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# Mobile Banking and Customer Satisfaction in Bangladesh: A Survey among the College and University Students

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## *Abstract*

*The aim of this study is to explore the degree of customer satisfaction on mobile banking in Bangladesh. The purpose especially is to measure the impacts of the characteristics of mobile banking on customer satisfaction. A quantitative survey design was applied, after recognizing the influencing factors of customer satisfaction on mobile banking. A structured questionnaire was distributed to the mobile banking users and 175 responses were taken as primary data. The results indicate that mobile banking is moderately popular to the college and university students. The findings suggest that security condition is not up to the mark, though security is a salient feature of mobile banking. The study provides vast information of a particular class of customer, i.e. the college students, and their perception of mobile banking. By understanding what kind of characteristics the customers value, the service providers will be enabled to take actions for enhancing the customer satisfaction on mobile banking. The study offers a more profound understanding of the satisfaction level of college students on mobile banking in Bangladesh, which has not previously been investigated. It expands the literature on mobile as well as electronic banking.*

**Keywords:** mobile banking; customer satisfaction; college and university students; security; Bangladesh

## **1. Introduction**

Advancement of the mobile technologies has given great impact to the service industries and the result is today's 'mobile banking' (m-banking). The development of electronic banking services via multiple electronic channels has made it possible providing new kinds of added value for customers (Laukkanen, 2007); and m-banking is the latest improvement of electronic banking. It has widened customers' access to bank accounts through wireless channels. In fact, m-banking emerged as a wireless service delivery channel providing increased value for customers' banking transactions (Laukkanen, 2007). It is now an alternative of the traditional banking through which banking services can be reached at the doorsteps of the unreached people of society. As a result, customers can get banking services at 24/7 through their mobile phones at the lowest cost.

Banking is the most extending industry of Bangladesh that undergoes immense reforms. The country experienced with the new revolution of m-banking in this decade. It has 160 million people of which 87% do not have a bank account, whereas more than 95% are mobile phone users (Islam, 2013). It is a huge untapped market of the commercial banks. But serving those people by establishing branches of banks across rural Bangladesh, is not a better option because of the regulatory constraints of Bangladesh Bank in new branch opening. Thus, m-banking is an effective and a better option to \*

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provide the required banking services to the customers (Islam, 2013). Provided, understanding the service users' behavior and value perception, is one of the fundamental requisites of the service development.

M-banking help both customers and banks to deliver communication, financial information, and transactions, accessing the other banking services and products, transferring funds at any time, from anywhere (Gaffar, 2009). That is why, banks in developed or developing countries is offering m-banking services. From customers' perspective, by adopting m-banking service, they are being provided the benefits in terms of - convenience to perform banking transactions with easy to use. In line with this development, researchers also have shown great interest for investigating the adoption and utilization of m-banking among consumers (Masrek *et al.*, 2013).

Students are often not considered as valuable customers of the banks; cause might be their small-sized transaction. In this case, m-banking plays a great role by bringing students into banking system in a board range. Research revealed that younger customers value the convenience or time saving of internet and mobile banking more than older customers (Howcroft *et al.*, 2002). Aim of the study is to present the factors with their impact on customer satisfaction in m-banking services. The study tried to focus those characteristics that influencethe college and university students in m-banking.Those characteristics were found by studying the previous researches.Findings of the study will be useful forthe policy makers, banks and researchers to understand the utilization of m-banking in enhancing the customer satisfaction.

## 2. Research Objectives

The objectives of the research are to:

- 2.1 investigate the customer satisfaction on mobile banking in Bangladesh,
- 2.2 measure the impacts of the characteristics of mobile banking on the customer satisfaction, and
- 2.3 discover the problems of mobile banking services in customer satisfaction.

## 3. Literature Review

Initially, aim of the m-banking was bringing more people under the umbrella of banking services and improving the efficiency of microfinance by using mobile technology for making transactions faster, cheaper and more secured (Gaffar, 2009). Gradually, it made banking services more accessible to low-income people by minimizing time and cost. Customers enjoyed the benefits of quick service delivery, reduced frequency of going to banks physically, and reduced time spent in long queues. Also, they experienced some barriers in m-banking adoption - lack of awareness and understanding of the benefits of m-banking (Laforet and Li, 2005). But now customers became less willing to visit traditional branches of banks, less loyal to the banks, more receptive to new electronic channels, and more sophisticated with the demand of better service quality, like 24/7 service (Coelho and Easingwood, 2003).

Customer loyalty and customer retention has got importance over customer acquisition. And so, companies are racing to improve their services, grow trust and create barriers so that clients remain loyal (Hossain and Hossain, 2015). Importantly, the value of customer relationship management has become apparent in this competitive era of technological innovation (Saleem and Rashid, 2011). This technological innovation with the reduced complexity is profitable for adoptingthe m-banking, since it increases customers' trust on the service provider and results customer satisfaction (Puschel *etal.*, 2010). As a matter of fact, customers accept the technology, if they find it easy to understand and to implement (Saleem and Rashid, 2011). Murugiah and Akgam (2014) appropriately recognized that the service quality and the customers' loyalty have a very positive correlation.

Research exposed the factors that are contributing to the adoption of m-banking are - convenience, access to the service regardless of time and place, privacy, and savings in time and effort (Suoranta, 2003), whereas the effectiveness of m-banking on customer satisfaction is basically determined by reliability, security, responsiveness, ease of use, usefulness, cost effectiveness and awareness of the services (Safeena *et al.*, 2011). Saleem and Rashid (2011) studied customer satisfaction on m-banking by taking five factors - Organizational, Technological, Strategic, Functional, Economic – where they found customers are concerned about security, authenticity, and reliability of the technology. Kahandawa and Wijayanayake (2014) identified some other factors that influence customer satisfaction on m-banking - usefulness, relative advantages, easiness of use, risk perception and lifestyle, and present need of customers. Jannat and Ahmed (2015) studied customer satisfaction on m-banking with nine factors - transaction speed, security and trust, ease of use, ineffective advertisement, accuracy of transaction, system availability, responsiveness, convenience, and cost effectiveness. They observed that ‘security and trust’ was the most influential and significant factor in among other factors.

#### **4. Methodology**

There were seven independent variables -trust, security, speed, cost, integrity, goodwill, and convenience - and one dependent variable - customer satisfaction – on which the study was conducted ultimately.

##### **4.1 Data Source**

The study is mostly based on the primary data source. The respondents were the students of different universities as well as colleges of Bangladesh. A structured questionnaire was used for collecting the data from the respondents.

##### **4.2 Sampling**

A random sample of 200 students, who were using m-banking, were selected from the population of all m-banking user students of Bangladesh. Out of 200 responses, 175 were considered for analysis due to their completeness and consistency.

##### **4.3 Hypothesis**

H<sub>0</sub>: Trust, security, speed, cost, integrity, goodwill, and convenience do not influence customer satisfaction on m-banking.

H<sub>1</sub>: Trust, security, speed, cost, integrity, goodwill, and convenience influence customer satisfaction on m-banking.

##### **4.4 Questionnaire Design**

The respondents responded to questions under each variable on seven point Likert Scale. Also some demographic questions were asked for more interpretation of responses. The questionnaire was pre-tested with a few customers to ensure the quality of the questions.

##### **4.5 Data Analysis and Interpretation Technique**

Data were initially fed into SPSS-20 software and transformation of variables was done to make them usable. For testing the hypotheses, Data were analyzed and interpreted through Descriptive Statistics, Regression Model, and ANOVA.

## 4.6 Defining Variables

### 4.6.1 Dependent Variable

*Customer Satisfaction:* A major predictor of repurchase and a measure of how products and services supplied by a company meet or surpass customer expectation. It provides a leading indicator of purchase intentions and loyalty of customer satisfaction.

### 4.6.2 Independent Variables

*Security:* The acceleration of mobile transactions, coupled with the free distribution of downloadable apps, can create significant security challenges. The combination of apps and the increase of mobile malware poses a real threat to both sensitive and confidential information stored on mobile devices.

*Speed:* is meant by the transaction speed or the time required for completing the m-banking functions by the user.

*Cost:* banks have different types of service charges for providing m-banking services. Also, there are charges associated with text messaging and data usage on customer's phone.

*Trust:* is termed as knowledge-based trust of customer where perceived competence, benevolence and integrity are associated.

*Integrity:* refers to customers' perception that the banks follow the principles that the customer finds acceptable, fair and consistent, e.g. honesty and keeping promises.

*Goodwill:* is an intangible asset that arises from company's brand name, solid customer base, good customer relations, good employee relations, and any patent or proprietary technology.

*Convenience:* Banking at any time (24/7) of any amount from any devices with enough options at menu – are meant by convenience in m-banking.

## 5. Analysis of General Characteristics of Respondents

Table 5.1: Distribution of Respondents by Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	108	61.7	61.7	61.7
	Female	67	38.3	38.3	100.0
	Total	175	100.0	100.0	

Source: Author's Calculation through SPSS Analysis

The above Table 5.1 shows that the rate of male respondents (61.7%) were near double times of the rate of female respondents (38.3%). This proportion had proven the common belief that the early adopters of new product are male in the most technology market.

Table 5.2: Distribution of Respondents by Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	16-20	60	34.30	34.30	34.30
	21-25	93	53.10	53.10	87.40
	26 above	22	12.60	12.60	100.00
	Total	175	100.00	100.00	

Source: Author's Calculation through SPSS Analysis

Table 5.2 states that 34.3% of the total respondents were between the ages of 16 to 20 years, and followed by 53.1% respondents that were between the ages of 21 to 25 years, and only 12.6% respondents were the ages of 26 and above years. The largest group of respondents (53.1%) were the Honours-level students who constituted a huge sample size.

Table 5.3: Distribution of Respondents by Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	HSC	29	16.60	16.60	16.60
	Honours	133	76.00	76.00	92.60
	Master	13	7.40	7.40	100.00
	Total	175	100.00	100.00	

Source: Author's Calculation through SPSS Analysis

Table 5.3 proved that the largest group of respondents (76%) were the Honours-level students. 16.6% respondents were the HSC-level and only 7.4% were the Master-level students. During the survey it was found that attendance of HSC and Master-level students were smaller than the Honours-level students'.

Table 5.4: Distribution of Respondents by the Amount of Transaction per Month

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	100–2000	51	29.10	29.10	29.10
	2001–4000	54	30.90	30.90	60.00
	4001–6000	39	22.30	22.30	82.30
	6001–8000	22	12.60	12.60	94.90
	8001 and above	9	5.10	5.10	100.00
	Total	175	100.00	100.00	

Source: Author's Calculation through SPSS Analysis

In the Table 5.4, most of the respondents (30.9%) monthly complete their transaction through m-banking in between Tk. 2000 to Tk. 4000, while 29.1% respondents transact upto Tk. 2000. The rate of those respondents (22.3%) was not that smaller who use m-banking for transacting upto Tk. 6000 per month; although m-banking users of upto Tk. 8000 and above Tk. 8000 were smaller by 12.6% and 5.1% respectively. Provided, Bangladesh Bank has a regulation on the amount of daily and monthly transaction.



## 6. Data Analysis and Interpretation

**Table 6.1:** Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Trust	175	1	7	4.74	1.164
Security	175	1	7	3.43	1.220
Speed	175	1	7	4.97	1.144
Cost	175	1	7	4.28	1.216
Integrity	175	1	7	4.62	1.392
Goodwill	175	1	7	4.81	1.401
Convenience	175	1	7	5.04	1.069
Customer Satisfaction	175	1	7	4.76	.941
Valid N (list wise)	175				

*Source: Author's Calculati on through SPSS Analysis*

Table 6.1 shows the mean value depicting the customer satisfaction. As the descriptive statistics is concerned, customer satisfaction on m-banking is above satisfactory level (with a mean value of 4.76 on a 7 point Likert scale). The table also suggests that the main factors, except *Security*, on which the customers of m-banking are generally satisfied. As far as the mean values are concerned, customers are fairly satisfied on Trust (4.74), Speed (4.97), Cost (4.28), Integrity (4.62), Goodwill (4.81), and Convenience (5.04). The value of Security (3.43) is the indicator of the lack of customer satisfaction in m-banking.

**Table 6.2:** Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.893 <sup>a</sup>	.797	.789	.432

*Source: Author's Calculati on through SPSS Analysis*

- a. Predictors: (Constant), Trust, Security, Speed, Cost, Integrity, Goodwill, Convenience

In the Regression Model (Table 6.2), R Square value is 0.797, indicating that the predictors have 79.7% influence on customer satisfaction.

**Table 6.3:** ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	122.722	7	17.532	93.844	.000 <sup>b</sup>
	Residual	31.198	167	.187		
	Total	153.920	174			
a. Dependent Variable: Customer satisfaction						
b. Predictors: (Constant), Trust, Security, Speed, Cost, Integrity, Goodwill, Convenience						

*Source: Author's Calculati on through SPSS Analysis*

The ANOVA Test result (Table 6.3) shows that the table significance value 0.05 is greater than the calculated significance value 0.000. It clearly explains that the null hypothesis at 5% level of significance that reflects alternative hypothesis is accepted and null hypothesis is rejected. It means there is a significant correlation between dependent variable and independent variables.

**Table 6.4: Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients Beta	T	Sig.
		B	Std. Error			
1	(Constant)	.579	.214		2.706	.008
	Security	-.066	.027	-.086	-2.436	.016
	Speed	.088	.036	.107	2.435	.016
	Cost	.173	.030	.224	5.760	.000
	Trust	.136	.040	.168	3.390	.001
	Integrity	.128	.038	.189	3.369	.001
	Goodwill	.037	.037	.055	1.003	.317
	Convenience	.361	.042	.410	8.607	.000
a. Dependent Variable: Customer satisfaction						

Source: Author's Calculation through SPSS Analysis

In the Table 6.4, results of Coefficient analysis shows the relationship between dependent variable and each independent variables. Here, all the coefficients of independent variables have been displayed very strong relationships with dependent variable except *Security* (-.086). All the values of independent variables, other than *Security*, positively and significantly influence the customer satisfaction on m-banking. However, the value of *Security* is negatively significant, i.e. *Security* influences the Customer Satisfaction negatively.

## 7. Conclusions and Future Research Directions

Investigation of customer satisfaction on m-banking was the attempt of this study, where it was observed that college and university students (customers) were satisfied on m-banking. For measuring the degree of satisfaction, the study conducted the required statistical analyses. Seven independent variables - *Trust*, *Security*, *Speed*, *Cost*, *Integrity*, *Goodwill*, *Convenience* - were identified after studying the previous literatures and then the analyses were conducted. From the results of the analyses, it is found out that except *Security* all other independent variables influence the customer satisfaction on m-banking, i.e. *Trust*, *Speed*, *Cost*, *Integrity*, *Goodwill*, *Convenience* are positively correlated to the customer satisfaction.

Exposing the influencing factors of m-banking and measuring their impacts on customer satisfaction were the focal point of the study. In the question of *Security*, customers did not feel good; rather they were asking for ensuring 'fraud detection' and 'confidentiality of user'. It is obvious that if the financial institutions can ensure the optimum security in m-banking services, new market share with satisfied customers and customers' loyalty will be the only result. Findings of the study state that Bangladeshi young customers of m-banking are satisfied, yet they suggested to reduce the service charges of m-banking. The youngsters also complained about networking/connectivity, which is the issue of telecommunication company. But for reducing the networking problems, the banking institutions should make the strategic partnerships with the telecommunication companies.

M-banking is still at its early stage in Bangladesh, while size of the target market is not small at all. People are being aware of m-banking and that is a good potential for the service providing companies. Still many banks did not introduce the electronic and/or mobile banking services which might be turned into the threats for those banks. That is why, Bangladeshi banks should take the advantages of m-banking by taking care of the above factors that can make the m-banking service more attractive to the customers.

