be used as the planning value for σ.

Use judgement or a 'best guess' for the value of σ. For example, we might begin by estimating the largest and the smallest data values in the population. The difference between the largest and the smallest data values provides an estimate of the range of the data. Finally, the range divided by four is often suggested as a rough approximation of the standard deviation and thus an acceptable planning value for σ.

Dhaka University Institutional Repository

Appendix – 10. Model Summary and ANOVA table of the Regression Models

With Market Leader

MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.713(a)	.509	.494	1250.646
2	.812(b)	.660	.638	1057.610
3	.852(c)	.726	.699	964.107
4	.884(d)	.782	.752	874.780
5	.872(e)	.761	.737	900.605
6	.895(f)	.801	.774	835.783

a Predictors: (Constant), successful brand/product management

b Predictors: (Constant), successful brand/product management, number of PSRs reaching the MICs

c Predictors: (Constant), successful brand/product management, number of PSRs reaching the MICs, continuous review/assessment of promotional strategy (benchmarking)

d Predictors: (Constant), successful brand/product management, number of PSRs reaching the MICs, continuous review/assessment of promotional strategy (benchmarking), human resource management

e Predictors: (Constant), successful brand/product management, continuous review/assessment of promotional strategy (benchmarking), human resource management

f Predictors: (Constant), successful brand/product management, continuous review/assessment of promotional strategy (benchmarking), human resource management, operating decisions

Dhaka University Institutional Repository

ANOVA table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	51855371.658	1	51855371.658	33.153	.000(a)
	Residual	50051676.371	32	1564114.887		
	Total	101907048.029	33			
2	Regression	67232366.708	2	33616183.354	30.054	.000(b)
	Residual	34674681.321	31	1118538.107		
	Total	101907048.029	33			
3	Regression	74021995.902	3	24673998.634	26.545	.000(c)
	Residual	27885052.127	30	929501.738		
	Total	101907048.029	33			
4	Regression	79715095.245	4	19928773.811	26.043	.000(d)
	Residual	22191952.785	29	765239.751		
	Total	101907048.029	33			
5	Regression	77574377.105	3	25858125.702	31.881	.000(e)
	Residual	24332670.924	30	811089.031		
	Total	101907048.029	33			
6	Regression	81649590.935	4	20412397.734	29.222	.000(f)
	Residual	20257457.095	29	698533.003		
	Total	101907048.029	33			

a Predictors: (Constant), successful brand/product management

b Predictors: (Constant), successful brand/product management, number of PSRs reaching the MICs

c Predictors: (Constant), successful brand/product management, number of PSRs reaching the MICs, continuous review/assessment of promotional strategy (benchmarking)

d Predictors: (Constant), successful brand/product management, number of PSRs reaching the MICs, continuous review/assessment of promotional strategy (benchmarking), human resource management

e Predictors: (Constant), successful brand/product management, continuous review/assessment of promotional strategy (benchmarking), human resource management

f Predictors: (Constant), successful brand/product management, continuous review/assessment of promotional strategy (benchmarking), human resource management, operating decisions

g Dependent Variable: sales volume in taka crores for 2008

Dhaka University Institutional Repository

COEFFICIENTS Table

MODEL		B	Standard Error	Beta	t	Sig
1	(Constant)	-10055.726	1968.921		-5.107	.000
	successful brand/product management	2177.032	378.096	.713	5.758	.000
2	(Constant)	-14052.001	1983.426		-7.085	.000
	successful brand/product management	2036.460	321.977	.667	6.325	.000
	number of PSRs reaching the MICs	933.803	251.852	.391	3.708	.001
3	(Constant)	-14569.756	1818.193		-8.013	.000
	successful brand/product management	1491.809	356.033	.489	4.190	.000
	number of PSRs reaching the MICs	810.368	234.084	.339	3.462	.002
	continuous review/assessment of promotional strategy (benchmarking)	787.679	291.441	.321	2.703	.011
4	(Constant)	-14424.646	1650.590		-8.739	.000
	successful brand/product management	975.626	374.397	.320	2.606	.014
	number of PSRs reaching the MICs	426.241	254.844	.179	1.673	.105
	continuous review/assessment of promotional strategy (benchmarking)	967.842	272.563	.395	3.551	.001
	human resource management	673.202	246.814	.320	2.728	.011
5	(Constant)	-13203.916	1524.163		-8.663	.000
	successful brand/product management	793.852	368.853	.260	2.152	.040
	continuous review/assessment of promotional strategy (benchmarking)	1100.813	268.408	.449	4.101	.000
	human resource management	901.329	211.776	.429	4.256	.000

