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# CPJ Global Review

A National Journal of Chanderprabhu Jain College of Higher Studies

An Insight of Management Thinking, Empirical Research Studies  
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## VISION

We consistently strive to excel educational perseverance, persistence and patience for ensuring continually rich, value – based and globalized career and lifestyle for all the students who enroll themselves in the academic programmes conducted at CPJ-CHS & School of Law.

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To introduce market focused and utility based professional programmes in emerging areas of IT, Management and Law which has high job potential, economic viability and entrepreneurship qualities etc.

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Chanderprabhu Jain College of Higher Studies and School of Law has been promoted by the Rishi Aurobindo Educational Society to start market focused professional programmes in the emerging areas of higher education in those disciplines which have high growing job potential.

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We strive to keep a close liaison with the different growth sectors of the economy in order to discern the industry oriented sets of knowledge and skills to keep our academic programmes updated in accordance with the emerging globalization, privatization and liberalized economic policy.

The main campus of CPJ-CHS & School of Law is located in a beautiful area within the sprawling sub-city Narela, Delhi and is affiliated to GGS Indraprastha University, Delhi. It has about 2500 students, 80 faculty members and a similar number of supporting staff. We have a state-of-the-art infrastructure including computer-laboratories, libraries and other facilities.

Sh. Subhash Chand Jain a well-known name in the educational world, is the Chairman of the College. The College runs 3 year full time BBA(GEN), B.Com(H), BCA, BBA(CAM) and 5 year Integrated B.A.LL.B(H) & BBA LL.B(H) courses affiliated to GGS Indraprastha University, Delhi. The credibility of education of this College is increasingly being realized and recognized by the Corporate World.

## CPJ GLOBAL REVIEW

*CPJ GLOBAL REVIEW is an Academic Journal that brings together all the academicians and corporate to provide an insight of management thinking, empirical research studies and management practices around the globe. This National Journal is devoted to disseminate findings from research work and exploration of original ideas concerning Business, Management and Technology.*

*A National Journal of Chandrabhu Jain College of Higher Studies*

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**MESSAGE FROM CHAIRMAN'S DESK**

We, at CPJ College, continuously strive to enhance our programs to stay at the forefront of higher educational trends. Our accreditations ensure that high academic standards are maintained. We, inculcate amongst students a spirit to strive and achieve the desired goals and one of the way is providing a Management & IT Journal for the Management/IT fraternity. Here, we have provided a platform wherein they can flourish their caliber and potential to the maximum. This encouragement is provided to them by highly skilled and experienced faculty who play the role of a mentor to guide them to their way to success.

I congratulate whole Editorial Board for this issue of CPJ Global Review Journal and my sincere thanks to Advisory Board also for supporting and giving the valuable suggestions and insights.

**Sh. Subhash Chand Jain**  
Chairman

**MESSAGE FROM GENERAL SECRETARY'S DESK**

In today's competitive and globalized world, having a professional and specialized education becomes an imperative for future success. We, at the CPJ College, are committed to providing academic excellence in the fields of Management, Commerce, IT and Law. The research skill has been the most important part of legal field along with other inter disciplinary subjects. Keeping this in mind, we sought to create a platform which appreciates and accepts each and every ideas and thoughts which are there in the form of treasure.

The initiative of the Chanderprabhu Jain College of Higher Studies & School of Law in regularly publishing CPJ Global Review Journal containing insightful research papers is an appreciable attempt by the Editorial Team in spreading legal awareness and knowledge. Quality legal research and standard publications constitute one of the important mandates of the respective journal. I am confident that readers will find the present issue of the CPJ Global Review Journal interesting and thought provoking. My highest regards to the Editorial Board to have meticulously worked and created this impeccable issue.

We hope that this XII issue of our prestigious Journal will make a landmark in the Management & IT fraternity.

**Dr. Abhishek Jain**  
General Secretary

**EDITORIAL****FROM THE DESK OF EDITOR-IN-CHIEF**

Research has always been a challenging field with positive outcomes witnessed as a result of meticulous and persistent efforts. Researches in the fields of Management, Commerce or Information Technology have benefitted both the Industry and the Academia. It has always been our continuous endeavor to publish such scholarly Research papers in **CPJ Global Review**, the Annual National Journal of **MCIT** (Management, Commerce & IT) Department of our college.

It is a peer-reviewed Journal that aims at providing high-quality teaching and research material to Academicians, Research Scholars, Students, Management & IT Professionals. This issue of CPJ Global Review covers a wide range of topics in the field of Business Management & Information Technology, including Business Promotion, Digital Marketing, Data Mining, Banking, Green Marketing and other allied disciplines including Business Environment.

We would like to appreciate the tremendous response towards our “Call for Papers” and regret that due to the decision of the editorial board, some of the papers could not be included in the present issue of this Journal. A lot of input and feedback is also being received from a cross section of readers, reviewers and contributors. As such, we are obliged to our widely spread readership for their continued support and encouragement in our endeavor to strengthen every issue of **CPJ Global Review**. The credit to this achievement also goes to all Authors, Academicians, Editorial Board and Editorial Advisory Committee who have contributed to make CPJ Global Review a quality journal. We highly solicit to have your continuous support and feedback for further growth of the Journal with quality learning for all the readers.

With this note, welcome to **CPJ Global Review**- July’ 2020 edition!!

**Sh.Yugank Chaturvedi**  
Director General

## EDITORIAL



### FROM THE DESK OF EDITOR

Research is an enduring field with persistent and focused efforts. When research is done in the field of business management sciences including finance, marketing, human resource management, international business, strategic management, economics, information technology and other allied disciplines, it has many fold impact and implications not only for the Industry but also for academia. We feel privileged to present another issue of our National Journal ‘CPJ GLOBAL REVIEW’ Vol. XII, July-2020 (ISSN No: 0975-1874). It is an annual peer-reviewed Journal of CPJ College of Higher Studies and School of Law.

The aim of this Journal is to provide a platform for researchers, practitioners, academicians and professionals to share innovative research achievements, cross-cultural investigations & practical experiences.

The response to our request to authors for contribution has been overwhelming. Inspire of our best efforts, due to decision of editorial board some of the articles/ papers could not be included in the present issue. Only 11 papers have been selected for publication but this shall not restrict any of the authors to send their original articles, research reviews or empirical contribution for publication in our journal.

Our sincere thanks to all members of Editorial Advisory Committee, Editorial Board Members, learned reviewers and outstanding contributors, for their continuous and incredible support in bringing out the present Edition of CPJ Global Review.

We hope that the present edition of CPJ Global Review will be of relevance to global practitioners and academics who seek to understand the business landscape of India. We anticipate that current issue makes a stimulating and informative appeal.

**Prof. (Dr.) Monisha Vashishta**  
Director-MCIT

## Contents

<i>Title of the Articles</i>	<i>Page No.</i>
1. <b>M-WALLET: ITS BUSINESS PERFORMANCE AND PERCEPTION TOWARDS ADOPTION ACROSS DEMOGRAPHICS</b> <i>*Dr. B. Angamuthu</i>	<b>1-8</b>
2. <b>DIGITAL MARKETING IN INDIAN CONTEXT: A REVIEW</b> <i>*Ms. Hema Rani</i>	<b>9-12</b>
3. <b>IMPACT OF DATA MINING IN FINANCE AND BANKING SECTOR: A SCIENTIFIC MECHANISM</b> <i>*Pratibha Sharma</i>	<b>13-21</b>
4. <b>SUSTAINABLE BUSINESS DEVELOPMENT: A PROFITABLE ENTERPRISE</b> <i>*Ananya Mitra Pramanik **Dr. Anjali Agrawal</i>	<b>22-25</b>
5. <b>GLOBALIZATION: DISRUPTION OF GLOBALIZATION ACROSS NATIONS</b> <i>*Mr. Jayanth S Kashyap **Mr. Manjunath D</i>	<b>26-28</b>
6. <b>SURVEY OF UTILIZATION OF GRADUATE DEGREE AND DIPLOMA HOLDER TECHNICAL PROFESSIONALS IN VARIOUS ESTABLISHMENTS IN DELHI</b> <i>*S.K. Yadav **Anita Nihaliya</i>	<b>29-38</b>
7. <b>A STUDY ON TRENDS, OPPORTUNITIES AND CHALLENGES OF GREEN MARKETING</b> <i>*Dr. Monisha Vashistha **Vandna</i>	<b>39-45</b>
8. <b>A COMPARISON OF VULNERABILITY ASSESSMENT TOOLS OWASP 2.7.0 &amp; PENTEST ON DEMO WEB APPLICATION</b> <i>*Dr. Deepak Dagar **Dr. Amit Gupta</i>	<b>46-50</b>
9. <b>A STUDY ON ROLE OF GREEN MARKETING OF SERVICES AND CONSUMER AWARENESS</b> <i>*Mr. Kamal Batra</i>	<b>51-56</b>
10. <b>PERCEPTION OF HEALTH SEEKERS IN YOG GRAM USING AMOS GRAPHICS AND CORRELATION</b> <i>*Dr. Madhu Arora **Sandeep Kumar Mittal</i>	<b>57-61</b>
11. <b>ADOPTION OF ORGANIC FOOD AMONG THE URBAN CONSUMER</b> <i>*Dr. Renu Vashisth **Ms. Jyoti Gupta</i>	<b>62-70</b>

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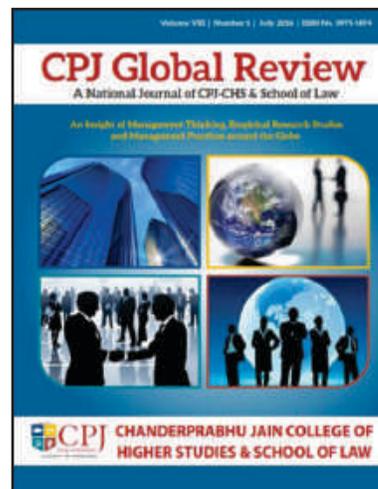
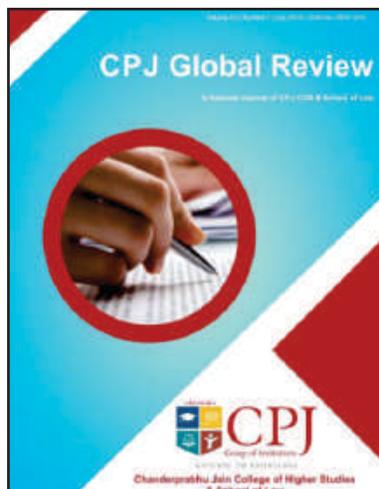
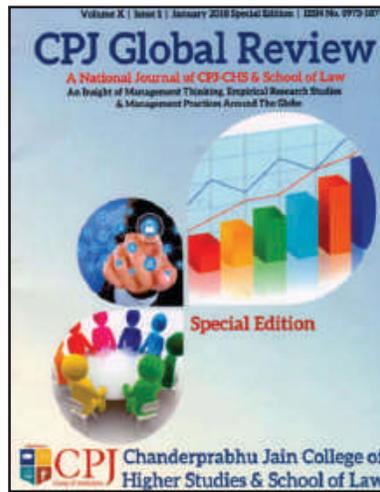
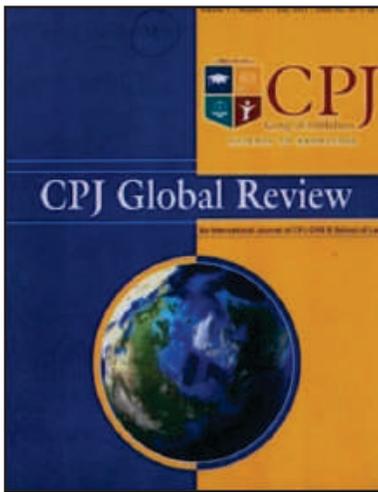
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# Our Few Previous Journals at a Glance



# M-wallet: Its Business Performance and Perception Towards Adoption Across Demographics

Dr. B. Angamuthu\*

## Abstract

Now-a-days, Government of India recognized that the developments of a fund transfer or payment of various services through mobile phones allow reduction in the transaction costs and potential for use of these facilities by a large unbanked segment as well. The growth of mobile and smartphones have transformed the system of payment services. Today, the payment system in the country offers a variety of payment instruments to the public viz. cheques, credit cards, debit cards, pre-paid payment instruments including Mobile Wallets (M-Wallets). M-Wallet issued both by banks and authorized non-bank entities. M-Wallet offers payments between two individuals, at Point of Sale (POS), bill payments, ticket reservations, offline payment in merchant and domestic remittances along with small savings. This empirical and analytical study examines business performance of M-Wallet in terms of volume and value of transactions and customers' adoption of M-Wallet across selected demographics. 150 valid responses were collected from customers of public sector bank branches in the Coimbatore district using convenience sampling method. This study reported that the actual business performance of M-Wallet indicates a positive growth in terms selected aspects during the study period from 2013-14 to 2018-19. Customers' perception reveals that more than half of them have adopted M-wallet services. The chi-square test reveals that there exists positive and significant association across various demographic factors towards adoption of M-Wallet services.

**Keywords:** Smartphone, M-Wallet, Digital Payment, Cashless Service, Acceptance.

## I. Introduction and Execution of the Study

### 1.1 Introduction

In 1997, Coca Cola has been initiated financial transaction using mobile phones and it gets huge support in the different parts of the world including India. Inventions of advanced technologies slowly and steadily influenced the introduction financial services in the field of the (M-Wallet). Oxygen Wallet considered as the first ever M-Wallet launched in India in 2004 and is one of the oldest M-Wallets. Now, more than 2 Crores people are using this platform as an Android App or on desktop and associated partnership with 15,000 online and offline merchants as well as it has tie ups with 15,000 modern trades and over 170 banks. Many developments came into the picture in the field of

M-Wallet, which generally helps this technology to gain some real popularity in the market. India has 34 crores active smartphone users at end of 2018 and only 22 percent of the people were using M-Wallet services (eMarketer Study Report). Currently, several online wallet services have emerged in the young emerging M-Wallet market of India. Most banks have their own e-wallets and some private companies as well. The more famous ones are **Paytm, PayU, Phonepe, Freecharge, Mobikwik, Oxigen, mRuppee, Airtel Money, Jio Money, SBI Buddy, itz Cash, Citrus Pay, Vodafone M-Pesa, Axis Bank Lime, ICICI Pockets, Momoe and SpeedPay**. Among various brands in M-wallet services Paytm (140 million users & 700 million volume of transactions), Phonepe (55 million users and 335 million volume

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of transactions) and Google pay (25 million users and 300 volume of transactions) has a chunk of market share in the number of registered users and volume of transactions at end of July 2019. On November 8, 2016, the Honorable Prime Minister announced the demonetization of all INR 500 and INR 1,000 banknotes and in his Man ki Baat on November 27, 2016 gave a call to go cashless and transact through various electronic modes, bank transfers, cheques and e-wallets. This announcement made a search among consumers for alternative payment modes such as cards, e-wallets etc. As part of promoting cashless transactions and converting India into less-cash society, various modes of digital payments are available including M-Wallets. It is a way to carry cash in digital format. Users of M-Wallet needs to link their credit card or debit card information in mobile device to M-Wallet application or transfer money online to it. Instead of using paper currencies and physical plastic card to make purchases, the M-Wallet users can pay through smartphone, tablet, or smart watch. An individual's account is required to be linked to the **digital wallet** to load money in it. Scanning QR Code facilities and cash back offer, discounts on payments of offline merchant made things easy for user community of M-Wallet. M-Wallets had restricted to use for high-value of purchases as each of them (sender and receiver) have caps on the spending and depositing limits.

