



NMIMS, BENGALURU

PGDM – 09

TRIMESTER III

PHARMACEUTICAL

INDUSTRY ANALYSIS

TEAM MEMBERS-

SARANS CHOUDHURY (B049)

MEDHA MIRIPURI (B030)

NIHARIKA KAUR (B034)

SURAJ MAJUMDAR (B060)

CHIMBILI NAGA DIVYA (B016)

SAURAV DAN (B050)

DRISHA BILGRAMI (B019)

DIVISION - B

ACKNOWLEDGEMENTS

On successful completion of this project, we would like to thank our Director, Vinay Sir, for providing us with this wonderful opportunity as a part of our PGDM curriculum. This project was a good learning experience for us.

We want to extend our heartiest thanks to our mentors, Dr Narayani Ramachandran and Prof. Vasant Cavale, for giving us the opportunity to explore this industry and ourselves. This project is integral for a Business graduate and we thank our mentors for letting us apply our classroom skills to practice.

In addition, we want to thank the people who helped us gather primary data. Their contribution is integral for the completion of this project.

Last, but not the least, we thank the industry experts who guided us through this project and the authors of the articles, websites and research papers that we took as a reference.

CONTENTS

SERIAL NO.	PARTICULAR	PAGE NO.
1	Executive Summary	3
2	Economic Profiling	4
3	Drivers to competitive advantage	6
4	Industry trends & Innovations	6
5	Processes and Technology	7
6	SWOT Analysis	9
7	PESTLE framework	12
8	PORTER's five forces	14
9	Value Chain Analysis	16
10	Key Issues in the industry	18
11	STP Analysis	19
12	Marketing Mix Analysis	21
13	BCG and Ansoff Analysis	24
14	Product Life Cycle	26
15	Financial Analysis	28
16	Cost Structure Analysis	34
17	Competition Profile	36
18	Human Resource Management Issues	38
19	Production/operational/Process Analysis	41
20	Supply Chain Analysis	41
21	Mergers & Acquisition , Global Scenario	44
22	Quality Metrics & KPIs	45
23	Conclusion and Bibliography	46
24	Investment Decision Table	48

EXECUTIVE SUMMARY

The main objective of this report is to describe our study of the Pharmaceutical industry in INDIA and analyse its results with respect to opportunities for investment and entering into the industry. The study included detailed look at six top most pharmaceutical companies namely Glenmark, Pfizer, Cipla, Lupin, Sun pharmaceuticals and GSK India

The report contains the marketing, operations and the HR aspects affecting the industry. The marketing analysis of the industries was carried out by using tools such as SWOT Analysis, BCG Matrix, 4 Ps, STP which gives a fair idea about how the marketing is done in the industry. The results of the marketing analysis were that the India has huge market for generic drugs. India has 72% share of generic drugs, 19% of OTC drugs and just 9% of patented drugs. So Indian pharmaceutical industry is attractive for generic drug manufacturers if they can survive the competition. The supply chain costs are significant in this industry as most of the raw materials are imported from China and the policies are constantly changing depending on the cordial relationship between two countries. HR analysis gives an idea about the cost involved in manpower and also this industry is one of the most employment generating industries.

The existing companies in Pharma are making marginal profits but the market share of these companies is very high. However, the profitability of the companies came down the recent years but the industry as a whole is earning 13.3% on its sales, which is considered moderate considering the dynamics of the work environment. Over all the industry is profitable over the years and has the potential to attract investments as the profits earned by the industry is sufficient to pay off the interest and dividend obligations. It is observed that companies in this industry have very high operating cycle. That means companies have to wait for long periods to get the inventory converted into cash. All the financials are discussed in detail in the report

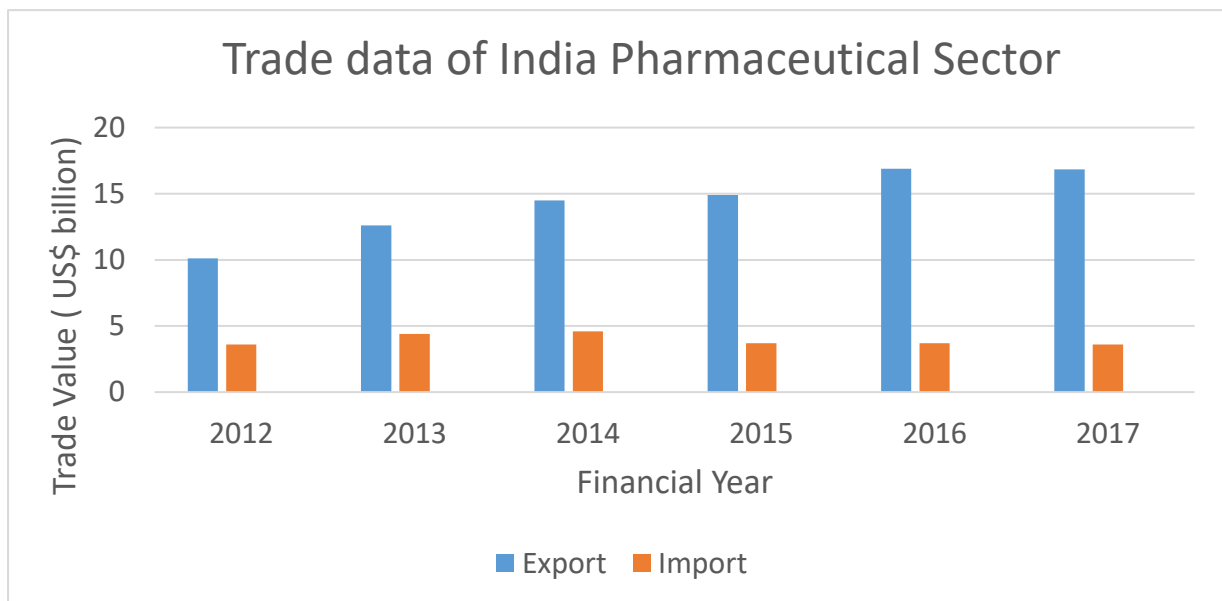
The report also includes tools like those that Porter's five-force model and value chain analysis have been used to analyse the industry's scenario at present. Porter's five force model of our industry reveals that the barriers to entry is low if the new entrant wants to be as generic drug manufacturer but the competition is high among the companies to grab the market share. The value chain analysis of the industry helps to identify which are the most valuable activities in the industry

Taking all the aspects and tools used for analysis into consideration the pharmaceutical industry looks promising for the new entrant and attracted many players into the industry over the recent past (considering the fact that India occupies the third place in the drug production by volume) and also it is one of the few sectors in which more than 50% of the FDI is allowed. The fact that India just shares only 9% of the patented drugs clearly shows that Indian pharma companies lack innovation.

CAPACITY

The Indian pharma industry is today, the third largest market globally in terms of volume and 14th largest by value. In terms of the Market Size- The pharmaceutical sector was valued at US\$ 33 billion in 2017. The country's pharmaceutical industry is expected to expand at a CAGR of 22.4 per cent over 2015–20 to reach US\$ 55 billion. India's pharmaceutical exports stood at US\$ 17.27 billion in 2017-18 and are expected to reach US\$ 20 billion by 2020. India is the world's largest provider of generic medicines; the country's generic drugs account for 20 per cent of global generic drug exports (in terms of volumes) .The Indian Pharmaceutical Industry lays its strength on the fact that Indian drugs are exported to more than 200 countries in the world, with the US as the key market. Medicine spending in India is expected to increase at 9-12 per cent CAGR between 2018-22 to US\$ 26-30 billion, driven by increasing consumer spending, rapid urbanisation, and raising healthcare insurance among others. By 2020, India is likely to be among the top three pharmaceutical markets by incremental growth and sixth largest market globally in absolute size. [The references, taken by the sources and us have been mentioned in the last page of this article]

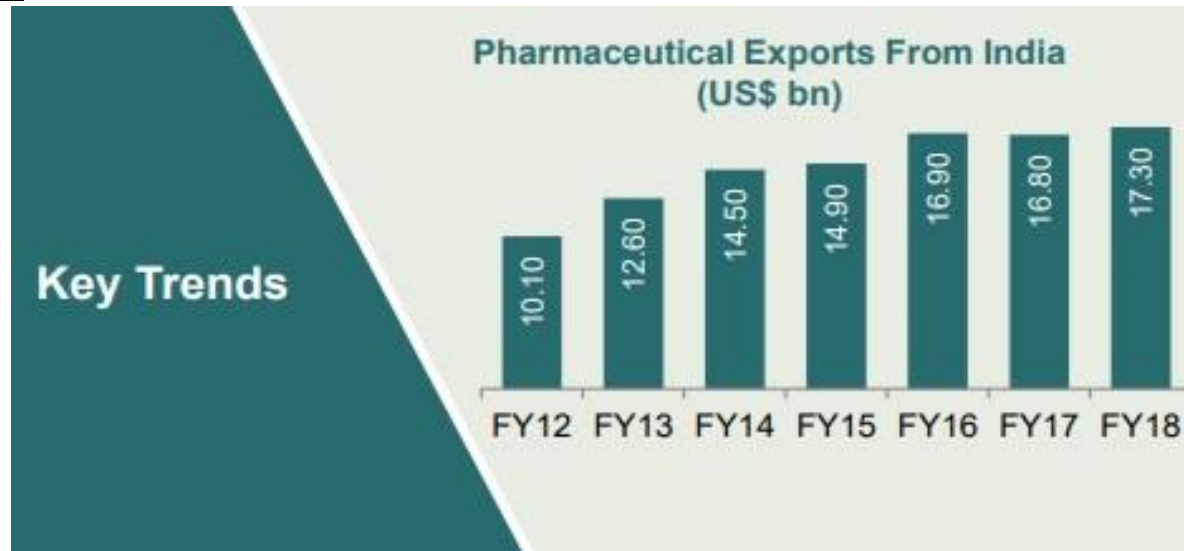
EXPORTS-IMPORTS



Imports

India mainly imports from five countries-Germany, US, Italy, Singapore, China. Drug imports account to 18372.54 crore during 2016-2017. China is the major exporter of Pharmaceutical drugs exporting about 12254.97 crore drugs to our country. Reasons for importing may be many but through research, we could primarily identify two. First, Low-cost imports have driven many domestic manufacturers to close down, as imports are giving them the cost benefit. Second, Chinese Government waived import tariffs on 28 drugs especially on anti-cancer drugs and anti-biotic.

Exports



- The pharmaceutical sector in India was valued at US\$ 33 billion in 2017 with its export being 50.9% of total production.
- Indian drugs are exported to more than 200 countries in the world, with the US as the key market. Generic drugs account for 20 per cent of global exports in terms of volume.
- Low cost of production and increasing expenditure on R&D has led to competitive pharma exports.

STAKEHOLDERS

Stakeholders in a pharmaceutical company are divided into stages.

1. The first stage of stakeholders includes the key management of the company like the corporate executives, marketing, and the leaders who offer their opinion regarding the pharmaceutical industry like the consultants. Their key issue is to establish a growth strategy of the company, enhance transparency, and manage potential harm towards stakeholders and the society and code of ethics among the various departments in the company.
2. The second stage of pharmaceutical stakeholders includes the regulatory institutions. Regulatory institutions are establishments that take part in ensuring the drugs that have been manufactured are of the right quality, and manufactured as per the stipulated mandate and drug manufacturing requirements.
3. The third stage of pharmaceutical stakeholder involves the marketing team in the company. Marketing pharmaceutical drugs require good advertising skills and sufficient consumer research. Employing the use of strategic marketing is appealing and attracts the end user.
4. The fourth stage of pharmaceutical stakeholder involves the team that takes part in research and development of a pharmaceutical drug. The biopharmaceutical research and industry paves way to discovering new and efficient drugs.
5. The end user is the last stage of pharmaceutical stakeholder ship. This includes the general public, patients, health providers, health related institutions and the government. The doctors and hospitals as the health providers ensure that approved drugs manufactured and sold by the pharmaceutical companies are put to the right use.

DRIVERS TO COMPETITIVE ADVANTAGE

Presently, Indian pharmaceutical industry offers a wide variety of practical solutions to its domestic and global customers. It is attracting the attention of global Pharmaceutical industry to display itself as a destination for solutions to knowledge problems in terms Clinical trials, R&D and contract manufacturing.

However, Indian takes advantage of a minute share in global market and wishes to develop and grow at rapid pace provided, if consultants, researchers and government collaborate to address the all the present compelling challenges as well as future issues. A huge volume of issues is involved in the working, growth as well as survival of the pharmaceutical sector. This sector is different from other industries as Pharmaceutical industry is dealing with the physical as well as psychological ailments of individuals. Due this reason, Pharmaceutical industry has more social responsibility than commercial responsibility. Drug and Pharmaceutical Industry has to address several issues viz. environmental issues, Intellectual Property Rights, Increasing Foreign players' presence in Domestic market, providing Medicines at affordable Price with adequate quality. All the legal and ethnic standards must be abided. Adding to that for being a competent player in a dynamic and volatile environment, Pharmaceutical Company requires focusing their attention on constant Research and Development as well as Support from the government.