In Bangladesh, the use of mobile banking is still in its initial stage; so more research in this field is needed to strengthen the electronic banking and/or mobile banking services. Also, further research should be conducted in the area of performance of electronic banking and/or mobile banking. This study will lead the future research, specifically, to explore more independent variables of customer satisfaction on m-banking and to test those variables with appropriate methods.

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# A Study on Effect of Information and Communication Technology with Special Reference to Textile Industry Based in India

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## Abstract

*The fabric industry is one of most significant and globalized trades in the world. It is an employment maker that has developed momentous for numerous countries. In India, the textile industry is after farming, the merely trade that has produced enormous employment for both skillful and unskilled labour in textiles. India has a second largest crater of garments and textiles in the world.*

*Many organizations of developed nations have been achieving the overall growth of textile industry through advanced technology. The information settings are numerously changing throughout the world. The hasty development in Communication and Information Technology and topical modernization in technology have perceived as challenges and changing accent due to the impact of Information and Communication Technology (ICT). And Information and Communication Technology (ICT) has massive stadium to contribute in welfare of human being.*

*Information and Communication Technology (ICT) has been demonstrated to be an uprising for developed countries and has been providing great support to developing countries to renovate to a developed economy. Information and Communication Technology (ICT) is used for information processing, data managing, generating reports, growing knowledge and information and problem solving.*

*So, Information and Communication Technology has an excessive role in science, education, health care sector, security sector, finance sector, communication sector, textile sector, mass media and publication sector, sectors like war and peace also need computer and information technology to take quick decision and show efficiency in working process.*

*In this context, it would be more relevant to make an attempt to study the concept of Information and Communication Technology (ICT) in textile industries, its effects, uses, components and challenges in adoption of Information and Communication and Technology (ICT) etc.*

**Keywords:** Information and Communication Technology, Textile Industry, uses, components and challenges in adoptions of ICT etc.

## Introduction

Information and Communication Technology (ICT) “Information and Communication Technology (ICT) is a varied set of technological tools and chattels of communications and to create, spread, store and manage information. Information and Communication Technology (ICT)are these whole technology that assists the handling of those information and facilitate different forms of communication. These embraces capturing technologies (e.g.CD-ROMs), dealing out technologies (e.g. application software), Communication technologies (e.g.) LAN - Local Area Network) and display technologies (e.g. Computer monitors)”.

## Literature Review

**(AkbueBenedette N. and Chukwu Lilian N. Ebonyi, 2015)-** They had stated in their paper the to investigate the uses of Information and Communication Technology in teaching and learning process of Clothing and textile in Ebonyi State University Abakiliki, Nigeria. They were focused one two objectives with two null hypothesis. In that study authors had used survey method. The population consisted of 106 (10 staff and 96 students of Home Economics Education). There was no sampling because the population was manageable. Through the questionnaire data was collecting while frequency and means statistics where used to analyzed the data. Results was shown that the Information and Communication Technology such as computer and projector are not used in teaching and learning in clothing and textile in research area. There is no difference in mean level of staff and students of Home Economics Education on the uses of computer and projectors in teaching and learning of clothing and textile in research area of study.Authors was recommended that the use of at least one computer and data projector in each classroom and the entire classrooms should be equipped with smart boards.

**(Roberta Rabellotti, 2003)-** In this paper author had explained the “Information and Communication Technology (ICT) in Industrial Districts: An Empirical Analysis on Adoption, Use and Impact in the Biella Textile District.”.He had focused on an empirical study related to adoption and use of Information and Communication Technology (ICT)in a sample of 122 textile enterprises located in the Biella District.

**(O.O. Onilude&O.R. Apampa, 2010)-**The authors had shown, In“Effects of Information and Communication Technology on Research and Development Activities”, he had mentioned about the assessment of the effects of ICT on the research and development activities at FIIRO.

## Objectives of the Study

- 1) To study the adoption of Information and Communication Technology (ICT) in textile industries based in India.
- 2) To identify the effects of Information and Communication Technology (ICT) in various areas of textile industries based in India.
- 3) To find out the challenges faced by the users while using Information and Communication Technology (ICT) in textile industries based in India.

## Research methodology

Secondary data was obtained from available sources such as text books, journals, on-line published articles, information from the internet search engines.

## Findings And Discussions

Information and Communication Technology (ICT) is a generic term that covers the acquisition, processing, storage and dissemination of information. It is a boon for mankind. It gives accessibility to information at finger tips. It has reduced the space and time between the people, country, and various working procedures by way of ultimately has supports to the emerging concept of “global society” and “global village”. Data are raw facts and figures and are entered by people for processing. The computer programs are referred to as the software. Information is also processed data.

### Adoptions and effects of Information and Communication Technology (ICT) in Textile Industries Based in India-

The technology has facilitates many process for textile designers, particularly for imagining and experimentation. Scrutinizing and automating processes Information and Communication Technology (ICT) based computerized processes are central to modern manufacturing techniques.

Examples of Computer Aided Design (CAD), Computer Aided Manufacturer (CAM) and Information and Communication Technology (ICT) in textile production for all type of resources designs are stored automatically without repetitions printing orders. Computer-aided design, Information and Communication Technology (ICT), and computer-aided manufacture, are played a vital role in modern textile production process.

### Example of Information and Communication Technology (ICT) Components Handling in (Cotton) Textile Industries –

<input type="checkbox"/> Commercial Segment
<input type="checkbox"/> Raw Cotton Segment
<input type="checkbox"/> Waste Cotton Segment
<input type="checkbox"/> Finished Yarn Segment
<input type="checkbox"/> Production Segment
<input type="checkbox"/> General Store Segment
<input type="checkbox"/> Accounts Segment
<input type="checkbox"/> Bill & D.O. Segment
<input type="checkbox"/> HRM & Payroll Segment
<input type="checkbox"/> MIS Segment

**Applications of Information and Communication Technology (ICT) are used in various Textile Industries –**

<b>PHASES:</b>	<b>DETERMINATION:</b>	<b>EXAMPLES:</b>
Research and Presenting	<ul style="list-style-type: none"> <li><input type="checkbox"/> Gathering and recording relevant facts</li> <li><input type="checkbox"/> Using digital images</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Internet/email</li> <li><input type="checkbox"/> Graphics Software</li> <li><input type="checkbox"/> Digital Camera</li> <li><input type="checkbox"/> Word Processing Software</li> <li><input type="checkbox"/> Video Conferencing</li> </ul>
Design	<ul style="list-style-type: none"> <li><input type="checkbox"/> Generating visual designs</li> <li><input type="checkbox"/> Emerging a description</li> <li><input type="checkbox"/> Producing a prototype</li> <li><input type="checkbox"/> Investigational work</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Graphics Software</li> <li><input type="checkbox"/> Digital Camera</li> <li><input type="checkbox"/> Scanner</li> <li><input type="checkbox"/> Digital Printer</li> <li><input type="checkbox"/> CAD Systems</li> </ul>
Manufacturing/ Production	<ul style="list-style-type: none"> <li><input type="checkbox"/> Generating patterns</li> <li><input type="checkbox"/> Constructing end garments</li> <li><input type="checkbox"/> Monitoring machinery</li> <li><input type="checkbox"/> Costing</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Lay planning</li> <li><input type="checkbox"/> Digitizers / Digital Printers</li> <li><input type="checkbox"/> 3D body scanning equipment</li> <li><input type="checkbox"/> Computerized sewing, knitting and weaving ,machines</li> <li><input type="checkbox"/> EDI (Electronic Data Interchange)</li> </ul>
Distribution	<ul style="list-style-type: none"> <li><input type="checkbox"/> Stock control and dispatch systems</li> <li><input type="checkbox"/> Order processing</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Tagging (RFID)</li> <li><input type="checkbox"/> Word Processing / Databases</li> <li><input type="checkbox"/> Spreadsheets</li> <li><input type="checkbox"/> Stock/asset tracking software</li> </ul>
Sales	<ul style="list-style-type: none"> <li><input type="checkbox"/> Promoting the product e.g.</li> <li><input type="checkbox"/> Advertising</li> <li><input type="checkbox"/> Sales channels e.g. on TV, website/E-tailing</li> <li><input type="checkbox"/> E-Commerce</li> <li><input type="checkbox"/> Security Tagging</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Graphics Software</li> <li><input type="checkbox"/> Word Processing Software</li> <li><input type="checkbox"/> Digital Printer</li> <li><input type="checkbox"/> Digital Camera</li> <li><input type="checkbox"/> EPOS software</li> <li><input type="checkbox"/> PDM Software</li> </ul>

## **Challenges for adoption of Information and Communication Technology (ICT) in Textile Industries Based in India-**

- Ⓒ Textile Enterprises which stated that the Information and Communication Technology does not play a role in their operations were asked to indicate which the main difficulty for adopting Information and Communication Technology in business were. Most of them justify this statement with ‘too small company size’.
- Ⓒ The view that comes from these data shows that the industry’s structure has a strong impact on the introduction of Information and Communication Technology’s applications in Textile industry Company size is the another cause were reported.
- Ⓒ Other relevant reasons are related to the fact that Information and Communication Technology is expensive and complicated.
- Ⓒ Sometimes Information and Communication Technology has perceived legal problems and the difficulty of finding reliable IT suppliers are not felt as main reasons for not introducing Information and Communication Technology (ICT) applications.
- Ⓒ Further, the looking more in detail at concerns about security, most common Information and Communication Technology security incidents are: failure of service provided by third parties, viruses, Trojan horses or Internet worms and spam. A specific IT security policy and a disaster recovery plan have been implemented by large firms while are not common practice among smaller players.

### **Conclusions**

A major findings about Information and Communication Technology has the original invention until an extensive increase in the rate of efficiency enlargement. For the Information and Communication Technology (ICT) has rebellion the maximum efficiency enlargement rates are establish in the Information and Communication Technology (ICT)-producing industries.

There is cipher that the exercised of highly developed Information and Communication Technology (ICT) systems in huge textile companies is rather in line with embracing rates among large companies from the most advanced industrialized sectors. Examples are Enterprise Resource Planning (ERP) and Supply Chain Management (SCM) systems. So, Information and Communication Technology has an excessive role in science, education, health care sector, security sector, finance sector, communication sector, textile sector, mass media and publication sector, also need computer and information technology to take quick decision and show efficiency in working process.



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# Identification of Enablers of Green Supply Chain Management (GSCM)

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## ABSTRACT

*Asia is the new low cost production hub and China overtook the United States as world's largest manufacturing nation. Transformational initiative will be needed for becoming a global manufacturing base and parallel manufacturing hub to China. To become a global manufacturing hub, companies need to produce the environment friendly products. Several developed nations have uncompromising environmental regulations which initiate environmental friendly techniques of production. Now there is a need to initiate Green Practices in every sector in order to safeguard the environment. Therefore Green Supply Chain Management (GSCM) has emerged as an innovation which integrates environmental issues into supply chain management. The major activities of the Green Supply Chain management; Green Designing, Green Purchasing, Green Manufacturing, Green Marketing, Green packaging and transportation, Green Recycling. In the present scenario, the driver of Green Supply Chain Management assumes a significant importance and call for serious research attention. The purpose of this paper is to briefly review the literature of the GSCM and also identify the important enablers to implement green supply chain management practices in the manufacturing industry. The drivers are taken into consideration in substituent discussions with academicians. As per the current environment, the adoption and implementation of green practices will be a competitive advantage for the companies and will create green image to cope up with global market. With increased awareness to corporate responsibility and the requirement to meet the environmental policy, Green Supply Chain Management has gained popularity with both academics and practitioners. India's Environmental Performance Index ranking is not good and it is a serious concern to think and restructure our environmental policy which can be done by implementing Green Supply Chain Management on a serious platform in all the industries.*

**KEYWORDS:** Green Supply Chain Management (GSCM), Enablers, Environmental Performance, Manufacturing sector.

## INTRODUCTION:

The traditional supply chain as defined by Mentzer et al, (2001) as the physical flow of upstream and downstream between supplier, manufacturer and customer. Beamon (1999) explained traditional supply chain as an integrated manufacturing process where the raw materials turned into a final product and then delivered to the customer.

According to the Mentzer et al, the extended supply chain is the supply chain which includes suppliers of the immediate supplier and customers of the immediate customer with upstream and downstream flows of products, finances and information. Extended supply chain as defined by Beamon, (1999) is the process of strictly considering the environmental aspects into the manufacturing process from the purchasing of raw materials, to the products manufactured, to the final disposal of the products.

The results of implementing traditional or extended SCM can help in bringing out efficiency in organization but this will not be sufficient to build an effective supply chain. The concept of lean and waste management also come under SCM but these also cannot reduce the environmental impacts, so

the new concept of Green Supply Chain Management evolved to fulfill the sustainability demands and make the supply chain more environmentally responsible.

Patrick Penfield of the Whiteman School of Management defines Green Supply Chain Management (GSCM) as "the process of using environmentally friendly inputs and transforming these inputs into outputs that can be reclaimed and re-used at the end of their lifecycle thus, creating a sustainable supply chain."

The concept of green supply chain was coined by the Michigan State University in 1996 during an "environmentally responsible manufacturing" research. Scholars of Michigan State University proved that it is an effective way of management. Later the enterprises such as IBM solved the conflict between economic interests of environmental protection with the establishment of GSCM. (Lu, L.Y. et al, 2007).

Green supply chain emerged from the idea of supply chain management and environmental sustainability. It is a new concept; people have not studied it thoroughly. Until now, there is still no single, clear, authoritative definition. The green supply chain management is a system which includes the process of material acquisition, designing, processing, packaging, warehousing, transportation, sale and use to the end of life treatment, recycling (Bacallan, J.J. 2000). The mechanism is guided by the principle of optimum utilization of resources, enhancing benefits, achieving the goal of the compatibility with the sustainability. Generally speaking, it is an environment friendly system combines by the suppliers, manufacturers, distributors, retailers, consumers, environment, rules and cultural element.

GSCM = Green purchasing + Green manufacturing/materials management + Green Distribution / marketing + Reverse logistics

### **LITERATURE REVIEW:**

There is a dearth of literature related to Sustainable Supply Chain Management or Green Supply Chain Management (GSCM) till now. Some of the researchers have tried to examine the concept. Lamming and Hampson (1996) initiated the concept of environmental management and attached it with supply chain management practices such as vendor assessment, collaborative supply strategies, establishing environmental procurement policy and working with suppliers to enable improvements and up gradation in the processes. Walton *et al.* (1998) identified various dimensions of change to increase the impact of procurement on environmental results. Yu ang and Kielkiewicz (2001) gave an overview of current practices in managing sustainability issues in supply chain networks. Handfield *et al.* (2002) developed a decision model to measure environmental practices of suppliers by applying a multi attribute utility theory approach. Qinghua Zhu in 2006 conducted a study on green supply chain management: pressures, practices and performance within the Chinese automobile industry in which he noticed that increasing pressures from different stakeholders had led the automobile supply chain managers in China to initiate implementation of green supply chain management (GSCM) practices to improve their organizational performance. Chung-Hsiao in 2008 researched on the Green supply chain management practices in the Taiwan electronic industry and mentioned that there were different propositions to implement GSCM but no investigations were carried out regarding the reliability and validity of such practices in the electronic industry. The study examines the consistency approaches by factor analysis that determines the adoption and implementation of green supply chain management in Taiwanese electronic industry. He applied fuzzy analytic hierarchy process method to prioritize the

relative importance of four dimensions and twenty approaches among nine enterprises. The result shows that these enterprises would give emphasis on supplier management performance for implementing green supply chain management. Quinghu Zhu *et al.* (2008) explored Green Supply Chain Management practices implementation considering different dimensions of process including Eco-Design, Green Procurement, Internal Environmental Management, Customer Cooperation, and Investment Recovery. Fengfei Zhou in 2009 conceptualized the implementation of green supply chain management in textile industry and showed that GSCM can help in resource utilization and efficiency. He also gave a special emphasis on how to implement GSCM in different industrial operation. Taking into the consideration consumers' behavior for green products as an important business issue, Wang *et al.* (2009) evolved a methodology to identify those customers, who were ready to pay more for green products. Shang *et al.* (2010) conducted a research based on six dimensions of GSCM i.e. eco-designing, green manufacturing and packaging, environmental participation, green marketing, stock and suppliers. The study shows that the units which were focusing on green and environment friendliness had become successful competitors against their rivals. Ramudhin A. *et al.* (2010) presented a strategic planning model and emphasizes that internal and external control operations are of great importance to strategy makers while designing a sustainable supply chain process.