### 1.2 Statement of the Problem

With 1.17 billion mobile subscriptions and 665 million internet subscriptions as of June 2019 (TRAI), growth of smartphone market, reduced tariff on internet data plans have potential for increasing the market share of M-Wallet providers. M-Wallets remove many inconveniences from the everyday transactions other than cash transactions. Storing both payment-related credentials as well as non-payment-related information, M-Wallets provide a simple way to manage payments, track transactions, participate in loyalty programs, and most importantly, replace the need to carry around bulky plastic cards. The success of M-Wallet in the digital payment arena depends on the usage pattern and its' acceptance of public.

### 1.3 Objectives of the Study

- To measure the business growth of M-Wallet
- To find out the adoption of M-Wallet services among demographic factors of the customers
- To find out the customers' preference of services in preferred M-Wallet
- To explore that influencing factors on adoption of M-Wallet services among the customers

### 1.4 Hypotheses of the Study

- Ho<sub>1</sub>: There is a slow growth of business in M-Wallet
- Ho<sub>2</sub>: Majority of the customers do not adopted towards M-Wallet services
- Ho<sub>3</sub>: There is no significant association between demographic factors of the customers and their adoption towards M-Wallet services.

## II. Review of Literatures

**Kalinic et al. (2019)** in their study analyze the moderating impact of gender on the acceptance of peer-to-peer M-Payment systems among Spanish Smartphone users. This study finds that there exists significant difference between the men and women i.e., men are having more willingness to use of M-payments than women. Further, men are more easily influenced by their social environment factors but women are influenced by their adoption of innovativeness. **Sinha et al. (2019)** studied consumers' intention to use M-Payments with adoption and technology readiness and also privacy concerns. Among them adoption readiness positively influence the technology readiness and intention to adopt whereas privacy concerns negatively influence the relationship between adoption readiness and intent to adopt. **Anu Prashaant and Nikhil Sharma (2018)** done a case study about M-Payment system in particular M-Pesa and this study concluded that the system of M-Payment services is most important where the people do not have bank branch facilities. **Kumar et al. (2018)** investigate the satisfaction on young users' intention to continually

use M-wallet services with different domains. This study concluded that perceived usefulness, perceived ease of use and security concerns significantly affect user satisfaction and intention to continually use M-wallets. **Samudre and Gramopadhye (2018)** concluded that Paytm users are in the satisfied category towards various services but users have an issues in ease of use, security issues and slow network server. **Vikas and Arun Kumar (2018)** examined pros and cons towards mobile wallet app Paytm based on the consumer's perception in India. Application of factor analysis, this study reveals that easy to use and wallet free is the pros of Paytm app and security issues, connectivity issue and unaffordable are cons of Paytm app among the consumers.

### III. Methods and Materials

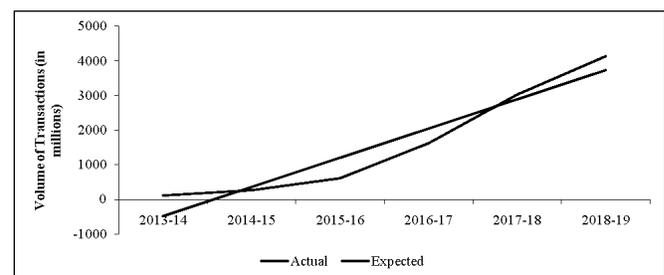
This empirical and analytical research study was used both secondary and primary data. Business performance of M-Wallet is measured with the help of secondary data for the six years period from 2013-14 to 2018-19. In order to two different parameters namely volume and value of M-wallet transactions has to be considered. The secondary data towards business performance of M-Wallet were collected from official reports of Reserve Bank of India and other reports from various Government agencies. The primary data were collected with the help of self-designed questionnaire-cum-interview schedule. 150 valid responses used for final study and the responses were collected from customers of public sector bank branches in Coimbatore District. Convenience sampling method is adopted for selection of bank branches and its customers. The data were collected during the month from January to April' 2019. The collected data were analyzed with the help of various statistical applications namely Compound Annual Growth Rate (CAGR), trend analysis, % analysis, Chi-Square test ( $\chi^2$ ) and factor analysis.

### IV. Analysis and Discusiions

#### 4.1 Analyze the Volume of Business in M-Wallet Services

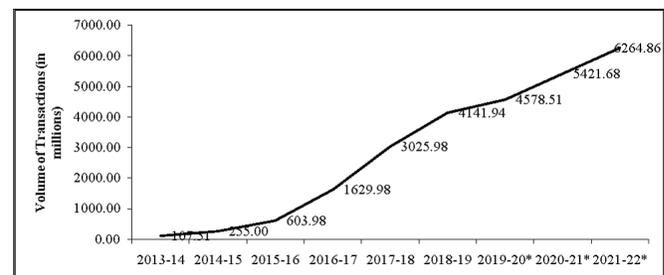
The actual business performance of M-Wallet services in terms of its volume of transactions

continuously going up from the FY 2013-14 to FY 2018-2019 which shows in the FY 2013-14, 107.51 millions and it has been reached to 4141.94 millions in the FY 2018 – 2019 with the growth engine of 38 times over the year 2013-14 (Refer Fig. 2). During this period M-Wallet business performance has been grew at a CAGR of 107%. The actual performance of M-Wallet business transactions has been continuously lower than its expectation during the Financial Years from 2014-15 to 2016-17 (Refer Fig. – 1). Moreover, in the recent past (2017-18 & 2018-19) the actual performance of M-Wallet business transactions has been increased. It indicates that the people have tendency to adopting M-Wallet to the various services due to demonetization of high valued currencies. Further, fig. 2 shows that M-Wallet business services in terms of its volume of transactions likely to be crossed 6200 millions for the FY 2021-22 with grow at a CAGR of 14.79% since 2018-19.



**Fig. 1: Volume of Business Transactions in M-Wallet Services during 2013-14 to 2018-19**

Source: Reports from Reserve Bank of India

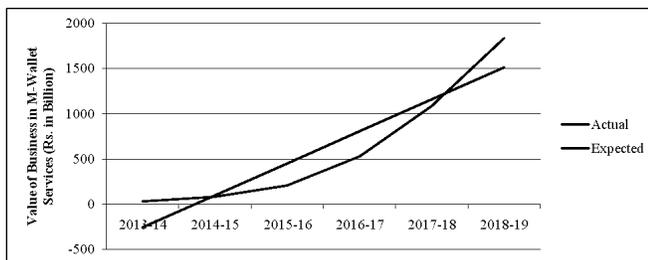


**Fig. 2: Volume of Business Transactions in M-Wallet Services During 2013-14 to 2021-22**

Source: Reports from Reserve Bank of India; \* Forecast

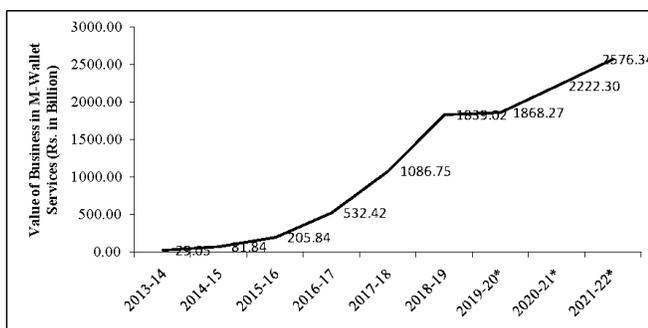
## 4.2 Analyze the Value of Business in M-Wallet Services

The actual business performance of M-Wallet services in terms of its value of transactions continuously going up from the FY 2013-14 to FY 2018-2019 which shows in the FY 2013-14, Rs. 29.05 Billion and it has been reached to Rs. 1839.02 Billion millions in the FY 2018 – 2019 with the growth engine of 62 times over the year 2013-14 (Refer Fig. 3). During this period M-Wallet business performance in terms of its business value has been grew at a CAGR of 129%. The actual performance of M-Wallet business transactions has been continuously lower than its expectation during the study periods except FY 2018-19 (Refer Fig. – 3) whereas M-Wallet business services in terms of its value of transactions likely to be crossed Rs. 2500 Billion (Refer Fig. – 4) for the FY 2021-22 with grow at a CAGR of 8.79% since 2018-19.



**Fig. 3: Value of Business Transactions in M-Wallet Services during 2013-14 to 2018-19**

Source: Reports from Reserve Bank of India



**Fig. 4: Value of Business Transactions in M-Wallet Services during 2013-14 to 2021-22**

Source: Reports from Reserve Bank of India; \* Forecast

## 4.3 Demographic Factors of the Respondents

Distribution of the respondents based on their demographic factors (gender, age groups, education, occupation, monthly income and place of living) is given in the table below. It shows that nearly 7/10<sup>th</sup> of the respondents are male. This is followed by nearly 2/3<sup>rd</sup> of the respondents belongs to middle age groups (26 - 50 years), 38% of the respondents have their educational qualification is graduation, most of the respondents are employed in sales field (15%), farmers (14%), professional (13%) and service workers (13%) and 1/3<sup>rd</sup> of the respondent's monthly income is Rs. 10, 001 to Rs. 20, 000. Majority of the respondents are living in urban areas (61%).

**Table 1: Demographic Factors of the Customers**

Factor	Character	No. of Customers	%
Gender	Male	102	68
	Female	48	32
Age group (in years)	Below 25	4	3
	26-50	97	65
	Above 50	49	33
Education	Upto X Std.	35	23
	Higher Secondary (XI - XII)	46	31
	Graduate / Post Graduate	57	38
	Professional	6	4
	Diploma holder	6	4
Occupation	Professional & Technical workers	19	13
	Sales workers	23	15
	Managers and Administrators	6	4
	Craftsman & Foreman	7	5
	Clerical workers	11	7
	Operatives	1	1
	Farmers and Farm managers	21	14
	Service workers	19	13
	Agricultural labourers	2	1
	Private household workers	2	1
	Driver and dailywages	17	11
	Real estate business	5	3
	Private business	8	5
	Retired employee	9	6

Monthly income (Rs. per month)	Upto 10,000	54	36
	10,001 - 20,000	50	33
	20,001 - 30,000	35	23
	Above 30,000	11	7
Place of Living	Rural	58	39
	Urban	92	61

Source: Field Survey

#### 4.4 Adoption of M-Wallet Services: Customers' Perception

Distribution of the customers based on their usage pattern, and awareness of M-Wallet services is shown in Fig. 5. It indicates that 55% of the customers have adopted M-Wallet services, 11% of the respondents are aware about M-Wallet services but not adopted and the remaining 33% of them do not aware of M-Wallet services.

#### 4.5 Relationship of Demographic factors and Adoption of M-Wallet Services: $\chi^2$ Analysis

Ho: There is no significant association between gender, age group, education, occupation, monthly income, place of living of the customers and their adoption towards M-Wallet services.

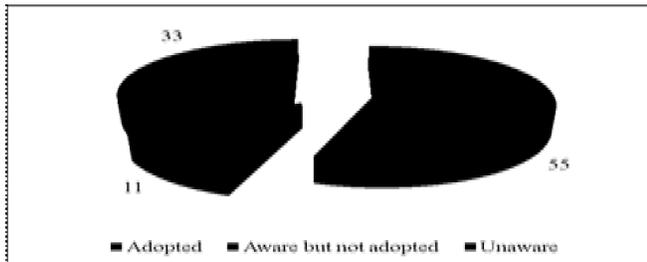


Fig. - 5: Perception towards Adoption of M-Wallet Services (in %)

Source: Field Survey

Table – 2 shows that the calculated values of  $\chi^2$  between demographic factors of the customers and their adoption of M-Wallet services are greater than the tabulated values. Hence, null hypothesis is rejected and it is concluded that there is a significant association towards adoption of M-Wallet services among various gender, age group, education, occupation, monthly income, place of living of the customers.

Table 2: Demographic Factors and Adoption of M-Wallet Services

Variables	$\chi^2$	df	T.V	Statistical Co-efficient	Strength of Association	Result
Gender and Adoption of M-Wallet Services	24.074**	2	9.21	0.401	Strong	Reject Ho
Age group and Adoption of M-Wallet Services	14.939**	4	13.28	0.307	Moderate	Reject Ho
Education and Adoption of M-Wallet Services	23.876**	8	20.09	0.400	Strong	Reject Ho
Occupation and Adoption of M-Wallet Services	94.210**	26	45.64	0.56	Strong	Reject Ho
Monthly income and Adoption of M-Wallet Services	59.349**	6	16.81	0.445	Strong	Reject Ho
Place of living and Adoption of M-Wallet Services	7.219*	2	5.99	0.219	Moderate	Reject Ho

\*\* Sig. at 1%; \* Sig. at 5%; NS - Not Sig. at 5% level  
Statistical co-efficient: <0.4 to >=2 Moderate; >=0.4 Strong; <2 Weak

Source: Field Survey

#### 4.6 Customers Preference of M-Wallet

Distribution of the customers based on their usage of M-Wallet is given in the fig. 6. It shows that Majority of the customers are preferred Phonepe (61%), followed by 25% of the customers are preferred Paytm and the remaining 13% of the customers are preferred Googlepay.

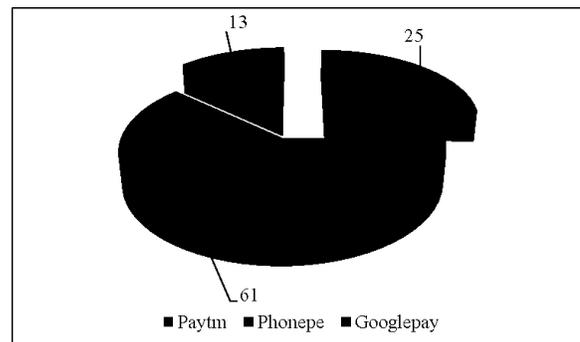


Fig. 6: Preference of M-Wallet (in %)

Source: Field Survey

#### 4.7 Customers Preference to M-Wallet Services

It could be observed from the table 3 that fund transfer, bill payment, mobile recharge and payment in offline purchase are most preferred financial transactions under preferred M-wallet. On the other hand, reservation of bus as well as movie ticket and use of online purchasing is the least preferred M-Wallet services among the customers.

**Table 3: Customers' Preference towards Services in Preferred M-Wallet**

M-Wallet Service	Garrett's Score	Mean	Rank
Fund transfer	6474	78.0	I
Mobile recharge	4221	50.9	III
Bill payment (Electricity bill, Insurance, Gas etc.)	4416	53.2	II
Payment in offline merchant	3998	48.2	IV
Movie ticket reservation	3442	41.5	VI
Online purchasing	3474	41.9	V
Bus ticket reservation	2942	35.4	VII

Source: Field Survey

#### 4.8 Relationship of Customer's Perception towards Selected Variables for the study

Ho: There is no significant association among the variables that influence customer's adoption of M-Wallet services.