Dhaka University Institutional Repository

6	(constant)	-14278.752	1482.809		-9.630	.000
	i. Successful brand/Product management	806.567	342.345	.264	2.356	.025
	ii. Continuous review/Assessment of promotionai strategy (benchmarking)	1082.751	249.201	.442	4.345	.000
	iii. Human Resource Management	608.763	230.862	.290	2.637	.013
	iv. Operating decisions	562.857	233.032	.243	2.415	.022

Coefficients(a)

a Dependent Variable: sales volume in taka crores for 2008

Without Market Leader

MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.766(a)	.587	.574	656.119
2	.850(b)	.723	.704	546.686
3	.877(c)	.769	.745	507.326
4	.903(d)	.816	.790	460.642
5	.917(e)	.842	.812	435.608
6	.929(f)	.864	.832	411.707
7	.945(g)	.893	.863	372.319
8	.941(h)	.885	.859	378.094
9	.953(i)	.907	.882	346.029

a Predictors: (Constant), specialty-driven therapies/product differentiation

b Predictors: (Constant), specialty-driven therapies/product differentiation, PSRs - motivation and knowledge

c Predictors: (Constant), specialty-driven therapies/product differentiation, PSRs - motivation and knowledge, product positioning in the minds of the MICs through PSRs, CMEs, etc

d Predictors: (Constant), specialty-driven therapies/product differentiation, PSRs - motivation and knowledge, product positioning in the minds of the MICs through PSRs, CMEs, etc, segmentation of target physicians and continuous study of their prescribing habits

Dhaka University Institutional Repository

e Predictors: (Constant), specialty-driven therapies/product differentiation, PSRs - motivation and knowledge, product positioning in the minds of the MICs through PSRs, CMEs, etc, segmentation of target physicians and continuous study of their prescribing habits, number of PSRs reaching the MICs

f Predictors: (Constant), specialty-driven therapies/product differentiation, PSRs - motivation and knowledge, product positioning in the minds of the MICs through PSRs, CMEs, etc, segmentation of target physicians and continuous study of their prescribing habits, number of PSRs reaching the MICs, continuous review/assessment of promotional strategy (benchmarking)

g Predictors: (Constant), specialty-driven therapies/product differentiation, PSRs - motivation and knowledge, product positioning in the minds of the MICs through PSRs, CMEs, etc, segmentation of target physicians and continuous study of their prescribing habits, number of PSRs reaching the MICs, continuous review/assessment of promotional strategy (benchmarking), lack of implementation of regulations

h Predictors: (Constant), specialty-driven therapies/product differentiation, PSRs - motivation and knowledge, product positioning in the minds of the MICs through PSRs, CMEs, etc, number of PSRs reaching the MICs, continuous review/assessment of promotional strategy (benchmarking), lack of implementation of regulations

i Predictors: (Constant), specialty-driven therapies/product differentiation, PSRs - motivation and knowledge, product positioning in the minds of the MICs through PSRs, CMEs, etc, number of PSRs reaching the MICs, continuous review/assessment of promotional strategy (benchmarking), lack of implementation of regulations, value-added services/understanding customer needs

Dhaka University Institutional Repository

ANOVA TABLE

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18990203.044	1	18990203.044	44.113	.000(a)
	Residual	13345248.835	31	430491.898		
	Total	32335451.879	32			
2	Regression	23369490.647	2	11684745.324	39.097	.000(b)
	Residual	8965961.231	30	298865.374		
	Total	32335451.879	32			
3	Regression	24871437.356	3	8290479.119	32.211	.000(c)
	Residual	7464014.523	29	257379.811		
	Total	32335451.879	32			
4	Regression	26394101.062	4	6598525.266	31.097	.000(d)
	Residual	5941350.817	28	212191.101		
	Total	32335451.879	32			
5	Regression	27212084.790	5	5442416.958	28.681	.000(e)
	Residual	5123367.089	27	189754.337		
	Total	32335451.879	32			
6	Regression	27928388.296	6	4654731.383	27.461	.000(f)
	Residual	4407063.583	26	169502.446		
	Total	32335451.879	32			
7	Regression	28869920.497	7	4124274.357	29.752	.000(g)
	Residual	3465531.382	25	138621.255		
	Total	32335451.879	32			
8	Regression	28618624.035	6	4769770.672	33.366	.000(h)
	Residual	3716827.844	26	142954.917		
	Total	32335451.879	32			
9	Regression	29342058.288	7	4191722.613	35.008	.000(i)
	Residual	2993393.591	25	119735.744		
	Total	32335451.879	32			