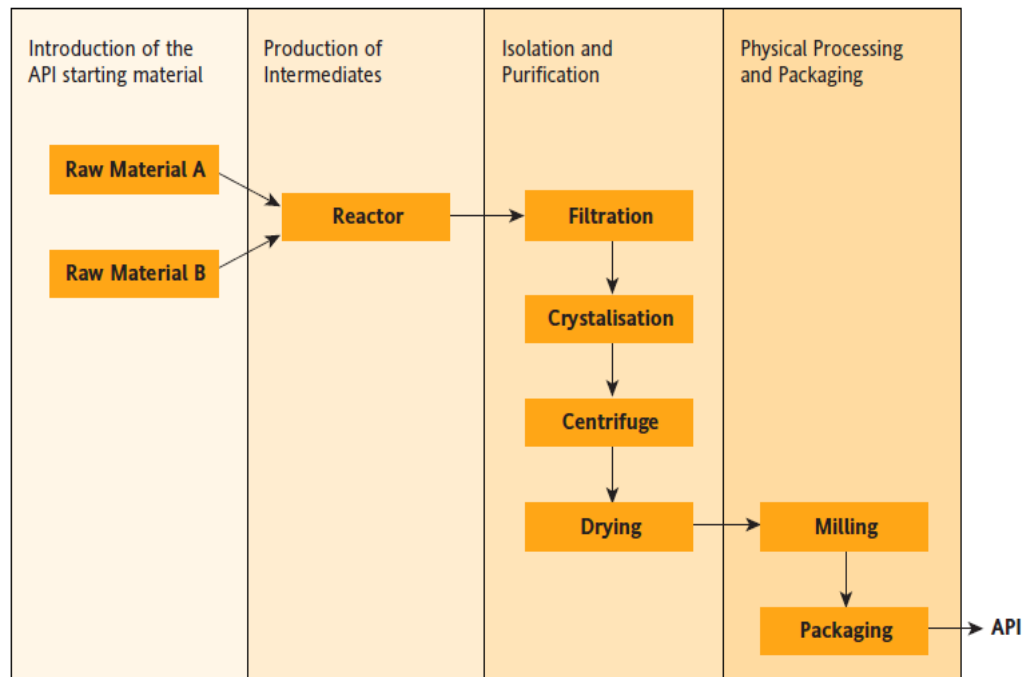
INDUSTRY TRENDS

- 1) EXPORT REVENUE** – Reckoned as an excessive quality common manufacturer across the globe, India is exporting 50% of its overall manufacturing of prescription drugs to about 200 countries in the world.
- 2) INCREASE IN R&D SPEND** - India's largest pharmaceutical companies are now working towards coming at par with their international peers by investing for the future. According to the display by Bloomberg, the top five drug makers of the country together spent a record of Rs 8025 cr in Research and Development in FY17
- 3) PATENT PUBLICATIONS** - Pharmaceutical corporations are gambling smart through making slight changes in their existing medicines to extend a patent existence span, which has successfully resulted in calls for the government to not recognize process methods for molecular patents.
- 4) EXTERNAL COLLABORATION WITH GLOBAL MNC'S** – There has been lot of successful collaboration of Indian pharma companies with MNC's. The collaborations have been beneficial for the development of Indian Economy as well as help patients as they now have access to affordable drugs around the world.
- 5) SIMPLIFIED APPROVAL PROCESS** – With steps that India has already taken to honour its WTO commitments mixed with the liberalisation and the relaxation of export-import coverage, overseas companies in search of to go into this area will revel in that maximum of the regulations that existed on problems like pricing and licensing have now been comfortable to

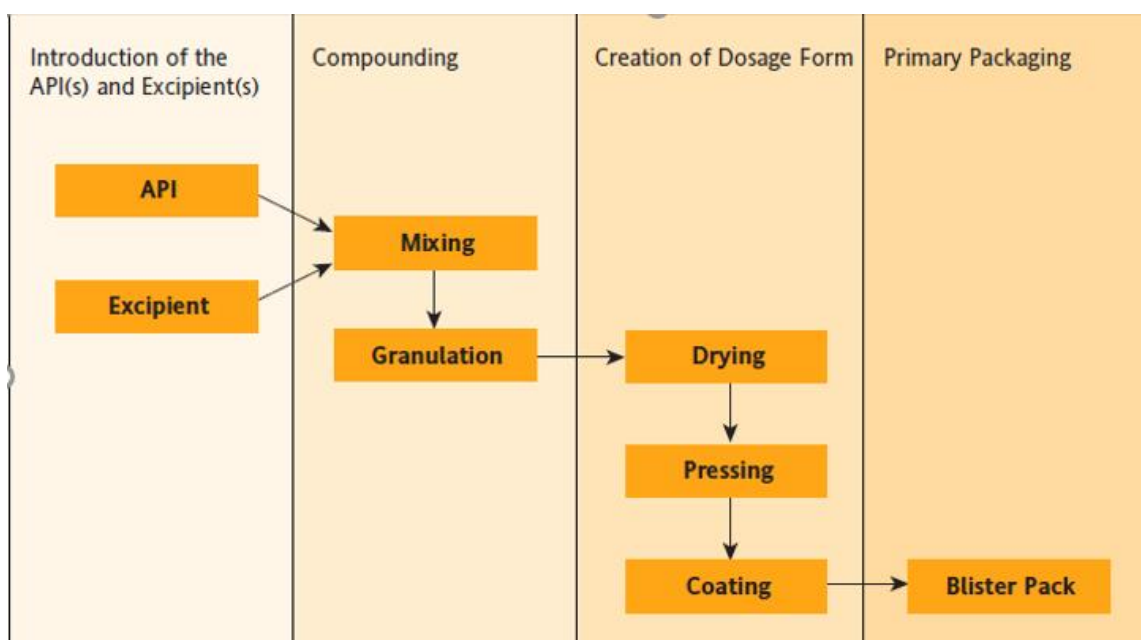
the extent that there may be now a level-gambling discipline for international and Indian companies.

PROCESSES

PRIMARY PROCESSING STAGE



SECONDARY PROCESSING STAGE



TECHNOLOGY TRENDS IN PHARMA MANUFACTURING

- **Process Analytical Technology (PAT)** – PAT enables and drives non-stop manufacturing. It was identified as the maximum crucial region of innovation in pharma production. 25% - 45% of pharma manufacturers use PAT and 25% - 33% plan to enforce it.
- **Batch VS. Continuous Manufacturing** – Traditionally, sterilization wishes have pushed batch manufacturing which has been the principle production technique for the beyond several a long time. Slowly, the enterprise is shifting toward extra continuous manufacturing which will boom productiveness. Forty% of stable-dosage producers use continuous manufacturing practices.
- **Manufacturing Execution System (MES) Adoption** - The pharma industry has seen the fastest growth in MES adoption amongst all manufacturers, which led to substitute of manual information collection with electronically accumulated and stored operations statistics.
- **Packaging, Labelling and Drug Serialization Innovations** - Proper tracking, tracing and labelling are a need to for evidence of authenticity and prevention of drug counterfeit

SWOT ANALYSIS

<p>Strengths</p> <ul style="list-style-type: none"> • Higher GDP growth leading to increased disposable income in the hands of public and their positive attitude towards spending on healthcare. • Low-cost, highly skilled set of English-speaking labour force and proven track record in design of high technology manufacturing devices. • Growing treatment naive patient population. • Low cost of innovation, manufacturing and operations. • Strong marketing and distribution network. • Successful add-on acquisitions are helping strengthen its position across the world. 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Stringent pricing regulations affecting the profitability of pharma companies • Poor transport and medical infrastructure. • Presence of more unorganized players versus the organized ones, resulting in an increasingly competitive environment, characterized by stiff price competition. • Drug price control order puts undue pressure on the product prices affecting the profitability of the company • Poor health insurance coverage. • Low quality drugs staining the image of the industry.
<p>Opportunities</p> <ul style="list-style-type: none"> • Global demand for generics rising. • Rapid OTC and generic market growth. • Huge Market for Lifestyle Drugs • Increased penetration in the non - metro markets. • Large demand for quality diagnostic services. • Opening of the health insurance sector and increase in per capita income - the growth drivers for the pharmaceutical industry. • India, a potentially preferred global outsourcing hub for pharmaceutical products due to low cost of skilled labour. 	<p>Threats</p> <ul style="list-style-type: none"> • Wage inflation. • Government expanding the umbrella of the Drugs Price Control Order (DPCO). • Other low-cost countries such as China and Israel affecting outsourcing demand for Indian pharmaceutical products • Entry of foreign players (well-equipped technology-based products) into the Indian market. • R&D restricted by lack of animal testing and outdated patient office. • Lack of investment in infrastructure.

ORGANIZATION	LUPIN	Gsk	PFIZER	CIPLA
STRENGTH	1. Worldwide leader in Cephalosporin and Anti TB drugs 2. In the US and Japanese market, it is the largest generic player	1. world's largest investor in R&D 2. Strong R&D focus and exploring new markets	1. Excellent research and development 2. Mergers and acquisitions 3. Strong brand name	1. positive brand image 2. Fixed-Dose combination 3. anti-infective and anti-asthmatic formulations
WEAKNESS	1. High dependence on global formulation business 2. Forecasting done on technological level is less 3. It operates in low growth segments	1. issue of safety of drugs 2. Patent expiry	1. Tough competition 2. Negative brand image (healthcare fraud)	1. Negative campaigns by AHF 2. Tough competition
OPPORTUNITY	1. Emerging technological trends in drug delivery	1. Increasing awareness 2. mergers and acquisitions	1. Strategic agreements with pharmaceutical companies 2. mergers and acquisitions	1. Alzheimer's disease medication. 2. Increased investment in the budding markets.
THREAT	1. Rigid opposition 2. Soaring cost of discovering novel products	1. Risk of unsuccessful new Products 2. Regulatory environment	1. unsuccessful new Products 2. Regulatory environment 3. Economic slowdown	1. Constant price rises 2. Rupee depreciation 3. Fluctuations in currency exchange rates

Opportunity Matrix

A
t
t
r
a
c
t
i
v
e
n
e
s
s

High

- OTC and generic drugs
- Diagnostic services
- Lifestyle Drugs
- Ayurvedic medicines

- High quality drugs at low prices
- Low cost innovation and manufacturing
- Successful mergers and acquisitions

Low

- Poor transport and medical infrastructure
- Stringent pricing regulations affecting the profitability of pharma companies

- Restrictions on Research and Development
- High quality practitioners at low cost

High

Low

SUCCESS PROBABILITY

Threat Matrix

S
E
R
I
O
U
S
N
E
S
S

High

Entry of foreign players in the Indian market
Wage inflation
Low cost countries like China affecting outsourcing demand for Indian pharmaceutical industry

- Low quality drugs
- Usage of expired drugs to the general public
- Unethical practices with the patients

Low

- Poor health insurance coverage
- Improper marketing and distribution network

- Minor pollution from drug manufacturing
- Minor default in branding and packaging of the outermost layer

High

Low

OCCURENCE PROBABILITY

PESTLE FRAMEWORK

The Pharmaceutical industry deals with the manufacturing of medicines, which are used for the treatment of infection and diseases across the world. This is the most important business sector, which needs special care, as the medicines are used to treat patients and bring them back to a normal healthy life. Thousands of people want to do business in this sector and a PESTEL analysis is necessary to understand the business and the continuous change in the environment to carry on the business process.

Political:

In order to control the manufacturing of medicines and drugs, the government of India has made certain rules and regulations which the companies need to abide. The Central Drugs Standard Control Organization of India supervise and implement the necessary regulations of drug control and they also regulate the operations of export and import of medicines and drugs, production and export of finished drugs, their sales and pricing. The government focuses on the political pressure on the pharmaceutical industry and want to make them safe for the use of patients. The provision of medicines and their effective use and availability to the patients are the primary concerns of the government. The government ensures the provision of all types of medicines to all the citizens, as the expensive medicines are not provided in the general hospitals for the treatment of the common people. As per the law, physicians are not allowed to recommend brand names.

Economic:

The economic situation in the country affects the pace and development of the pharmaceutical industry. The consistent increase in homecare shows that nursing services have shifted their workings to the private sector. Countries that use health insurance models to make part payments are affected by reduction in consumer disposable income. When the strategic buying groups look at the economic pressures, they force to cut down the prices of the medicines. Most of the less developed countries have stopped buying the expensive medicines, which has created a negative impact on the health conditions and average span of the people, which is decreasing drastically.

Social:

There are different social and cultural factors, which includes poverty, malnutrition, obesity and expansion of diabetes, are the growing concerns for the pharmaceutical industry. These unhygienic health conditions are affecting the eruption of the diseases like malaria, tuberculosis and other preventable diseases. The industry is also facing other issues like poor sanitation, drinking, smoking and poor oral hygiene create serious threats to the industry. People are now well informed about healthcare activities, they are concerned with different health issues, increase in the ageing population is creating various threats to the industry, and the industry needs to solve these issues before it becomes worse. They further need to focus on the research and development sector to find the proper solutions of their health concerns.

Technological:

Most of the pharmaceutical countries are using the advanced technologies in manufacturing of medicines and drugs. The use of IT technology in the preparation of the drug is becoming most important and they carry out different research and development work and it has helped the industry for improving the quality of medicines. The improvement in technology has created new business prospects and in the future new therapy systems and services will provide information for the healthcare products and it will help in customized treatments.

Environmental:

There has been a growing concern over the environmental issues and the companies are becoming aware about its impact and have been taking proactive steps. The companies have started different Corporate Social Responsibility programs and take the opportunity to product development, which can identify eco opportunities to promote these products and this business. The industry also has to follow the instructions and regulations of the government while spreading their business in the market.

Legal:

Most of the pharmaceutical industries look on the legal aspects of the industry and they follow the rules and regulations while carrying out their business. They have legal aid, which can help them curb the external challenges in the industry. The pharmaceutical companies are taking steps in generic drug production and they are introducing new health reforms in the industry. It is also necessary to meet the legal issues of the import and export of the drugs and has to pay taxes and other duties. The company also ensures proper use of the medicines and prevent the issue of highly sensitive medicines to unauthorized persons. In April 2017, Prime Minister Narendra Modi announced that the Government would establish a legal framework mandating doctors to prescribe medicines by their International Non-proprietary Name only since it is only with this measure that poor people would be able to access low cost medicines. The Government is simultaneously in a process of streamlining the medical device industry, which has seen a paradigm shift this year with notification of separate and distinct Medical Devices Rules, 2017. Currently, only 22 types of medical devices are regulated in India as “drugs” under Section 3(b) (IV) of the DCA and all other non-notified medical devices do not require any registration certificate or other regulatory approvals. With the MDR and the subsequent notification of medical devices, regulatory approvals would be required. CDSCO has already circulated a draft list of 462 medical devices and 250 in vitro diagnostics (IVDs) along with their risk classification to encourage importers, manufacturers, distributors, and supply chain personnel to voluntarily adhere with the safety, performance, and quality aspects.

PORTER'S FIVE FORCES

Porter's five forces is a model named after Michael E. Porter that takes into consideration five market forces that play out on any given company, or, industry. The five forces are- power of buyers; power of suppliers; threat of substitutes; threat of new entrants; and industry jockeying. This model examines these forces, thereby helping to determine a given company's strengths and weaknesses. Porter's five forces is also a way to view the potential risks to which any given company may be exposed.

Threat of new entrants:

- The Most effectively open ventures for a businessperson in India.
 - Capital necessity for the business is low; creating regional distribution network is simple.
 - Point of sales is limited in this industry in India.
 - Making brand mindfulness and franchisee among doctors is the key for long haul survival.
 - Quality controls by the government may put some obstacle for setting up new manufacturing operations.
 - Looming new patent routine will raise the barriers to entry. In addition, patent expiry is one reason, which is putting forth open doors for lower cost generic manufacturer as far as market access get to.
 - Furthermore, the administration has increased their emphasis on healthcare cost cutting. It is making weight on the authority to permit early introduction of low-cost drugs in the market. This represents a major opportunity for pharmaceutical organizations with approved facility and sound knowledge of regulatory issues. Consequently, every one of these components are responsible for the high threat from a new entrant.
- Taking into consideration all these entry barriers, **the Threat of New Entrants is low to moderate.**

Bargaining power of suppliers: The suppliers can influence the Industry to raise costs and affect the quality of the raw material.