**Table 4: Analyze the Relationship of Customer's Perception towards Selected Variables**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.696
Bartlett's Test of Sphericity	$\chi^2$	392.017**
	df	45
**Sig. at 1% and * Sig. at 5% level		

Source: Field Survey

Bartlett's test of sphericity is used to test whether the correlation matrix is an identity matrix. The calculated value  $\chi^2$  test shows that 392.017 and the significance level ( $p^{**}<.01$ ) which are given above indicate that the correlation matrix is not an identity matrix, i.e., there exists correlations between the variables. Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is 0.696 which closer to 0.7, and then it is good to use for further test.

#### 4.9 Influencing factors on adoption of M-Wallet Services

Factor Analysis technique has been applied to find out the underlying dimensions (factors) that exists in the ten variables relating to the influencing factors on adoption of M-Wallet services. The results are presented here below.

**Table 5: Influencing Factors on Adoption of M-Wallet Services**

Attributes	I	II	III	Communalities
P1	0.174	-0.100	0.705	0.537
P2	0.877	-0.197	0.060	0.812
P3	0.599	0.535	-0.113	0.658
P4	0.301	0.690	0.414	0.739
P5	0.711	0.218	0.049	0.556
P6	-0.027	0.183	0.727	0.563
P7	0.623	0.114	0.473	0.624
P8	0.029	0.898	-0.067	0.812
P9	-0.148	0.877	0.104	0.802
P10	0.895	-0.064	0.166	0.833
Eig. Value	2.968	2.485	1.483	6.936
% of variance	29.685	24.851	14.828	
Cum. % of variance	29.685	54.536	69.365	
Extraction Method: Principal Component Analysis.				
Rotation method: Varimax with Kaiser Normalization				

Source: Field Survey

**Table 6: Responsible Factors on Adoption of M-Wallet Services: Final Framework**

Variables	Rotated Factor Loadings	Factor
P10 - Fund return policy	.895	I (29.69%) - Trust
P2 - Ease of use	.877	
P5 - Privacy of personal informations	.711	
P7 - More security with financial transactions	.623	
P3 - Rewards for frequent use	.599	II (24.85%) - Enhanced services
P8 - Response of grievances	.898	
P9 - Network speed	.877	
P4 - Availability of discounts / Offers	.690	III (14.83%) - Market Growth
P6 - Wide-acceptance of retailers / Online store	.727	
P1 - Availability of M-Wallet services	.705	

Source: Field Survey

Table - 5 gives the rotated factor loadings, communalities, eigen values and the percentage of variance explained by the factors. Out of the ten variables, only three factors have been extracted and these factors put together explain the total variance of these perceptions towards influencing factors on adoption of M-Wallet services to the

extent of 69%. In order to reduce the number of factors and enhance the interpretability, the factors are rotated. The rotation increases the quality of interpretation of the factors. There are several methods of the initial factor matrix to attain simple structure of the data. The varimax rotation is one such method to obtain better result for interpretation is employed and the results are given in Table - 6.

Three factors were identified as being maximum percentage variance accounted. The 5 perceptions P10, P2, P5, P7 and P3 were grouped together as trust factor and accounts 29.69% of the total variance. The 3 perceptions P8, P9, and P4 constituted the enhanced service factor and accounts 24.85% of the total variance. The 2 perceptions P6 and P1 constituted the market growth factor and accounts 14.83 % of the total variance. Thus the factor analysis condensed and simplified the ten perceptions and grouped into said three factors explaining 69.36% of the variability of all the variables.

## V. Conclusion

The movement of M-Wallet business performance in terms of its volume and value of transactions registered at reasonable growth for the reference period. In coming years, mobile phone penetration would be much faster than banking penetration, this would allow the benefits of technology to trickle down the pyramid and allow the banking and non-banking entities, as well as Government to develop products/services. So, there is a much more prospective for adoption of M-Wallet services in the Indian context. M-Wallet business in India likely to produce over 4500 million volume of transactions with the value of nearly INR 2600 Billion in 2021-22 A.D registered with compound annual growth rate of 14.79% and 8.79% respectively over the year 2018-19. Today, customers are rapidly adopting technology in their daily lives driven by the growth in internet and mobile penetration, availability of low cost data plans and shift from offline to online commerce. This study finds that only 55% of the customers are adopted M-Wallet services. Among various M-Wallet brands available in the market Phonepe, Paytm and Google pay are the most preferred M-wallet apps. Trust, enhanced services

and market growth are the major drivers of acceptance of M-Wallet services. Even though, various drivers that push the need and desire of M-Wallet services in India, and there are several challenges for example low awareness and security concern which need to be addressed in order to ensure 100% adoption of the Mobile technology in the financial services.

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## Digital Marketing in Indian Context: A Review

Ms. Hema Rani\*

### Abstract

*Digital Marketing is the marketing of products or services using digital technologies, mainly on the internet. The trend of digital marketing is growing day by day with the concepts of Internet marketing that is turning into an important platform of digital marketing along with the electronic gadgets like the mobile, tablets and smart phones, gaming consoles, and many such gadgets that help in digital marketing. Internet access is mainstreaming among professionals and the use of mobile is intensifying fast. Digital marketing industry is worth \$68 Billion while other industries are struggling with growth rate of 5 to 10%. The current growth rate according to Data Reportal holds steady, there will be around 3.797 billion social media users by 2020, and over four billion by 2021. Digital Market in India is an evident that the Digitization is taking place with a high speed. This paper is an attempt to study the growth trends of Digital Marketing industry in India.*

**Keywords: Digital Marketing, Growth, Social Media, E-Commerce.**

### Introduction

E-Commerce industry is growing at an astounding rate in India and is expected to account for 1.61% of the global GDP by 2018. According to the research report of Goldman Sachs, India has emerged as the second largest Internet market in Asia after China with 100 million users in 2005. It estimates that Indian Internet Users will increase by 130% compounded annual growth rate (CAGR) from 0.5 million users recorded at end of 1998. As per preliminary findings of the NASSCOM survey, the total volume of E-commerce transactions in India was about Rs.131 crore in the year 1998-99. Out of this volume, about Rs.12 crore were contributed by retail Internet or Business-to Consumer transactions, and about Rs.119 crore were contributed by Business-to-Business transactions.

The survey also revealed that E-Business transactions in India are expected to exceed Rs.300 crore during 1999-2000. Out of this, about Rs.50 crore could comprise of retail transactions. For Business-to-Business transactions, Indian industries are expected to reach online penetration of 2% by 2003 and 8%

by 2008. Since 2018, it has seen a rapid rise in the usage of Digital Marketing in India. The growth is estimated at around 50 %, thanks to digital marketers knowing what and when to present to the customers.

### Digital Marketing Industry in India in the Present

Digital Marketing Industry in India is at the peak right now and will continue to grow. Few years back, people were skeptical to buy online, we never thought we would buy groceries, furniture, cloths online but now we book our shows online, tickets, everything is online and in mobile. Mobile has revolutionized the way we live today, lost cost handset, internet access thru mobile and the speed has changed the way how even we watch You Tube. As per IBEF.org (India Brand Equity Foundation), India's digital advertisement market is expected to grow at a compound annual growth rate (CAGR) of 33.5 per cent to cross the Rs 25,500 crore (US\$ 3.8 billion) mark by 2020. The Internet's share in total advertising revenue is anticipated to grow twofold from eight per cent in 2013 to 11.1 per cent in 2020.

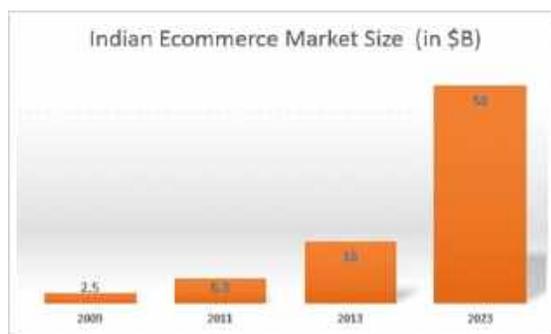
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Online advertising, which was estimated at Rs 2,900 crore (US\$ 435 million) in 2018, could jump threefold to Rs 10,000 crore (US\$ 1.5 billion) in five years, increasing at a compound annual rate of 28 per cent.

Digital India initiatives, open mind set the digital marketing landscape plays a vital role today. The future of digital marketing will grow and we will also see rural digital marketing playing an important role too. When the industry is growing, we will also see challenges, security issues and other things, but this will happen to any industry. The competitive growth demands for more improvement in the career works and professionals are being added to the field.

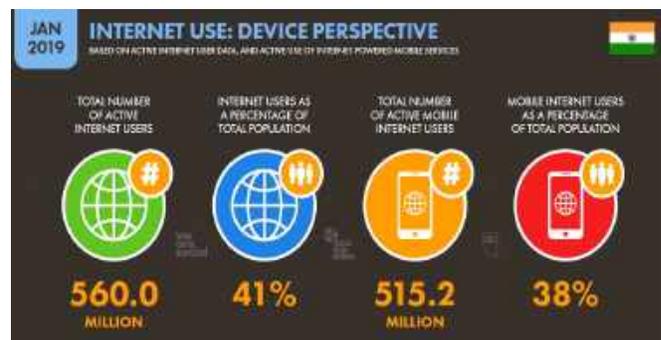
From 2013 to January 2019, the investment total increase was 2.5 billion dollars over the preceding years. There has been an impressive growth up till this present moment.



From above data you can easily analyze the growth rate of digital marketing and its impact of online sales. With Digital marketing growth E commerce is also booming and touching new heights.



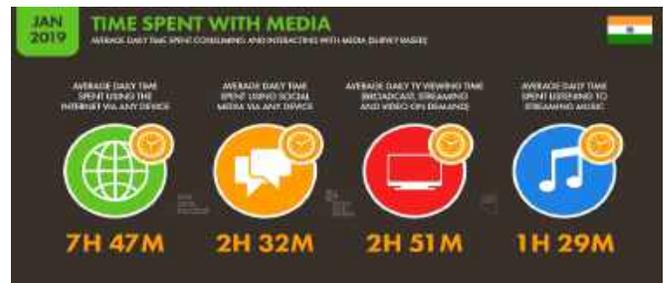
From above both of the images you can compare the growth of digital marketing of Indian market compare to rest of world. India in 2018 became world no 2 in internet uses by no of people throughout the world.



T series is a shining example of the phenomena. As of 1st December 2018, the T Series YouTube channels stands at over 72 million subscribers and is well on its way to becoming the top dog of YouTube. With a penetration rate of 34.5% India is a world 2nd most internet surfing population so it's clear there are still to go. The growth is rapid in this field and still a long way to go with higher pace that's the reason every fresher's and professionals looking to build their career in digital marketing.

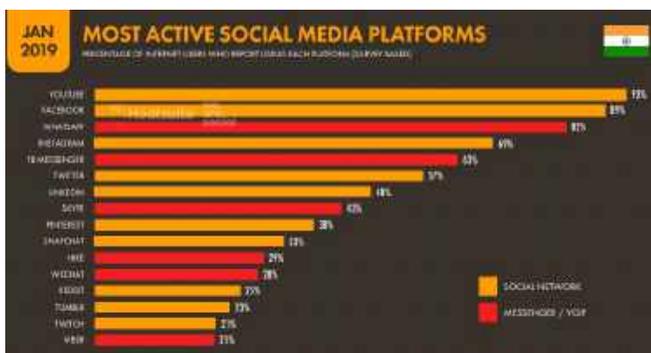
USA has Internet penetration rate of 88% and even few of the European countries with more than 95% of penetration rate where as India still at only 35%. This shows the future scope of Digitalization in India.

According to the research made by the Internet and Mobile Association of India (IAMAI, 2008), communication has become a real mass communication tools having about 486 million accounts in 2018. The Indian telecommunications market has tremendous growth opportunities and according to IAMAI is projected to exceed 100 million by 2022



Government Digital Literacy scheme and many others factor are giving a boom to increase internet users in India. Online shopping industry is also growing with a rapid pace which is still getting sales from major metros and mid level towns only.

Digital marketing overview reveals that Social media has been playing a supporting role to marketing. Over the years, it has been noticed that 92% of social media users are from the mobile devices. This enables the size of digital marketing industries.



Close to half the world’s population (3.03 billion people) are on some type of social media.64% of online shoppers say that a video on social media helped them make their decision. Only 43% of online stores see significant traffic from their social media pages.

Thus choosing from the wealth of tools is necessary. For instance, ChuChuTV, India’s third most subscribed Youtube channel became a global brand. It made use of Interactive Content Marketing. It made a platform for parents to engage and interact. They created high-quality content to build trust among the audience. They included puzzles, content, Live facebook, Meme style and product based posts for this. Their effort brought in 1.9 million likes on Facebook and Global Audience Reach of 1.69 billion as of Jan 2020. The digital marketing industry in India is worth \$68 billion! Additionally, advertising via mobile phones and tablets rose to 200 per cent, that is \$6 billion. This market is estimated to soon touch \$7.8 billion!

**Conclusion**

Digital Marketing will for sure remain as the most effective way of marketing in the future too, and it will be worthwhile for you to climb on to the digital bandwagon when the time is right, either career-wise or business-wise. To survive in today’s competitive and frenzied market scenario; it is must for Indian businesses to have a well-integrated strategy for internet marketing in India. Without Digital Marketing, businesses may fall short of creating contemporary marketing strategies and hence, they may turn directionless. Digital Marketing scope in future of marketing will not only let businesses survives but also thrives in the most result-oriented fashion. From the nostalgic dial up connection sound in the 90’s to the hi-speed Wi-Fi era, internet has become an indispensable part of our lives. With increase in digital marketing spending, government’s initiative to propagate the agenda of Digital India and mobile device penetration to the remote areas, the possibilities are endless for digital marketers to help companies build a long-lasting online presence.

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# Impact of Data Mining in Finance and Banking Sector: A Scientific Mechanism

Pratibha Sharma\*

## Abstract

*Data mining is emerging as a very useful tool for providing valuable information from large databases and enabling managers and business executives to make hard core decisions in a much easier and effective manner. It is a process of analyzing the data from various perspectives and summarizing it into valuable information. This paper defines what data mining is and how does it works. It then focuses on some broad area of application, like market segmentation, direct mail marketing, customer churn, fraud detection, portfolio management trading and risk management where data mining techniques can be used in banks and other financial institutions to enhance their business performance.*

**Keywords: Data Mining, Banks, Financial Institutions, Risk Management, Portfolio Management, Market Segmentation and Analysis, Customer Churn, Fraud Detection.**

## Introduction

Data might be one of the most valuable assets of any corporation, but only if it knows how to reveal valuable knowledge hidden in raw data. Data mining allows extracting diamonds of knowledge from the historical data, and predicting outcomes of future situations. It helps optimize business decisions, increase the value of each customer and communication, and improve customer satisfaction. Data mining is the process of extracting previously un-known information, typically in the form of patterns and associations, from large databases. Today, organizations are realizing the numerous advantages that come with data mining. It is a valuable tool, by identifying potentially useful information from the large amounts of data collected. An organization can gain a clear advantage over its competitors. The banking sector consists of public sector, private sector and foreign banks, apart from smaller regional and cooperative banks. In the market, various IT-based banking products, services and solutions are available. The most common of them are Phone Banking; ATM facility; Credit, Debit and Smart Cards; Internet Banking & Mobile Banking; SW IFT Network & INFINET Network;

connectivity of bank branches to facilitate anywhere banking.