In Indian context, there has been little study related on Green Supply Chain Management practices so far. As the concept of green and sustainability is recent buzz in India now the topic is in the limelight of industry as well as academia. The researcher (Mudgal *et al.*, 2009, 2010; Sarode, and Bhaskarwar, 2011) has explored the several variables which help in implementing green supply chain in Indian manufacturing sector. They emphasized on supplier involvement, customer satisfaction, top management commitment, societal concern for protection of natural environment, regulations, green procurement practices, availability of clean technology, EMS, employee involvement/empowerment, green product development, green disposal, green transportation, 3R-reduce/ remanufacture/ recycle, lean manufacturing practices, economic interests, eco labeling of products, reverse logistics practices, competitiveness and corporate image.

Currently, India is not subjected to a mandatory emissions reduction target as being a non-Annex-I country. However, there is a pressure from the developed countries to agree to a mandatory cut in emissions or India can voluntarily sets a target for itself, there are significant implications for supply chains in India to reduce their carbon footprints and GHG emission in the coming years. The concept of GSCM in Indian supply chains is at an infancy stage (Gupta and Palsule-Desai 2011). Indian consumers are lacking in sustainability awareness (Das 2012) and even if they are aware but are not willing to pay premium prices for environment- friendly products (Ishaswini and Datta 2011).

## **ENABLERS OF GREEN SUPPLY CHAIN MANAGEMENT:**

Green enablers are those which define organizations agility levels and affects each other. Proper knowledge of these drivers is necessary for green manufacturing. These are various enablers for GSCM which are observed from past literature and also important for Global as well as Indian manufacturing environment.

### **1. GOVERNMENT RULES & LEGISLATION:**

Government rules and legislations is a major driver for organization's environmental management. Companies must follow the laws of the nation and must obey the rule of law is the principle that governmental authority is legitimately exercised only in accordance with written, publicly disclosed

laws that are adopted and enforced in accordance with established procedure. Government Rules & Regulations increase the threats of penalties and fines for non-compliance of environmental code of conduct among companies. This driver is essential in implementing and adoption of Green Supply Chain Management in Manufacturing Industries. [Kannan Govindan (2010); Walker et al. (2008); Hall (2001); Min and Galle (2001); Beamon (1999); Walton et al. (1998); Green et al. (1996)].

## **2. CUSTOMER'S AWARENESS :**

Customer awareness is that driver of Green Supply Chain Management which states that a buyer should have the understanding and knowledge of his rights as a customer. Consumer should take a look of product from environmental point of view and also ready to buy eco-friendly product. Awareness on eco-friendly products can be initiated through the utilization of advertisement, brochures, television, radio, guides, information posted to a Web site, programs, and other sources depending upon the topic and the message delivered. So Customer awareness is the most important for implementation of Green Supply Chain Management for Manufacturing Industries. [ Gioconda Quesada et. al. (2011); Daine Holt (2009)]

## **3. COLLABORATION WITH SUPPLIERS:**

Before entering into an agreement with supplier company must take a look at their environmental performance and check their EMS certification. Integration and cooperation in supply chains can support and provides assurance of effective management of environmental issues. A collaborative paradigm has been used to explore green supply chain management practices in manufacturing firms. Results showed that greater supply chain integration can benefit environment management in operations. As the supply base was reduced and the product is eco-friendly, the extent of environmental collaboration with primary suppliers increased with no harm to the environment. [Ali Daibat et. al. (2010); Abby Ghobadian (2009); Vachon (2007); Zhu and Sarkis (2006); Zhu et al. (2006, 2007, 2008); Hu and Hsu (2006); Yuang and Kielkiewicz-Yua ng (2001); Klassen and Vachon (2003); Lippman (2001); Lippmann (1999)].

## **4. SHARING BEST GREEN PRACTICE AMONG THE NETWORK:**

Sharing best practice in the supply chain and making it more effective and environment friendly. Make organizational network strong and beneficial to take an advantage in all the processes. Awareness of each and every employee regarding their work and to adoption of Green Supply Chain Management in Manufacturing Industries is so important. It will lead to the reduction in cost and other economic benefits and making IT network more efficient. [Gioconda Quesada et. al. (2011); Daine Holt (2009)].

## **5. WASTE REDUCTION:**

Waste Generation by the companies represents an enormous loss of resources in the form of materials, cost and energy; in addition, the improper disposal of waste can have serious environmental impacts. Waste management policies therefore target to reduce the environmental and health impacts of waste and improve the utilization of resources. The strategic aim of these policies is to reduce the waste generation and achieve higher levels of recycling and the safe disposal of waste. [Ali Daibat (2010); Paulraj (2009); Abby Ghobadian (2009); Gonzalez et al. (2008); Rao and Holt (2005)].

## **6. RELATIVE ADVANTAGE:**

Relative advantage is that driver of GSCM which may be defined as the achievement of reduction in the cost of manufacturing without impairing their suitability. Relative advantage, should therefore, not be confused with economic saving rather it is an edge on competitors. Relative advantage implies the retention of main characteristics of the product and genuine savings in the costs of manufacture, administration, distribution and selling, brought about by adopting GSCM. The definition of relative advantage does not however include reduction in cost rather it is seen as an advantage over competitors either by cost saving or increasing market share. [Ali Daibat (2010); Luthra, S. Kumar, V. Kumar, S. & Haleem, A.(2011); Zhu et al. (2006, 2007, 2008); Rao and Holt (2005)].

## **7. IMPROVE CORPORATE IMAGE:**

When considering improvement in image of an organization then management enables with new innovation in operation and production. It helps in confining waste and reduce organization's energy uses to make it further more effective as compared to its rivals. Organizational Capability and awareness can add value in its operation and production processes and gives an edge in the market. GSCM is the firm's ability to improve its image and gain competitive advantage. [Ali Daibat (2010); Zhu and Sarkis (2006); Zhu et al. (2006, 2007, 2008); Rao and Holt (2005)].

## **8. REVERSE LOGISTICS:**

This process assures that if the customer is not satisfied with the product they can return it to the manufacturer. Reverse logistics and feedback system gives customer satisfaction towards the product and brand as well as the process ensures the management of surplus. This process will lead to the optimum production and storage of product on time as per the market demand. [Ali Daibat (2010); Routroy (2009); Vachon (2007); Rao and Holt (2005); Zhu et al. (2005); Hu and Hsu (2006); Lippman (2001)].

## **9. QUALITY CERTIFICATION:**

Demand for standard quality certification is an important driver of Green Supply Chain Management which is important to implement GSCM in Manufacturing Industries. Certification encourages companies towards continual improvement and enhancing quality. There is a need to recognize the increased demands of ISO certification. ISO certified Products are eco-friendly, purchasing options of green product, that are good for environment, and that will allow you to leave the smallest possible impact on the planet. [Ali Daibat (2010); Abby Ghobadian (2009); Zhu et al. (2006, 2007, 2008); Vachon (2007); Zhu and Sarkis (2006); Hu and Hsu (2006); Rao and Holt (2005)].

## **10. GLOBAL CLIMATE PRESSURE**

Nowadays, Global climate pressure has become most important enabler of Green Supply Chain Management for the adoption and implementation of GSCM in Manufacturing Industries and produce green products. Global climate pressure and ecology pressure is increasing day by day which we can observe with recent discussion, conferences and summit to save the environment. Keeping tabs on Earth-wide environmental issues, such as the thinning of the ozone layer, the production to must be environment friendly and product to become greener. [Ali Daibat (2010); Abby Ghobadian (2009); Vachon (2007); Zhu and Sarkis (2006); Hu and Hsu (2006); Rao and Holt (2005)].

S.no	GSCM Enabler	Description	Sources
1.	<b>Government rules &amp; regulations</b>	Rules and regulations of the government works as an enabler for organizations to adopt GSCM practices in order to comply with environmental measures.	Kannan Govindan (2010); Walker et al. (2008); Hall (2001); Min and Galle (2001); Beamon (1999); Walton et al. (1998); Green et al. (1996)
2.	<b>Customer awareness</b>	Pressure and awareness from customers led organizations to adopt GSCM practices.	Gioconda Quesada et. al. (2011); Daine Holt (2009)
3.	<b>Collaboration with suppliers</b>	In order to act environmental consciously, organizations need to collaborate with suppliers. Integrating with suppliers on green issues to fulfill environmental objectives and working together to improve environmental performance.	Ali Daibat et. al. (2010); Abby Ghobadian (2009); Vachon (2007); Zhu and Sarkis (2006); Zhu et al. (2006, 2007, 2008); Hu and Hsu (2006); Yuang and Kielkiewicz-Yuang (2001); Klassen and Vachon (2003); Lippman (2001); Lippmann (1999)
4.	<b>Sharing best green practices among network</b>	Evaluation of best practices of GSCM and making it available to the whole supply chain.	Gioconda Quesada et. al. (2011); Daine Holt (2009)
5.	<b>Waste reduction</b>	GSCM works to reduce consumption of material and energy. Adoption of GSCM will improve the efficiency of the organization.	Ali Daibat (2010); Paulraj (2009); Abby Ghobadian (2009); Gonzalez et al. (2008); Rao and Holt (2005)
6.	<b>Relative advantage</b>	Adoption of GSCM practices will provide a relative advantage over competitors. GSCM will reduce the cost and increase the market visibility of the organization.	Ali Daibat (2010); Luthra, S. Kumar, V. Kumar, S. & Haleem, A.(2011); Zhu et al. (2006, 2007, 2008); Rao and Holt (2005)
7.	<b>Improve corporate image</b>	GSCM practices would improve environmental image of the organization as it show casts that firm is environment friendly.	Ali Daibat (2010); Zhu and Sarkis (2006); Zhu et al. (2006, 2007, 2008); Rao and Holt (2005)
8.	<b>Reverse logistics</b>	Use of recycling, reuse and remanufacturing helps firm to recover its little cost and	Ali Daibat (2010); Routroy (2009); Vachon (2007); Rao and Holt

		act in environmental conscious manner.	(2005); Zhu et al. (2005); Hu and Hsu (2006); Lippman (2001)
9.	<b>Quality certification</b>	In order to get ISO certification firms adopt GSCM practices that help in improving quality of work along with fulfilling environmental objectives.	Ali Daibat (2010); Abby Ghobadian (2009); Zhu et al. (2006, 2007, 2008); Vachon (2007); Zhu and Sarkis (2006); Hu and Hsu (2006); Rao and Holt (2005)
10.	<b>Global climate pressure</b>	Global warming, ozone layer depletion, etc such environmental issues are mounting pressure on firms to green practices and act consciously.	Ali Daibat (2010); Abby Ghobadian (2009); Vachon (2007); Zhu and Sarkis (2006); Hu and Hsu (2006); Rao and Holt (2005)

Table 1: GSCM Enablers (Source: Created by researcher)

### CONCLUSION:

Researches on GSCM are still at infancy in developing proper guidelines on GSCM practices and organizational performances. Developing good assessment tools on GSCM is crucial, especially for manufacturers. This research paper highlights the current status of manufacturing sector and recent buzz of the sector. In this paper several enablers of Green Supply Chain Management (GSCM) were identified based upon the past GSM literature and in consultations with experts in the academics. For the better implementation of GSCM in any company these drivers occur in most of the cases. For proper implementation of GSCM in the organization proper attention must be paid to these enablers of GSCM for improving performance of the processes and products according to the need of environment. As GSCM will start playing an important role in attaining competitive advantage, it is right time for manufacturing firms to seriously investigate the leveraging effects of GSCM practices to facilitate both operational and environmental efficiencies and eventually gain greater competitiveness.

### LIMITATION AND FUTURE RESEARCH:

The study has few limitations that could provide directions for further research. For instance, the drivers were identified based upon the past literature which might not fit all organizations and the enablers finalized may suffer from personal bias of the researcher. These limitations could be overcome by extensive industrial surveys that fit the particular industry and the validity of enablers could be made more effective by using a structural equation modeling (SEM) framework. Future research prospects for achieving enterprise sustainability are also available in the direction of the validation of the system using Interpretive Structural Modeling (ISM) is also expected to provide better consistency for complex decision problems.



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# Overview of Online Pharmaceutical Business in India

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## Abstract

*Online pharmacies are expected to become as one of the most promising healthcare services in Indian context by providing easy and affordable access to medicines. [1]*

*Pharma industry is widely split throughout the country. In this industry shops tend to operate under unified retail system with a large number of shops. Advancement of e-commerce in India significantly opened a way for pharma retailers to sell products to almost everybody.*

*This study provides in-depth analysis of the current scenario, detailed market outlook of Indian online pharmaceutical market with coverage on major market players, business models and regulatory framework.*

*The report also provides comprehensive coverage on major industry drivers, restraints, and their impact on market growth. Furthermore, the study encompasses various market specific growth opportunities in Indian online pharmaceutical market.*

**Keywords-** Online pharma retail, Internet based pharmacy, E- Pharmaceutical, Virtual pharma, E- Pharmacy.

## Introduction:

An online pharmacy is an Internet based seller of prescription drugs to customer, which partially or fully replaces the physical retail of pharmacy stores.

Online pharma retail business is also called as Internet based pharmacy stores, E- Pharmaceutical store or Virtual pharma store.

With easy access to internet and busy lifestyles, online purchase has becoming very common these days. Starting from apparels to groceries, electronic devices and other services everything is now available online at a single click. Medicines are not far behind. Users are able to buy Prescription medicines online now.

The business of online pharmaceutical retail is in introductory stage of its business lifecycle. Many sites work lawfully and offer comfort, security, and shields for buying medications. However, there are additionally numerous "rebel sites" those offer to offer conceivably hazardous medications that have not been checked for security or adequacy. In spite of the fact that a rebel site may look proficient and real, it could really be an unlawful operation.

Since the business and the market for online retail is in introductory stage in India, there are number of myths and misconceptions about this business model. Especially absence of clear guideline from the government makes this business a complicated business for new enterprenueres.

### **Objectives of The Study:**

- a. To find out the current scenario, detailed market outlook of Indian online pharmaceutical market.
- b. To find out the business models and regulatory framework of Indian online pharmaceutical market.

### **Methodology:**

The study is an exploratory research based on Secondary data. Secondary Data source used in the study are the Direct Survey reports of SIDBI, MCCIA, DIC etc, newspaper articles, information given on websites, blogs etc. Secondary Data is collected from published reports available on websites of SMEs related institution and by visiting SMEs bodies for unpublished reports and data.

### **Outlook of Indian Online Pharmaceutical Market**

With the introduction of online pharma retail of Internet based pharmacy stores, Existing pharmacists or pharmaceutical companies are going online with their merchandise for sale and offline delivery, while startups with innovative business models are entering the online pharmacy marketplace in India. Below is the list of few famous online pharmacy retailers of India.

Theses retailers are randomly selected considering the following parameters:

- Located in the India.
- Has a licensed pharmacist available to answer your questions.
- Requires a prescription for prescription medicines from your doctor or another health care professional who is licensed to prescribe medicines.
- Provides contact information and allows to talk to a person if there is problems or questions.