- Pharma industry relies on a several organic compounds.
- Extremely aggressive and divided industry.
- Chemicals are largely a commodity
- Suppliers have very low bargaining power.
- Pharma industry can switch their suppliers without incurring a heavy cost.
- Supplier can go for forward integration to end up as a pharmaceutical company.

Overall, **bargaining power of Suppliers is low.**

Threat of substitutes:

- One of the most favorable circumstances of the pharma business. Whatever happens, demand for pharma products continues and the industry flourishes.
- Key reason behind high aggressiveness in the industry is that as an ongoing concern.

- Advances made in the field of biotechnology can turn out to be a danger to the synthetic pharmaceutical industry.
- The demand for generic drugs contrasted with branded drugs has expanded due to cost. Generic manufacturers do not incur about the staggering expense associated with research and development and regulatory activities, for example, FDA approval and clinical trials. These are the reasons they can offer their product at a much lower cost. This builds the danger of substitutes.

Threat of Substitutes is **moderate**.

Bargaining power of buyers:

- End client of the item is unique in relation to the influencer (read Doctor).
- Buyer must choose the option to purchase what doctor says.
- Purchasers are dispersed and they accordingly does not employ much power in the pricing of the items.
- Government with its arrangements, assume an essential job in managing costs through the NPPA (National Pharmaceutical Pricing Authority).
- Along these lines the, purchasers, for example, hospital and other healthcare organization have a choice to choose from a wide assortment. They largely pressurize the pharma organizations to keep costs of the medications low, as there are numerous organizations in market giving comparable items.

The bargaining power of buyers is **low to moderate**.

Rivalry among existing competitors:

- Most competitive industry in the nation with upwards of 10,000 unique players.
- Top player in the nation has just 6% piece of the pie and best five have 18%.
- High growth prospects.
- Expanding demand for high-quality medications
- Very low entry barriers.
- Fixed cost requirement is low and requirement for working capital is high.

The Intensity of Rivalry is high among the bigger players in the industry

VALUE CHAIN ANALYSIS

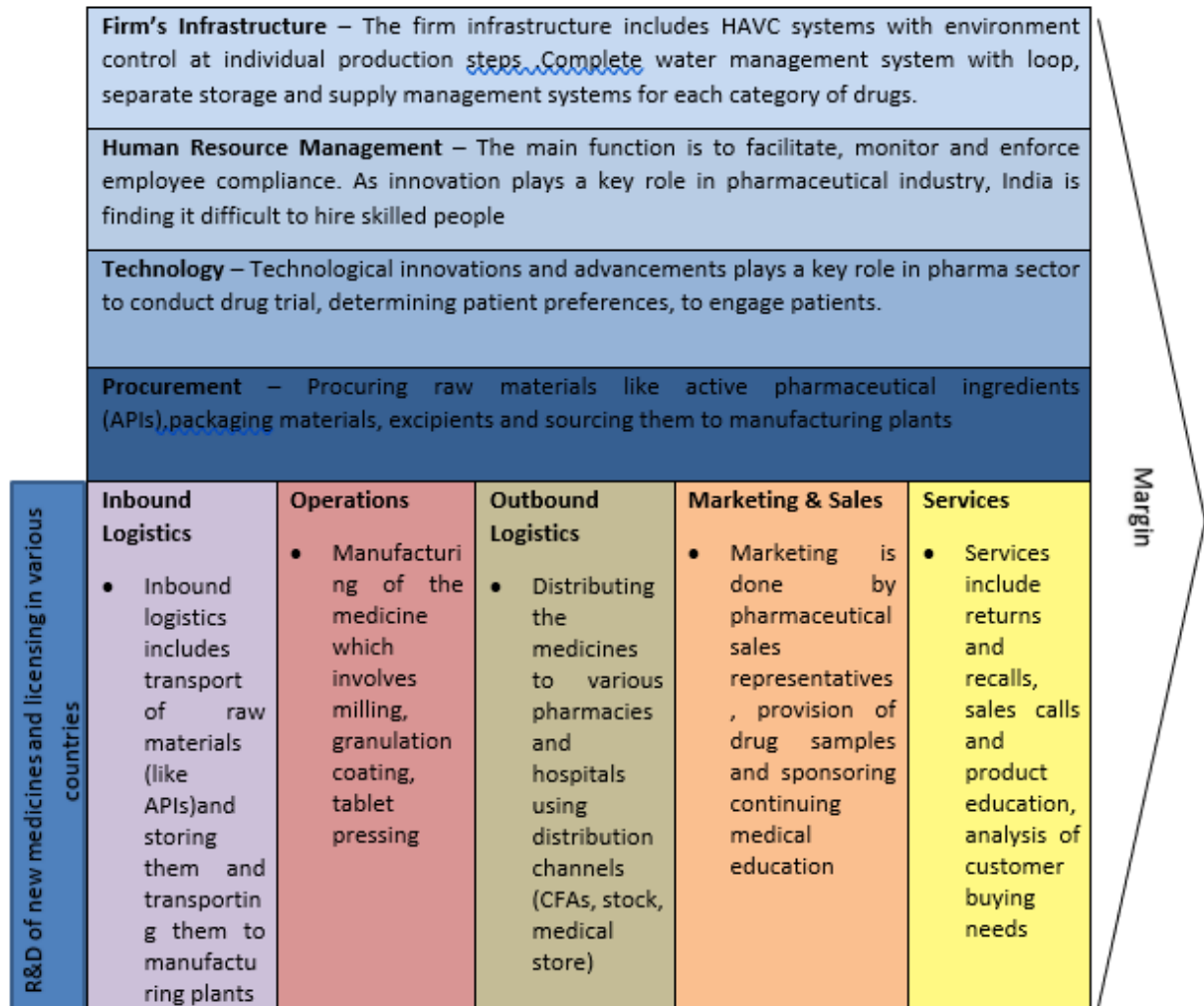
Value chain analysis helps a firm in understanding the parts of its operations that creates values and those that do not. Understanding these issues is important because it is possible for the firm to obtain above-average returns only when the value it creates is greater than the costs incurred to create the value.

Business's inbound logistics, operations, marketing and sales, outbound logistics, and services are considered as primary activities in value chain as they are involved in value creation in a direct manner. On the other hand, support activities in a value chain include firm infrastructure, human resource, technology development and procurement.

Consider the following figure to understand the value chain in the pharmaceutical industry:

Value Chain for Pharmaceutical Industry

Value Chain Analysis



Primary Activities:

Research and Development:

The pharmaceutical industry is highly R&D intensive. The initial stage of the value chain constitute the research and development of a new medicinal molecule for discovering a new drug. The drug development companies choose a molecule, such as a gene or protein, to target with a drug. Then the developed new drug is subjected to clinical trials and details of manufacturing process are submitted to regulatory agencies and after the approval of that drug, the manufacturing process starts. Pharmaceutical industries is one of those industries that spends the most on R&D and the companies dedicate approximately 17%-20% of their budget on R&D. The success of the drug depends on how effective their R&D centre is.

Inbound logistics:

Indian pharma companies get most of their APIs (Active pharmaceutical ingredients) from china- almost 80% of APIs are imported from china. The other raw materials include excipients. The quantity of raw materials (APIs and excipients) are decided based on the demand of the drug or the necessity of the drug in the market. Indian pharmaceutical companies has huge inventory of raw materials and often face challenges in storing them and sending them to manufacturing plants.

Operations:

The raw materials are moved to manufacturing plants and the drug manufacturing process starts. The manufacturing process involves steps like milling, granulation, coating and tablet pressing. In the pharma industry, the focus is not on the manufacturing of the drug but on the research and development of it because the manufacturing process of the drug is already decided in the R&D phase (for new drug), for the generic drug, the companies follow the already decided manufacturing process.

Outbound logistics:

From the manufacturing plants the drugs are sent to CFAs (Carrying and Forwarding Agencies), each company will have its own CFAs and these are responsible for maintaining storage of company's products and forward SKUs (Stock Keeping Units) to the stockists on request. Most companies keep 1-3 CFAs. On an average company may have 25-30 CFAs. From the CFAs the drugs are sent to stockists (they handle more than one company) and from the stockist drugs are sent to retailers, pharmacies, dispensing practioners through whom the drugs finally reaches the consumers.

Marketing:

Marketing in pharma industry is different, as they should not adopt traditional marketing practices. Marketing for drugs is generally done through pharmaceutical sales representatives, by providing free samples, and by sponsoring continuing medical education (CME). The sales representatives promote the company's products to doctors and pharmacists. Free samples are given to hospitals to promote their drugs and CME (seminars, presentations) are organised by various pharma companies to promote their drug.

Services:

Services in the pharmaceutical industry are of less importance. It includes product detailing to sales representatives, providing product studies and product meetings and the companies analyse the consumer buying needs and decide on the manufacturing aspect of the drug.

Secondary activities:**Procurement:**

Procurement and sourcing of raw materials plays a key role in pharmaceutical industry. Procurement accounts for about 50%-60% of total cost to pharmaceutical companies. APIs, intermediates and excipients are procured by companies according to the requirement. 80% of required APIs are imported from China to gain cost advantage. These should be managed properly otherwise, it results in supply chain interruptions and unexpected expenses.

Technology:

Pharmaceutical industry is trying to leverage technology to perform its operations very effectively. Pharmaceutical companies use technology to find new ways to engage patients, to collect patient data in real time and data services in R&D for clinical trial data. Cloud market as a tool for marketing and sales services for the company.

Human Resource:

With the increasing competition, pharma companies are finding ways to assess their current capabilities and finding ways to attract the best talent. Pharmaceutical industry comprises mostly of skilled and semi-skilled work force and the industry is finding it difficult to attract the best talent to gain the competitive advantage. Currently hiring the skilled work force is becoming a challenge for the pharma industry.

Firm Infrastructure:

The infrastructure includes dedicated HVAC systems with environment control (temperature and humidity) at individual production steps and auxiliary areas. Complete water management system with loop, separate storage and supply management system for each category of drugs. Well-established pharma companies have dedicated infrastructure and well-established systems for discarding chemical wastes.

KEY ISSUES IN THE INDUSTRY

1. Global financial system

One of the maximum stressful elements of the pharmaceutical industry is the kingdom of the global financial system. With markets, all around the international tormented by essential purge.

2. Specialist markets

Because of the modern way we apprehend a sickness, every new concept for remedy will become more specialized. It takes a number of attempts to sell those pills, each concerning manufacturing and advertising. It will take loads greater expertise for those expert drugs to grow to be an achievement within the market, which, again, will see an upward push in prices.

3. Digital marketing

Digital advertising is right here to live, however the pharma industry has yet to completely embody it. There is a clean purpose they cannot – it is complicated with all the guidelines and approvals.

4. Demanding patients

On one hand, clients are informed about their rights. Side outcomes and dosage problems can lead to highly priced complaints. On different hand, sufferers are applying loads extra strain on their medical doctors to give them the treatment they need. It is a complicated scenario, as both sides of the coin

can without difficulty turn to the alternative. Pharma corporations must have a strong protection in area for either results.

5. Regulations

Rules and rules are difficult for all industries; however, there is lots of strain on governments to have stricter controls on pharma. Not simplest that, of route, but to succeed in medicinal drug, you have to fulfill distinct markets. That means lots greater checking out, of all different kinds, to ensure that the ones guidelines are glad. Key areas of subject for pharma corporations are annual costs, drug approvals, and marketing and advertising.

STP ANALYSIS

Segmentation

Since on the surface, the pharmaceutical industry may appear to not be very advanced in strategic segmentation. After reading a lot of research articles and reports, of the players in the market, we could identify the underlying strategy- that the segmentation policy of the players in this industry has changed over time although the traditional form of segmentation is still prevalent, the newer ways to segment the industry have been increasingly identified, which is as follows:

Traditional Segmentation	Non-Traditional Segmentation
Demography- That is the most common way where segmentation is on the basis of Age Group, Gender and Income.	Patients Profiles – On the basis of Backgrounds, How severe illness, Demographics
Geography and Topography- This may be classified on the basis of- Rural, Suburban and Urban; Endemic and Non-Endemic	Physician Type - Those who are Specialists vs General Physic Hospitals vs Private, Economic Status of Patients
Behavioural- Based on preferences – Ayurvedic, Homeopathic and Allopathic.	Dosage- Injectables, Oral, Suppository
	Indications – Acute or Maintenance

Reasons for Segmentation:

There may be many reasons for segmentation some of which may relate to the fact that the doctors and patients differ in various respects and are not identical also their response and how they react to a particular drug also differs due to various reasons- like side effects, cost , past experiences.

Targeting

The pharmaceutical companies should for more efficient and agile targeting should examine their approach to localization. Taking advantage of the proliferation of data that is available, Pharmaceutical companies must effectively utilize their time and target specific groups. Such concepts highlight and represent the cutting edge of the pharma targeting. In an industry where every product has a defined shelf life, an expiry, every day counts for optimum profit making.

We were able to identify some target groups pharmaceutical companies tend to target popularly:

- Customer
- End-Users- Refers to those finally using the product
- Health Providers
- Customers who prefer the use of various flavors, Over The Counter products including - prescription products
- Healthcare professionals, pharmacists and patients

Market Targeting Strategy

- Undifferentiated Marketing- *This basically* Targets the whole market with one standard offering . For Eg- Its undertaken by all the over the counter drugs.
- Differentiated Marketing- This strategy mainly targets several different market segments and accordingly offers designs for each segment. For Example, Vicks giving a complimentary free pack of another good in North India during Winters.
- Concentrated marketing- This strategy includes targeting a niche segment and focusing on it specifically.

POSITIONING

Most important job of marketer as this is the first message that goes outside! It may be Based on product attributes, real and perceptual. Wrong positioning leads to wrong message and cascading effect all the way down to a flop! Thus, developing and understanding the key USP of a company is integral to developing a positioning strategy.



Cipla: They use latest technology to concentrate all their knowledge of over seven decades in developing lifesaving drugs

Sun Pharma: They are international specialty pharma company with strong presence in Indian & US generics market

Lupin: It is innovation led pharmaceutical company, which specializes in generic, API & branded formulations for developed & developing world.