Data mining is primarily used today by organizations with a strong consumer focus - retail, financial, communication, and marketing organizations. It enables these organizations to determine relationships among “internal” factors such as price, product positioning, or staff skills, and “external” factors such as economic indicators, competition, and customer demographics [13]. Data mining is becoming strategically important for banking sector as well. It analyzes the data from various perspectives and summarizes it into valuable information. Data mining assists the banks to look for hidden pattern in a group and discover unknown relationships in the data. Today many banks are employing data mining for their proper functioning, the list includes: Bank of America, First USA Bank, Headlands Mortgage Company, FCC National Bank, Federal Home Loan Mortgage Corporation, Wells Fargo Bank, Nations-Banc Services, Mellon Bank N.A., Advanta Mortgage Corporation, Chemical Bank, Chevy Chase Bank, U.S. Bancorp, and USAA Federal Savings Bank. [11]

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## Data Mining

Data Mining is the process of extracting knowledge hidden from large volumes of raw data. The knowledge must be new, not obvious, and one must be able to use it. Data mining has been defined as “the nontrivial extraction of implicit, previously unknown, and potentially useful information from data [1]. It is “the science of extracting useful information from large databases” [6]. Data mining is one of the tasks in the process of knowledge discovery from the database [10]. Generally, data mining (sometimes called data or knowledge discovery) is the process of analyzing data from different perspectives and summarizing it into useful information - information that can be used to increase revenue, cut costs, or both. Data mining software is one of a number of analytical tools for analyzing data. It allows users to analyze data from many different dimensions or angles, categorize it, and summarize the relationships identified. Technically, data mining is the process of finding correlations or patterns among dozens of fields in large relational databases.

Data mining technology can generate new business opportunities by:

***Automated prediction of trends and behaviors:*** Data mining automates the process of finding predictive information in a large database. Questions that traditionally required extensive hands-on analysis can now be directly answered from the data. A typical example of a predictive problem is targeted marketing. Data mining uses data on past promotional mailings to identify the targets most likely to maximize return on investment in future mailings. Other predictive problems include forecasting bankruptcy and other forms of default, and identifying segments of a population likely to respond similarly to given events.

***Automated discovery of previously unknown patterns:*** Data mining tools sweep through databases and identify previously hidden patterns. An example of pattern discovery is the analysis of retail sales data to identify seemingly unrelated products that are often purchased together. Other pattern discovery

problems include detecting fraudulent credit card transactions and identifying anomalous data that could represent data entry keying errors.<sup>4]</sup>

For example: A bank searching for new ways to increase revenues from its credit card operations tested a non intuitive possibility: Would credit card usage and interest earned increase significantly if the bank halved its minimum required payment? With hundreds of gigabytes of data representing two years of average credit card balances, payment amounts, payment timeliness, credit limit usage, and other key parameters, the bank used a powerful data mining system to model the impact of the proposed policy change on specific customer categories, such as customers consistently near or at their credit limits who make timely minimum or small payments. The bank discovered that cutting minimum payment requirements for small, targeted customer categories could increase average balances and extend indebtedness periods, generating more than \$25 million in additional interest earned.

## Data Mining Techniques

The various techniques of data mining are:

### A. Clustering

Clustering can be said as identification of similar classes of objects. This is the technique of combining the transactions with similar behavior into one group, or the customers with same set of queries or transactions into one group. Classification approaches can also be used as effective means of distinguishing groups. So clustering can be used as preprocessing approach for attribute subset selection and classification [1]. For Example: The customer of a given geographic location and of a particular job profile demand a particular set of services, like in banking sector the customers from the service class always demand for the policy which ensures more security as they are not intending to take risks, like wise the same set of service class people in rural areas have the preferences for some particular brands which may differ from their counterparts in urban areas.

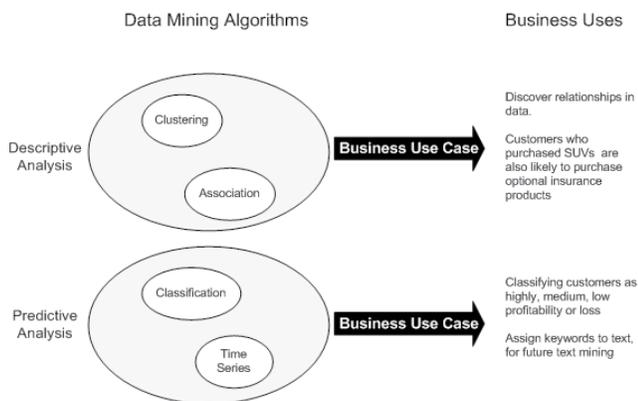
## B. Association

Association and correlation is usually to find frequently used data items in the large data sets. It is the technique of finding patterns where one event is connected to another event. This type of findings help businesses to make certain decisions regarding pricing, selling and to design the strategies for marketing, such as catalogue design, cross marketing and customer shopping behavior analysis [8]. However the number of possible Association Rules for a given dataset is generally very large and a high proportion of the rules are usually of little value.

## C. Forecasting

Regression technique can be adapted for predication. Regression analysis can be used to model the relationship between one or more independent variables and dependent variables. In data mining independent variables are attributes already known and response variables are what we want to predict [8]. Unfortunately, many real-world problems are not simply prediction. For instance, sales volumes, stock prices, and product failure rates are all very difficult to predict because they may depend on complex interactions of multiple predictor variables [1, 8]. Therefore, more complex techniques (e.g., logistic regression, decision trees) may be necessary to forecast future values. This technique of data mining will help in discovering patterns from which one can make reasonable predictions.

## D. Classification



**Fig: Usage of Data Mining Algorithms in Analysis**

Classification is the most commonly applied data mining technique, which employs a set of pre-classified examples to develop a model that can classify the population of records at large. Fraud detection and credit risk applications are particularly well suited to this type of analysis. This approach frequently employs decision tree or neural network-based classification algorithms. The data classification process involves learning and classification.

**Data Mining and Market Research:** The American Marketing Association defines marketing research as the "systematic and objective approach to gathering marketing information which — when processed, analyzed and interpreted — will help identify problems and opportunities that allow for better-informed, lower-risk decisions."

In business, Market Research is typically focused on learning more about consumers, customers, competitors and market trends at large.

Depending on the source of information, Market Research is classified as either primary or secondary. Primary research uses information from original sources; that is, a Market Researcher collects data that have not been previously collected or published. Secondary research refers to collecting data from published sources such as information released by government agencies, and reports and publications available in a public library.

Primary research is classified as either qualitative or quantitative. Examples of qualitative research are focus groups and in-depth personal interviews. The most common form of quantitative research is a survey that uses a questionnaire to collect data. The name qualitative research implies that its findings are not quantifiable. The research process is quite often a discussion in which the researcher poses open-ended questions to participants.

Qualitative research defines issues, substantiates perception and identifies behavior. For instance, results of focus groups involving the users of a consumer product can clarify issues surrounding brand loyalty, and reveal users' likes and dislikes. Findings of personal interviews with corporate purchasing agents can aid the understanding of the criteria business firms use to select suppliers.

Quantitative research relies on survey questionnaires that are often responses to multiple-choice items or ratings on a scale. These surveys are typically conducted as personal interviews, telephone interviews, mail surveys, or web-based surveys. Results from these surveys are then analyzed to generate averages, ranges and percentages.

When analyzing customer or consumer information, Market Research has many uses. Market segmentation studies provide information about the characteristics shared by customers. Purchasing power and buying habits studies uncover the financial strength and economic attributes shared by the target market. Psychological market studies reveal information regarding the perceived opinions and values held and shared by consumers in the market. Marketplace studies can provide insight into competitor strengths and directions. Environmental studies can provide insight into economical and political circumstances that can influence internal productivity and operations.

### Where do Data Mining and Market Research Fit in Customer Intelligence?

A corporate Customer Intelligence environment includes a wide range of technology-enabled processes for data collection, data storage, analysis and deployment. Typically, the customer intelligence environment is enabled by a large number of technology vendors, services providers and internal efforts. All of these efforts are brought together for the singular purpose of gaining a deeper understanding of the customer.

### Customer Data

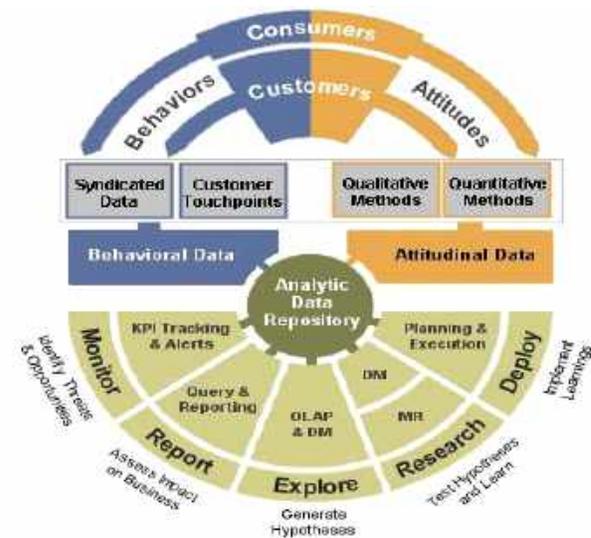
Customers and Consumers alike provide information in the form of behaviors and attitudes. Consumer behaviors may be captured internally by sales patterns, channel usage, and campaign responses. Consumer behavior may also be collected externally through syndicated research, behavior assessment such as Nielsen, or attitudinal/lifestyle profiles such as Acxiom or Experian. In addition, consumer attitudes may be captured through either qualitative or quantitative Market Research.

### Data Collection

Customer behaviors are directly collected through the major touch-points of the organization. These touch-points include call centers, point-of-sale systems, Web sites and other operational systems managed by the organization. Customer attitudes are being collected through commissioned Market Research studies as well as corporate web surveys, customer panels and emerging technologies for text analysis and customer voice analysis.

### Data Storage

Whether from customers, consumers or both, there are a growing number of data sources available that provide organizations with a myriad of behavioral and attitudinal information. In order to derive insights from the data, the data must be combined, managed and centrally accessible.



**Fig: Customer Intelligence with Data Mining Environment**

### Data Storage

Whether from customers, consumers or both, there are a growing number of data sources available that provide organizations with a myriad of behavioral and attitudinal information. In order to derive insights from the data, the data must be combined, managed and centrally accessible.

## Monitor

Monitoring is the process of identifying key indicators of business performance at various levels across the organization. These key performance indicators (KPIs) are typically accessed through executive dashboards. Critical KPIs may also be monitored by alerting agents that can send emails or calls when a defined threshold is crossed. Whether by human or machine,

## Report

Upon identifying a potential threat or opportunity, enterprise reports are typically available to quickly determine the impact of the trend on business performance. Reports are useful for rapidly accessing business information. However, they are not well suited for exploration due to their static nature.

## Explore

Given that the threat or opportunity has been shown to be relevant and substantial, exploration can begin in order to identify possible drivers of the trend. On-line Analytical Processing (OLAP) technology is a valuable tool for examining issues from several dimensions. With OLAP one can narrow the problem or focus the opportunity down to a manageable space. For example, if treadmill sales are on the decline, OLAP can help identify which regions and customer segments are most accountable for the trend. This exploration of the data can be classified as 'data mining' using the broadest definition of the term. However, manually finding important patterns in OLAP 'universes' may be like finding a needle in a haystack as the number of business dimensions grows. In such situations, automated Data Mining techniques may be employed to find hidden patterns.

## Research

The origin of customer intelligence is Consumer research. Many hypotheses are generated daily within an active customer intelligence environment. These must be properly tested, especially those with strategic implications or costly tactical programs.

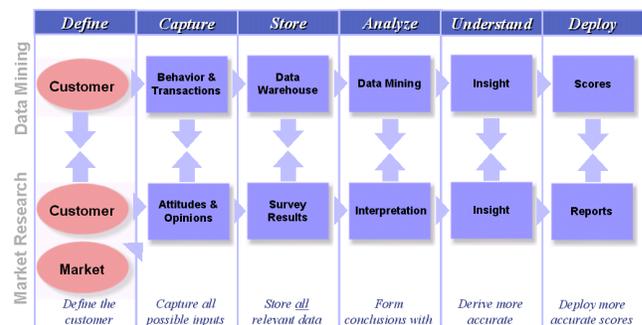
## Deploy

These conclusions are the new findings that expand one's customer intelligence. They provide the confidence to plan and execute new programs to avoid the threats or capitalize on the opportunities at hand. Done properly, these programs are tested and evaluated prior to being deployed broadly into the operations of the organization.

## Where Should Data Mining and Market Research Converge?

The convergence of Data Mining and Market Research can best be illustrated by examining the underlying research stages common to both disciplines. To this end, we define the underlying research processes as consisting of six distinct stages. These stages include:

- Define where the customer is articulated
- Capture where information is collected
- Store where information is managed and maintained
- Analyze where information is examined
- Understand where insights and conclusions are drawn
- Deploy where insights are operationalized throughout the organization



**Fig: Relationship of data mining and market Research**

## Applications of Data Mining in Finance and Banking Sector and Marketing

Data Mining can help by contributing in solving business problems by finding patterns, associations

and correlations which are hidden in the business information stored in the data bases.

What Customer Data the industry needs to explore & Why?

1. What is the profile, taste and preferences, attitude of the customer and what is the purchasing behavior of the customer since the time he/she is with the bank? (Used to Cross sell the products).
2. What transactions does a customer do before shifting to a competitor? (To prevent shifting of customers)
3. Which products are often purchased together by the customer of which particular profile? (For target marketing)
4. What patterns in credit transactions lead to fraud? (To detect and deter fraud)
5. What is the profile of a high-risk borrower? (To prevent defaults, bad loans, and improve screening)
6. What services and benefits would current customers likely desire? (To increase loyalty and customer retention)
7. Identifying the customers who are getting all types of services from your company? (Identifying 'Loyal' Customers)

Data mining has been defined as “the nontrivial extraction of implicit, previously unknown and potentially useful information from data. It is” the science of extracting useful information from large databases. A. Vasudevan, recommended the use of data mining techniques, data available at various computer systems can be accessed by a combination of techniques like classification, clustering, segmentation, association rules, sequencing, decision trees. Trends can be analyzed and predicted with the availability of historical data and the data warehouse assure that everyone is using the same data at the same Madan Lal opines that the banks in India and abroad have started using the techniques of data mining. Chase Manhattan Bank in New York, Fleet Bank Boston, ICICI, IDBI, Citi bank, HDFC and PNB in India are using data mining to analyze customer profiles to use them for their benefits. The banks of the

future will use one asset which is knowledge for their existence and excellence. That is why the banking industry is recognizing the importance of information and has started using information technology not only to improve the quality of service, but also to gain a competitive advantage. The enormous amounts of data that banks have been collecting over the years can be effectively mined so that the bank executives can predict with increase accuracy, how customers will react to adjustments in interest rates, which customers will be likely to accept new product offers, which customers will be at higher risks for defaulting on a loan and how to make each customer relationship more profitable (Fabris 1998) [9].