Dependent Variable: sales volume in taka crores for 2008

Dhaka University Institutional Repository

COEFFICIENTS Table

MODEL		B	Standard Error	Beta	t	Sig
1	(Constant)	-2286.696	502.673		-4.549	.000
	specialty-driven therapies/product differentiation	825.330	124.264	.766	6.642	.000
2	(Constant)	-4131.063	638.412		-6.471	.000
	specialty-driven therapies/product differentiation	566.689	123.634	.526	4.584	.000
	PSRs - motivation and knowledge	494.699	129.234	.439	3.828	.001
3	(Constant)	-4352.243	599.482		-7.260	.000
	specialty-driven therapies/product differentiation	440.367	126.088	.409	3.493	.002
	PSRs - motivation and knowledge	414.756	124.412	.368	3.334	.002
	product positioning in the minds of the MICs through PSRs, CMEs, etc	258.211	106.889	.273	2.416	.022
4	(Constant)	-4180.860	548.065		-7.628	.000
	specialty-driven therapies/product differentiation	497.849	116.479	.462	4.274	.000
	PSRs - motivation and knowledge	654.869	144.205	.582	4.541	.000
	product positioning in the minds of the MICs through PSRs, CMEs, etc	314.279	99.285	.332	3.165	.004
	segmentation of target physicians and continuous study of their prescribing habits	-406.361	151.696	-.357	-2.679	.012
5	(Constant)	-4838.827	607.488		-7.965	.000
	specialty-driven therapies/product differentiation	542.876	112.263	.504	4.836	.000
	PSRs - motivation and knowledge	611.474	137.961	.543	4.432	.000
	product positioning in the minds of the MICs through PSRs, CMEs, etc	246.167	99.455	.260	2.475	.020
	segmentation of target physicians and continuous study of their prescribing habits	-477.871	147.529	-.420	-3.239	.003
	number of PSRs reaching the MICs	278.936	134.347	.202	2.076	.048
6	(Constant)	-5781.833	734.905		-7.867	.000
	specialty-driven therapies/product differentiation	470.472	111.797	.437	4.208	.000
	PSRs - motivation and knowledge	518.980	137.936	.461	3.762	.001

Dhaka University Institutional Repository

	product positioning in the minds of the MICs through PSRs, CMEs, etc	240.082	94.045	.254	2.553	.017
	segmentation of target physicians and continuous study of their prescribing habits	-391.149	145.676	-.344	-2.685	.012
	number of PSRs reaching the MICs	275.853	126.984	.200	2.172	.039
	continuous review/assessment of promotional strategy (benchmarking)	275.810	134.168	.175	2.056	.050
7	(Constant)	-6484.030	717.136		-9.042	.000
	specialty-driven therapies/product differentiation	318.251	116.760	.296	2.726	.012
	PSRs - motivation and knowledge	567.434	126.117	.504	4.499	.000
	product positioning in the minds of the MICs through PSRs, CMEs, etc	312.442	89.465	.330	3.492	.002
	segmentation of target physicians and continuous study of their prescribing habits	-202.410	150.333	-.178	-1.346	.190
	number of PSRs reaching the MICs	417.154	126.992	.302	3.285	.003
	continuous review/assessment of promotional strategy (benchmarking)	349.217	124.559	.221	2.804	.010
	lack of implementation of regulations	-305.872	117.364	-.321	-2.606	.015
8	(Constant)	-6785.904	691.753		-9.810	.000
	specialty-driven therapies/product differentiation	245.551	105.131	.228	2.336	.027
	PSRs - motivation and knowledge	490.744	114.267	.436	4.295	.000
	product positioning in the minds of the MICs through PSRs, CMEs, etc	318.352	90.743	.336	3.508	.002
	number of PSRs reaching the MICs	421.583	128.918	.305	3.270	.003
	continuous review/assessment of promotional strategy (benchmarking)	408.943	118.197	.259	3.460	.002
	lack of implementation of regulations	-381.996	104.444	-.401	-3.657	.001
9	**(CONSTANT)**	**-7648.581**	**723.860**		**-10.566**	**.000**
	i. Specialty-driven therapies/Product differentiation	**188.762**	**98.950**	**.175**	**1.908**	**.068**
	ii. PSRs - motivation and knowledge	**414.500**	**109.080**	**.368**	**3.800**	**.001**

Dhaka University Institutional Repository

iii. Product Positioning in the minds of the MICs through psrs, CMEs, etc	294.339	83.620	.311	3.520	.002
iv. Number of PSRs reaching the MICs	502.840	122.529	.364	4.104	.000
v. Continuous eview/Assessment of promotional strategy (benchmarking)	372.507	109.184	.236	3.412	.002
vi. Lack of implementation of regulations	-435.710	98.052	-.457	-4.444	.000
vii. Value-added services/understanding customer needs	294.897	119.973	.208	2.458	.021

a Dependent Variable: sales volume in taka crores for 2008

Dhaka University Institutional Repository

Appendix – 11. Model Summary contd.