GSK: We are science led global healthcare company

Pfizer: Pfizer is committed to applying science and global resources to improve health and well-being at every stage of life. They strive to provide access to safe, effective and affordable medicines and related health care services to the people who need them.

PRODUCT:

The foundation of a company is its product – indeed for this industry also the most important element is the drug. All drugs available are FDA demonstrated for a particular condition or ailment, and pharmaceutical organizations can just market an item for the affirmed indication(s). Because of the huge expense and time required to put up a medication for sale to the public, organizations must expand product life-cycle. Pharmaceutical items are those items which meet the restorative need of the client. A Pharmaceutical item is a medication, comprehensively, is any substance that, when ingested into the body of a living being, modifies typical substantial capacity. These items are dose structure containing at least one medications (prescriptions) alongside different substances included amid the assembling procedure.

Major Products:

- Over the Counters
- Prescription- It includes steroids, anti-allergic, anti-inflammatory, anti-asthma medicines etc.
- Fragrance- Related to manufactures food and beverage flavors as well.
- Active Pharmaceutical Ingredients
- Formulations both generic and branded
- Advanced Medicine Delivery Systems
- Biotechnology
- Inhaled Products
- various therapeutic sector specific drugs

PRICE:

Price-Price in the pharmaceutical industry is distinctly set. While in most other industries, the producers control the price keeping in mind the usual market constraints. However this is not true for the pharma industry, as here the companies tend to have a limited time to recoup the development costs and mostly the end user is not the ultimate payer for the product. Moreover the industry is also constrained by government regulations, managed care organizations and also generic pressure.

Prices of pharma products are regulatory controlled in India unlike America where medicine manufacturers are free to price their product. Many developing countries across the globe uses price, volume and cost-effective controls to mitigate any price increase in medicines. In India National Pharmaceutical Pricing Authority sets, the maximum price above the retail price of leading company. And it allows a 16% margin to retailers while fixing the ceiling price.

A steady pattern seen across the industry is their endeavor to keep up a sensible and reasonable valuing technique to meet the needs of the local people. They attempt to streamline the operational cost along these lines in order to help keep costs reasonable. The consumers are presently ending up exceptionally price sensitive. Differentiated product offerings have possessed the capacity to meet both high end and low end products.

PLACE:

Place- While the distribution system of getting a medication from point A (manufactured) to point B (pharmacy/end-user) has remained relatively the same over the years via the role of the wholesaler, community pharmacies and, more recently, mail order pharmacies, the flow of information to the ultimate end-user of prescription medications (i.e., the patient/consumer) has drastically changed. This has primarily happened because the scope of operation of these companies has expanded rapidly and transcended borders.

- Some companies have made humungous and elaborate terms of sale and trade policies. They tend to specify explicitly who can be a distributor, retailer or even a wholesaler– EG: Pfizer.
- Some companies have now come up to give special ease to the wholesalers and establish a better relation with them. Whereby the companies like Pfizer enable them to order products online through website that provides all information relating to its packaging, availability and even their invoices and delivery tracking facilities as a whole.
- To manage the supply chain that today has become global, companies have developed a Environment, Health and Safety(EHS) Supplier review program that reviews and assess the performance of their suppliers- Pfizer.
- strong distribution networks that It also emphasizes on large sales force teams.
- Entering into strategic alliances with the local players in foreign markets to capitalize on their strengths like strong distribution networks. Egg: Lupin partnership with Novartis, Eli Lilly and Merck Serono are some examples for this strategy.

PROMOTION

Promotion-A significant shift can be witnessed in the way of promotion of the Pharma industry as a whole, especially with the coming up of the non personal selling techniques.While the main focus still remains to reach the customer everywhere. These may tend to include e-learning, digital asset development through education, and also adoption of direct marketing techniques like- email marketing. However, the most important method of promotion in the industry remains promotion via sales representatives- persons going directly to doctors to tell how advantageous is the drug and do its promotion. Today however the target audience tends to use external sources of information about products thereby by passing the traditional direct rep system.

- The marketing of Pharma medicines involves dealing with Direct medical company representatives, arranging seminars and meetings with other doctors and professionals in the industry as a whole.
- Medical representatives advertise and explain the product and hand out free samples and other promotional materials.
- Sales representatives go to doctors and promote Lupin's medicines. As physicians are more important in prescribing medicines to patients most or all the marketing activities are targeted towards them. It promotes the brands to doctors and pharmacy stores. It gives good sales promotions to existing and new clients with customized propositions to each of those customers.
- The Tagline of companies represent their intentions and tends to attract people. Companies also invest in television advertisements and print media to spread awareness. The company- Lupin – has logo of a flower- the reason for this is the traits of the lupin flower like nourishing the land where it grows and Lupin's objectives are closely related to this phenomenon

- Due to intensive use of internet these days, people are directly buying medicines from online stores. This has given rise to direct consumer advertising in Pfizer. Advertising of OTC medicines like is done through newspaper, television and social media.
- Sun Pharma have also earned awareness through various sponsoring programs and hoardings etc. they also come up with attractive offers and schemes on meeting the described sales to its agents and distributors. Palliative Care Centre provides to cancer patients free-of-cost medication.
- Lupin collaborates with other players in the industry for co-promotional activities. Its agreement with Boehringer and Eli Lilly are some of the examples for this phenomenon.
- The biggest value addition and promotion is done through the accolades brought to company in several fields by widely recognised and reputed institutions around the world in several years.

OVERALL PROMOTIONAL STRATEGIES UNDERTAKEN BY INDIAN PHARMACEUTICAL COMPANIES

Generic

An essential client consist of stockiest or retail counter. In their promoting system there is no focus towards the Doctors or Patients. The low edge advertising help to sort, however the exchange is done in mass. The mass obtaining help to repay edges.

Branded

The major aim of pharmaceutical organisations is that its image gets recommended from specialists. Little fixation require for patients and merchants. An additional matter of concern is the scientific expert because they sometimes substitute the image of a pharma company with their comparable competitors. That is the purpose of substantial cost for items that are marked since they do not consider patient's viewpoint in it.

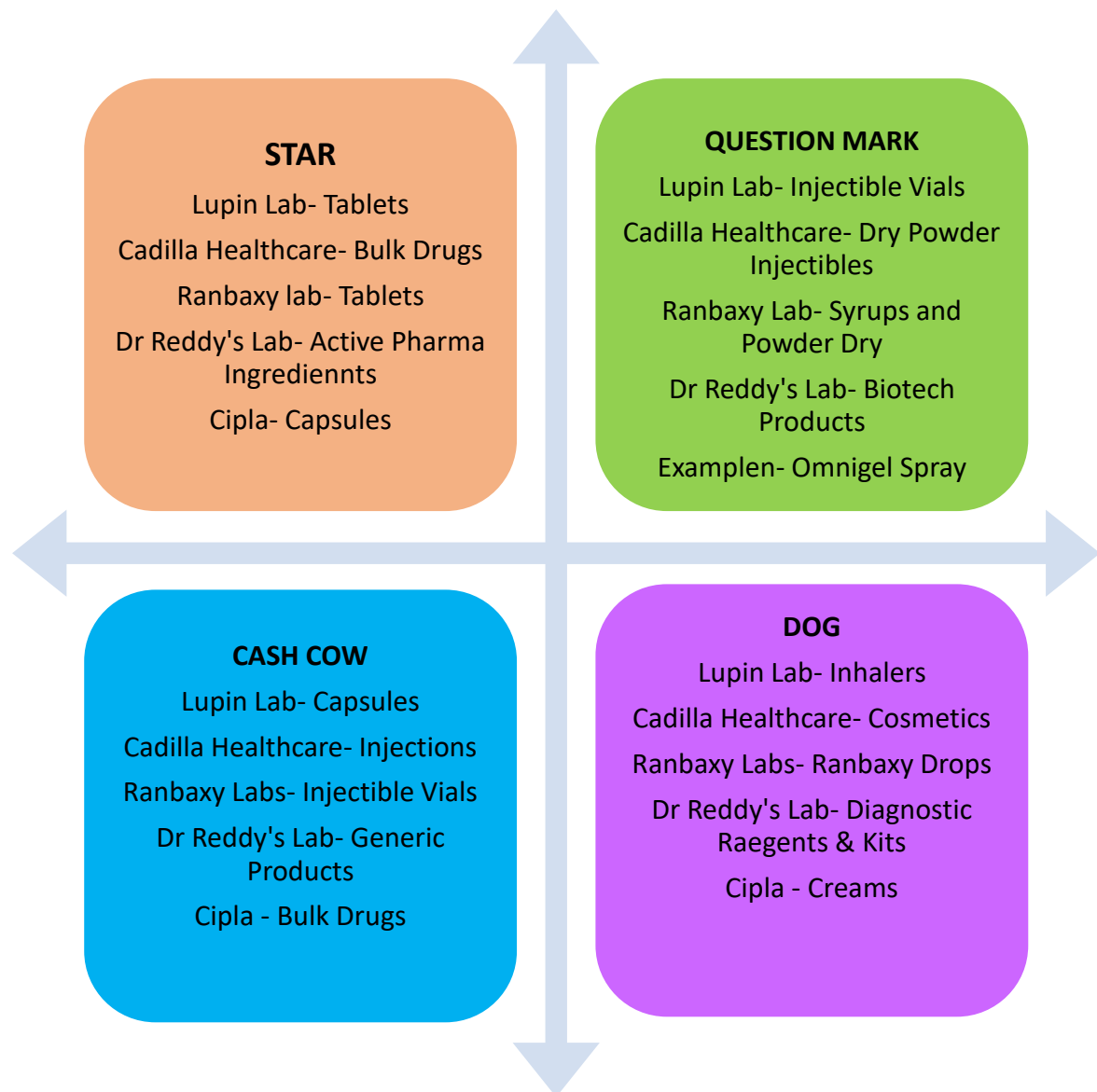
Franchise

In pcd showcasing, the prime focus of **Pharma Franchise** gatherings or merchants are on groups of onlookers. Organizations showcase system move around franchisee. PCD Pharma Franchies costs are dependent on generation cost of medication.

OTC System of Marketing

A lot of pharma companies undertake OTC or Over The Top Marketing. Even though all the pharmaceutical items can't be advanced by along these lines, yet beautifiers or torment or skin arrangements – basically be advanced as OTC Items by organizations.

BCG MATRIX



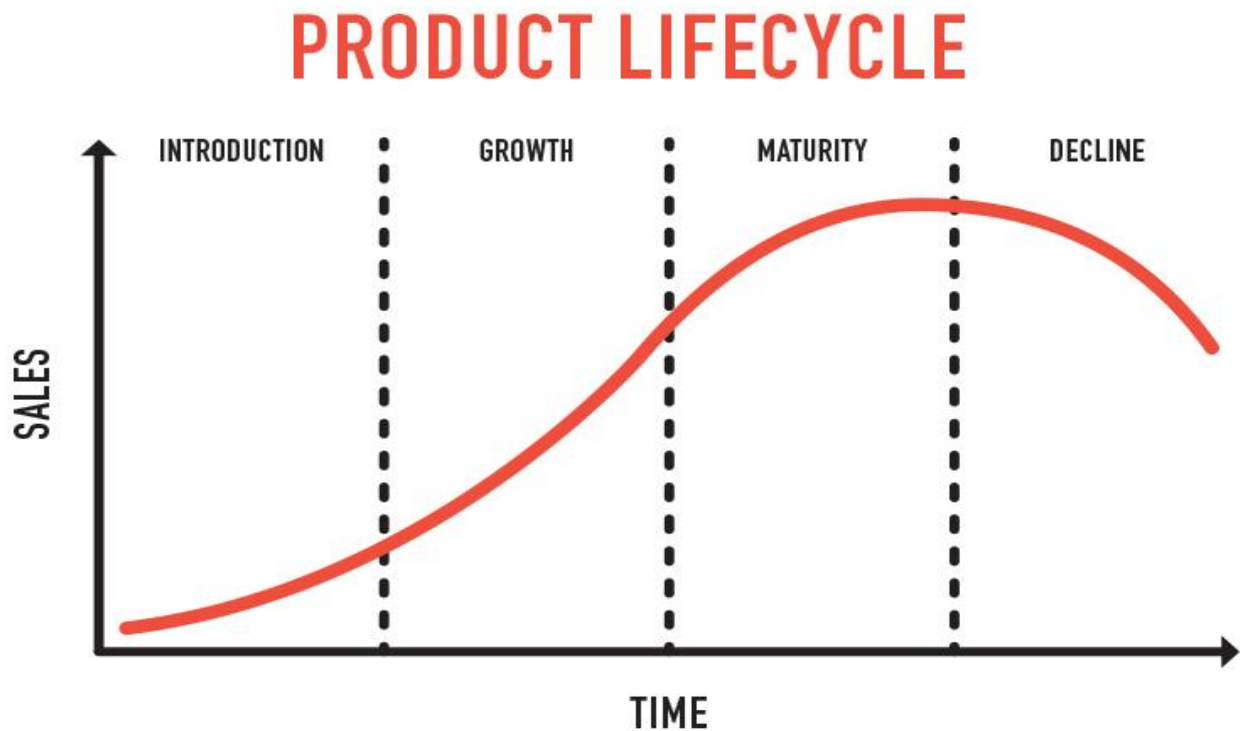
ANSOFF MATRIX

		PRODUCTS	
MARKET		EXISTING	NEW
	EXISTING	<p>Market Penetration: Existing Markets: Domestic Markets where the Indian industry supplies approximately about 50% of the global demand for vaccines especially, Overall catering to about 40% of the total generic drugs demand in the States while satisfying about 25% of all sorts of medical demands in the United Kingdom.</p> <p>Products: OTC, API, prescription, Biotechnology, various therapeutic sector specific drugs</p>	<p>Product Development: Existing Markets: Domestic Markets where the Indian industry supplies approximately about 50% of the global demand for vaccines especially, Overall catering to about 40% of the total generic drugs demand in the States while satisfying about 25% of all sorts of medical demands in the United Kingdom.</p> <p>New Products: Strong R&D department in most of the companies makes this as an ideal strategies whereby <i>New product is introduced in a current therapeutic class.</i> <i>Eg- Possible treatment of atherosclerosis</i></p>
	NEW	<p>Market Development: New Markets: Domestic (Rural Indian Markets), Brazil, Russia, China and South Korea i.e. BRICS</p> <p>Existing Products: OTC, API, prescription, Biotechnology, various therapeutic sector specific drugs</p>	<p>Diversification: New Markets: Domestic (Rural Indian Markets), Brazil, Russia, China and South Korea i.e. BRICS</p> <p>New Products: Innovative and significantly new to the world products introduced into a new segment, here say a therapeutic segment. <i>For example:</i> Health-Lifestyle Drugs, Inhaled Drugs, Dissolvable Drugs</p>

PRODUCT LIFE CYCLE

The complexity of today's pharmaceutical market requires more efficient drug development and production. Product Lifecycle Management (PLM) has the opportunity to make pharmaceutical production more effective and with lower risk – even in this vastly complex environment. The product lifecycle management creates and manages a company's product-related intellectual capital starting from an idea to its final retreat.