The broad categories of application and uses of Data Mining and Business Intelligence Techniques in the banking and financial industry vertical may be viewed as follows:

#### *A. Portfolio Management*

Risk measurement approaches on an aggregated portfolio level quantify the risk of asset or instrument or customer including diversification effects. On the other hand, forecasting models give an indication of the expected return or price of a financial instrument. Both make it possible to manage firm wide portfolio actively in a risk/return efficient manner. The application of modern risk theory is therefore with in portfolio theory, an important part of with data mining techniques it is possible to provide extensive scenario analysis capabilities concerning expected asset prices or returns and the risk involved.

#### *B. Market Segmentation*

Identify the common characteristics of customers who buy the same products from your company. Banks deal with various types of customers e.g., individuals, group of people, corporate entities, etc. who have their likes and dislikes. No bank can afford to assess the need of each and every individual customer separately. It is nearly impossible for banks to market all these categories of customers on a one-to-one basis, particularly if they simply rely on predictable socio-economic data like age and

income as the base for dividing customers into segments. To overcome this problem, bank's marketing department use data mining for market segmentation strategy, which recognizes the wisdom of specializing to suit the need of a segment of the market rather than trying to address the requirements of each and every customer separately. Market segmentation divides the whole market into groups of customers who have the requirement of similar kinds of products and services. Each segment of the market may demand different products and require different marketing mix to address the demand. The bank should, therefore, develop the profile of different market segments. Then the targeted market segments should be selected based on their attractiveness. Once the bank has identified the market segments that it might address, the next steps will be positioning of the product into the targeted market segment

### *C. Customer Relationship Management*

In the era of cut throat competition the customer is considered as the king and it's the customer only who is ruling the wholeshow. The concept of selling a product to the customer is outdated and obsolete, now the objective is to reach to the heart of the customer and hence to develop a sense of belongingness for the organization. The huge data bases of various organizations are storing billions of data items about the customers. Data mining can be useful in all the three phases of a customer relationship cycle: Customer Acquisition, Increasing value of the customer and Customer retention [5]. Data mining technique can be used to create customer profiling to group the like minded customers into one group and hence they can be dealt accordingly [8]. The information collected can be used for different purposes like making new marketing initiatives, market segmentation, risk analysis and revising company customer policies according to the need of the customers [9].

### *D. Risk Management*

Banks manage risks relating to offering new customers credit cards, extending existing customers lines of credit, approving loans, amount of loan, lending rate, repayment period, loan defaults etc.

For example: Bank executives by using data mining technique can reduce the risk of issuing credit cards by determining those customers who are likely to default on their accounts.

Banks also have the problem of predicting the credit-worthiness of new clients on the basis of historic data of past clients. The credit worthiness also influences the interest rate of a credit. A bank has data about clients to whom it gave credits in the past. The client data contain personal data, data describing the financial status and the financial behavior before and at the time the client was given the credit. The clients are divided into four classes. The first class contains all those clients who paid back the credit without any problems; the second class those who paid back with little problems; the third contains those who should only get a credit after detailed checks because substantial problems of payback occurred in the past; and the fourth class consists of all those who did not pay back at all. Using this data table a prediction model is created in order to predict the probability for each class for new clients. By this way the combinations of attributes which are responsible for clients to have a high probability of not paying back will be identified by the prediction model too [18].

### *E. Fraud Detection*

In banking, fraud can involve using stolen credit cards, forging checks, misleading accounting practices, etc. Data mining can help to detect fraudulent actions by building a model using a fraudulent behavior that has been done in the past and then use data mining to identify similar behavior. Through the use of sophisticated data mining tools, millions of transactions can be searched to spot patterns and detect fraudulent transactions. Various techniques like decision trees (e.g. CHAID), machine learning, association rules, cluster analysis, neural networks and predictive models can be generated to estimate things such as probability of fraudulent behavior or the dollar amount of fraud.

In banking, the most widespread tool used to detect fraud is HNC's Falcon product. HNC monitors more than 160 million payment-card accounts to detect credit card frauds. They also claim a healthy return

on investment. HNC was built using a neural network shell and is used by many banks like LLOYDS BANK to detect suspicious credit card transactions. According to Kuykendall “Flacon is used by 9 off the top ten credit card issuing banks, where it examines the transactions of 80% of cards held in the U.S”. Mellon Bank also uses data mining for fraud detection. [11]

### *F. Direct Mail Marketing*

Identify which prospects should be included in a mailing list to obtain the highest response rate. In the banking sector, direct mail marketing has traditionally been very popular. The use of transpromo mail – where offers are included in transaction mail – has remained consistent through the economic recession. With many banks struggling to retain their customers, transpromo direct mail has played a critical part in their marketing efforts [15]. Banks can use data mining to analyze customer databases and develop profiles of individual customer preferences for products and services. They can offer those products and services that the customer really wants by directly mailing and cross –selling i.e. banks makes an attractive offer to its customer by asking them to buy additional product or service. For example home loan with insurance facility.

With the help of data mining technique, banks are able to analyze which products and service are availed by most of the customers in cross selling and which type of consumers prefer to purchase cross selling products and so on. For example: During 2008, there was a 37% increase in banking direct mail pieces sent to manage current client relationships, including informational and loyalty mailings, renewal notices and upgrade offers. E-mail cross-selling also increased. Cross-sell e-mails tracked through Mintel Comperemedia’s e-mail panel rose from a 2% share of banking e-mail in 2007 to a 5% share in 2008 [16].

### *G. Customer Churn*

High cost of customer acquisition and customer education requires companies to make large upfront investments on customers. However, due to easy access to information and a wide range of offerings,

it is easier than ever before for customers to switch between service providers. This applies to all industry verticals such as banking, telecom, insurance, etc. customer churn, which is defined as the propensity of customers to cease doing business with a company in a given time period, has become a significant problem and is one of the prime challenges financial institutions worldwide are learning to face [6]

In banking domain, we define a churn customer as one who closes all his/her accounts and stops doing business with the bank. There are many reasons for a customer to close the account(s). For example, a person creates an account for a specific purpose and closes it immediately after the purpose is solved. Or a person is relocated and has to move to another place and hence closes all the accounts. Or a customer may stop transacting with the bank just because of the unavailability of bank’s ATMs in important places and hence close his/her accounts [6]. Banks can use data modeling techniques like fuzzy methods, predictive modeling can identify the customers that are likely to churn in the near future and then the bank executives can provide exciting offers to these customers which they cannot refuse for example, a mortgage customer may tell the lending bank about an existing auto loan from another bank. An agent of the bank can add this information to the customer’s profile, and present back a pre-approved refinance of the auto loan. This will save the customer money by consolidating the existing mortgage and auto loan with one bank and also prevent the customer from searching service offerings from other banks.

### *H. Trading*

For the last few years a major topic of research has been the building of quantitativetrading tools using data mining methods based on past data as input to predict shorter movements of important currencies, interest rates, or equities. The goal of this technique is to spot times when markets are cheap or expensive by identifying the factor that are important in determining market returns. The tradingsystem examines the relationship between relevant information and piece of financialassets, and gives you buy or sell recommendations when

they suspect an under or overvaluation. Thus, even if some traders find the data mining approach too mechanical or too risky to be used systematically, they may want to use it selectively as further opinion.

### Software Support

Keeping in mind the usefulness and applicability of data mining techniques in various sectors, the software development companies have come up with various applications, which can automate the task of data mining. Some such software are: STATISTICA Data Miner, A venture of StatSoft worldwide, is a revolutionary product in the data mining applications. It enables financial institutions to Detect patterns of fraud; Identify causes of risk; create sophisticated and automated models of risk, Segment and predict behavior of homogeneous groups of customers, Uncover hidden correlations between different indicators. 11Ants Analytics Ltd is a venture backed company located in Hamilton, New Zealand. 11Ants Analytics is committed to making advanced data mining accessible to non-technical users. They have built incredibly powerful data mining software which is deceptively simple to use.

### Conclusion

This article described that data mining can be a very powerful and helpful tool to extract important and useful information for banking sector from the historical as well as from the current data. Data mining can be used in various fields of banking like Market segmentation by which banks can segment their customers into different groups, direct mail marketing can help the banks to improve their marketing strategy and to increase their business, customer churn to increase the rate of retention of the customers, risk management to reduce the various risks like creditworthiness and fraud detection to reduce the number of fraudulent. Data mining has wide application domain in almost every industry where bulky data is generated and that is why it is considered as one of the most important and promising developments in Information Technology. Thus, customer retention and acquisition will be an important determinant of the banks' bottom lines.

Those banks and retailers that have realized the utility of data mining and are in the process of building a data mining environment for their decision-making process will reap immense benefit and derive considerable competitive advantage to withstand competition in future.

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## Sustainable Business Development: A Profitable Enterprise

Ananya Mitra Pramanik\* Dr. Anjali Agrawal\*\*

### Abstract

*Mankind's existence is in danger and the urgent requirement of the hour is to set off worldwide actions to practice sustainable business development. Unsustainable trade and business practices have not only affected the world's natural resources including contamination of the water, air, and earth but also contributed in lowering the income of business houses. Contrary to popular belief that sustainable practices lower the business profits, in reality, when these practices are fully adopted, it leads to increased returns, sales, and profits for the business houses. This paper investigates the global solutions to sustainable development. It comprehends the environmental needs for adoption of these techniques for the continuing existence of the natural ecosystem and its concurrent role in business development. According to research, a business house which follows sustainable practices and advertises this to the consumers creates a deeper connection with the consumer and are patronised. This paper is based on secondary research. Most of the information used is taken from books and journals. World Economic and Social Survey 2013 is also consulted for comprehensive data on sustainable development challenges.*

**Keywords: Global, Business, Sustainable, Development, Economy.**

### Introduction

Worldwide there is an alarm sent out by researchers informing people of the harmful effects of mass manufacturing and consumption. People across the globe are witnessing the loss of their surroundings along with climate change, extinction of natural flora and fauna, pollution of the air, water, earth, and their terrifying after effects. A need arose to combat the negative effects of global business patterns such that business economies can coexist without harming the environment. An effective sustainable business development will engage strategy changes in manufacturing technology, commerce, trade, investments, as well as guiding principle changes of the administration, enterprises, workforce, NGOs, citizens, and consumers (OECD, 2003). Without effective global agenda, rich or upmarket households in urbanized economies will continue to practice unsustainable consumption. An important sustainable challenge arises from the unsustainable or excessive

consumption of the developed countries. This pattern is now being increasingly followed by the developing or poorer countries. The average carbon footprint or green house gas emission of a developed country is a great deal higher than the under developed countries. It is at smallest amount 20-30 times greater (United Nations, 2013). The researchers have pointed out that the world is gradually being more interdependent in a social context, financially as well as ecologically (P., 2009). World economic assimilation without concerns for all the stakeholders can lead to a risk involving situation for the business houses.

### Research Objective

The objective of this paper is to examine the comprehensive expositions to sustainable development. This study interprets the ecological requirements for the practice of sustainable

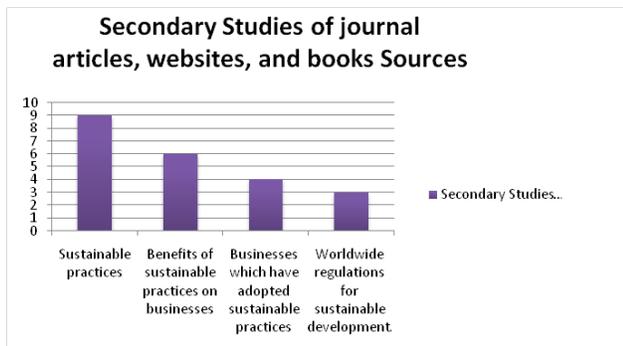
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techniques for the prolonged survival of the natural environment and its simultaneous role in global business development.

## Research Methodology

The research methodology involved secondary research involving data compiled through journal articles, websites, and books Sources. Secondary data is easily attainable and its main sources are legal publications, websites, journal articles, informal records, and books (Ajayi, 2017). Secondary data involves the analysis and interpretation of the primary data. For this current research a total of 22 studies including books, journals, and website information were reviewed, whereof 41% studies deal with sustainable practices, 29% deal with the benefits of sustainable practices on businesses, 16% deal with businesses which have adopted sustainable practices and 14% deal with worldwide regulations for sustainable development. Figure 1 shows the bar graph of the number of studies undertaken for this paper under various categories related to this research.



**Figure 1: Bar Graph Showing the Number of Studies Undertaken for this Paper**

## Data Analysis

There are important factors which the researcher examined before conducting secondary data analysis. Firstly the researcher studied the original objective of the study and the research methods employed (Foley, 2018). This made the researcher familiar with the content of the data. Next the researcher investigated the population of the study. The secondary data method provided certain advantages to the research

i.e. it was cost effective and time saving. However secondary methods also often pose certain general problems e.g. it does not provide the answers to all the research questions and are not tailor made for new researches, as they are comprised in a different time frame or are have an unrelated geographical location (Ajayi, 2017). However these limitations of secondary data were overcome by following a generalised area and time frame for this study. Also a large number of researches based on the selected study were looked into to answer the research Questions. Secondary data method is a convenient and powerful tool for researchers looking to ask broad questions at a large scale.

## 1. Challenges in Adopting Sustainable Practices

Sustainability is defined as allocating for the requirements of all individuals to be catered without preventing those identical requirements from being catered by the upcoming generations (Brundtland Commission 1987, 2016). In 1971 the Committee for Economic Development developed a “three con-centric circles” technique to portray business social responsibility (H., 2010). The innermost circle included fundamental economic functions i.e. production, expansion and employment. The center circle depicts that the economic tasks must be implemented with an insightful approach to changing social values and priorities. The outermost circle depicts innovative and emerging social responsibilities that business houses should adopt to turn into active participants in improving the social environment. Thus it was thought that emphasizing ‘responsibility’ focused further on the notion of business compulsion whereas accomplishment or action was being ignored. Global trade and industry incorporation can have positive effects on the sustainable development (P., 2009). Although globalisation or integration of marketplaces has a positive authority on the economic expansion of the nations but it has an adverse consequence on the environment and leads to unequal distribution of wealth (Simone B., 2003). The social receptiveness therefore, emphasized business action, pro-action, and execution of a social role. This was a necessary alteration to the earlier misconception.

## 2. Advantages of Sustainable Practices

In 1960, Keith Davis suggested that social responsibility refers to industries' assessments and measures taken for reasons at least fractionally beyond the company's direct economic or technical awareness.

Consumer today is conscious of the severe harmful impacts mass scale industrialization has on our environment. It leads to several negative impacts including health, destruction of wild life, natural flora and fauna and creation of an unequal society. If sustainable practices are adopted then it's a form of pay back to the society.

This helps the businesses to gain positive image, community relations, patrons and shareholders. It can act as an influential business device once it is incorporated into the roots of the business strategy of the corporation. It also results in increased trade and customer goodwill thus enhancing monetary benefits with improved product status and brand building. Because of the goodwill approach of the brand the productivity and loyalty of the employees is also enhanced. This further helps in creating new trade opportunities, market entries and innovation capabilities.