### **mCHEMIST.com**

mCHEMIST is an Indian startup in the online medicine buying space. Founded in 2014, this online pharmacy is an e-platform to shop for prescribed medicines and healthcare devices. Users or buyers need to open accounts on mCHEMIST.com and upload their prescriptions to the accounts. Following a few steps, they get medicines delivered at their doorsteps. mCHEMIST also deals in daily wellness aids and herbal supplements. It promises to meet long-term requirements for health and wellness.

### **Netmeds.com**

Netmeds.com is one of the established Indian online pharmacies. Initiated by Dadha & Company, a trusted pharmacy with 100 years of experience in providing quality medicines, Netmeds.com provides medicines, healthcare devices and surgical equipment in several different categories. It delivers herbal products, beauty care products, diabetic care kits, dietary supplements and healthcare products for mothers as well as babies. Every purchase on Nedmeds.com earns reward points which can be redeemed for discounts on the next purchases.

### **Merapharmacy.com**

Merapharmacy.com is a one stop platform for buying all pharmaceutical products online. It delivers medicines from authorized sellers only on the basis of prescriptions. This online pharmacy not only delivers medicines at your doorsteps but also reminds you of the specified times when you need to take the medicines. This add-on service is free of cost. Besides discounts on specific products, coupons from sellers can also be availed on Merapharmacy.com.

### **Medidart.com**

Medidart.com works on the same model as that of other Indian startups in online pharmacy market. It offers cash on delivery payment option besides accepting payments through debit cards, credit cards, net banking and Paytm wallet. Medidart.com has more than 1.7 lakh registered users and delivers medicines to 3000 pin codes across India. Shraavan Kesarla is cofounder and director of Medidart.com.

### **Buydrug.in**

Buydrug.in is the online presence of Buy Drug Pvt Ltd, a retail chain of pharmacy. Buydrug.in delivers only authentic and prescribed medicines with genuine invoices. All medicines and healthcare products are verified by authorized pharmacists. Buy Drug Pharmacy is a direct pharmacy, not a marketplace. You can get medicines from Buydrug.in over phone and SMSs too.

### **Medplusmart.com**

Medplusmart.com is another online pharmacy operating across India, but they don't have the delivery service facility. You can search and shop for medicines on their website. You will be informed about the time to pick up your order from the nearest MedPlus store. All orders are ready for pick up within six hours during regular business hours. Medplusmart.com lets users take prints of their bills individually or collectively.

### **ApolloPharmacy.in**

ApolloPharmacy.in is a venture by the healthcare group Apollo Hospitals into online medicine buying and delivery. Having international quality certification, Apollo Pharmacy operates 24 hours. Its customer care service is available round the clock. ApolloPharmacy.in offers merchandise of over 4000 products in different categories including personal care, dietary supplements, OTC, baby care, etc. The quality of all products is guaranteed.

Business Models of Online Pharma Retail:

Online pharmacy retailer sale product from their internet based websites. The following diagram helps in understanding the model of the business.

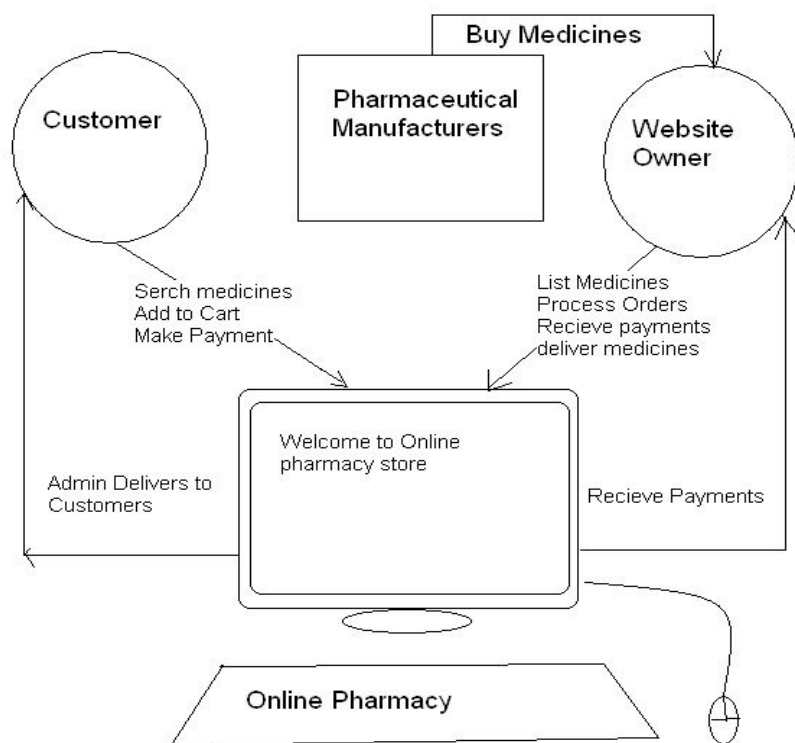


Fig: Online Pharma Retail

The traditional supply chain is based on manufacturer then wholesaler then retailer then customer, typical of most products.

In the case of large pharmacy chains the wholesale operation is managed by the chain rather than an independent wholesaler.

The manufacturer produces the drug from its component raw materials, packages it in bulk and adds the primary value to the product. The retail outlet, the pharmacist adds value by matching the prescription to the correct product, seeking out generic alternatives that will reduce costs, and repackaging the bulk product into smaller, matched dosages for the patient.

An online drugstore in the mainstream market needs to grow large enough to gain the benefits of large chains to obtain the economic advantages of direct purchases from manufacturers and inventory optimization. It is possible for an online business to gain this market power by specializing and focusing on a market segment, say diabetes related medication. While the cost of last mile delivery will erode much of these gains, there are advantages gained from the customer service perspective, since customers need not make the last mile trip to the local pharmacy, and can obtain the prescription at their residence. The low bulk of pharmaceutical products make them more suitable for last mile delivery by mail and package delivery services.

In the online marketplace, the supply chain can be radically changed by a direct manufacturer-consumer link, disintermediating the wholesaler and retailer.

## Business And Payment Structure:

The following Diagram helps in understanding business and Payment Structure of a random pharma retail business in India.

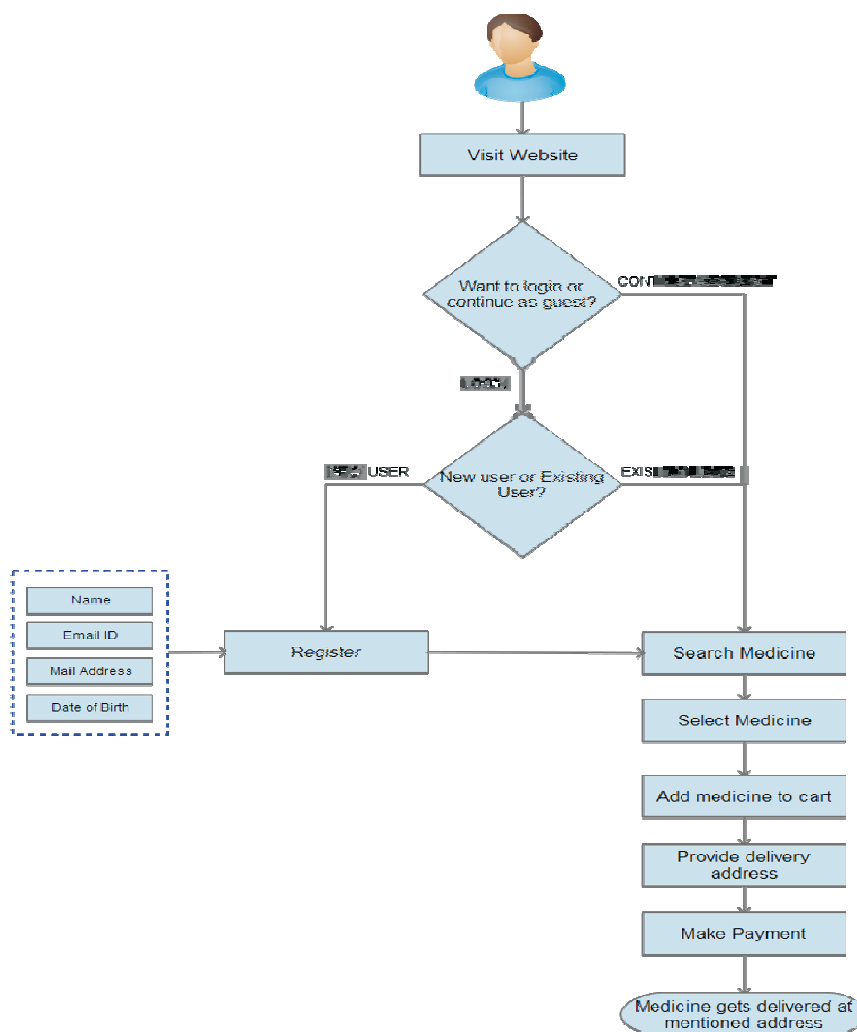


Fig: Business and Payment Structure of E-pharmacy business

## Regulatory Framework of Indian Online Pharmaceutical Market:

First we will understand drug regulation of India. Currently regulatory powers have been distributed between the centre and the state governments. Central Government is responsible for licensing of drug imports and the state governments are responsible for the manufacture, sale and distribution of drugs. Central Government exercises regulatory control over drugs by New Delhi based Central Drugs Control Organisation headed by the Drugs Controller General India. State authorities' exercises regulatory control over drugs by state based Drugs Control Administration headed by the State Drugs Controllers. Every state has its own Drugs Control Administration.



The laws governing Pharmacies in India are derived from Drugs and Cosmetics Act, 1940; Drugs and Cosmetics Rules, 1945; Pharmacy Act, 1948; Indian Medical Act, 1956 and Code of Ethics Regulations, 2002, etc. These all laws were written before the era of computer has been started. So, basically there are no laws related to internet and ecommerce. The Information Technology Act, 2000 governs all activities and issues related to internet. When e-pharmacies regulation is concerned, there is lack of accurately and unambiguously stated laws and clear-cut guidelines to regulate, control and monitor e-pharmacies. For ensuring efficient and legitimate running of e-pharmacies, it is a need of the hour to make hassle free rules for e-pharmacies.

E-pharmacies come under the purview of the Drugs and Cosmetics Act, 1940 and the Information Technology Act, 2000. But current Drugs and Cosmetics Act, 1940 doesn't distinguish between online and offline pharmacies. So amendments are required to Drugs and Cosmetics Act, 1940 to bring e-pharmacies within the scope of Drugs and Cosmetics Act, 1940.

E-pharmacy players make interpretation of laws and rules as per their convenience for taking advantage for their business when there is uncertainty on the applicability of these laws to this model. It seems that online players do not abide to these regulations and try to bypass them. There is a big misconception of believing that rules applied for offline pharmacies could be easily applied to the online pharmacies too. This may lead to dangerous consequences and may be proved as dangerous trend in future. There are not clear provisions regarding sale of drugs from internet, it seems very difficult to control, monitor and track sell of drugs through e-pharmacies.

### **Government of India Rules for E-Pharmaceuticals:**

#### **Drugs and Cosmetics Act, 1940 [3]**

Section 18 (c) of the Drugs and Cosmetics Act prohibits manufacture and sale of any drug without a license. As per the Section 18 (c) of Drugs and Cosmetics Act, 1940 to be read with Rule 65, only a licensed retailer is entitled for the sale of drugs and that too on the basis of prescription of a doctor only. [4]

Section 27 of Drugs and Cosmetics Act has provisions for penalty for manufacture, sale, etc., of drugs in the form of imprisonment and monetary fine. It very clearly states in subsection "b (ii) without a valid licence as required under clause (c) of section 18" [5].

Section 10 of the Drugs and Cosmetics Act prohibits import of any drug that is not of standard quality, any misbranded, adulterated or spurious drug or any drug for requires a license for import. It also does not permit import of "any drug which by means of any statement, design or device accompanying it or by any other means, purports or claims to cure or alleviate any disease." Imported medicines may be fake, mislabelled and unsafe.[6]

The Drugs and Cosmetics Act, 1940, and the Drugs and Cosmetics Rules, 1945, have clear guidelines on the sale of Schedule H and Schedule X drugs, which are 'restrictive drugs' and can be sold only on the prescription of a registered medication practitioner. Schedule X drugs include narcotics and psychotropic substances. Chances of drug abuse and addiction are higher with these drugs. They also require meticulous storage and dispensing records. The prescription has to be in duplicate, one copy of which is to be retained by the licensed pharmacist for 2 years.

### **Drugs and Cosmetics Rules, 1945**

- Rule 65 of Drugs and Cosmetics Rules, 1945 stipulates sale of drug under the supervision of a registered pharmacist which also involves signing of the bill and stamping of the prescription by the pharmacist and the doctor. Rule 65 of Drugs and Cosmetics Rules, 1945 prescribes the procedure to be adopted by the medical stores while selling the prescription drugs and under which the prescription from the registered medical practitioner is necessary for sale of Schedule H drugs under the Act [7].
- Schedule H1 of the Drugs and Cosmetics Rules, 1945 mandates a licensed pharmacist to maintain a separate register for sale of drugs that are specified in Schedule H1 with details of the patient, doctor and the name of the drug/s including quantity; it is to be kept for three years and is open to inspection by regulatory authorities. Schedule H1 mainly includes potent antibiotics, habit forming painkillers and anti-anxiety drugs that induce sleep. [8]
- Schedule H1 drugs are also required to have special labelling, with symbol Rx in red to be clearly displayed on the left top corner of the label and a box warning with a red border-“It is dangerous to take this preparation except in accordance with the medical advice. Not to be sold by retail without the prescription of a registered medical practitioner.”[9]
- The objective of Schedule H1 was primarily to check the indiscriminate use of antibiotics in India, in view of the rising incidence of multi-drug resistant bacteria, a serious public health issue worldwide. Easy access to antibiotics via e-pharmacies will defeat this very purpose. [10]

### **Indian Medical Council Act, 1956 and code of ethics regulations, 2002**

- Regulation 5.3 of MCI Code of Ethics stipulates that pharmacists and doctors should work together. If e-pharmacies are allowed, then this relationship will be lost. [11]
- Regulation 7.14 of MCI Code of Ethics 2002, also does not allow a registered medical practitioner to disclose the secrets of a patient that he/she may have been learnt in the exercise of his/her profession. Declaration (g) given to doctors at the time of registration states: I will respect the secrets which are confined in me.[12]
- Regulation 6.4 of MCI Code of Ethics prohibits from giving or receiving any rebates or commissions. E-pharmacies may provide rebates and commissions to doctors to provide prescriptions on the basis of online information that has been filled by the patient. This way doctors will be vulnerable to malpractice suits [13].
- Not only doctors, Pharmacists too have a role in ethical dispensing of prescription medicines. Safe and effective use of medicines is a complementary effort and subsequent amendments have some provisions in it that are of relevance to the pharmacists. [14]
- Regulation 1.9 of MCI Code of Medical Ethics Regulations, 2002 requires all doctors to abide by the laws of country that regulate the practice of medicine. Neither the doctor nor the pharmacist should be a party to helping others evade these laws. [15]
- Regulation 7.19 of MCI Code of Medical Ethics Regulations, 2002 does not allow doctors to use touts or agents for procuring patients. So, a pharmacist should not indulge in such activities [16].

### **Narcotic Drugs and Psychotropic Substances Act, 1985**

There is chance of misuse of unmonitored and uncontrolled sale of narcotic drugs listed under the Narcotic Drug and Psychotropic Substances Act, 1985 [14].

Drugs and Magic Remedies (Objectionable Advertisement) Act, 1954

The Drug and Magic Remedies (Objectionable Advertisement) Act and Rules 1954 mentions a list of ailments for which no advertising is permitted. It also prohibits false or misleading advertisements that end up making wrong claims. Indian population is being increasingly exposed to advertising for prescription drugs despite legal prohibitions [15].