Improved patient compliance, revenue growth, expanded clinical benefits; cost advantages life extension exclusivity and quicker market launch are amongst the main applications of product lifecycle management.



To understand the PLC and its application in the Pharmaceutical Industry we attempted to define a Product Life Cycle for Aspirin.

Aspirin is a century old pharmaceutical drug, which was primarily used for emergency purposes. Earlier it was used as an anti-pyretic analgesic but lost its market share to PCM and due to certain side effects of Aspirin.

It was repositioned in the market with safer dosage forms such as Enteric coated tablets, Buffered Coated, dispersible tablets.

Brands like Dispirin, Microfin Aspro succeeded while lesser-known brands vanished from the markets.

1. Introduction

- In times of its inception during the mid-19th century, aspirin had low sales to start with due to unfamiliarity of the product. There was high cost per customer acquired. However, there was little competition during that time. High demand was created due to several ailments occurring due to lack of medication facilities and doctors initially were made to try the product to create product awareness and trial. Although there were considerable side effects, high stress was given on adoption by prospective customers and selective distribution channels were created.

2. Growth

In the early 19th century, Aspirin saw increasingly rapidly rising sales not only among doctors but also among customers because at that time doctors recommended aspirin as an ethical drug that can give many benefits like cure from headaches, fever and heartaches and the side effects were much lesser than other salicylate medicines. Average cost per customer reduced and profits grew by 150%. Competition started growing immensely and thereby product extensions and warranty was provided. Focus at that time was to build intensive distribution channel and build awareness and interest in the mass market.

3. Maturity

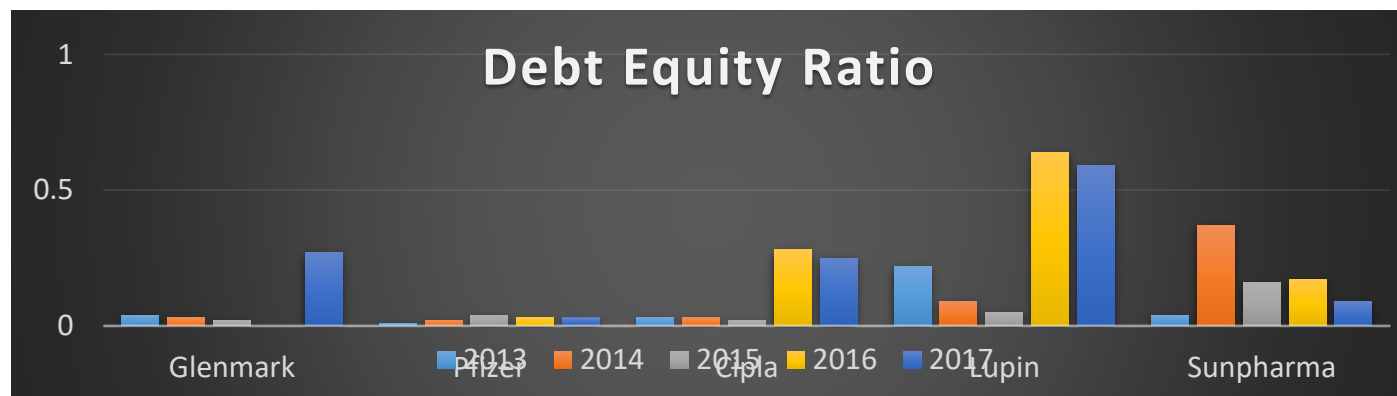
Sales were at the peak post world war 1 and cost per customer was extremely low during that time. Aspirin enjoyed high profits during that time as competition began to decline and that during two pandemics that occurred, aspirin gave a superior performance, which restored its brand Differentiation. Aspirin tried to diversify its brand by introducing several variants for different ailments and tried to build a brand image of safety and affordability.

4. Decline

However, post 1950s, sales started to decline because of paracetamol and ibuprofen, which were low cost and gave much faster relief to headaches and fever and no side effects were there. Aspirin then was used only for curing heart ailments. Profits declined drastically and many of the weak items were phased out. It was repositioned in the market with safer dosage forms such as Enteric coated tablets, Buffered Coats and dispersible tablets. However, still it is primarily used in hospitals in case of emergencies only.

CAPITAL STRUCTURE:

The industry as a whole, employs very less of debt in the capital structure to minimize the risk of repayment of principle and fixed interest charges. In addition, with more of equity the management control lies with the shareholders. However, with less of debt they are losing out on the tax benefits that arise out of interest payments.



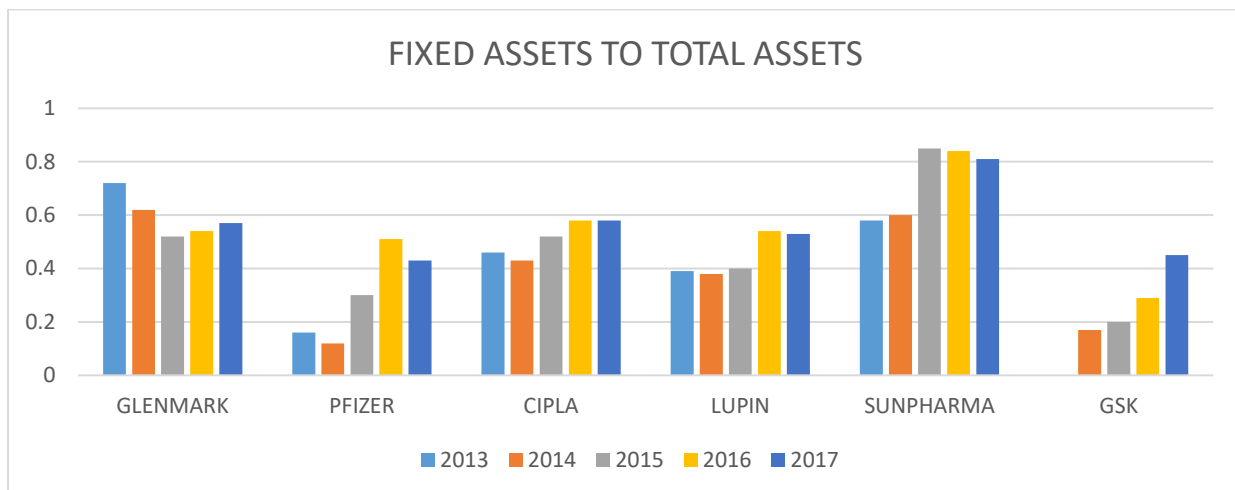
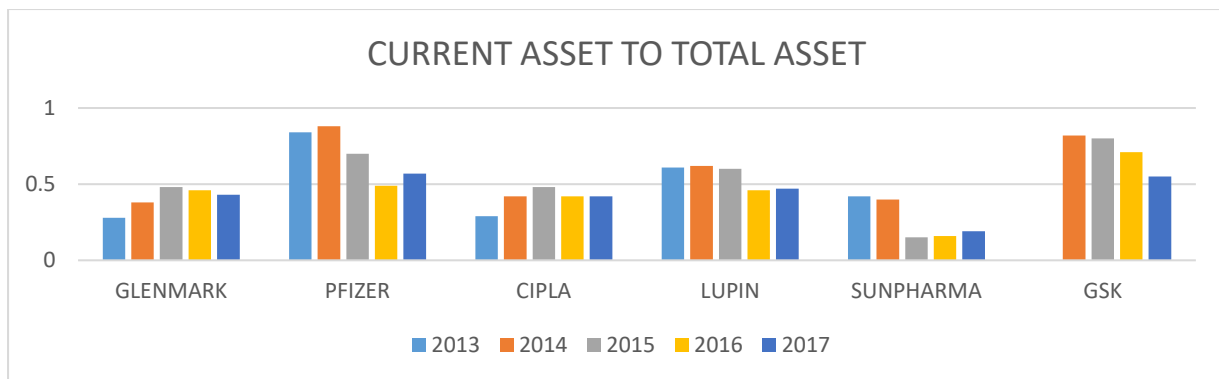
ASSET COMPOSITION:

Current Assets to Total Assets Ratio measures the proportion of company's assets held as liquid or near-to-liquid assets. A high ratio would signify a positive sign for the creditors as they would consider that company has a lot of funds invested in short term assets, which could be liquidated easily to pay off the dues. A low ratio would mean that the company has invested a lot of funds in fixed assets (thereby shown by a high fixed asset to total asset ratio) signalling that it is not liquid enough to pay short-term liabilities. Instead, it focuses on the long run and ensure ongoing success of the business.

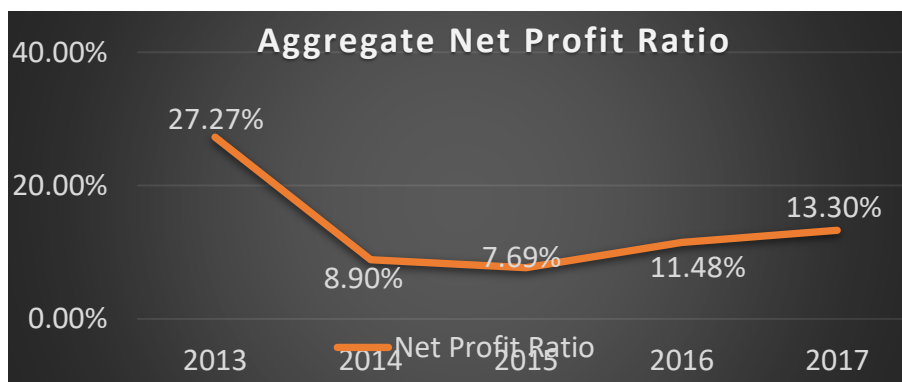
For Glenmark and Cipla the current asset to total asset ratio was low in the initial years but gradually it became moderate showing that the company has started investing more in current assets to finance its current liabilities (which is evident from the increasing current ratio as well). However, with this the proportion of fixed asset in the total asset of the company has come down. Thus, the firm is moving towards improving efficiency more in the short run than in the long run.

For Pfizer, Sunpharma and GSK, the current asset to total asset ratio has come down over the years signalling that they are investing less in current assets and more in fixed assets (shown by an increase in the fixed asset to total asset ratio) highlighting the motive of long-term growth of these companies. They are, however, compromising on the capability to pay of the short-term debts, especially in case of Sun pharma, which has a current asset to total assets ratio of 0.19, which is considered very low.

Cipla and Lupin have been maintaining a proper balance of the both ratios showing that they value both long-term growth and short obligations as equally important.



PROFITABILITY ASPECT:



- The trend shown in the industry is very flexible/ varying.
- The industry aggregate during 2013 shows a healthy percentage of 27.27% depicting that the industry as a whole was performing its business profitably.

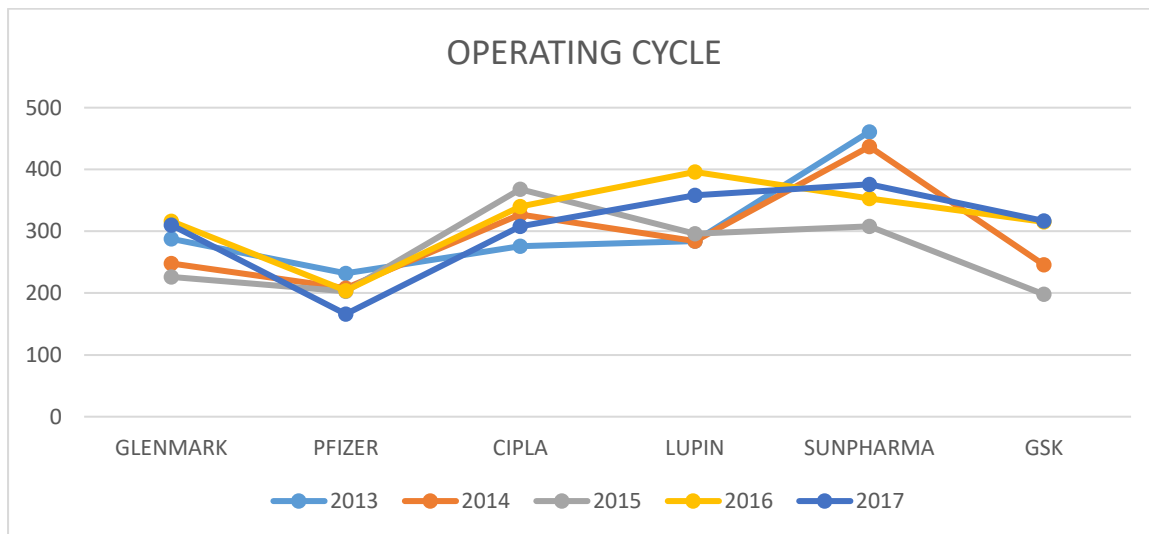
However, it dropped to 8.90%, 7.69% the following years showing that the profits in the industry came down. Thus, profitably in the industry decreased.

Thus, the industry as a whole is earning 13.3% on its sales, which is considered moderate considering the dynamics in the work environment. Overall, the industry has been profitable over the years and has the potential to attract investments, as the profits earned by the industry are sufficient to pay off the interest and dividend obligations.