### Future Implications

Worldwide the consumer is increasingly aware on how goods are produced and if producing these goods is sustainable for the environment? Lots of researches have been conducted in this area of sustainable development and effective solutions are provided for ethical progress. However desired results are yet to be achieved, as progress has been uneven and insufficient. Ecological sustainability is under danger, with increased speed of growth in worldwide greenhouse gas production and biodiversity retreating (United Nations, 2013). Unsustainable production and consumption models have resulted in huge societal and economic cost and may jeopardize life on this planet (United Nations, 2013). A major challenge in achieving sustainable goal is the unsustainable utilization and manufacturing of goods.

## Conclusion

From this study it is note worthy that there is a pressing need to adopt business practices which assists in avoiding the destruction of the environment currently happening at a fast rate. Industrial production has been going on for several centuries. However in recent times cheaper methods of production has led to the mass increase of sales leading to the quick discarding of goods ultimately leading to waste generation (Keane & Velde, 2008). The role of business leaders and their policies are critical in the process of reducing waste and restoring the equilibrium of the planet. The ripples of the decisions taken currently may affect unrelated industries and these may not be in tangent with the society's short term goals. However these are imperative for achieving the long term goals of a sustainable environment. Apart from altering business practices propounded by researchers and academicians, business heads also need to advertise the destructive nature of waste. Global businesses need to commission extensive research in order to create utility in the wastes.

For achieving sustainable business development a holistic approach is required which takes into account the economics, environment, and ethics. This is also known as the people, planet, and profit concept. This approach can harness a balanced community and economic progress. It must also be understood that the choices being made today is going to affect the future generations (OECD, 2003). Unless there is an immediate focus from businesses on sustainable practices, mankind is headed for generating a permanent depletion of natural resources.

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## Globalization: Disruption of Globalization Across Nations

Mr. Jayanth S Kashyap\* Mr. Manjunath D\*\*

### Abstract

*Globalization is a phenomenon that should be discussed in broader sense, alongside bringing technology, education, modern lifestyle, culture and ideologies, globalization has also brought cultural differences, ideological differences, cross border problems, depletion of natural resource, increase in protectionist policies. The aim of this research paper is to explore the disruptions caused by globalization in various developing economies of the world. India, China, United States and Iran are some of the nations that are discussed worldwide because of its economy, politics, culture and policies. In this research paper the aim is give a bird eye view of how globalization has created the tension between countries, influenced the cultures of countries, how global countries are adopting protectionism principles and policies after realizing the negative effects of globalization.*

Globalization is a process by which the world becomes one single market and there is integration of world market is the most common definition found in texts. Should globalization be defined in the narrow terms as economic interdependence and advancement in technology or be broadly defined keeping the aspects of creating global awareness and shared responsibility. Hence, globalization is not limited itself to exchange of ideas, groups, societies, products and services but it deconstructs the idea of customized nation and customized market. This very idea of removal of barriers, customs and regulation among nations disrupts the market globally, giving rise to disruption in globalization.

In United States amidst having the global workforce there is rise in the unemployment rate. Around 1960, twenty four percent of the workers in United States of America were employed in manufacturing sector, according to the Bureau of Labor Statistics but in September 2016 it was only eight percent, it is hard to believe that one of the liberal policies adopted i.e. after the passage of North American Free Trade Agreement (NAFTA), United States has lost five million manufacturing jobs.

Globalization has been categorized by International Monetary Fund (IMF) as movement of capital and investment, trade and transactions, migration of people to different countries and dissemination of knowledge. Technically globalization also bring with itself global warming, problem of cross boundary water, air pollution, cultural differences. The depth of its impact has globalized countries economy, politics and culture. Disruption of globalization can be proved with careful analysis of how different countries are being affected post globalization technically, economically, politically, culturally and more interestingly ideologically.

Disruption of globalization further extends to China, for a long time China was the cheapest place to manufacture goods due to its extremely low labor cost. But in 2016 labor cost of China is four percent lower than the United States, thanks to wage increase in China but not proportionate increase in productivity. The result is that companies are now moving to other countries like Vietnam and Cambodia where labor cost remains low. While the unemployment rate is just below five percent mark in U.S, the concern doesn't sums up the whole story as labor force participation in U.S is about sixty two percent, which means more than ninety four million Americans have been dropped out of

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the workforce. As long as companies get low labor cost offers from other countries those jobs could never get shifted to United States.

Unsafe products are making way to United States. In 2007 Mattel, the toy making company recalled seven million toys after it was found that the toys were coated in lead paint at a manufacturing plant in China. Earlier in 2016 twenty six thousand pounds of fish from Vietnam were recalled by United States Department of Agriculture. Japanese company Honda had to call back more than ten million cars sold due to faulty Air bag, which could potentially lead to death. While many countries have their own safety standards, it doesn't match the safety standards set in United States. Recalls are costly and no business in the market wants to undergo the hit to profits or reputation of the company. Globalization should understand that an open market operation doesn't mean open compromise on consumer safety.

Globalization is regressive in nature, not to disagree that the health and education facilities have been drastically improved in developing nations, also need for quality education has increased as globalization has created jobs that require higher education. An increase in trade and travel has also increased the spread of diseases like HIV/AIDS, Swine Flu, Ebola virus and variety of other diseases. The major loss to developing nations is well qualified and highly educated workforce migrates to developed nations in search of better lifestyle.

India one of the fastest growing economies of the world, adopted LPG policy in the year 1991, Liberalization, Globalization and Privatization, which allowed foreign direct investment into India. Famous International Brand entered Indian market like Armani, Gucci, and Nike changing the fashion statement of Indians. The impact further enters the education system like foreign universities collaborating with Indian universities. This process had some negative effects such as disparity made between urban and rural Indian joblessness, growth of slum capitals and threat of terrorist activities. Globalization increased the competition between Indian and Foreign companies, with foreign goods coming at a cheaper price, consumers preferred them in turn reduced the profit of domestic companies.

Iran the other country has turned its ways towards stopping the harmful effect it can have from globalization, it has developed its mechanism to prevent influence it can have on its culture, food tastes and preferences for example in order to not to change food culture of Iran people it does not allow foreign owned establishments in their country not even in the form of franchise. Instead it has created modeling technique to meet the needs of new generation tastes and to create modern living lifestyle by supporting indigenous companies from their own land rather than allowing companies like Mc Donald's or Starbucks to work in Iran. The reason for quoting this example is to explain the fact that the countries feel that the influence and impact global culture can threaten the rich, traditional and heritage culture of the country.

One of the reasons why globalization is essential is to overcome protectionist policies of various countries. Protectionist policies aren't wrong if it is for the welfare of domestic industries rather used as a political tool to gain mileage during elections. It would be apt to cite one more example or rather call it tug of war that globalization has created and how the countries that once preached the world to become more global and liberalize its trade policies is itself undertaking protectionism policies. Trade Protectionism is a policy countries adopt to prevent domestic industries being affected by global companies and global competition, in fact in the long term it affects the industrial competitive tendencies in International Market, because of extreme global influence and increase in the transactions, exchange of goods and services US has adopted certain protectionist Policies, they are withdrawing itself from Trans Pacific Partnership (TPP), imposing huge tariffs on imports from developing countries like India, China and South Korea, blocking appointment of judge in WTO's appellate, imposing of harsh measures on new Immigrants. The war that globalization has created has disrupted the relation between America and China. United States has taken severe measures against Beijing, we can term it as 'trade and technology war with China', in July 2018 US imposed twenty five percent tariff worth dollar fifty billion on imports of dollar five hundred and forty

billion. Shutting off business relationship with the individual Chinese firms stating the reason that there is theft of Intellectual Property Rights of the US Firms. Every action has its reaction; United States saw Chinese market as aggressive exporter which can create trade deficit for United States. As a response China imposed twenty five percent duty to US dollar one hundred twenty billion goods exported as a reaction to US Sanctions.

We have already seen a sneak peek of what a global society would look like from a political perspective. The individual and organizations who spend time lobbying politicians would receive benefit of their needs addressed first. We saw what happened during US Elections, where billions were spent to influence legislation and policy to become favorable towards a specific outcome. This issue would translate itself to a global economy, where only richest and most influential would influence laws which would impact everyone in society. Another major threat that disrupts the environment is challenge of sustainability, resource depletion that global companies cause. We have already seen what free trade does to the environment, greenhouse gas emission rose in 2018 despite efforts to curtail them. Micro plastics invaded our oceans creating negative impact on marine life. The water on the planet is slowly acidifying, creating economic and health impact every day. Over two lakh Americans die

each year because of pollution exposure. The above discussed effect of globalization is just the beginning phase of disruptions. As I write this article that rumors of World War three has erupted because of the war like tense situation between US and Iran which has affected global dependent countries like India and China. The disruptions must be curtailed by the proactive measures for all nations to co-exist with each other.

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## Survey of Utilization of Graduate Degree and Diploma Holder Technical Professionals in Various Establishments in Delhi

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### Abstract

*The paper deals with utilization of passed outs Graduate Degree and Diploma holder Technical Professionals employed in industries/establishments. Assessment of utilization of pass outs is one of the methodologies to assess the quality of the pass outs and affiliated institutions. Assessment of quality of institutions which are providing technical education is one of the foremost issues concerning all stakeholders. Findings of many studies/reports revealed that employability level of pass outs from many institutions is very low due to low quality of education in India. Utilization of pass outs is one of the indicators to assess the quality of institutions and their pass outs. Assessment of utilization of passed outs was done through a sample survey which was conducted in various establishments in Delhi. In two categories of qualifications viz Graduate Degree and Diploma, in all 149 technical professionals were surveyed out of which 96 were Graduate Degree holders and 53 were Diploma holders. The broad findings of the paper includes: Majority of Graduate Degree and Diploma holder technical professionals passed outs and employed were working and residing in urban area. Majority of these Technical Professional pass outs in these two qualifications were in regular employment and working in private sector and took minimum time to get their first employment (less than three months). Highest percent of Technical Professional pass outs got their first employment through newspaper/print media, getting monthly emoluments in the range of Rs. 10,001-20,000 and employed in medium size establishments. They were performing main functions such as production, repair and maintenance, logistics, stores, HRD, finance and administration.*

**Keywords: Technical Education, Employment, Quality, Qualification, Utilization.**

### 1. Introduction

The present National Democratic Alliance (NDA) central government has been specially focusing on technical and vocational education including Engineering, Management, Architecture & Town Planning, Pharmacy, Hotel Management & Catering Technology through its Skill India Mission and Pradhan Mantri Kaushal Vikas Yojana. Skill India is one of the important flagship programmes of the present government. Government of India has planned to open Indian Institute of Technology (IIT), National Institute of Technology (NIT), Indian

Institute of Management (IIM) and Institute of Hotel Management (IHM) at least one in each state to enhance quality technical education in India.

Due to this policy, majority of states presently have IIT, NIT, IHM and IIMs. Remaining states will be soon getting these institutions. In recent years mushrooming growth of private technical institutions such as universities and colleges has been witnessed. These institutes are more than their actual requirement. As resultant, lot of seats in these colleges in many states is lying vacant and they do not find candidates for admission.

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Note: The views expressed in the paper are of authors not institutions to which they belong.

In recent years especially during last decade technical education has become the main focus of government of India as well as State Governments. Government of India during last 10-15 years made lot of serious efforts in expansion of technical education by opening new institutions in government sector as well as in private sector. All India Council of Technical education (AICTE) has also been strengthened to expand technical education in India quantitatively and qualitatively. The responsibility was entrusted to AICTE to regulate and monitor the institutions of technical education in India at degree and diploma level.

AICTE in its wisdom put many inputs to improve the quality of technical institutions providing technical education within its jurisdiction. AICTE run programme for faculty development and institution building for improvement of the quality of teaching staff. AICTE also revise the curriculum periodically to make the students more employable according to the need of industries. Quality of technical institutions depends upon many factors such as quality faculty, good infrastructure, well equipped laboratories, excellent R&D facilities, good networking with industrial establishments etc. All these play an important role in quality improvement. According to latest reports available in order to improve the quality of engineers, AICTE has decided to cut down the seats available in India by 40 percent which is approximately 6 lakhs (India Times, 2016)<sup>1</sup>.

Institutions providing qualitative education are in actual demand. Quantitatively saturation level has been reached but qualitatively lot of improvement is needed. Quality of institutions in respect to technical education has to be improved so as to improve the employability level of pass outs. Institutions have to be qualitatively improved which are lagging behind. It is better to close down those institutions which fail in quality indicators. Institutions should not be allowed to play with the future of students. Substandard pass outs technical professionals are no more in demand in industrial establishments. This question has been discussed at many forums regularly from time to time by industries and their associations, government, academia and

policy makers. According to the third edition of the National Employability Report that there was a huge gap in skills of engineers, as needed, to work in large industry, less than 8 percent Indian engineers fit for core engineering role (Economic Times, 2016)<sup>2</sup>.

To monitor the quality of institutions, National Assessment and Accreditation Council (NAAC) was set up with its headquarter at Bengaluru. NAAC assess the quality of institutions based on specific indicators and grading the institutions. NAAC conducts inspection of institutions and prepare the reports on quality of institutions and provide them with grade. In addition to NAAC, some specific studies have been conducted from time to time. Some studies on quality aspects were conducted by then National Technical Manpower Information System (NTMIS), lead centre at National Institute of Labour Economics Research and Development (NILERD) erstwhile Institute of Applied Manpower Institute (IAMR) with its 16 Nodal Centers all over India funded by AICTE, Government of India, Ministry of Human Resources Development, New Delhi. NTMIS conducted studies on demand and supply of technical professionals as well as utilization of professionals through establishment surveys and tracer studies of pass outs. NTMIS also prepared and published reports on Employment Scenario of recently pass outs Graduate and Diploma Engineers, Management, Pharmacy, Architecture & Town Planning and Hotel Management & Catering Technology professionals in India. Last report was published in 2010 of 2007 pass out batch of Engineering Degree holders. But NTMIS now has become history after celebration of its silver jubilee as AICTE decided to wind up the project. According to the study conducted by NTMIS on Graduate Engineers of 2007 pass out batch that average waiting period was five months for getting first employment. On an average a fresh Graduate Engineer earns monthly emoluments of Rs. 16,094. Nearly 85 percent of employed engineers were working in their own field in their current job. Lowest percent of employed engineers were employed in small establishments (Yadav and Shukla, 2010)<sup>3</sup>.

In view of above background, it is imperative that such type of studies may be conducted from time to time which reflects the quality aspects of technical professionals. Utilization of engineers has several dimensions such as sector and field of employment, rates of unemployment, primary activities and mobility (NAP, 1985)<sup>4</sup>. According to a study conducted by Aspiring Minds, a employability assessment company, only 4.77 percent engineers can write the correct logic of the programme, concluded that about 95 percent of engineers are not fit to take up software development jobs (Hindustan Times, 2017)<sup>5</sup> In this series, Institute of Applied Manpower Institute (IAMR) renamed as National Institute of Labour Economics Research and Development (NILERD) conducted a sample survey of industrial and service establishments in 2013 in Delhi in which technical professionals are employed as a pilot project to set up National Information System for Technical Human Resource (NISTECHR). The sample survey was conducted among 239 establishments in Delhi. Sample establishments were chosen from central & state government and private establishments mainly from manufacturing, communication, construction, trade & hotels, education and public services etc. Size of the establishment was also considered as one of the criteria for selection of establishments for sample survey.