Section 3: Prohibition of Advertisement of Certain Drugs for Treatment of Certain Diseases and Disorders

Section 4: Prohibition of Misleading Advertisements Relating to Drugs [16].

### **The Pharmacy Act, 1948**

According to Subsection 1 of section 42 of Indian Pharmacy Act 1948, “no person other than a registered pharmacist shall compound, prepare, mix, or dispense any medicine on the prescription of a medical practitioner.” Section 42 (2) also states, “whoever contravenes the provisions of sub-section (1) shall be punishable with imprisonment for a term which may extend to six months, or with fine not exceeding one thousand rupees or with both.” [17]

### **Information Technology Act, 2000**

The Information Technology Act 2000 governs some of the legal issues pertaining to online dealings but it is silent on the aspect of e-pharmacy. As a result, illegal e-pharmacies have been increasing in India [18].

There is no legislation specific to data privacy in India as yet. The laws that deal with data protection or privacy in India are Section 43A of the Information Technology Act, 2000 and the Information Technology (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules 2011. [19]

There is a proposed Privacy (Protection) Bill, 2013 (“Bill”), which focuses on the protection of personal and sensitive personal data of persons. If passed and enacted, it will override all existing provisions directly or remotely related to privacy under section 3, which provides that “no person shall collect, store, process, disclose or otherwise handle any personal data of another person except in accordance with the provisions of this Act and any rules made thereunder.” [20]

There is ambiguity in the Indian law whether a pharmacy is allowed to take money prior to delivery of medicines. Certain provisions of the law mandate, money to be collected from the customer only after medicines are physically handed over to the customer [21].

## **Pharmacy Practise Regulations, 2015**

It appears that electronic prescriptions should be valid especially in the light of the Pharmacy Practise Regulations of 2015 declared by Pharmacy Council of India in January 2015. In these regulations, “Prescription” is defined by regulation 2. (j) “Prescription” means a written or electronic direction from a Registered Medical Practitioner or other properly licensed practitioners such as Dentist, Veterinarian, etc. to a Pharmacist to compound and dispense a specific type and quantity of preparation or prefabricated drug to a patient.<sup>12</sup> On basis of existing regulations it appears that a scanned copy of prescription will be perfectly considered as a valid prescription. However, whether such electronic prescriptions can be used to buy medicine from epharmacies has been questioned [22].

### **Findings & Conclusion:**

An online pharmacy is an Internet based seller of prescription drugs to customer, which partially or fully replaces the physical retail of pharmacy stores.

Online pharma retail business is also called as Internet based pharmacy stores, E- Pharmaceutical store or Virtual pharma store.

In the online marketplace, the supply chain can be radically changed by a direct manufacturer-consumer link, disintermediating the wholesaler and retailer.

Regulatory authorities finds it difficult to control, monitor and track sell of drugs via internet as there is lack of clear-cut guidelines in India for regulating e-pharmacies. The e-pharmacies business model is promising great opportunity for the business, it has some drawbacks also and number of regulatory hurdles in its way of success. It will promote self medication, drug abuse, drug addiction, drug resistance. It will also encourage patients to self-report the medical history.

E-pharmacy may be proved as dangerous trend in future if not regulated properly. Regulatory authorities and government of India should think about existing pharmacy system and pharmacists while framing the rules for e-pharmacies. Patients’ safety and quality of drug should paramount whilst framing rules.

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# A Study on Indian Retail Industry - Structure & Prospects

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## Abstract

*The word 'Retail' has been derived from the French word 'retailer' which means 'to cut a piece off' or 'to break bulk'. Retailing can be defined as procurement of varied products in large quantities from various sources/manufacturers and their sale in small lots, for direct consumption to the purchaser. Retailing is one of the biggest sectors in India and has witnessed multi fold growth post liberalization of the Indian Economy. The evolution of retail trade in India can be traced to the times when majority of trade was routed through formats such as Haats, Mandis and Melas. Mostly organised on a periodical basis and limited to a particular locality/village, such formats gained prominence. Almost everything from vegetables, household necessities to cattle's were bought and sold, either through monetary means or the barter system.*

*With expected transition from offline stores (physical stores) to online stores by many players in the retail industry to compete with the local kirana shops, with home delivery, cash on delivery options, the shop sizes would comparatively decrease while the number of stores might go up. Also, with markets being more organised, the shift from unorganised retail market to organised retail market is expected to happen going forward.*

*This Paper intends to highlight on the Evolution of Retail Industry in India with emphasized on Organized and Unorganized Retail Market. The Paper examines the Modern Retail formats introduced in India. The Paper also tries to study the future prospects of the retail Industry in India.*

**Key words:** Retail Industry in India, Structure of Retail Industry, Evolution of Retail Industry, Modern Organized Retail Formats, Prospects of Indian Retail sector.

## Introduction: Indian Retail Industry

The Indian retail industry has emerged as one of the most dynamic and fast-growing industries due to the entry of several new players in the recent times along with rising income levels, growing aspirations, favourable demographics and easy credit availability. It constitutes over 10% of the country's Gross Domestic Product (GDP) and around 8% of the employment and is valued at USD 672 billion. Globally, India is fifth-largest global destination in the retail space and is growing at a rate of 12% per annum.

Over the last two decades, the size, scope and complexity of retailing has undergone considerable change. The retail industry can broadly be classified into two categories: Organized and Unorganized.

**Organized Retail** is characterised by high investment requirements, large premises, trained staff where retailers are licensed and are registered to pay taxes to the government.

**Unorganized Retail** refers to the traditional form of retail often situated near residential areas. It is generally characterized by low rentals, low tax payouts with a majority of it being owner-managed and

employing personal capital. It includes formidable mix of conventional Kirana shops, general stores, mom-&-pop stores, paan-beedi shops and other small retail outlets.

Currently, organised retail market is valued at about USD 60 billion, only about 9% of the sector, where as unorganized retail market holds the rest. India's organised retail penetration is much lower compared with other countries, such as the United States which has organised retail sector penetration of 85%.

Retailing is the final connection in the marketing channel that brings goods from manufacturers to consumers. In other words, retailing is the combination of activities involved in selling or renting consumer goods and services directly to ultimate consumers for their personal and household use. In addition to selling retailing includes different and diverse activities like buying, advertising, data processing and maintaining inventory. Retailing includes all the activities involved in selling goods or services directly to final consumers for their personal, non-business use. Any organization that does this selling-whether a manufacturer, wholesaler, or retailer-is doing retailing. It does not matter how the goods or services are sold (by person, mail, telephone, or vending machine) or where they are sold (in a store, on the street, or in the Consumer's home).

### **Review of literature**

Vijaya Jacqueline (2012) – This Study focused on retail management in organized retail outlets in Mumbai and its impact on Consumer Behavior. This study focused on Consumer's tastes and preferences and according to these tastes and preferences, different marketing and Promotion mix strategies were focused. The Study also focused on the attitudinal shift towards Malls and organized retailers to face the Competition better.

Patil, Shivraj N.(2013) - This research highlighted the recent trends of retail management in India, it focuses on the concept of Malls, Emergence of specialty retailing and Malls as an Entertainment Zones, it also gives the detail about Technology driven malls and Mall's Future filled with opportunities, the chapter further gives the detail about Management of Malls and also shows that how rural India is an Untapped Potential for retail industry, also discuss the future of Malls across the globe and last it provides the statistics of retail industry of India like:- Growth India Retail - Total v/s Organized, India Retail - Share of Categories, Share of Organized Sector in Total Retail by Category.

### **Objectives:**

- To Study the Evolution of Retail Industry in India.
- To find out the total Market Share of Retail Industry in India.
- To identify the new organized retail formats introduced in India.
- To identify the factors responsible for the growth of Retail Industry in India.
- To Find out Retail Industry's future Growth potential in India.

### **Research Methodology:**

The specific types of information and / or data needed to conduct a secondary analysis will depend on the focus of study. For this research purpose, secondary data analysis is usually conducted to gain in-depth understanding of the study. Secondary data review and analysis involves collecting information, statistics, and other relevant data at various levels of aggregation in order to conduct a requirement analysis of the subject and mostly the paper is based on the information retrieved from the internet via journals, research papers and expert opinions on the same subject matter

## **Evolution of Retail Industry In India**

The word 'Retail' has been derived from the French word 'retailer' which means 'to cut a piece off' or 'to break bulk'. Retailing can be defined as procurement of varied products in large quantities from various sources/manufacturers and their sale in small lots, for direct consumption to the purchaser. Retailing is one of the biggest sectors in India and has witnessed multi fold growth post liberalization of the Indian Economy. The evolution of retail trade in India can be traced to the times when majority of trade was routed through formats such as Haats, Mandis and Melas. Mostly organised on a periodical basis and limited to a particular locality/village, such formats gained prominence. Almost everything from vegetables, household necessities to cattle's were bought and sold, either through monetary means or the barter system.

Contemporary organised retail industry evolution in India can be broadly classified in four phases;

### **1. Initiation (Pre 1990)**

- Migration of people from villages to urban areas
- Opening up of small stores for necessity items
- Advantage of acquaintance with the customers thereby resulting in repeat sales
- However, limited customer base within locality
- During the period 1960s to 1980s, domestic textile majors ventured into retailing via company-owned outlets.
- Few manufactures opened their own outlets such as Vimal, Bombay Dyeing, Raymond's, etc. Footwear makers such as Bata and Metro also established their own chains of retail stores.

### **2. Conceptualisation (1990-2005)**

- With liberalisation and opening up of Indian economy during the early 1990s, many corporates and first generation entrepreneurs entered retail business and investments by international retail firms increased in India.
- For e.g. the RPG group launched Spencer's in Bangalore in 1991. During the same year, The Raheja's, launched Shoppers Stop in Mumbai.
- In 1998, Tata group entered the retail business with the brand Westside. Brands like McDonalds, Adidas, Reebok, Nike, Levi Strauss, Lee, Wrangler, Louis Philippe, Pepe Jeans, etc. entered Indian retail market.
- Growth in apparel retail format was the most significant during this period.

### **3. Expansion (2005-2010)**

- This period was marked by the growing share of organised retail in the total Indian retail sales pie with substantial investments by large Indian corporates.
- Pantaloons retail (now Future retail) opened 'Home town' and 'E-zone' in 2006. Reliance entered the retail business with 'Reliance fresh' in 2006.
- Besides the above, in the year 2006, government changed the FDI policy by allowing foreign retailers to acquire 51% stake in JV with an Indian firm. This saw several premium brands such as Armani, Versace etc entering the Indian market.
- During the period 2008-2009, due to recessionary impact seen in the Indian economy, many over-leveraged retail stores had to shut down.

#### 4. Consolidation & growth (2010 onwards)

- With intense competition in the urban market, retailer started to setup shops in the smaller cities and rural areas. Also, India witnessed emergence of many online brands such as Flipkart, Myntra, Homeshop18 etc.
- In 2012, GoI made major changes in retail FDI policy by allowing FDI upto 100% in single brand and upto 51% for multi brand.
- E-commerce emerged as one of the major segments

#### Market Size of Retail Industry

The year 1980 marked the onset of retail chains in India with the entry of textile majors such as Bombay Dyeing, S Kumar's, Raymond's etc. followed by Titan. However, the emergence of organized retailing as a 'concept' emerged to the fore in the Indian scenario only during the early years of 2000. With the growing number of players in the organized retail sector various new formats such as supermarkets, hypermarkets etc emerged. The concept of 'one-stop shop' further glorified the advantages associated with modern retailing. Over the last two decades, the size, scope and complexity of retailing has undergone a considerable change. One of the significant changes is advancing online retail of various products across the country. The current online retail accounts for about 1.2% of total retail market.

The retail market size grew from USD 518 billion in 2012 to about USD 672 billion as of 2016, registering a compound annual growth rate (CAGR) of ~7% during the period. However, in the last two years, the retail industry has been growing at about 12% respectively on account of favorable demographics, higher income levels, easy credit availability, etc

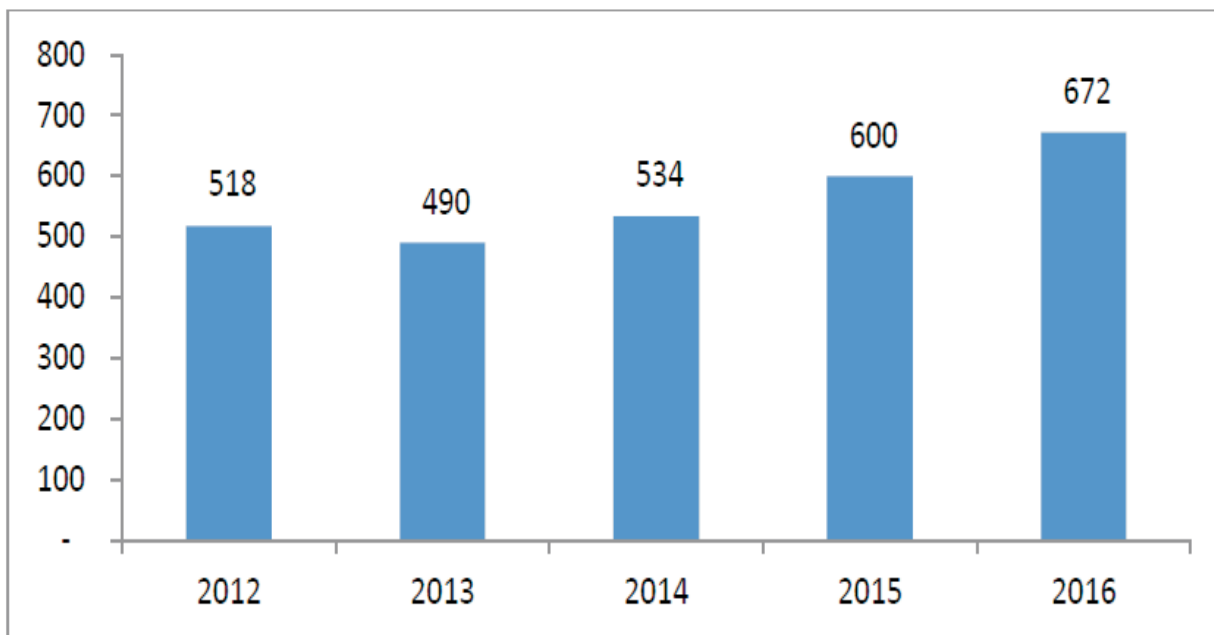


Chart 2: Market size of Retail Industry (USD)

Source: IBEF

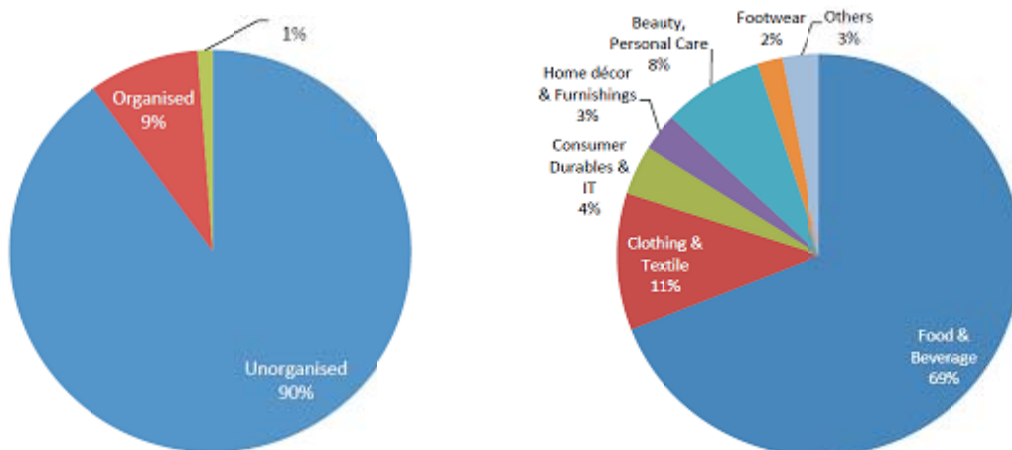
The Indian Brand Equity Foundation (IBEF) estimates the industry to grow at a CAGR of over 17% over the next 4 years and reach USD 1,300 billion by 2020. However, with the Private Final Consumption Expenditure expected to grow by about 12.5% y-o-y till 2020 (has grown at about 10-12% historically) and GDP by ~ 8.5-9%, **CARE expects the retail industry to register a growth rate of about 12-14% over the next 4 years and reach about USD 1,150 billion by 2020.**



Also, with the higher demand from consumers with higher incomes, job creations, improved standard of living, higher discretionary spends and higher participation of producers/retailers in the organised retail market, discounted and promotional pricing, increased number of products and more private labels with retailers among others, the industry is expected to register growth going forward.