Operating Cycle:

The operating cycle measures the amount of time required for cash flow of a company to be put into the operations field and then ultimately returned to the account of the company. Operating Cycle is

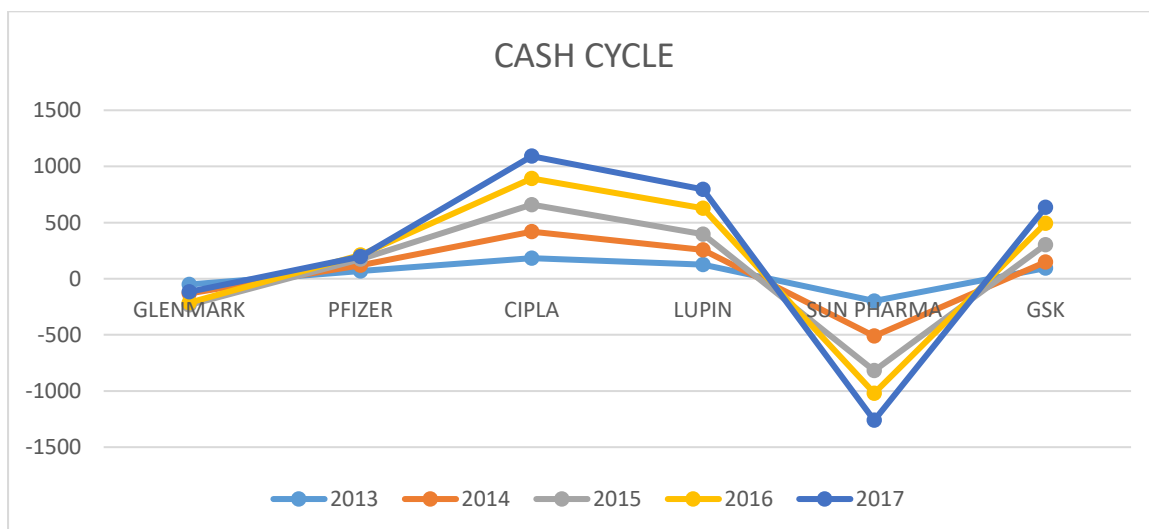
the sum of the days' sales in inventory and the average collection period. It shows how much time will it take the inventory to be converted to cash.



It is observed that all the companies in the industry have very high operating cycle being close a year in 2017 for each of the companies. This means that the companies have to wait for long periods get the inventory converted to cash. The inventory turnover ratio for all the companies have been between 1-3 which is very low showing that inventory is being converted to sales only between 1-3 times in a year. In addition, a low debtors' turnover ratio has led to a very high operating cycle for the companies over the years.

CASH CYCLE

Cash cycle is a metric that expresses the time (measured in days) it takes a company to convert its investments in inventory and other resources into cash flows from sales. This metric takes into account how much time the company needs to sell its inventory, how much time it takes to collect receivables, and how much time it has to pay its bills without incurring penalties. It has three components, days of inventory outstanding (DIO), days sales outstanding (DSO) and days payables outstanding (DPO) and is calculated as $DIO + DSO - DPO$.



When cash cycle is negative the implication is that the suppliers bargaining power is high. Companies like Cipla, Lupin and GSK have a very high value of Cash Cycle showing that they take a lot of time to convert their short-term investments into cash. Thus, these companies do not have an efficient cash management practice.

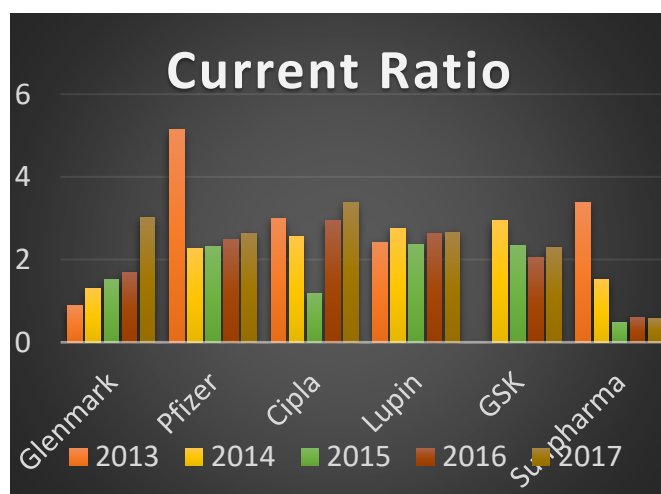
Sunpharma and Glenmark have the value as negative showing that these companies hold cash for long durations before paying off their creditors. Thus, it can be inferred that their creditors give them a very high credit period as against their debtors who are allowed shorter credit periods by the company. Because of a high creditor velocity, the net figure has become negative. However, Glenmark has the value to be positive in the last 2 years showing that it has been effectively managing its cash and has been paying off its creditors in due course of time. But care must be taken that this value does not go too high.

Pfizer has been the most efficient company in this regard. It maintains a very low cash cycle showing that it has been able to convert its investments into cash quite frequently.

SUSTAINABLE GROWTH RATE

The industry has a lot of growth potential in the upcoming years. The financials of all the companies justify the same. Most of the companies show a positive growth rate in 2017 showing that the earnings for shareholders will grow in 2018 thus increasing the shareholders wealth, which is one of the major goals of any company. However, for GSK the growth rate is negative showing that the company is paying out more dividends than what it earns in form of profits. Thus, it won't be able to capitalise on any growth opportunity in future. Similar is the case for Sun Pharma, which has a growth rate of 1%.

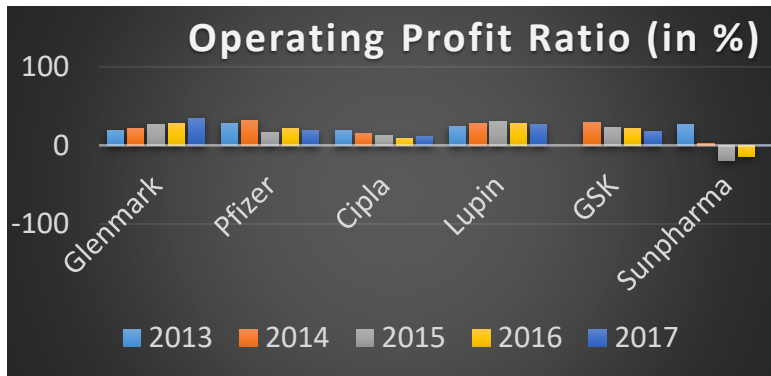
CURRENT RATIO



The current ratio of Glenmark is increasing over the years. Thus, the company has enough current assets to pay off its short-term liabilities and working capital requirements. Hence, the liquidity position of the company is under check good. On the other hand, Sun Pharma shows a declining trend in current ratio highlighting the urgent need for the company to procure investments in short term assets so that it is liquid enough to meet urgent working capital requirements. The other companies in the industry show a stable trend in

current ratio signifying that their current assets are sufficient to pay off their obligations.

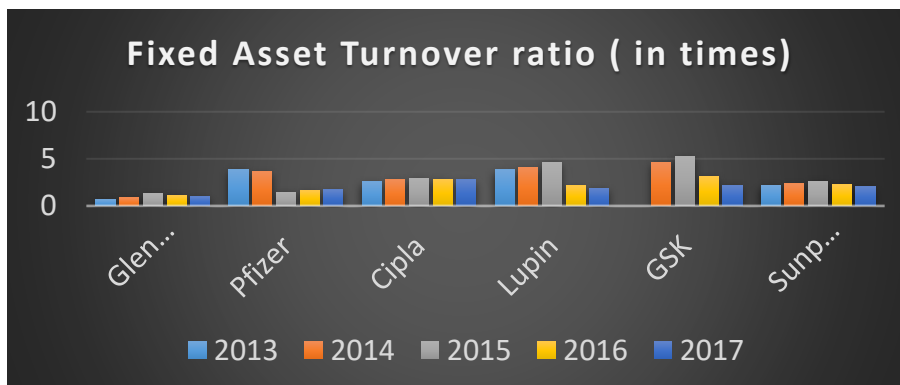
OPERATING PROFIT RATIO.:



The OPR of Glenmark is increasing over the years. Thus, the company is generating enough revenue to meet its operating expenses and thereby generating surplus in its operating activities. On the other hand, Sun Pharma faces a deficit/ loss arising out of its core operations. Overall, the industry maintains an

operating ratio of 15% to 30% on an average, which is considered moderate as the non-operating expenses are to be provided for, from this surplus.

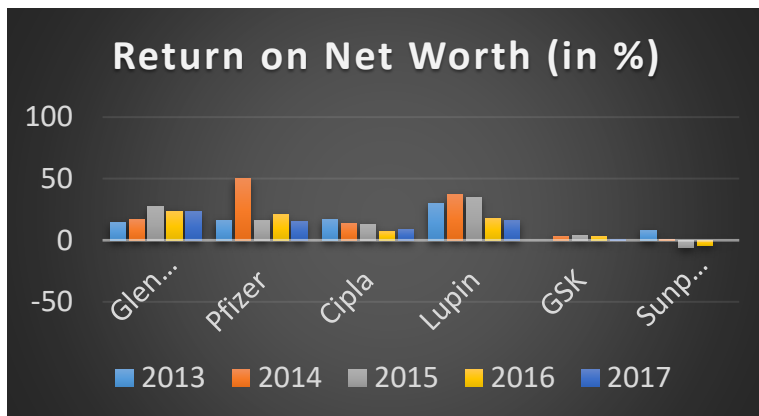
FIXED ASSETS TURNOVER RATIOS:



The industry initially shows a rising trend in Fixed Asset turnover ratio until 2015 but thereafter the ratio starts declining for most companies. This highlights the fact that the assets were not utilised to their full capacity in generating revenues for the companies. However, the revenue

situation can be seen for Pfizer where the fixed assets were being utilised much more efficiently post 2015

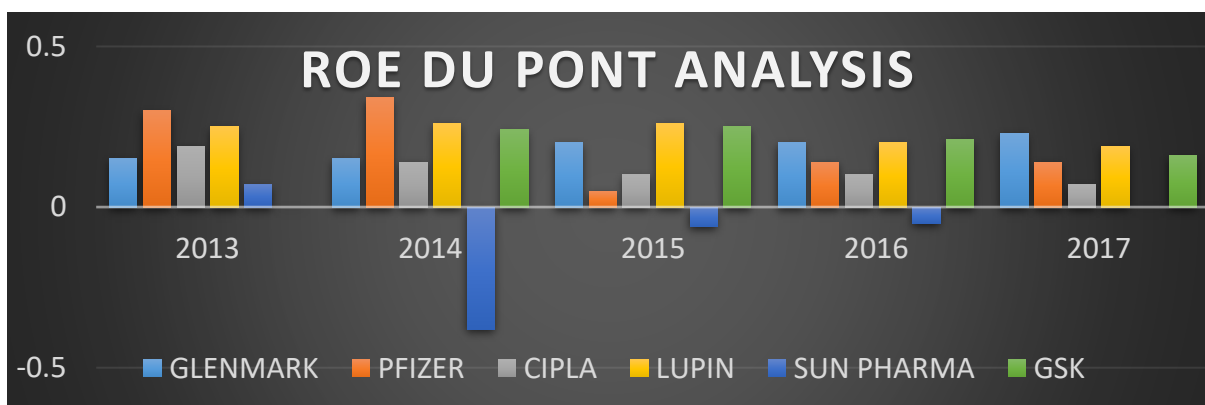
RETURN ON NETWORTH RATIO:



Return on Net worth for Glenmark, Pfizer, Lupin, GSK has fallen in 2017 as compared to the previous year's indicating that the surplus left after meeting all the expenses of the company, to be distributed among the investors is declining. This is a negative sign as investors would be reluctant to invest in such companies. For companies like Cipla the ratio has improved in

2017 showing that the surplus, available to be distributed among various investors is increasing which is a good sign for the company. For Sun Pharma the ratio went negative in 2015 and 2016 showing that the company made losses and was not able to pay dividends to its shareholders. But in 2017, it has come up to 0. If the company follows the same trend in future it might generate surplus profits to meet dividends payable.

DU PONT ANALYSIS



Glenmark shows a positive trend in ROE (return on equity) showing that shareholders are satisfied because of the increase in returns which they are getting. On the other hand, Pfizer, Cipla, GSK shows a fairly similar trend where in the returns have been falling over the years majorly because of declining profit margin. Lupin on the other hand experiences a stable trend till 2015 post, which returns have come down because of inefficient use of assets to generate revenue. Lastly Sun Pharma experienced negative returns in 2014 because of losses in the company. However, because of reduction in losses the ROE has been improving and might reach positive in the upcoming years.

COST STRUCTURE ANALYSIS

COST DRIVERS FOR MAJOR COST ELEMENTS

COST ELEMENTS	COST DRIVER
Raw materials consumed	No. of units of materials purchased
Packaging materials consumed	No. of goods to be transported
Employee benefit expenses	No. of employees
Power and Fuel	Amount of electricity consumed and Machine hours
Rent	No. of warehouses and stores
Excise Duty	Amount of goods manufactured/sold
Inspection cost	Hours of inspection or production runs
Repairs and Maintenance	Number of machine hours run
Research and Development	Number of tests conducted

Cost Centres	Cost Units
Medicines- Tablets, Syrup or Injection	Rupees per unit produced
Research and Development	Number of Experiments
Administrative	Number of Personnel
Plant Maintenance	Asset Value (Depreciation Value)
Housekeeping, Security	Floor Area
Technology	New Technology Innovations, New Technology bought

COST LEADER

The cost leader in the pharmaceutical industry from the year 2014 to 2017 is Glenmark incurring a total cost of Rs.56,667.63 million followed by Sun Pharma (Rs.1,17,317.10 million) followed by Cipla (Rs.1,35,599.90 million) followed by Lupin (Rs.1,54,940.30 million) followed by Pfizer (Rs.1,83,344.68 million) followed by GSK (Rs2,38,911.94 million). The major cost elements among all the companies are cost of materials consumed and employee benefit expenses.

COST AUDIT

Cost Accounting Records are to be maintained as per Cost Accounting Records (Pharmaceutical Industry) Rules, 2011

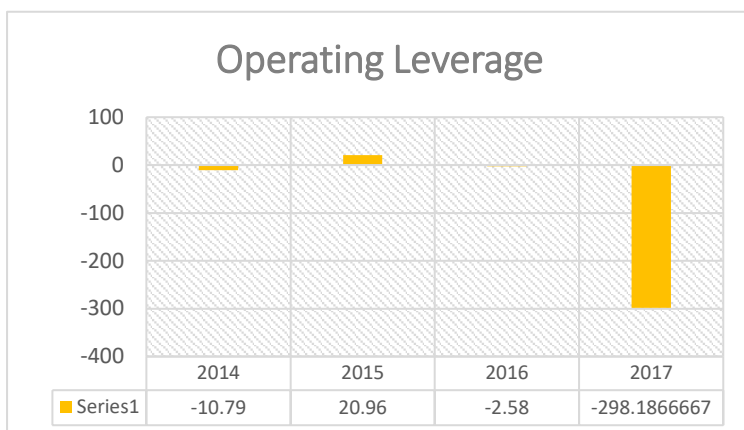
- Cost Accounting Standards issued by the Institute of Cost Accountants of India.
- Activities covered under Pharmaceutical Industry chapters 29 and 30 of Central Excise & Tariff Act, 1985 or production, processing, or manufacturing of bulk drugs or formulations and includes the meaning assigned to them under the Drugs (Prices Control) Order 1995.