In the same establishments tracer survey was also conducted simultaneously to study the utilization of all type of technical professionals those who passed out recently during last five years. The establishment and tracer survey was conducted through a set of structured questionnaire. The questionnaire was canvassed among selected establishments and technical professionals.

Since the area of utilization of technical pass outs is very much pertinent and important for technical education planners and policy makers in government, in view of this the present paper is an attempt to assess the utilization of technical professionals passed outs recently.

## **2. Objective of the Paper**

The paper has been prepared with the sole objective to assess the utilization of recently passed out Graduate Degree and Diploma Holder Technical Professionals working in Industries/Establishments in Delhi.

## **3. Research Methodology**

IAMR conducted a sample survey in 2013 for setting up NISTECHR among 239 industrial and services establishments and tracer survey of 268 Technical Professionals among the same establishments which includes 164 engineering, 6 Architecture and Town Planning, 70 Management, 8 Pharmacy and 20 Hotel Management & Catering Technology Professionals passed outs recently. Out of 268 surveyed Technical Professionals, 12 PhD Degree holders, 95 Post Graduate Degree holders, 12 Post Graduate Diploma holders, 96 Graduates and 53 Diploma holders were selected for sample survey. Scope of this particular paper is limited only to Graduate Degree and Diploma holder technical professionals. Thus only 149 Technical Professionals fall in these two categories of qualifications covered in the paper for analysis and presentation. The survey was conducted in Delhi on pilot basis. The survey was conducted through a structured questionnaire in the selected establishments and tracer survey among passed outs working in the same establishments. The data collected through this survey has been used and analyzed to prepare this paper and derive conclusions.

## **4. Utilization of Graduate Degree and Diploma Holder Technical Professionals**

Utilization of Technical Professionals having Graduate Degree and Diploma has been analyzed mainly in terms of place of work and residence, main activities of employing establishments, size of employing establishments, functions performed, nature and sector of employment, emoluments, source of getting first employment and time taken for getting first employment. Details of these items will be discussed as under:

#### 4.1 Place of Work

Study indicates that out of 149 sample surveyed technical professionals, 86.94 percent were working in urban area and remaining 13.06 percent were working in rural area. Qualifications wise analyses indicate that out of 96 Graduate Degree holders, 82 (85.42 percent) were working in urban area and 14.58 percent (14) were working in rural area. Out of 53 Diploma holders, 94.34 percent (50) were working in urban area while 5.66 percent (3) were working in rural area. Analyses of data concluded that majority of pass outs in both qualifications were working in urban area. Only a small fraction of pass outs were working in rural area. Out of 132 technical professionals working in urban area, 82 (62.12 percent) were Graduates and remaining 50 (37.88 percent) were having Diploma qualification. Out of 17 technical professionals working in rural area 14 (82.35 percent) were Graduates and 3 (17.65 percent) were Diploma holders (Table 1).

#### 4.2 Area of Residence

Analyses of data indicate that majority of recently passed out employed Technical Professionals were residing in urban area i.e. 80.60 percent and remaining only 19.40 percent were residing in rural area. Qualification wise analyses observed that out of 96 Graduate Degree holders, 77 (80.21 percent) were residing in urban area while 19 (19.79 percent) were residing in rural area. Out of 53 Diploma holders, majority of them i.e. 40 (75.47 percent) were residing in urban area while remaining 13 (24.53 percent) were residing in rural area. Overall qualification wise analyses indicate that out of total 149 technical professionals, 96 (64.43 percent) were Graduates followed by Diploma holders i.e. 53 (35.57 percent). Out of total 117 technical Professionals residing in urban area, highest 77 (65.81 percent) were Graduates followed by Diploma holders i.e. 40 (34.19 percent). Out of 32 technical professionals residing in rural area 19 (59.37 percent) were Graduates and 13 (40.63 percent) were Diploma holders (Table 1).

**Table 1: Distribution of Graduate Degree and Diploma Holder Technical Professionals**

Sl. No.	Qualification Level	Place of Work			Area of Residence		
		Rural	Urban	Total	Rural	Urban	Total
1	Graduate	14 (14.58) [82.35]	82 (85.42) [62.12]	96 (100.00) [64.43]	19 (19.79) [59.37]	77 (80.21) [65.81]	96 (100.00) [64.43]
2	Diploma	3 (5.66) [17.65]	50 (94.34) [37.88]	53 (100.00) [35.57]	13 (24.53) [40.63]	40 (75.47) [34.19]	53 (100.00) [35.57]
3	Total	17 (13.06) [100.00]	132 (86.94) [100.00]	149 (100.00) [100.00]	32 (19.40) [100.00]	117 (80.60) [100.00]	149 (13.06) [100.00]

Note: 1. ( ) Denotes percentage to Row total

2. [ ] Denotes percentage to column total

Source: IAMR Survey, 2013

#### 4.3 Main Activity of Establishments

Analyses of data revealed that out of 96 Graduate Degree holders, highest 19 each (19.79 percent) were employed in Manufacturing and Hotel & Restaurants establishments followed by 14 (14.57 percent) were employed in educational establishments and 9 (9.38 percent) were employed in Electricity, Gas and Water Supply. Out of 53 Diploma holders, highest 12 each (22.64 percent) were employed in Transport & Storage and educational establishments followed by 10 (18.87 percent) in Sale, Maintenance & Repair of Motor Vehicles, Motorcycles establishments and 6 (11.32 percent) in Health and Social Work.

Over all scenario of all 149 technical Graduate Degree and Diploma holders indicates that highest 26 (17.45 percent) were employed in Educational establishments followed by 24 (16.11 percent) in Manufacturing establishments and 22 (14.77 percent) engaged in Hotel & Restaurants. 18 (12.08 percent) were employed in Sale, Maintenance & Repair of Motor Vehicles, Motorcycles, 15 (10.07 percent) in Transport and Storage and 10 (6.71 percent) were employed in Electricity, Gas and Water Supply while 9 (6.04 percent) in Health and Social Work. Study further observed that no one was employed in Mining & Quarry, Retail and Wholesale Trade (Table 2).

**Table 2: Distribution of Graduate Degree and Diploma Holder Technical Professionals According to Main activity of Establishments Where Employed**

Sl.No.	Main Activity	Graduate	Diploma	Total
1	Manufacturing	19 (79.17) [19.79]	5 (20.83) [9.43]	24 (100.00) [16.11]
2	Electricity, Gas and Water Supply	9 (90.00) [9.38]	1 (10.00) [1.89]	10 (100.00) [6.71]
3	Construction	4 (80.00) [4.17]	1 (20.00) [1.89]	5 (100.00) [3.36]
4	Sale, Maintenance & Repair of Motor Vehicles, Motorcycles	8 (44.44) [8.33]	10 (55.56) [18.87]	18 (100.00) [12.08]
5	Hotel & Restaurants	19 (86.36) [19.79]	3 (13.64) [5.66]	22 (100.00) [14.77]
6	Transport & Storage	3 (20.00) [3.13]	12 (80.00) [22.64]	15 (100.00) [10.07]
7	Post & Telecommunications	1 (50.00) [1.04]	1 (50.00) [1.89]	2 (100.00) [1.34]
8	Financial Intermediation	3 (100.00) [3.13]	0 (0.00) [0.00]	3 (100.00) [2.61]
9	Real Estate & Renting Business	2 (100.00) [2.08]	0 (0.00) [0.00]	2 (100.00) [1.34]
10	Public Administration and Defence; Compulsory Social Security	1 (100.00) [1.04]	0 (0.00) [0.00]	1 (100.00) [0.67]
11	Education	14 (53.85) [14.57]	12 (46.15) [22.64]	26 (100.00) [17.45]
12	Health and Social Work	3 (33.33) [3.13]	6 (66.67) [11.32]	9 (100.00) [6.04]
13	Other Community, Social and Personal Service Activities	5 (83.33) [5.21]	1 (16.67) [1.89]	6 (100.00) [4.02]
14	Other Activities	5 (83.33) [5.21]	1 (16.67) [1.89]	6 (100.00) [4.03]

Note: 1. No one was found working in the establishments related to Mining & Quarrying, Retail and Wholesale trade.

2. ( ) Denotes percentage to Row total  
3. [ ] Denotes percentage to column total

Source: IAMR Survey, 2013

#### 4.4 Employment Size of Employing Establishments

Analyses of data indicates that out of 96 Graduate Degree holders, highest 37 (38.55 percent) were employed in 101-500 employees class size of establishments followed by 33 (34.37 percent) were employed in more than 500 employees class size of establishments and 20 (20.82 percent) were employed in 51-100 employees class size of establishments. Remaining 6 Graduate Degree holders (6.25 percent) were employed in 10-50 employees class size of establishments. Out of 53 Diploma holders, highest 20 (37.74 percent) were employed in more than 500 employees class size establishments followed by 19 (35.85 percent) were employed in 101-500 employees class size establishments and 11 (20.75 percent) were employed in 51-100 employees class size establishments.

**Table 3: Distribution of Graduate Degree and Diploma Holder Technical Professionals and Employment Size of Establishments in Various Establishments of Delhi**

Sl. No.	Qualification Level	Employment Size of Establishment				Total
		10-50	51-100	101-500	More than 500	
4	Graduate	6 (6.25) [66.67]	20 (20.83) [64.52]	37 (38.55) [66.07]	33 (34.37) [62.26]	96 (100.00) [64.43]
5	Diploma	3 (5.66) [33.33]	11 (20.75) [35.48]	19 (35.85) [33.93]	20 (37.74) [37.74]	53 (100.00) [35.57]
6	<b>Total</b>	9 (6.04) [100.00]	31 (20.81) [100.00]	56 (37.58) [100.00]	53 (35.57) [100.00]	149 (100.00) [100.00]

Note: 1. ( ) Denotes percentage to Row total

2. [ ] Denotes percentage to column total

Source: IAMR Survey, 2013

Study observed that out of total 149 samples surveyed Graduate and Diploma Technical Professionals recently pass outs, highest 56 (37.58 percent) were employed in 101- 500 employees size establishments followed by 53 (35.57 percent) were employed in more than 500 employees size establishments and 31 (20.81 percent) were employed in 51-100 employees size establishments. Only 9 (6.04 percent) were employed in 10-50 employees size establishments (Table 3).

#### 4.5 Nature of Employment

Out of 149 Technical Professionals, majority of them, 104 (69.80 percent) were in regular employment followed by 33 (22.15 percent) were on contractual/ ad hoc appointments and 10 (6.71 percent) were working on temporary nature of jobs. Remaining 2 (1.34 percent) were in other types of jobs which are not specified. Qualification wise analyses indicate that out of 96 Graduate Degree holders, highest 75 (78.12 percent) were in regular position followed by 14 (14.58 percent) were

**Table 4: Distribution of Graduate Degree and Diploma Holder Technical Professionals and Nature of Employment**

Sl. No.	Qualification Level	Nature of Employment				Total
		Regular	Temporary	Contractual/ Ad-hoc	Any Other	
1	Graduate	75 (78.12) [72.12]	5 (5.21) [50.00]	14 (14.58) [42.42]	2 (2.09) [100.00]	96 (100.00) [64.43]
2	Diploma	29 (54.72) [27.88]	5 (9.43) [50.00]	19 (35.85) [57.58]	0 (0.00) [0.00]	53 (100.00) [35.57]
3	Total	104 (69.80) [100.00]	10 (6.71) [100.00]	33 (22.15) [100.00]	2 (1.34) [100.00]	149 (100.00) [100.00]

Note: 1. ( ) Denotes percentage to Row total

2. [ ] Denotes percentage to column total

Source: IAMR Survey, 2013

on contract appointments and 5 (5.21 percent) were in temporary position. Out of 53 Diploma holders, highest 29 (54.72 percent) were holding regular positions followed by 19 (35.85 percent) were on contractual appointment and 5 (9.43 percent) were in temporary position.

Comparative analysis between Graduates and Diploma holders revealed that out of 104 technical professionals holding regular position, majority of them were Graduates (72.12 percent). Diploma holders were having high share in contractual/adhoc employment (Table 4).

#### 4.6 Sector of Employment

Analyses of data indicates that out of 149 sample surveyed Technical Professionals, majority of them i.e. 97 (65.10 percent) got employment in private

sector followed by 27 (18.12 percent) in central government and 14 (9.40 percent) in other sectors which are not specified in the table. Remaining 11 (7.38 percent) got employment in state government. Qualification wise analyses indicate that out of 96 Graduates, majority of them i.e. 62 (64.58 percent) were in private sector followed by 18 (18.75 percent) in central government and 12 (12.50 percent) in other sectors of employment. 4 (4.17 percent) got employment in state government. Likewise out of 53 Diploma holders, highest 35 (66.04 percent) were employed in private sector followed by 9 (24.98 percent) in central government and 7 (13.21 percent) in state government.

The study further concluded that percentage of Graduates were holding high share in central government and private sector jobs while Diploma holders were having more share in state government jobs (Table 5).

**Table 5: Distribution of Graduate Degree and Diploma Holder Technical Professionals and Sector of Employment**

Sl. No.	Qualification Level	Sector of Employment				Total
		Central Govt.	State Govt.	Private	Others	
1	Graduate	18 (18.75) [66.67]	4 (4.17) [36.36]	62 (64.58) [63.92]	12 (12.50) [85.71]	96 (100.00) [64.43]
2	Diploma	9 (24.98) [33.33]	7 (13.21) [63.64]	35 (66.04) [36.08]	2 (3.77) [14.29]	53 (100.00) [35.57]
3	Total	27 (18.12) [100.00]	11 (7.38) [100.00]	97 (65.10) [100.00]	14 (9.40) [100.00]	149 (100.00) [100.00]

Note: 1. ( ) Denotes percentage to Row total

2. [ ] Denotes percentage to column total

Source: IAMR Survey, 2013

#### 4.7 Emoluments

As regards the monthly emoluments received by the Technical Professionals, out of 149 surveyed professionals, highest 49 (32.89 percent) were getting monthly emoluments in the range of Rs. 10,001-20,000 followed by 41 (27.52 percent) in the range of Rs. 20,001 – 40,000 and 34 (22.82 percent) in the range of Rs. 5,001-10,000. 15 pass

outs (10.06 percent) were getting monthly emoluments in the range of Rs. 40,001-60,000 and 9(6.04 percent) were getting above Rs.60, 000. Only one was getting monthly emoluments less than Rs. 5000.

Qualification wise analyses of data indicates that out of 96 Graduates, highest 26 (27.08 percent) were getting monthly emoluments in the range of Rs. 10,001-20,000 followed by 24 (25.00 percent) in the range of Rs.20, 001-40,000 and 22 (22.92 percent) in the range of Rs. 5,001-10,000. 14 (14.58 percent) were getting monthly emoluments in the range of Rs. 40,001-60,000 and 9 (9.38 percent) were getting above Rs.60, 000. Only one Graduate was getting less than Rs.5000. Among 53 Diploma holders, highest 23 (43.40 percent) were getting monthly salary in the range of Rs. 10,001-20,000 followed by 17 (32.07 percent) in the range of Rs.20, 001-40,000 and 12 (22.64 percent) in the range of Rs. 5,001-10,000. Only one Diploma holder was getting salary in the range of Rs. 40,001-60,000 (Table 6).