With expected transition from offline stores (physical stores) to online stores by many players in the retail industry to compete with the local kirana shops, with home delivery, cash on delivery options, the shop sizes would comparatively decrease while the number of stores might go up. Also, with markets being more organised, the shift from unorganised retail market to organised retail market is expected to happen going forward.

**SECTOR WISE CONTRIBUTION OF ORGANIZED & UNORGANIZED RETAIL INDUSTRY**



**Chart 3: Segment-wise contribution in retail industry Chart 4: Segment wise contribution in organised retail**

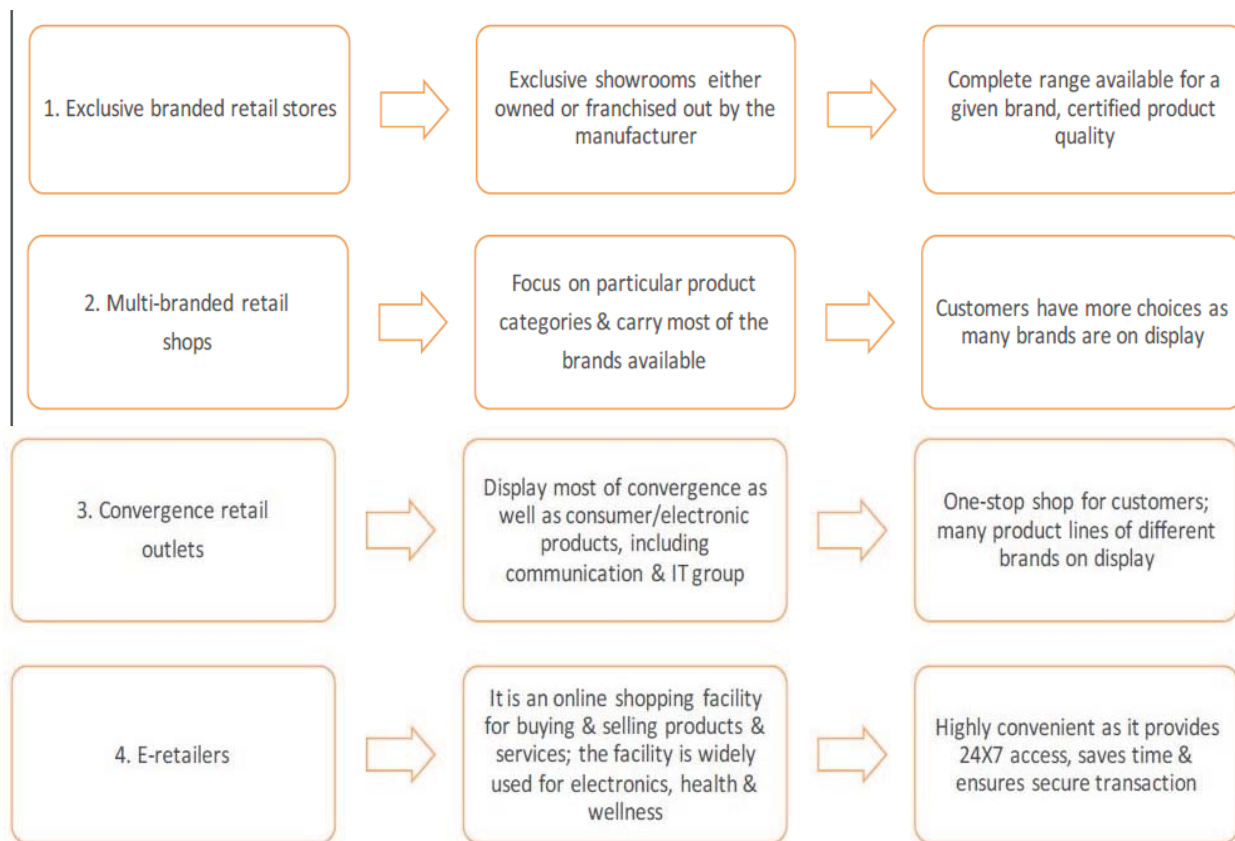
The Indian Retail industry has primarily been dominated by the unorganized segment. During FY16, the unorganized retail accounted for about 90% of the total retail revenue. Compared to the unorganized retail contribution of 15-20% to the total retail sales in countries such as U.K., U.S., Taiwan etc, the Indian figure is high. Within organized retail, food & beverage holds around 70% of the retail sector, followed by apparel and personal care. As per World Development Indicators database published by World Bank in February 2017, India is the 3rd largest economy in the world in terms of Purchasing Power Parity (PPP), only behind China and US. Indian GDP growth stood at 7% as on December 31, 2016 as mentioned by Central Statistics Office (CSO) and it is expected to be the same for FY17.

As per IMF, Indian economy is likely to grow by 7.2% in FY18 and 7.7% in FY19. This shows India's growth potential in Organized Retail Penetration also. Improving economy, changing demographic profile, increasing disposable incomes in hands of the middle class, changing tastes and preferences and growing urbanization along with rising discretionary spends are the main growth drivers in the organized retail market in India. CARE expects the Indian economy to grow by about 7.6%-7.8% in FY18.

## Organized Retail Formats In India

Modern retailing in India has entered in form of huge malls and super markets offering shopping, entertainment, leisure to the consumer while the retailers experiment with a variety of formats, such as discount stores, supermarkets, hypermarkets to specialty chains. However, kirana shops still continue to score over modern formats primarily due to the convenience factor. The organized segment typically comprises of a large number of retailers, greater enforcement of taxation mechanisms and better labour law monitoring system. Retailing is no longer only stocking and selling but is about efficient management of supply chain, developing distributor and vendor relationship, customer service quality, efficient merchandising and timely promotional campaigns

Although largely unorganized, the Indian retail sector witnessed sharp growth over the past few years. Food & grocery and clothing & footwear segment are the main revenue drivers in the Indian retailing, together accounting for approximately 80% of the market share in FY16.



**Chart 5: Organized retail formats in India**

## Demand Drivers of Retail Industry

### 1. Demographic advantage

- The growing Indian population has also led to increase in the 'earning population' (age group 15-60) of the country. The proportion of Indian populace in the age group of 15-64 years increased from 55.4% in 1991 to 66.2% in 2016.
- Considering the huge size of the Indian population, the lower median age implies a higher number of working people thereby clearly outlining the immense earning as well as spending potential of the Indian populace.

- Taking into account the age group below 25 years being one of the highest spending age group, the current age dynamics are expected to boost the retail sales in India. The median age of India is 26.7 years, one of the lowest globally in comparison to 37.2 years in the US, 45.8 years in Japan and 36.3 years in China.
2. Rapid urbanization
    - A majority of India still lives in ‘villages’. This statement no doubt holds true but the figures suggest that there has been a paradigm shift of the Indian populace in terms of rural–urban divide. The aspirations of higher income, higher standard of living etc. has drawn more and more people from villages to settle in towns and cities.
    - This transition from rural to urban areas has led to an increase in the demand for goods (owing to higher income and ever-expanding needs). The retailers, especially in the organised segment are therefore targeting the ‘middle class’ populace by ensuring the availability of varied products at various price ranges to match the needs of a ‘common man’.
  3. Rising income levels & growing per capita expenditure
    - In the last decade, Indian economy has progressed rapidly. Correspondingly, India’s per capita GDP has gone up from Rs 71,607 in FY12 to Rs. 117,406 in FY17 at a CAGR of 10.4% fuelling a consumption boom in the country. Correspondingly, the per capita personal disposable income surged from Rs 73,476 in FY12 to Rs 119,296 in FY17 at a CAGR of 10.2%. Also, the per capita private final consumption expenditure too rose from Rs 40,250 in FY12 to Rs.68,049 in FY17 at a CAGR of 11.1%. The growth in country’s per capita GDP in turn has increased the disposable income of the populace ultimately driving the country’s consumption.
  4. Growing spread of plastic money & easy availability of credit
    - The growing use of ‘plastic money’ i.e. credit and debit cards has resulted in an increased spending amongst the consumers thereby fuelling the demand in the retail sector. With the acceptance of plastic money by almost all the retailers in the organised retail segment, the number of outstanding plastic cards in the country is on a rise. The incentives such as cash-back offer or discounts on selected sales linked to the plastic money have lured the Indian consumer to experience the pleasure of ‘cashless shopping’.
  5. Changing face of Indian consumerism – from necessities to luxury (Brand consciousness)
    - With rise in income level of Indian populace and increase in plastic money, discretionary spending has become important. In the year FY16, Food & grocery and Clothing & footwear spending was recorded at 62% of the country’s total spending while that of discretionary category was steady at 38%.
    - Even with a declining share ‘Food, Grocery and Beverages’ segment remained the largest spending head but the growing consumer spending under the ‘discretionary heads’ such as healthcare, personal care products etc marked a noticeable feature of the shifting consumption pattern.
  6. Growing female working population
    - On the backdrop of growing Indian economy during the recent years, the participation of female workforce in the country’s economic activities has increased considerably. The proportion of the female workforce which accounted for 26% of the country’s workforce in FY71 has scaled

to 31% during FY11. Notably, the percentage of working women involved in the organised industrial activities too has increased from 27% in FY81 to 47% in FY11.

- The higher purchasing power in the hands of ‘working-women class’ compared to the housewives enhances the ability of the former to spend much more comparatively.
- Further the ‘time constraint’ factor also needs to be accounted for by the working women while making purchases of various day-to-day requirements. Capitalizing on the same, the organised retailers have increasingly emphasized on the ‘one-stop shop’ concept wherein all the household requirements ranging from food & grocery to apparel could be met under a single roof.

#### 7. Rising growth in number of nuclear families

- The rapid growth of population, increased urbanization and the unavailability of large real estate spaces have led to the growth of nuclear families in the country. The average number of person per household has reduced from 5.6 in FY81 to 4.9 in FY11.
- The growing number of households has not only pushed the demand for necessities but the combined mix of greater purchasing power and willingness to spend has resulted in the nuclear family’s shifting focus towards luxury/semi-luxury products. This has thus led to the emergence of modern retail formats such as specialty retail, luxury retail etc.

#### **E-tail in India**

E-commerce is expanding steadily in the country. With advancements in quality of internet access, payments and computing on mobility platforms, changed consumer behavior with a large active internet user base, customers have the ever increasing choice of products at the lowest rates by various retailers. E-commerce is probably creating the biggest revolution in the retail industry, and this trend would continue in the years to come. Currently India’s internet penetration stands at around 35%.

E-tail in India can be broadly categorized as:

- *Domestic* – sale within India (Amazon, eBay, Flipkart, Snapdeal, Shoppers-Stop, Reliance, Croma, etc)
- *Cross-Border* – sale in India from outside India. (The U.S. is one of the top ten countries for cross-border shopping for Indian buyers. Baby supplies, toys, clothing, footwear, automotive, wearables and accessories, jewelry, watches, personal care and health products and digital entertainment and educational services are some of the leading categories for cross-border B2C ecommerce. Challenges restricting the growth of cross-border ecommerce include high shipping costs, import duties and complexities in returns and exchanges)
- *B2C* – sale between retailer and consumer (Flipkart, Myntra, Jabong, Amazon, Snapdeal, eBay, PayTM, Shopclues, Pepperfry, Zomato, BigBasket)
- Marketplace and Inventory based
- Single brand and multi brand

Online retail business is the next generation format which has high potential for growth in the near future. After conquering physical stores, retailers are now foraying into the domain of e-retailing to leverage the digital retail channels (e-commerce), which would enable them to spend less money on real estate while reaching out to more customers in tier-2 and tier-3 cities. It has been found that India’s e-commerce is one of the fastest growing channels for commercial transactions. E-commerce in India is growing at an annual rate of 51%, the highest in the world, and is expected to jump from \$30 billion in 2016 to \$120 billion in 2020 according to a ASSOCHAM-Forrester study paper.

The online retail growth has followed a disruptive course across markets. In relatively mature markets, like US, where the organised retail penetration is high, multi-channel retail chains lead to online markets. While in newer markets like India (with about 10% organised retail of which about 1.2%

share held by e-tail) and China (with 20% organised retail), web-only players are dominating the market given the low organised retail penetration.

Category	Approx Share (%)
Electronics & Accessories	40-45
Apparel & Lifestyle	25-30
Home & Living	5-7
Food & Grocery	2-3
Others	20-30

### Conclusion:

With the Private Final Consumption Expenditure expected to grow by about 12.5% y-o-y till 2020 (has grown at about 10-12% historically), GDP expected to go up to ~9%, **CARE expects the retail industry to register a growth rate of about 12-14% over the next 4 years and reach about USD 1,150 billion by 2020.** With factors such as higher demand from consumers with higher incomes, job creations, improved standard of living, higher discretionary spends and higher participation of producers/retailers in the organized retail market, discounted and promotional pricing, increased number of products and more private labels with retailers among others, the industry is expected to register growth going forward. The traditional retailers are expected to continue dominating the largest market share in the Indian Retail industry. However, with the expansion in the e-tail segment on the back of growing internet users, changing lifestyles, various delivery options, their share is projected to shrink going forward. In order to safeguard their shares and face the intensifying competition from online retailers, the traditional retailers are making huge investments for building their IT infrastructure. Although the share of modern retail penetration in the country is not pleasing, there is still a lot to cheer as consumer spending patterns and increasing disposable income levels continue to evolve at a fast pace. With a number of international brands entering the market, there is ample opportunity and dynamism for the industry. Also, the existing players are working towards reinventing ways to keep up with the pace of growth in the sector. Nevertheless, there is a huge untapped potential for the growth of modern retail in the top six retail markets (Delhi, Goa, Kerala, Maharashtra, Karnataka, Mizoram) in India as per the Retail Potential Index of National Council of Applied Economic Research (NCAER).