PHYSICIANS Data

Classification Table(a,b)

			Observed		Predicted
			satisfaction		Percentage Correct
			no	yes	
Step 0	satisfaction	no	0	69	.0
		yes	0	313	100.0
	Overall Percentage				81.9

a Constant is included in the model.

b The cut value is .500

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	193.026	13	.000
	Block	193.026	13	.000
	Model	193.026	13	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	167.845(a)	.397	.649

a Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	5.663	8	.685

Dhaka University Institutional Repository

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step	G3			11.042	2	.004	
1(a)	G3(1)	-.795	.806	.972	1	.324	.452
	G3(2)	-2.437	.871	7.831	1	.005	.087
	CR(1)	1.713	.476	12.954	1	.000	5.547
	pm10			9.700	3	.021	
	pm10(1)	-24.782	40192.970	.000	1	1.000	.000
	pm10(2)	-2.345	.762	9.475	1	.002	.096
	pm10(3)	-1.409	.575	6.014	1	.014	.244
	pm13			17.439	2	.000	
	pm13(1)	2.854	.712	16.062	1	.000	17.349
	pm13(2)	1.362	.633	4.625	1	.032	3.903
	pm20			50.956	3	.000	
	pm20(1)	-1.703	.878	3.763	1	.052	.182
	pm20(2)	-1.775	.816	4.726	1	.030	.170
	pm20(3)	2.874	1.034	7.727	1	.005	17.712
	pm22			23.936	2	.000	
	pm22(1)	3.792	.855	19.665	1	.000	44.344
	pm22(2)	2.413	.558	18.718	1	.000	11.169
	Constant	.248	1.173	.045	1	.833	1.281

a Variable(s) entered on step 1: G3, CR, pm10, pm13, pm20, pm22.

RETAILERS' DATA

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	51.727	3	.000
	Block	51.727	3	.000
	Model	51.727	3	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	416.220(a)	.122	.177

a Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Dhaka University Institutional Repository

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	s1(1)	-.671	.259	6.718	1	.010	.511
	s2(1)	1.083	.273	15.714	1	.000	2.953
	s8(1)	-1.556	.260	35.802	1	.000	.211
	Constant	1.710	.225	57.555	1	.000	5.530

a Variable(s) entered on step 1: s1, s2, s8.

PSRs' DATA

Classification Table(a,b)

			Observed		Predicted
			Overall satisfaction with your job		Percentage Correct
			no	yes	
Step 0	Overall satisfaction with your job	no	0	74	.0
		yes	0	336	100.0
	Overall Percentage				82.0

a Constant is included in the model.

b The cut value is .500

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	278.818(a)	.232	.380

a Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	2.431	8	.965

Omnibus Tests of Model Coefficients

			Chi-square	df	Sig.
Step 1	Step	108.330		21	.000
	Block	108.330		21	.000
	Model	108.330		21	.000

Dhaka University Institutional Repository

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step	psr2			12.977	2	.002	
1(a)	psr2(1)	1.894	.527	12.900	1	.000	6.643
	psr2(2)	1.117	.470	5.651	1	.017	3.056
	psr10	.971	.281	11.944	1	.001	2.641
	psr13	.162	.363	.200	1	.655	1.176
	psr14			4.051	2	.132	
	psr14(1)	1.027	.539	3.631	1	.057	2.793
	psr14(2)	.233	.443	.277	1	.599	1.262
	psr15	.514	.223	5.310	1	.021	1.672
	psr17	-.801	.353	5.152	1	.023	.449
	psr18	-.469	.283	2.757	1	.097	.625
	psr30			11.190	2	.004	
	psr30(1)	.789	.694	1.292	1	.256	2.202
	psr30(2)	1.607	.481	11.170	1	.001	4.989
	psr31	-.286	.237	1.451	1	.228	.752
	psr32(1)	1.166	.332	12.320	1	.000	3.208
	psr33			15.351	2	.000	
	psr33(1)	-2.427	.621	15.291	1	.000	.088
	psr33(2)	-.978	.489	3.998	1	.046	.376
	psr34			9.144	3	.027	
	psr34(1)	2.496	1.087	5.275	1	.022	12.131
	psr34(2)	2.056	.771	7.118	1	.008	7.813
	psr34(3)	1.014	.540	3.520	1	.061	2.755
	psr35(1)	-1.566	.435	12.983	1	.000	.209
	psr36	-.228	.265	.745	1	.388	.796
	psr38(1)	.442	.422	1.097	1	.295	1.556
	Constant	-.285	3.141	.008	1	.928	.752

a Variable(s) entered on step 1: psr2, psr10, psr13, psr14, psr15, psr17, psr18, psr30, psr31, psr33, psr34, psr35, psr36, psr38.