FACTORS THAT MOVE THE COST DOWN

- **Technological Advancement** – New developments in technology and the introduction of artificial intelligence has helped companies to improve the overall quality as well as reduce the cost per unit of the products manufactured. This has further led to a reduction in labour and machine cost to a large extent. Even though the cost of purchasing new machinery and research and development are large initially, it helps the company to recover and gain advantage over a period of time.
- **Outsourcing** – A company may decrease the cost by outsourcing certain activities to a third party. This will help the company to reduce expenses in terms of wages, salaries. For example, packaging and transportation activities may be outsourced to a third party which will reduce the companies fixed assets, labour and packaging cost.
- **Alternate sources of raising funds** – A large amount of capital is required in the pharmaceutical industry. Therefore, it is important for a company to identify and compare different ways in which they can raise funds. This will help the company to reduce costs related to bank interests. Further, the company may undertake cost to volume analysis to understand or decide whether they should lease or purchase certain assets that are required in the production process.

FACTORS THAT MOVE THE COST UP

- **Research and Development** – There is a constant need to perform tests for all the drugs and medicines that the company manufactures. Thus, the company requires to incur a large amount of expenses for the continuous improvement in the quality of their products.
- **Increase in attrition rate** – When a company faces an increase in attrition rate, the overall cost for the company increases since they need to provide gratuity, retirement and provident fund amount to the employees. Further, training and hiring of new skilled employees also requires a large amount of expenditure.
- **Inflation** – Inflation results in an increase in cost to purchase raw materials and other equipment, which are required in the production process, which directly has an impact in the total cost of manufacturing a particular product. Further, this also leads to an increase in wages, salaries and other benefits that are required to be given to the employees.
- **Marketing and Advertisement expenses** – An increase in local and foreign competition has forced companies to increase their marketing campaigns (sales personnel) which has further led to an increase in advertisement expenses. Further, in order to get a competitive advantage companies in the pharmaceutical industry has started providing additional profit margins to distributors and retailers.



OPERATING LEVERAGE refers to the degree to which a firm tends to increase operating income by increasing revenue. It measures the company's fixed cost as a percentage of total cost.

To gain a perspective regarding the operating leverage of Pharmaceutical industry on a whole,

the major Pharmaceutical companies in India were evaluated by using the formula – **Change in Earnings before Interest and Tax/ Change in Revenue**. The graph above represents the **Average Operating Leverage** of 6 major Indian Pharmaceutical companies from the **financial year 2014 to 2017**. The three negative figures in the graph points to the fact that the industry as a whole was operating at a level lower than the breakeven level. It is just the result of negative EBIT. It is imperative to mention that the average is negative due to the consistent and major **losses** incurred by **Sun Pharma**. Due to which, the EBIT for majority of the years were negative resulting in negative operating leverage. The aggregate negative operating leverage of the industry means that fixed cost has a greater portion in the total cost structure of the company and there is decline in sales. Such a situation has a negative effect on the revenue of the firm resulting in a greater percentage decrease in net operating income.

COMPETITION PROFILE

Top 10 pharmaceutical companies

Company	Employees	Assets(in millions)
Sun pharmaceuticals	52700	337482.3
Lupin	15000	266072.8
Dr.Reddy's labs	23524	164472
Cipla	22036	209502
Aurobindo pharma	16000	130229.2
Cadila	13180	110474
Glaxo smith kline	3500	30211.52
Glenmark pharmaceuticals	13000	140005.46
Divi's laboratories	10000	62100.8
Torrent pharmaceuticals	8600	80509.1

Competition trends

How pricing is done in pharmaceutical industries?

- 1) Understand the market and try to estimate the number of patients and how long the patients will have to take that drug and how much people are willing to pay for the drug
- 2) When the drugs have many close substitutes, the price of the drugs in that class are set to the lowest price in that class
- 3) When the drugs have few close substitutes, prices are set based on the international price comparisons of the equivalent drugs
- 4) If the drugs fall under the category of vital and essential drugs their prices are strictly regulated.

Rates and Taxes

Before GST

Excise Duty	6% of 65% of MRP
VAT	5%

After GST

Most of the medicines	5% of 12% cap
Human blood and all contraceptives	Exempted
Nicotine Polacrilex gum products	18%(highest)

- Before GST was introduced, the excise duty was 6% of 65% of the MRP and vat was 5% but on few medicines such as ORS, insulin and vaccines excise duty was 5%.
- After GST, most of the medicines are under 5% or 12% cap. Human blood and its components and all contraceptives are exempted from GST. 18% GST (highest) is levied on pharmaceutical products made from Nicotine polacrilex gum.

If we compare the rate the maximum applicable GST is 12% which is earlier 9.5%.It is hiked by 2.5% which created more burden on patients

Effect on consumer:

As the prices of the medicines which are earlier under 9.5 % tax increased to 12% ,the consumer need to pay the increased tax rate if pharmaceutical companies maintains same profit margins and the consumer is the ultimate tax payer.

With more and more competitive domestic marketplace, pharma businesses in India are being faced with the challenge of getting to work hard for their revenue boom. The evolving marketplace dynamics the conventional income shape, techniques and abilities are not sufficient to be successful today. Firms are beginning to explore approaches to assess their current capabilities, perceive and prioritise gaps, and invest in ways in the prioritised areas through a mixture of talent control and allowing gear and strategies. Developing these skills will require people with advanced abilities, sturdy and well-defined approaches, and permitting tools and strategies.

Functions of HR Management

Maintaining compliance in the loop:

As part of the building up the compliance method HR Management must recognize the company's non-retaliation pledge for personnel, who bring about accurate religion lawsuits and apprehend what retaliation may appear to be. Although SOPs are installed for this technique, strengthening the connection between HR and Compliance through education and verbal exchange are beneficial in building awareness and an effective method.

Standardize employee job descriptions:

It is important for HR management to maintain job descriptions of employees. Standardized job descriptions facilitate the improvement of a compliance-training curriculum.

The principal function of HR management is to assist make sure that disciplinary movements are truthful and equitable throughout the agency.

Incorporate a collaborative monitoring and reporting process:

HR Management need to expand a monitoring and reporting procedure for investigations and disciplinary moves, and incorporate method metrics into evaluations for the business enterprise's board members

Work force in pharmaceutical industry

About 31 % of all jobs within the pharma and medication manufacturing firms are in professional and related occupations, in general scientists and science technicians. About 27 % of jobs are in manufacturing occupations, consisting of each low professional and excessive professional jobs. The rest of the jobs are in general management, and workplace and administrative assist occupations. India has a greater benefit that favours the FDI rules, manufacturing growth and exertions team of workers however, the professional personnels in pharma lack adequate job roles, work incentives, schooling, resources and other help features.

Occupation	Percentage
Skilled workforce	49.3%
Semi-skilled workforce	13.2%
Unskilled workforce	37.5%

Training Requirements

The personnels of pharma should go through a training with a view to meet the challenges of pharma enterprise. Training allows the pharmaceutical industry to satisfy the compliance, consumer safety, quality of the product and their improvement. But many of the pharmaceutical industries did not discover the importance and necessity of good training programs for his or her employees, which lead to lack of development inside the ability levels of personnel as well as final manufactured from the enterprise as in compliance with the numerous policies to be followed. Pharmaceutical businesses are particularly uncovered to vital situations. Manufacturing of drugs and managing of different issues sometimes ends in severe consequences. However, coping up with and overcoming this kind of required specialization in managing crucial issues. Critical management competencies can be superior and brought into exercise through maximum degree of training.

Regulatory affairs:

Regulation entails big assessment of a particular drug product to make sure safety of public fitness, promoting of the product, Drug registration, marketing authorization, import and distribution. **Regulatory Affairs is a unique mixture of technology and management to gain a commercially crucial goal inside a drug-improvement agency.** Regulatory Affairs looks after Development plan, supervising-writing / reviewing and assembling and submission control.

Is there talent shortage in Pharmaceutical industry?

India has a large panel of scientists and engineers who have the functionality to take the enterprise to a higher level; the lack of the talent pool is still a worrisome reality of today. Resources hired have been mainly at two levels – graduates at entry level from pharma background and specialists at mid-level from the existing industry pool. But this scenario is changing now. With the increasing demand of skilled resources, companies now need to look beyond just poaching talent from competition, to expanding their search across sectors and geographies. It is estimated that around 2.5 million skilled people will be required by 2022 in pharmaceutical industry

HR challenges in pharmaceutical industry:

Attrition:

Many HR managers anticipate that the most effective reason a person might depart an employer is for money, within the pharmaceutical area, where the primary cause ought to were 'motivation'. Thus, each time a key person desires to go away, firm's response is to match, or better the role or responsibility without decreasing the value they deliver. So a HR manager should understand lack of proper incentives cannot be the only reason for increasing attrition rate

Attracting the best talent:

It is one of the predominant demanding situations for a HR supervisor. The managers has moved faraway from paying the pleasant pay programs, praise systems that may be tailored to the needs of each critical worker within an organisation. Most of the developing organizations, which include industry leaders, offer their maximum proficient employees a stake in the business through percentage alternatives. If the worker is a beginner it is critical to ensure that the candidate is hired for a branch, he has a bent in the direction of; then only they will be in a role to supply the desired effects. The three techniques which are generally used for attracting the top talent in pharmaceutical industry are – Talent pipelining, market knowledge and candidate experience

Aging work force:

Aging workforce is one of the challenges for a manager because of reasons like their reluctance to adjust to the latest technology, they are perceived to lack of energy and ambition when compared to younger employees, more absenteeism but they can be managed and their expertise and skill set can be a huge advantage to the company.

Creating proper work environment:

The work environment of an employer depends on the subculture of the unique organization, which varies from one organisation to the other. It is determined that maximum of the brand new recruits generally tend to compare the tradition of the contemporary business enterprise with that of their previous one. As no two groups can be, the same there may be always a distinction and this comparison forces humans to get into a shell and no longer produce the favoured consequences, or on occasion even consider an activity change. So it is the obligation of a HR manager to manage the range and make sure employees are able to supply their best in their jobs.

The organizational environment is based upon on the manner of life of the best organization, which varies from one employer to the alternative. It is observed that most of the contemporary recruiters have a tendency to have a look at the modern-day business enterprise with that in their previous one. As no two corporations may be the identical, there can be constantly a distinction and this comparison forces humans to get into a shell and not produce the preferred results, or now and again even reflect on consideration on a venture change. So it is the duty of a HR manager to control the diversity and make sure personnel are capable of give their nice of their jobs.

PRODUCTION / OPERATIONAL / PROCESS ANALYSIS

- **Using IT as enabler**

The use of IT technology in the preparation of the drug is becoming most important and they carry out different research and development work and it has helped the industry for improving the quality of medicines.

- **Technology driven or not**

Most of the pharmaceutical countries are using the advanced technologies in manufacturing of medicines and drugs. The improvement in technology has created new business prospects and in the future new therapy systems and services will provide information for the healthcare products and it will also help in customized treatments.

- **Production capacity, Location, Layout**

Factors to consider while selecting location:

- Availability of raw materials
- Nearness to the market
- Constant Power supply
- Supply of Labour
- Transportation Networks
- Communication
- Water supply
- Suitability of land and climate
- Integration with other group of companies
- Availability of housing, other amenities and services
- Local building and planning regulation
- Environmental impact, waste disposal and Safety requirements

SUPPLY CHAIN ANALYSIS

A one of a kind element of the pharmaceutical business is that it works two very distinctive sorts of supply chains consistently. One supply chain underpins the medication advancement stage and the other one to distribute a successful drug in the market. Clearly, the targets and requirements dynamic in these two stages are very diverse requiring altogether different sorts of inventory network abilities. While one Supply chain is centered around encouraging a quick completion of the clinical trials to get a quick approval, the goal of the other supply chain is to meet sales targets. Accordingly the drivers rousing the supply chain configuration are speed and high accessibility separately. Vital contemplations in the two cases incorporate safe custody and special handling requirements. A basic investigation will, in any case,

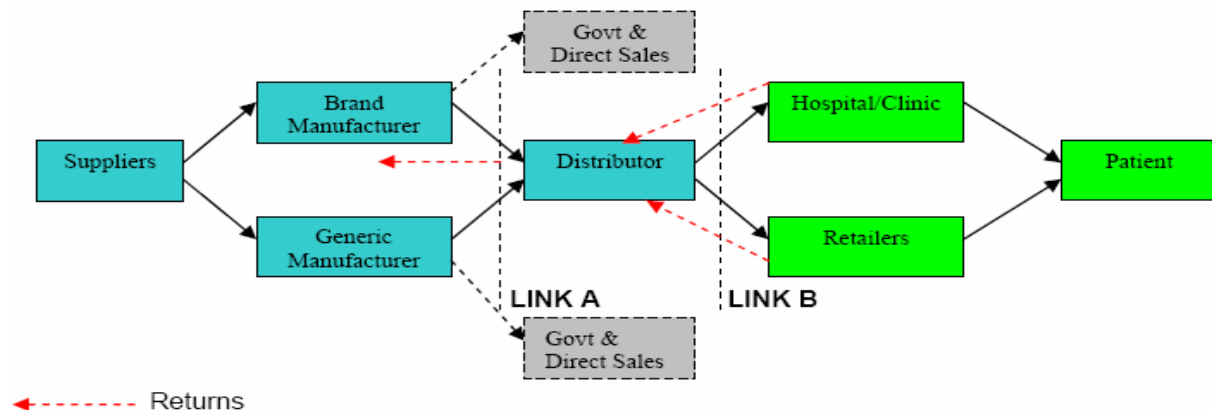
uncover that, when all is said in done, the pharmaceutical business lays little accentuation on its inventory network operational productivity.

The Trial Supply Chain

The complexities in this stage emerge because of the trouble in determining the requirements of a preliminary medication at numerous small sites. Besides, it is hard to know ahead of time if a site will be a substantial or a light patient enroller. Since the preliminary drugs are created in little groups, coordinating interest and supply is essential to guarantee accessibility as per persistent requirements, which change at a short notice. Given the laser like focal point of the preliminary medication approval, supply chain responsiveness is critical; buffering uncertainty with inventory is certainly not a suitable alternative because of shelf life limitations and cost concerns. In this way, the way to accomplishment in this stage is agility and readiness to respond to any contingency.