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# Analysis and Recommendation for Online Shopping Using Web Mining Techniques

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## Abstract

*Today web is the best medium of communication in modern business. Many companies are redefining their business strategies to improve the business output. Business over internet provides the opportunity to customers and partners where their products and specific business can be found. Nowadays online business breaks the barrier of time and space as compared to the physical office. The analysis of the user's current interest based on the navigational behavior may help the organizations to guide the users in their browsing activity and obtain relevant information in a shorter span of time. Since a user has a specific goal when searching for information, personalized search may provide the results that accurately satisfy user's specific goal and intent for the search. Personalization of web search is to retrieve information according to user's interests which may be inferred from user's action, browsed documents or past query history etc. The Paper focuses on recommender systems based on the user's navigational patterns and provides suitable recommendations to cater to the current needs of the user. This proposal contains the concept of Web Usage Mining which is the discovery and analysis of user access patterns through mining of log files and associated data from a particular website. The data most accessed by user will be stored in log files.*

**Keywords-** Recommender Systems, Web Usage Mining, Collaborative Filtering, Content Based Filtering, Electronic commerce, data mining, web mining

## INTRODUCTION

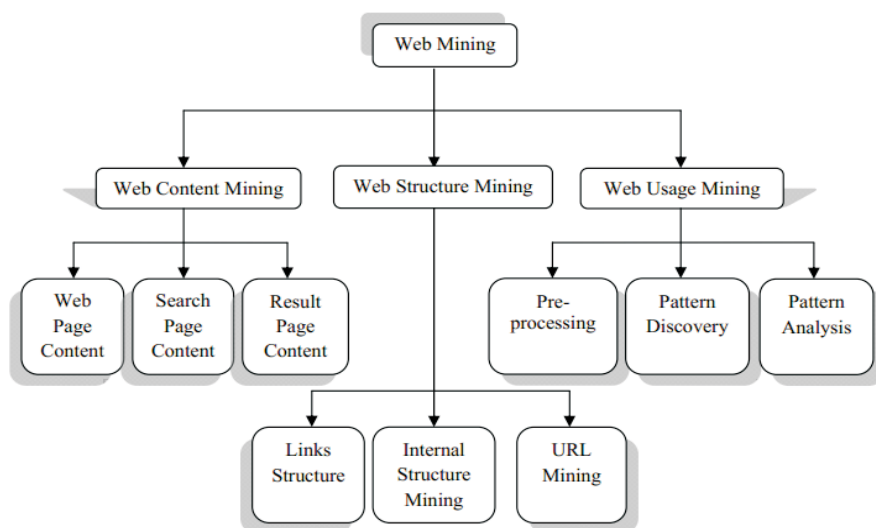
Web is taking an important role in human's life and day by day it increases the information based on the expectations of the customers using it. Updated information is necessary to fulfill the needs of the users. Web mining is the application of Data Mining to automatically fetch and evaluate information from the web services and documents. Automation is everywhere and in every field to avoid the human work in creation of anything. Web mining utilizes the automatic way of information extraction from the World Wide Web according to the preferences. With the continuous development of electronic commerce, it is not easy for customers to select merchants

and find the most suitable products when they are confronted with the massive product information in Internet.

In the whole shopping process, customers still spend much time to visit a flooding of retail shops on Web sites, and gather valuable information by themselves. This process is much time-consuming, even sometimes the contents of Web document that customers browse are nothing to do with those that they need indeed. So this will inevitably influences customers' confidence and interests for shopping in Internet.

In order to overcome the limitations of collaboration filtering, the recommender system based on web mining is proposed in the synopsis. It utilized a variety of data mining techniques such as web usage mining, association rule mining etc. Based on these techniques, the system can trace the customer's shopping behavior and learn his/her up-to-date preferences adaptively. All these pose a challenge to researchers to discover the web management methods and effective extraction of information from the web.

To understand the web mining we should know all about the data mining techniques available. Figure 1 provides taxonomy of web mining:



### WEB CONTENT MINING (WCM)

Web Content Mining is the process of extracting use full information from the contents of web documents. The web documents may consists of text, images, audio, video or structured records like tables and lists. Mining can be applied on the web documents as well the results pages produced from a search engine.

### WEB USAGE MINING (WUM)

Web Usage Mining is the process of extracting use full information from the secondary data derived from the interactions of the user while surfing on the Web. It extracts data stored in server access another page may be considered as a vote. However, not only the number of votes a page receives is considered important, but the “importance” or the “relevance” of the ones that cast these votes as well.

## **WEB STRUCTURE MINING**

The goal of the Web Structure Mining is to generate the structural summary about the Web site and Web page. It tries to discover the link structure of the hyperlinks at the inter-document level.

## **RELATED WORK**

This system involves integration of web mining techniques with an e-commerce application. This integration facilitate e-store owner to improve the features and services and also it will help to get information about the customer's or consumer's behavior of visiting web products and services.

There are many areas where data mining can be very helpful when integrating with e-commerce. Some of them are: Data mining in customer profiling (Customer profiling means searching for the data which is collected from existing customers of an business organization for patterns that will allow that business organization to predict about who are the potential customers are and how those customers are behaving), Data mining in recommendation systems, Data mining in web personalization, Data mining and multimedia e-commerce, Data mining and behavior of consumer in ecommerce. Online Recommendation exists and is being used by many shopping websites. Many algorithms, permutations and combinations, Associations will be used to create online recommendation. There are many different ways through which a system can be created.

Some algorithms used in general are:

### 1. Collaborative filtering:

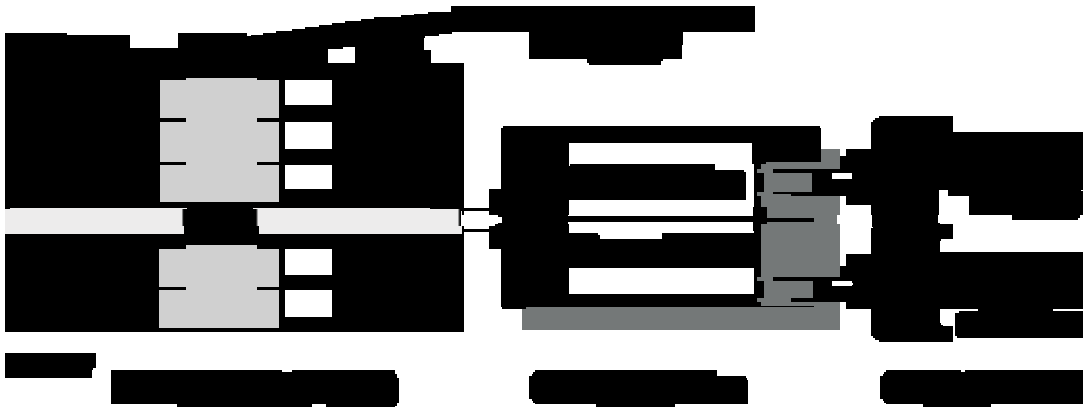
- Item to Item.
- User to User.

### 2. Content Based Filtering:

#### **A. COLLABORATIVE FILTERING BASED RECOMMENDER SYSTEM:**

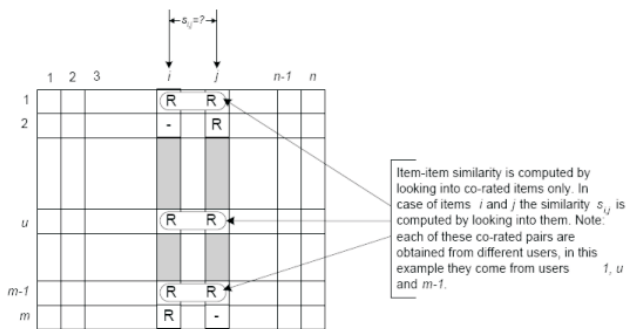
Recommender systems [1]-[2] apply data analysis techniques to the problem of helping users find the items they would like to purchase at E-Commerce sites by producing a predicted likeliness score or a list of top-N recommended items for a given user. Item recommendations can be made using different methods. Recommendations can be based on demographics of the users, overall top selling items, or past buying habit of users as a predictor of future items. Collaborative Filtering (CF) is the most successful recommendation technique to date. The basic idea of CF-based algorithms is to provide item recommendations or predictions based on the opinions of other like-minded users. The opinions of users can be obtained explicitly from the users or by using some implicit measures.





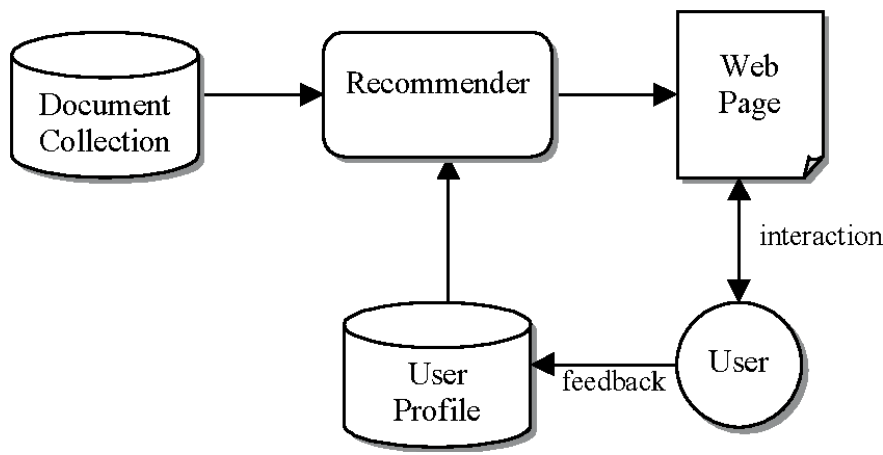
□ **ITEM-BASED COLLABORATIVE FILTERING ALGORITHM:**

In this section we study a class of item-based recommendation algorithms for producing predictions to users. Unlike the user-based collaborative filtering algorithm, the item-based approach looks into the set of items the target user has rated and computes how similar they are to the target item  $i$  and then selects  $k$  most similar items  $\{i_1, i_2, \dots, i_k\}$ . At the same time their corresponding similarities  $\{S_1, S_2, \dots, S_{ik}\}$  are also computed. Once the most similar items are found, the prediction is then computed by taking a weighted average of the target user's ratings on these similar items. We describe these two aspects, namely, the similarity computation and the prediction generation in details here



**B. CONTENT BASED FILTERING:**

A content-based filtering system selects items based on the correlation between the content of the items and the user's preferences as opposed to a collaborative filtering system that chooses items based on the correlation between people with similar preferences. PRES is a content-based filtering system. It makes recommendations by comparing a user profile with the content of each document in the collection. The content of a document can be represented with a set of terms. Terms are extracted from documents by running through a number of parsing steps. First all HTML tags and stop words (words that occur very often and cannot be used as discriminators) are removed. The remaining words are reduced to their stem by removing prefixes and suffixes [Porter 1980]. For instance the words "computer", "computers" and "computing" could all be reduced to "compute". The user profile is represented with the same terms and built up by analyzing the content of documents that the user found interesting. Which documents the user found interesting can be determined by using either explicit or implicit feedback. Explicit feedback requires the user to evaluate examined documents on a scale. In implicit feedback the user's interests are inferred by observing the user's actions, which is more convenient for the user but more difficult to implement.



### **PROPOSED SYSTEM:**

Online recommendation is already in use. But Different ways and algorithms are used for building it. We have tried to make a comparative study of the techniques which were used in the previous systems. We have combined algorithms and made it efficient and other measures of efficiency such as high speed, minimum memory usage.

### **OUR PROPOSED SYSTEM WORKS IN 5 PHASES:**

#### **PHASE 1: SORT PHASE**

The database (D) is sorted, with customer-id as the major key and transaction-time as the minor key. This step implicitly converts the original transaction database into a database of customer sequences.

#### **PHASE 2: LARGE ITEM-SET PHASE**

In this phase we find the set of all L-item sets. We are also simultaneously finding the set of all large l-sequences, since this set is just  $\{(l) | l \geq L\}$ .

#### **PHASE 3: TRANSFORMATION PHASE**

In a transformed customer sequence, each transaction is replaced by the set of all L-item sets contained in that transaction. If a transaction does not contain any l-item set, it is not retained in the transformed sequence. If a customer sequence does not contain any l-item set, this sequence is dropped from the transformed database. However, it still contributes to the count of total number of customers.

#### **PHASE 4: SEQUENCE PHASE**

Use the set of l-item sets to find the desired sequences. Algorithms for this phase are:

##### **1. APRIORI ALL**

The Apriori All algorithm uses each pass to find large sequences from the previous pass to generate the candidate sequences and then measure their support by making a pass over the database. At the end of

the pass, the support of the candidates is used to determine the large sequences. In the first pass, the output of the L item set phase is used to initialize the set of large 1-sequences. The candidates are stored in hash-tree to quickly find all candidates contained in a customer sequence.

## **2. APRIORI SOME**

1. Two of the proposed algorithms, Apriori some and Apriori All, have comparable performance, albeit Apriori some performs a little better when the minimum number of customers that must support a sequential pattern is low.

2. The major advantage of Apriori Some over Apriori-All is that it avoids counting many non-maximal sequences.

## **PHASE 5: MAXIMAL PHASE (OUTPUT PHASE)**

Find the maximal sequences among the set of large sequences. In some algorithms, this phase is combined with the sequence phase to reduce the time wasted in counting non-maximal sequences.

## **Conclusion**

Online Recommendation System for a shopping cart, an application that enables the user to search for and receive recommendations to find the product based on the previously searched products. The search result comprises a large number of products. Hence the recommendation system cuts down the burden on the user by recommending the products that best fits his preferences by placing them at the top. This recommendation is retrieved from the log files. Explicit feedback leads to an increase in the user's frustration level. The recommendation process uses implicit feedback. The feedback is obtained by making some observations on the user's purchase history. The online recommendation system for shopping cart makes successful recommendations by using the technique of assigning feature weights and user specific preference based recommendations.

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# Effectiveness of Ban in Plastic And its Impact on Plastic Small Scale Business in Pune City

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## Abstract

*The paper will study about the effectiveness of plastic ban in Pune city and the availability of plastic substitutes available to the people living in Pune city, this paper will also analyze about the impact of plastic ban on small scale plastic business in Pune city and it will also study about the raise in plastic substitute's small scale Industry. This paper will also investigate the support and encouragement given to Plastic substitutes industry by the state government.*

**Keywords**-plastic ban, small space business, plastic hazards, counties impact, effects of ban, impact on people, Laws on ban.

## Introduction

Scientists estimate that every square mile of oceans contains about 46,000 pieces of floating plastic. According to The World Economic Forum study done on plastic pollution around the world, Oceans will have more plastics than fish by 2050, if plastic pollution continues to rise. India's contribution to plastic waste that is dumped into the world's oceans every year is a massive 60%. Talking about Pune City and impact of plastic ban a simple piece of policy can achieve big results.

The need of the hour in India is strict laws and its enforcement Plastic ban, Big retailers in Pune switch to alternatives, but manufacturers struggle to keep up While major retailers like Big Bazaar and D-Mart have come up with 100 per cent compostable bags along with the bags made of cloths and papers as a solution to the ban, smaller retailers are finding it difficult to cope with the added expenses. While civic authorities are uncompromising in their efforts to enforce the state-wide plastic ban, retailers are finding it difficult to switch to alternate mediums. While major retailers like Big Bazaar and D-Mart have come up with 100 per cent compostable bags along with the bags made of cloths and papers as a solution to the ban, smaller retailers are finding it difficult to cope with the added expenses in a blow to retailers such as Big Bazaar and D-Mart, authorities have termed the compostable bags to be equally hazardous in nature. There were various places in the city where 100 per cent compostable bags were being used as an alternative to plastic bags. However, bags have seized these bags from various places because they are equally hazardous to the environment and according to the plastic ban guidelines, compostable bags can only be used in nursery gardens, Responding to the issue, an official from Big Bazaar, on the condition of anonymity, they have not received any notification from any governing authority asking us to stop using compostable bags. Till now some of the stores have been openly using them for many days and no action has been taken against. they get all bags from our main Goodwin

Gujarat. They have not received any orders from our senior management to stop using compostable bags. (1)

The civic authorities have trivialized the illegal usage of these compostable bags by Big Bazaar and D-Mart etc . These bags clearly violate the norms fixed by the state government and action should be taken against them responding to the allegation.

## **MANUFACTURING FALLOUT**

According to the All India Plastics Manufacturers Association (AIPMA), more than four lakh workers were employed by around 2,150 manufacturing units in the state.

A month after the Maharashtra government issued a notification to ban plastic items, a thousand plastic manufacturing units across the state shut down, according to manufacturers. The fallout also abruptly rendered lakhs of industry workers without a source of livelihood. Almost 50 per cent of the plastic manufacturing units in Pune have closed down as a result of the plastic ban.