The Pharmaceutical Supply Chain

After a drug is launched, a completely different set of objectives, drivers, and constraints become dominant. Now, the focus shifts from agility to high availability. Consequently, there is a dramatic shift in the models and techniques employed to support this phase of drug life cycle. A typical pharmaceutical supply chain after a drug launch is depicted in Figure.



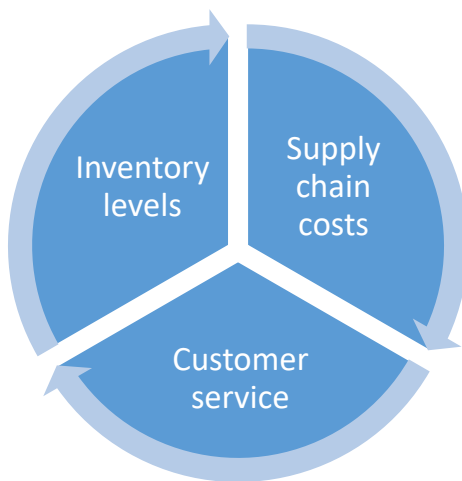
The Pharmaceutical Supply Chain

In this phase, the complexity of the pharmaceutical supply chain results from the involvement of multiple large independent organizations of very diverse nature. The key stakeholders in this supply chain include multiple government agencies, hospitals, clinics, drug manufacturers, drug distributors, pharmacy chains, retailers, research organizations, and the FDA. To compound matters further, the same supply chain is responsible for the distribution of prescription drugs, over-the-counter (OTC) medicines, generics, as well as biologics having different handling needs and operational objectives. Indeed, there are numerous other organizations, such as insurance companies, healthcare management organizations, and GPOs (not included in Figure), that further increase the complexity. Due to very different business objectives, these organizations make the task of managing supply chain all the more difficult. Furthermore, due to the regulatory nature of the industry and numerous merger and acquisitions to acquire more R&D expertise, many pharmaceutical supply networks have grown in an uncontrolled fashion rather than being planned for optimal performance.

SUPPLY CHAIN DRIVERS –

- **Pace, cost, and risk of innovation** - Increased pressure to bring products and services to the market has led to a push toward “patient-centric” and personalized care models.

- **Impact of globalization** - Competition is global and emerging markets all over the world are disrupting the industry. Meanwhile, adhering to government regulations around taxation, trade, approvals, market access, and pricing continues to be a struggle.
- **Changing definitions of value and price** - Increasing pressure to lower drug prices and non-traditional ways of serving patients, such as education, support, and self-administration, means pricing is more value-based. Gartner recommends that CIOs strengthen their analytics to evaluate data, predict revenue and services, and make comparisons on a national level.
- **Shifting health policy, legislation, reforms, and regulations** - Government policy, funding level, law, and regulation are constantly changing around the globe, and these continue to affect how life sciences organizations operate.
- **Reshaping value propositions across the healthcare ecosystem** - “Competition” will become more common between organizations as they develop new business models and create winning business strategies.
- **Rise in consumer accountability and power** - Patients will control most of the power due to the growing impact of omni-channel communication between consumers and organizations.



Inventory levels

- India has a multitiered distribution network through clearing and forwarding agents and stockists.
- Companies usually maintain higher stock levels than other industries because of long manufacturing lead times and regulatory requirements.
- The average inventory level of the industry is 231 days which is 114 days higher than the global best-in-class, reinforcing the clear need for better planning and inventory management.

Supply chain costs

- Specialised cold chain requirements for vaccines and other complex formulation significantly increase supply chain cost.
- The industry average stands at 25 per cent of costs of goods sold compared to 10 per cent of the global best-in-class, indicating suboptimal routes, high transportation costs, and issues with storage, specifically for high-risk and conditioned products.
- Manufacturing conversion costs account for nearly 75 per cent of total supply chain cost, with distribution responsible for the remainder

Customer service

- Customer service includes making sure that the products are available across the entire supply chain and maintaining product quality.

- The average customer service level of the industry level stands at 88.3 per cent, which is 11.2 points lower than the global best-in-class pharma companies indicating headroom for integrating the supply chain over the medium to long term.

MERGERS & ACQUISITIONS, GLOBAL SCENARIO

MERGERS & ACQUISITIONS:

- › Over the last few years, besides domestic acquisition, several Indian pharmaceutical companies have targeted the developed markets in their pursuit of growth. The industry has also been witnessing intense inbound interest with several MNCs actively scouting for buy-outs and strategic tie-up opportunities in this sector.
- › Major Mergers and Acquisitions
 - 1) **Merger Between Ranbaxy and Sunpharma** – Due to this collaboration, there is emergence of one of the biggest pharmaceutical companies in India. It valued at US\$ 4 billion and is known to be one of the biggest Merger and Acquisition.
 - 2) **Acquisition of Primal Healthcare by Abbott** – This acquisition was completed at a consideration of \$3.72 billion (Rs 17,500 crore) on May 21, 2010 under a Business Transfer Agreement (“BTA”).
 - 3) **Lupin’s acquisition of US-based Gavin** – Lupin completed its acquisition of GAVIS New-Jersey based privately held company generic drugs company for \$880 million. This was primarily done for the expansion of Lupin in the US market.
 - 4) **Daiichi’s Acquisition of Ranbaxy** - In June 2008, Daiichi Sankyo, Japan’s third-largest pharmaceutical company acquired a controlling stake in Ranbaxy Laboratories for approximately \$4.6bn.
 - 5) **Cipla’s acquisition of two US-based pharma companies** - Cipla acquired two US-based generic companies InvaGen and Exelan, worth \$550 million in an all cash transaction.

GLOBAL SCENARIO

- Global pharmaceutical markets are in the midst of major discontinuities. While growth in developed markets will slow down, emerging markets will become increasingly important in the coming decade.
- Global Suppliers- Pfizer, Roche, Sanofi, Johnson & Johnson, Merck & Co. (MSD), Novartis, AbbVie, Gilead Sciences, GlaxoSmithKline (GSK), Amgen.
- The government allowed up to 74 per cent foreign direct investment in the existing pharmaceutical companies through automatic route, with an aim to promote the sector.
- Of all industrial sectors, the research-based pharmaceutical industry has consistently invested the most in R&D, even in times of economic turmoil and financial crisis.
- Trade agreements- FTA (Free Trade Agreements) and TRIPS-The TRIPS Agreement sets minimum standards in the field of intellectual property (IP) protection (such as copyrights, patents, and trademarks) that all WTO Member countries have to respect.

Under the TRIPS Agreement, all WTO Members have to make patents available for pharmaceutical inventions in their countries.

- When it comes to Global region wise Sales, America is the market leader followed by Europe, Australia, Asia and Africa and then Japan.

QUALITY METRICS AND KPI

Quality metrics are used throughout the pharmaceutical industry to monitor quality systems, processes and drive continuous improvement efforts in drug manufacturing. Quality Metrics (QM) are the refined and systematic representation of Quality- Key Performance Indicators (Q-KPI) during manufacturing operation. These can be used to identify, where performance of quality management is good and meeting desired standards or where performance requires amendment. The Quality-KPI are used as tool to maintain quality of pharmaceutical products. It is important to identify and track KPI for Quality in pharmaceutical industry during manufacturing and distribution operations. A focus on quality leads to fewer recalls, lesser complaints and quality related regulatory observations. The use of quality key performance indicators (Q-KPI) promotes responsible practices and quality driven organizational culture. KPIs identified several quality for pharmaceutical operations. Few of the important Q-KPIs are as follows:

Corrective Action Preventive Action (CAPA) undertaken, Market complaint, Number of recalls , Deviation reported ,Quality Risk ,Change Controls ,Training Program

The companies may reckon the following quality metrics for each product and establishment: Lot Acceptance Rate, Product Quality Complaint Rate , Invalidated Out-of-Specification (OOS) Rate , The number of product quality complaints received for the product,The number of lots attempted which are released, The APRs or PQRs were completed within 30 days of annual due date for the product, APRs or PQRs required for the product

CONCLUSION

We have presented the cost structure analysis and Financial Analysis (Capital Structure Analysis, Asset Composition Analysis, Growth Analysis, Working Capital Analysis, Operating cycle, Cash Cycle, Sustainable growth of related companies) which clearly shows that industry on the whole is earning 13.3% on its sales which is considered to be moderate considering the dynamics of the work environment. The companies in the industry shows a stable trend in the current ratio, which signifies, that companies can easily meet their working capital requirements. Over all the industry maintains an operating ratio of 15% to 30%. All the companies in the industry have positive ROE ranging between 7% to 23% minimum being 7% and maximum being 23% thus giving satisfactory results to shareholders.

This is one of the most competitive industries in the country with as many as 10000 players and considering the fact that India occupies third place in terms of market share, any new entrant which want to enter the industry needs to face huge competitive pressures. Government regulations lengthen the process for bringing the new pharmaceuticals to market but for the generic drugs it is less and it is one of the few industries where more than 50% FDI is allowed.

The new entrant should consider the marketing issues because for the fact that marketing cannot be done like other industries because of the rules imposed by legal and regulatory authorities. For a new entrant getting skilled work force on board might pose a challenge but it is not that high for Indian pharma companies as they are mainly focusing on generic medicines for which getting resources is not a big challenge. The new entrant might face some operational issues because most of the pharma companies import raw materials from China and government regulations are changing based on import policies. We have presented all the analysis required to support this.

Overall the industry looks promising as the companies in the industry have positive ROE, though the companies are making marginal profits it has potential to attract new investor

BIBLIOGRAPHY

- <https://www.alphainvesco.com/blog/understanding-how-the-indian-pharmaceutical-industry-works-part-1/>
- <https://www.businessalligators.com/scope-indian-pharmaceutical-industry-hub-opportunities/>
- <http://ficci.in/spdocument/22944/india-pharma-2018-ficci.pdf>
- <https://www.ibef.org/industry/indian-pharmaceuticals-industry-analysis-presentation>

- Kapil Kumar and Dr M.K.Kulshreshtha(2013) “SWOT Analysis of Indian Pharmaceutical Industry “ International Journal of Marketing, Financial Services & Management Research: Volume 2 No. 5. <http://indianresearchjournals.com/pdf/IJMFSMR/2013/May/4.pdf>
- <https://www.pwc.com/gx/en/pharma-life-sciences/pdf/ph2020-marketing.pdf>
- <http://www.strategic-planet.com/2011/01/a-pestle-analysis-for-the-pharmaceutical-industry/>
- https://www.taxmanagementindia.com/visitor/detail_article.asp?ArticleID=6854
- <https://www.fdli.org/2017/10/india-pharmaceutical-legal-regulatory-environment/>
- <https://www.atkearney.in/documents/4773014/9200063/Indias+Pharma+Supply+Chain.pdf/26fafc9a-bc19-47b3-b027-3ee414689d15>

INVESTMENT DECISIONS

Sl.No	Factor to be considered	Weightage %	Invest	Don't Invest	Justification for the score
1	Capital investment required	9	7	3	Increasing focus on R&D and end to end manufacturing would require the companies to have high capital investment thus giving investors higher returns but at the same time the projects would require heavy investments which can be afforded only by large scale companies.
2	Working capital requirements	8	8	2	The companies in the industry show a fairly stable trend in current ratio signifying that their current assets are sufficient enough to pay off their obligations.
3	Profitability in terms of Profit margin/operating profit margin	8	6	4	Overall the industry maintains an operating ratio of 15% to 30% on an average which is considered to be moderate as the non-operating expenses are to be provided for, from this surplus. However with increasing focus on R&D and end to end manufacturing operating expenses are likely to go up and revenue might not increase in the same proportion because the government keeps a cap on the prices of the medicines and thus the companies cannot recover their expenses by making sufficient profits.
4	Profitability in terms of ROE	8	8	2	All companies in the industry have positive ROE, the minimum being 7% and the maximum being 23% thus giving satisfactory returns to the shareholders and maximising shareholders wealth. If similar trend continues in future shareholders are likely to invest in the industry.
5	Market structure	8	6	4	Since around 7-8 companies in the pharmaceutical industry

					have a major market share, firms often have to keep adopting new business strategies. Since there are low entry barriers and firms cannot keep changing the price in order to gain a competitive advantage, the profit generated by the company is often low. However, the maximum sales generated by the pharmaceutical companies are in the sector of antibiotics and vitamins. Therefore, it would be beneficial for the investors to invest in those companies which are successful and have a good brand image in the antibiotics and vitamin department.
6	Ease of entry and doing business	6	8	2	Low entry barriers along with ease of conducting clinical trials and bio availability and bioequivalence studies due to India's ability to provide speedier and less expensive trials without compromising quality and vast patient pool
7	Competitive Pressures	10	4	6	Most competitive industries in the country with as many as 10,000 different players and top player in the country has only 6% market share and top five have 18%.
8	Governmental regulations and controls	5	4	6	The drug price control order 2013, sets ceiling price for 348 essential medicines by taking the simple average of all the drugs with the market share of more than 1%

9	Marketing issues	7	5	5	The pharmaceutical industry faces several issues while marketing due to the challenges and rules posed by the legal and regulatory authorities. The doctors and other medical practitioners are not allowed to state the brand name of the products to the patients. Further, since the pharmaceutical industry is vast, demographic plays a major role. The companies often need to bare high amount of cost for marketing on the basis of population, age, gender etc. The pharmaceutical companies do not have the best reputation since they have been involved in several controversies over subjects like drug pricing which has created a gap in the minds of the consumers as well as physicians to trust the ads and information that flow in the market.
10	HRM issues	6	6	4	Pharma industries requires almost 62% of skilled and semi skilled manpower combined. Indian pharma industry is a work force intense industry, though Indian pharma companies are facing major problem to get skilled work force on board but it is not that high as Indian pharma companies are mainly focussing on generic medicines for which getting resources is not a big challenge.
11	Manufacturing process issues	7	8	2	Largest number of USFDA approved plants outside USA along with low manufacturing costs driven by cheap labour
12	Operational issues – SCM	6	6	4	Reliance on China for import of key intermediates and API's exposing to raw material supply disruption and pricing volatility
13	Collaboration / foreign investment or funding	6	8	2	on the basis of collaboration with MNC's and foreign investment, investors should positively invest due to the success of export of generic drugs which takes care of 20%

					of global needs and other successful recent collaborations with MNC's.
14	Innovations possible	6	7	3	On the basis of innovations, investors should be inclined towards pharma industry as there is already high investment in R&D due to which new revolutions at molecular level and technology has come up which makes the understanding of diseases easy and thus there can be development of new medical product.