This has left thousands of people jobless overnight. While the government is strict in the implementation of the ban, they are doing nothing to suggest alternatives to plastic. They are doing nothing to save small scale plastic manufacturing units which have all become bankrupt or are facing major financial difficulties.

The MPMA has already filed a writ petition in the Bombay High Court, seeking a repeal of the ban. In one stroke, the state's plastic industry has been rendered defunct. All units have running loans amounting to crores of rupees. They will all have to shut down if the ban is not lifted Chakan, Kondhwa, Shindewadi, Pimpri-Chinchwad and Rajgurunaga are the major plastic manufacturing zones in the city and with a majority of Indian states imposing a ban on plastic bags, the impending threats posed by illegitimate and unscientific modes of its disposal is evident. (2)

India today is faced with a relentless inflow of plastic waste touted at more than 15,000 tons per day. A study of plastic waste characterization performed by CIPET-CPCB in 60 major cities suggests 66% of plastic waste generated was constituted by HDPE/LDPE materials with plastic carry bag as one of the major components.

The waste generation trend would include cities with existing plastic ban. With the majority of this originating from the urban households, it is time to revisit our strategy in addressing this subject on ban.

### **Why Ban In India?**

Currently in India, there is only one law that is in place no manufacturer or vendor can use a plastic bag which is below 50 microns as thinner bags pose a major threat to the environment due to its non-disposability. The usage of plastic bags is still high as the ban is not implemented on all plastic bags.

Many big brands and vendors have started charging the customers for the poly bags in order to commercially discourage them, but it is so far not been effective as there is no law or guidelines that says shopkeepers should charge money from the customers for the poly bag. Plastic ban.

What India Can Learn From Other Countries the problem in India is that there is no strict law available on the usage of plastics.

National Green Tribunal in Delhi NCR introduced a ban on disposable plastic like cutlery, bags and other plastic items amid concern over India's growing waste. The ban came into effect on January 1, but, till now nothing has been done by the government. As a result, the production and usage of plastic persist in large amounts and India continues to be the top four producers of plastic waste in the world. Currently, cities including Delhi, Mumbai, Karwar, Tirumala, Vasco, Rajasthan, Kerala, Punjab and now Madhya Pradesh to name a few have the ban on the plastic bags in place. But, its enforcement and effective implementation is an issue. (3)

#### Around The World: How Are Countries Dealing With Plastic

These are some countries and the enforcement of the ban are as follows-

France: The country passed a 'Plastic Ban' law in 2016 to fight the growing problem of plastic pollution in the world which states all plastic plates, cups, and utensils will be banned by 2020. France is the first country to ban all the daily usable products that are made of plastic. The added benefit of this law is that it also specifies that the replacements of these items will need to be made from biologically sourced materials that can be composted. The law also follows a total ban on plastic shopping bags. The law aims at cutting the usage of plastic bags in the country by half by 2025.

Rwanda: The country too suffered from plastic pollution like any other developing country, there were billions of plastic bags choking waterways and destroying entire ecosystems of Rwanda. To fight this scourge, the government launched a radical policy to ban all non-biodegradable plastic from the country. This developing country in Africa is plastic bag free since 2008. The country implemented a complete ban on plastic bags while other countries around the world were just starting to impose taxes on plastic bags. The ban is not effective just because of strict enforcement but also because of hefty penalties. According to the law, the offenders smuggling plastic bags can face jail time.

Sweden: Known as one of the world's best recycling nations, Sweden is following the policy of 'No Plastic Ban, Instead More Plastic Recycling.' There is one simple reason behind this – Sweden has world's best recycling system. Mostly all the trash in Sweden's system gets burned in incinerators. The system is so strong and in place that less than one percent of Sweden's household waste goes into the landfill dump. Recently, they also run out of trash. Now they are actually asking other countries for their garbage so that it can keep its recycling plants running.

Ireland: Ireland is the perfect example that shows how one can get rid of the ubiquitous symbol of urban life – Plastics. The country passed a plastic bag tax in 2002 – that means that consumers would have to actually purchase bags. It was so high that within weeks of its implementation there was a reduction of 94 percent in plastic bag use. And, now plastic bags are widely unacceptable there.

China: The country instated a law in 2008 to deal with its growing plastic woes. China made it illegal for stores (small or big vendors) to give out plastic bags for free. It also said that owners should start charging the consumers for the plastic bags and allowed them to keep any profit they made for

themselves. End result, after two years of the law implementation, usage of plastic bags dropped by a whopping 50%. That means around 100 billion plastic bags were kept out of the landfills. (4)

### **The Big Bane For Workers And Industry**

The flip side of the plastic ban is that it, according to manufacturers, has led to the loss of jobs and closure of manufacturing units. We also look at some ‘expensive’ alternatives to banned plastic items. While some workers have found odd jobs, others are still unemployed

#### **Why Manufacturers Are Upset**

- 1 Production stopped and industrial unit shut overnight
- 2 Raw materials sent back at the owner’s loss
- 3 Excessive stocks of manufactured items in godowns
- 4 Traders’ refusal to pay loans
- 5 Unpaid salaries of unemployed workers

#### **WHY TRADERS AND HAWKERS ARE LIVID**

<b>SHOPS HAD TO BE CLOSED</b>	<b>TONES OF STOCK</b>
<b>NOBODY WANTS TO BUY PLASTIC</b>	<b>ALTERNATIVES ARE EXPENSIVE</b>

A state-appointed five-member committee will receive such suggestions from representatives of plastic traders and manufacturers and submit a feasibility report on collecting used plastic items under waste management rules. We have shut all units that produced banned items. The state should at least exempt products that can be recycled and do not have alternatives. We are waiting for another notification on the ban. (5)

#### **SOURCE: ALL-INDIA PLASTIC MANUFACTURERS’ ASSOCIATION (AIPMA)**

#### **The Pune Penalty For Violation**

Rs 5,000 and Rs 10,000 For first and second offences (designated officers in municipal corporations, police force and environment department can issue such fines) Rs 25,000 and three-month jail: For the third offence (the right rests with judicial magistrates)

#### **Who Can Penalise Violators - In Urban Areas**

- Municipal commissioners
- Deputy municipal commissioners



- Shops and establishment officers and inspectors
- Sanitary inspector
- Health inspector
- Ward officer
- Officers nominated by municipal commissioner and chief executive officer of municipal councils

#### **In Rural Areas-**

- District collector
- Deputy collector
- Sub-divisional officer
- Tehsildar
- Talathi or officer nominated by district collector
- CEO of zilla parishad
- Block divisional officer
- Health officer
- Development officer
- District education officer

#### **Other Officials**

Member secretary, regional officer, sub-regional officer and field officer of the Maharashtra Pollution Control Board (MPCB) Director and deputy director of health services, health officers and director of the primary and secondary education board All tourism police, police inspector, sub-inspector, motor vehicles inspector, traffic police and range forest officer Citizens wishing to dispose of plastic goods can approach the local ward office of the PMC or reach out to the head office of PMC's solid waste management department.(6)

## Government's Response To Plastic Bags

The government has been rather proactive in incorporating provisions as a part of its legislations. The Plastic Waste Management Rules, 2016 prohibits the use of plastic bags below thickness of 50 microns in Indian Cities. The rules also introduced a fee that would be collected through pre-registration of the producers, importers of plastic carry bags and vendors selling the same. State legislations vary from partial bans to complete bans on carry bags. The central government has also issued clear advisories on prospective use of segregated plastic waste in road making and for Co-processing in cement kilns, the implementation of these rules has been rather dismal in states. The latest report on implementation of plastic waste rules by CPCB acknowledges that most of the states have not established an organized system for Plastic Waste Management hence resulting in widespread littering of plastic waste in towns and cities in India. There is a need to measure, quantify, assimilate and devise a strategy specific for every city owing to its diversity.

A number of states have imposed a ban on plastic bags. However, notwithstanding the ban, use of plastic bags has continued with its presence evident with most fruit or vegetable vendors and the choked drains in cities. Owing to the large area under impact, the capacity of the local governments to impose a ban ensuring the necessary monitoring mechanism remains a challenge. Would a blanket ban solve the crisis? Though the idea of restricting the inflow by imposing a ban could have been a welcome idea, the question on the economics, availability and applicability of alternatives remains unanswered. Plastic Bans can be less effective if users simply switch to other single use bags which include paper bags. Further, switching to paper bags also entails its own environment concerns with its production requiring substantial water to produce and heavier than single use plastics escalating greenhouse gas emissions relating to its transport. Therefore, there is an imminent need for a rethink on the available alternate options including its costing and availability.

Recently, the Coimbatore City Municipal Corporation began a drive under the Smart City Initiative to introduce bio-bags that could serve as a plastic alternative. The bags are known to be soluble in water and decompose within 3-4 months. As a part of the first phase of the plan corporation would sell 2.30 Lakh bags that it procured for INR 5.48 lakhs (US\$ 8,332) through shops established for the sale of bags within the city. The municipality has also tried to rope in bulk generators such as restaurants, hotels and commercial establishments to switch over to these alternative bags and would also explore a commercial model in discussion with big merchants, plastic manufacturers and distributors. This initiative marks a very unique approach towards introducing alternatives to plastic bags.(7)

The Plastic waste rules amendment, 2018 has omitted the clause for explicit pricing of plastic bags from the earlier introduced rules in 2016. This comes as a surprise as the pricing of the bags was beginning to bring about a change albeit gradually. A study performed by Delhi School of Economics in 2011 on 'Consumer responses to incentives to reduce plastic bag use' observed that in developing countries with little enforcement capacity, a blanket ban may not be the best possible solution. Instead 82% of consumers would switch from plastic bag use to own bag use if they were charged explicitly for the bags. The success of imposing a plastic bag fee has also been established in cities like California, Chicago and Washington showing that such interventions could be effective in shaping behaviour

change. The major concern has been with street vendors having access to cheap plastic bags generally below 40 micron. This must be addressed in accordance with the provisions in the rules.

While the challenge is palpable, solutions need a structured approach. Although initiatives such as Swachh Bharat Abhiyan have given the awareness component a boost, there is still a considerable void to be addressed. Awareness campaigns must be effective and highlight best practices and the importance of alternatives in stultifying the use of plastics bags. Innovative schemes for promotion of plastic alternatives must be introduced to provide the user with cheap, durable and alternate options. Carry bags whether plastic or alternatives must be charged at a predefined price. This will not only negate use of fresh bags but introduce behaviour change. Government must mull upon options for reintroducing the clause in the legislation. While introduction of legislation is incomplete without penalties, government must aim at improving its monitoring mechanism and begin levying fines upon defaulters. While there exists no panacea for addressing the plastic waste issue, a structured approach would definitely contribute to alleviate the effects of the menace. For a thin film material that represents an approximate 0.1 per cent of waste to landfill, banning the plastic bag has been the subject of much debate over the years.

### **What The Research Says On Bag Bans**

Some research has shown the ban to be effective at reducing plastic waste to landfill. According to the ACT Government's 2014 Review of the Plastic Shopping Bags Ban, plastic waste to landfill reduced by 36 per cent in the two years after the ban from May to October 2013. Bags include single-use plastic bags, boutique bags, reusable bags and bin liners. A common problem identified in the bag ban is that the decision will lead to an increase in bin liner sales, offsetting any potential to reduce plastic bag waste through a retail ban. The ACT's research showed an initial rise in bin liner sales after the ban, before reportedly returning to pre-ban levels at the time of the review in 2014. It determined that the high sale of boutique bags could indicate households are now substituting these for bin liners, with the survey showing most households hold between one, ten and 20 of these bags at home. The review argues the increased level of boutique bags sold and low numbers of retained in the home suggest they could be used as bin liners.

Other research overseas has been mixed. In Ireland, data from the Central Statistics Office showed that sales of plastic bags decreased to a record low of 85 million after the government introduced a plastic bag levy of 15 cents in 2002. By the end of 2006, it had risen to 130 million. A year later, the government responded to the rise by increasing the levy to 22 cents. A fix to this would be a situation where supermarkets, department and convenience stores have a shared bag area where you can actually bring your plastic bags back to the supermarket and leave them for everybody else to use.(8)

### **Plastic Bag Bans Work?**

#### **PLASTIC BAN: INDIA STARES AT LOSS OF RS 15,000 CRORE & 3 LAKH JOBS**

The state-wide plastic ban, including carry-bags and thermocol by the Devendra Fadnis government, will result in loss of up to Rs 15,000 crores and nearly 3 lakh job, says the plastic manufacturing industry. The ban imposed by Maharashtra from Saturday has hit the industry very hard and the plastic

industry is staring at a loss of Rs 15,000 crores, leaving nearly 3 lakh people jobless overnight. The civic authorities have imposed a fine of Rs 5,000 for the first-time offenders and Rs 10,000 for the second-time offenders. Those who violate the ban for the third time will face a fine of Rs 25,000, along with a three-month imprisonment.

The Maharashtra Plastic Manufacturers Association (MPMA) had filed a writ petition in the Bombay High Court last week, seeking lifting of the blanket ban on plastic. We have filed a petition in the High Court seeking lifting of the ban. The ban has affected thousands of plastic units and lakhs of employees. Plastic units have made investment of nearly Rs 5,000 crores. Some of the machines are worth crores, the ban will turn them into scrap.(9)

The State government had issued the Maharashtra Plastic and Thermocol Products (Manufacture, Usage, Sale, Transport, Handling and Storage) notification, banning manufacturing, use, storage, distribution, wholesale or retail sale, import and transportation of all kinds of plastic bags (with or without handle), single-use disposable items made of plastic and thermocol such as dishes, cups, plates, glasses, fork, bowls, spoons, straws, containers, non-woven polypropylene bags, pouches, cling films and small PET and PETE bottles with the carrying capacity of less than half a liter.

The government had also banned plastic and thermocol items used for decoration. Stating that such bans have not achieved much in other states, Jashnani said it violates Article 19 (1)(G) of the Constitution of India, which provides the Right to practice any profession or to carry on any occupation, trade or business to the citizens. Maharashtra government had imposed ban on plastic in a bid to protect the environment. However, the plastic ban will force people to use more of paper bags for which more trees will be cut. This will cause more damage to the environment and to the small scale workers.

## **Conclusion**

After the ban there were many small space business were shut down due to that they have gone to seek help from judiciary, as per the resent government ranking Pune in swatch Bharat abhyan is the 13th city in cleaners drive so plastic ban is not making city cleaner also, the other effect which is on business the big brands and corporate have all rights to sell there products or grocery in Pune but when it comes to small business like a vendor is selling coconut chutney he cannot use plastic to sell but Maggie Sauces are available in plastic making. In the race of making Pune city Upper middle class is actually forgot the survival of Below poverty line and lower middle class moreover the substitutes are still expensive nowadays the fashion of Know your CARBON FOOTPRINT is its in peek in Pune but the person who is sleeping in footpath the food is very important

We have had a ban on plastic bags below 50 microns since 2006. This was imposed after witnessing the horrifying effects of choked drainages during July 2005 showers of rain in Mumbai. Unfortunately, neither manufacturers nor consumers took it seriously. As a result, a further ban on several other plastic items has been declared. This time around, it seems like a serious call. It may need some re-alignments for print and packaging industry. But if we look at the bigger picture, it will not only be good for the environment but will also accelerate innovations in the fields of materials and recycling. This is a great opportunity for the entire paper industry to stand up and take the challenge of innovating something

that is appropriate and sensible in every way. Just shifting to paper bags will be pointless if the bags are printed using a lot of ink. When a newspaper is recycled, the insoluble ink has to be separated and that amounts to huge non-biodegradable waste#paperisgreen Applicable if there is no overdone print or finish or coating on it all of us including designers, marketers and print/packaging converters exercise our responsibility towards the future. Good or bad, if a total plastic ban comes into total force in country, there will be challenges and opportunities for both the plastic as well as the paper industry.

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