#### 4.8 Source of Getting First Employment

Survey outcome reflects that out of 149 total Technical Professionals surveyed, highest 34(22.82

percent) each got first employment through newspaper/print media and websites/internet followed by 29 (19.46 percent) through friends and relatives and 25 (16.78 percent) through campus placement. 11 (7.38 percent) got first employment through service providers while 7 (4.70 percent) got first employment through employment exchange. 8 (5.37 percent) got first employment through any other source. Only one got first employment through Public Service Commissions.

Qualification wise analyses of pass outs indicates that out of 96 Graduates, highest 25 (26.04 percent) got first employment through websites/internet followed by 21 (21.88 percent) got first employment through campus placement and 20 (20.83 percent) through newspaper/print media. 12 (12.50 percent) got first employment through relatives and friends and 7(7.29 percent) got employment through employment exchanges. Out of 53 Diploma holders, highest 17 (32.07 percent) got first employment through friends and relatives followed by 14 (26.42 percent) through newspaper/print media and 9(16.98 percent) through website and internet. Remaining 5(9.43 percent) got first employment through service providers and 4 (7.55 percent) got through campus placement (Table 7).

**Table 6: Distribution of Graduate Degree and Diploma Holder Technical Professionals by Qualification Level and Average Monthly Emoluments (Rs.) in Various Establishments of Delhi**

Sl. No.	Qualification Level	Monthly Emoluments						Total
		Less than 5000	5001 - 10000	10001 - 20000	20001 - 40000	40001 - 60000	60001 & Above	
1	Graduate	1 (1.04) [100.00]	22 (22.92) [64.70]	26 (27.08) [53.06]	24 (25.00) [58.54]	14 (14.58) [93.33]	9 (9.38) [100.00]	96 (100.00) [64.43]
2	Diploma	0 (0.00) [0.00]	12 (22.64) [35.30]	23 (43.40) [46.94]	17 (32.07) [41.46]	1 (1.89) [6.67]	0 (0.00) [0.00]	53 (100.00) [35.57]
3	Total	1 (0.67) [100.00]	34 (22.82) [100.00]	49 (32.89) [100.00]	41 (27.52) [100.00]	15 (10.06) [100.00]	9 (6.04) [100.00]	149 (100.00) [100.00]

Note: 1. ( ) Denotes percentage to Row total

2. [ ] Denotes percentage to column total

Source: IAMR Survey, 2013

**Table 7: Distribution of Graduate Degree and Diploma Holder Technical Professionals by Qualification Level and Source of Getting First Employment**

Sl. No.	Qualification Level	Source of getting first employment								Total
		Campus placement	Through employment exchange	Public service commission	Newspaper / print media	Website / internet	Service provider	Helped by relative and friend	Any Other	
1	Graduate	21 (21.88) [84.00]	7 (7.29) [100.00]	0 (0.00) [0.00]	20 (20.83) [58.82]	25 (26.04) [73.53]	6 (6.25) [54.55]	12 (12.50) [41.38]	5 (5.21) [62.50]	96 (100.00) [64.43]
2	Diploma	4 (7.55) [16.00]	0 (0.00) [0.00]	1 (1.89) [100.00]	14 (26.42) [41.18]	9 (16.98) [26.47]	5 (9.43) [45.45]	17 (32.07) [58.62]	3 (5.66) [37.50]	53 (100.00) [35.57]
3	Total	25 (16.78) [100.00]	7 (4.70) [100.00]	1 (.67) [100.00]	34 (22.82) [100.00]	34 (22.82) [100.00]	11 (7.38) [100.00]	29 (19.46) [100.00]	8 (5.37) [100.00]	149 (100.00) [100.00]

Note: 1. ( ) Denotes percentage to Row total

2. [ ] Denotes percentage to column total

**Table 8: Distribution of Graduate Degree and Diploma Holder Technical Professionals by Qualification Level and Main Functions Performed**

Sl. No.	Qualification Level	Main Functions								Total
		Production	Repair & Maintenance	Logistics	Stores	HRD	Finance	Administration	Any Other	
1	Graduate	23 (19.17) [67.65]	22 (18.33) [44.00]	1 (0.83) [100.00]	2 (1.67) [66.67]	12 (10.00) [92.31]	10 (8.33) [100.00]	6 (5.00) [85.71]	44 (36.67) [75.86]	120 (100.00) [68.18]
2	Diploma	11 (19.64) [32.35]	28 (50.00) [56.00]	0 (0.00) [0.00]	1 (1.79) [33.33]	1 (1.79) [7.69]	0 (0.00) [0.00]	1 (1.79) [14.29]	14 (25.00) [24.14]	56 (100.00) [31.82]
3	Total	34 (19.32) [100.00]	50 (28.41) [100.00]	1 (0.57) [100.00]	3 (1.70) [100.00]	13 (7.39) [100.00]	10 (5.68) [100.00]	7 (3.98) [100.00]	58 (32.95) [100.00]	176 (100.00) [100.00]

Note: 1. ( ) Denotes percentage to Row total

2. [ ] Denotes percentage to column total

3. Some were performing more than one function

Source: IAMR Survey, 2013

#### 4.9 Main Functions Performed

As regards the main functions performed in the employing establishments by the 149 sample surveyed Technical Professionals, study observed that they were performing functions such as Production, Repair & Maintenance, Logistics, Stores, HRD, Finance and Administration. Some of them were performing more than one function. 149 Technical Professionals were performing 176 functions. Out of 176 functions performed by Technical Professionals in their employing organizations,

highest 58 (32.95 percent) functions performed comes in the category of any other functions other than the specified in the table followed by 50 (28.41 percent) functions performed in repair and maintenance and 34 (19.32 percent) functions performed in Production area. 13 (7.39 percent) functions performed in HRD, 10 (5.68 percent) functions performed in finance and 7 (3.98 percent) in Administration.

All 96 Graduate Degree holders performed 120 functions out of which highest 44 (36.67 percent) functions covers in the category of any other

functions other than the specified in the table followed by 23 (19.17 percent) functions performed in production area and 22 (18.33 percent) functions performed in repair and maintenance. 12 functions (10.00 percent) were performed in HRD and 10 functions (8.33 percent) were performed in finance area All 53 Diploma holders were performing 56 functions out of which highest 28 (50.00 percent) functions were performed in repair and maintenance followed by 14 functions (50.00 percent) performed in any other areas and 11 functions (19.64 percent) performed in production area. (Table 8).

#### 4.10 Time Taken for Getting First Employment

Study revealed that out of 149 Technical Professional pass outs, majority of them i.e. 80 (53.69 percent) took minimum time which is less than three months to get first employment followed by 30 (20.13 percent) took 4-6 months and 26 (17.45 percent) took more than a year. 8 (5.37 percent) took 7-9 months and 5 (3.36 percent) took 10-12 months to get first employment. Qualification wise analyses revealed that out of 96 Graduate Degree holders, majority of them, 56 (58.33 percent) took less than three months to get their first employment followed by 20 (20.83 percent) took 4-6 months and 18 (18.75

**Table 9: Distribution of Graduate Degree and Diploma Holder Technical Professionals by Qualification Level and Time Taken for Getting First Employment**

Sl. No	Qualification Level	Time taken for getting first paid employment					Total
		Less Than 3 months	4-6 months	7-9 months	10-12 months	More Than 1 year	
4	Graduate	56 (58.33) [70.00]	20 (20.83) [66.67]	1 (1.04) [12.50]	1 (1.04) [20.00]	18 (18.75) [69.23]	96 (100.00) [64.43]
5	Diploma	24 (45.28) [30.00]	10 (18.87) [33.33]	7 (13.21) [87.50]	4 (7.55) [80.00]	8 (15.09) [30.77]	53 (100.00) [35.57]
6	Total	80 (53.69) [100.00]	30 (20.13) [100.00]	8 (5.37) [100.00]	5 (3.36) [100.00]	26 (17.45) [100.00]	149 (100.00) [100.00]

Note: 1. ( ) Denotes percentage to Row total

2. [ ] Denotes percentage to column total

Source: IAMR Survey, 2013

percent) took more than a year. Likewise out of 53 Diploma holders, highest 24 (45.28 percent) got their first employment in less than three months followed by 10 (18.87 percent) took 4-6 months and 8 (15.09 percent) took more than one year to get their first employment (Table 9).

#### 5. Conclusions

From the analyses of data the following conclusions has been drawn:

Majority of Graduate Degree and Diploma holder recently passed out employed Technical Professionals

were residing in urban area (80.60 percent) and remaining 19.40 percent were residing in rural area. Likewise majority of respondents i.e. 86.94 percent were working in urban area and remaining 13.06 percent were working in rural area.

Out of 149 Graduate Degree and Diploma holder Technical Professionals, highest 26 (17.45 percent) were employed in Educational establishments followed by 24 (16.11 percent) in Manufacturing establishments and 22 (14.77 percent) engaged in Hotel & Restaurants.

Study observed that out of total 149 samplesurveyed Graduate and Diploma Technical Professionals recently pass outs, highest 56 (37.58 percent) were employed in 101- 500 employees size establishments followed by 53 (35.57 percent) were employed in more than 500 employees size establishments and 31 (20.81 percent) were employed in 51-100 employees size establishments.

Out of 149 Technical Professionals, majority of them, 104 (69.80 percent) were in regular employment followed by 33 (22.15 percent) were on contractual/ ad hoc appointments and 10 (6.71 percent) were working on temporary nature of jobs.

As regards the monthly emoluments received by the Technical Professionals, out of 149 surveyed professionals, highest 49 (32.89 percent) were getting monthly emoluments in the range of Rs. 10,001-20,000 followed by 41 (27.52 percent) in the range of Rs. 20001 – 40000 and 34 (22.82 percent) in the range of Rs. 5,001-10,000.

Survey outcome reflects that out of 149 total Technical Professionals surveyed, highest 34(22.82 percent) each got first employment through newspaper/print media andwebsites/internetfollowed by 29 (19.46 percent) throughfriends and relatives and 25 (16.78 percent) through campus placement.

The main functions performed in the employing establishments by the 149 sample surveyed Technical Professionals such as production, repair & maintenance, logistics, HRD, finance and administration. Some of them were performing more than one function.

Study revealed that out of 149 Technical Professional pass outs, majority of them i.e. 80 (53.69 percent) took minimum time which is less than three months to get first employment followed by 30 (20.13 percent) took 4-6 months and 26 (17.45 percent) took more than a year.

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# A Study on Trends, Opportunities and Challenges of Green Marketing

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## Abstract

*The significant test in present day time of globalization is to guard the regular habitat just as fulfill and hold the purchasers. Green showcasing has grown significant idea in present day advertise. The item, value, spot and advancement are the key segments which ought to be changed or some difference should be offered in the advertising blend components, in order to frame diminished waste and improve vitality proficiency to support green showcasing. Green promoting effort features the highlights of the organizations' item to ensure nature. Green advertising is an endeavor to describe an item as being ecological cordial (eco-accommodating). It holds the view that promoting which is a piece of business needs to fulfill clients specifically, yet in addition needs to consider the interests of society when all is said in done. The improvement of green advertising has opened the entryway of chance for firms to co-brand their items independently, hailing the green-kind disposition of a few while disregarding that of others. These advertising procedures will be clarified as aftereffect of development in the brains of the customers. Buyers today know about different ecological issues and issues and they are effectively taking an interest to decrease their effect on condition by going for green items. Green promoting gives part of chances like openness of global market, practical development and upper hand. The investigation means to know the present Scenario of green market and study the significant difficulties and openings organizations have with green showcasing. The paper likewise considers the current patterns of green promoting in India and portrays the explanation why organizations are receiving green advertising.*

**Keywords:** Green Marketing, Opportunities, Challenges, Environmentally Safe, Trends.

## Introduction

Global warming, carbon dioxide, ozone depletion, environmental hazards has all become common terminology in the 21<sup>st</sup> century and it is a sign of environmentally conscious society.

**Green marketing** is the advertising of items that are intended to be ecofriendly. It incorporates an expansive scope of exercises, including item alteration, changes to the creation procedure, feasible bundling, just as publicizing. It is otherwise called natural promoting and biological advertising. Individuals around the globe are getting progressively mindful of the green showcasing. As assets are constrained, it is significant for the advertisers to use the assets effectively with no wastage

## Rules of Green Marketing

- Understand client: an advertiser consistently ensure that the client knows about the issues that the item endeavors to address.
- Educate customer: let the people know what you are doing to protect the environment and why?
- Give an opportunity to customer to participate: It means let the customer take part in positive environmental actions and personalizing the benefits.
- Be genuine and transparent: be genuine with your customer about what you are doing and claimed to be doing

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- Price consideration: charge premium price from your customer and use higher quality ingredients- also make sure that customer can afford.

“Green marketing” refers to the arranging, advancement and advancement of items or administrations that fulfill the necessities of customers for quality, yield, open costs and administration, anyway without a negative impact on the earth, so far as the utilization of crude material, the utilization of vitality and so forth are concerned. “Green Marketing” alludes to expansive advertising idea wherein the creation, showcasing and removal of items and administrations occur in a manner that is less destructive to the earth with mindfulness about the suggestion of a worldwide temperature alteration, non-biodegradable squander, and unsafe effect of poisons

### Digital Marketing Mix

There are 4 Ps of green marketing mix but they are bit different from marketing mix.

### Green Product

The items must be created relying upon the requirements of the clients who lean toward condition cordial items. Items can be produced using reused materials or from utilized products. Proficient items spare water, vitality and cash, yet in addition diminish destructive impacts on nature.

### Green Price

Green estimating mulls over the individuals, planet and benefit such that deals with the wellbeing of representatives and networks and guarantees proficient efficiency. Worth can be added to it by changing its appearance, usefulness and through customization.

### Green Place

Green spot is tied in with overseeing coordination to eliminate transportation outflows, in this manner essentially targeting diminishing the carbon impression.

### Green Promotion

Green advancement includes promoting, showcasing materials, signage, white papers, sites, recordings and introductions by keeping individuals, planet and benefits at the top of the priority list.

### Definition of Green Marketing

Green means “less environmentally harmful” and marketing means advertising your product in the market. Green promoting is the all-encompassing and dependable vital administration process that recognizes, foresees, fulfills and satisfies partner needs, for a sensible prize, that doesn’t unfavorably influence human or normal ecological prosperity. Individuals accept that Terms like Phosphate Free, Recyclable, Refillable, Ozone Friendly, and Environmentally Friendly.

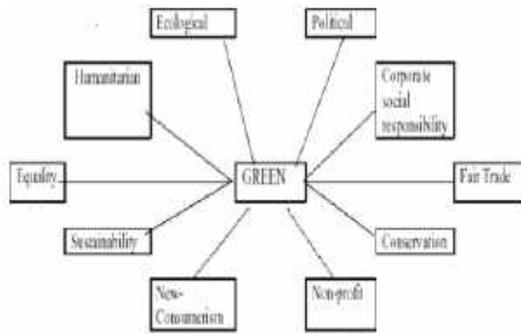
**Pride and Ferrell (1993)** Green showcasing, additionally then again known as ecological advertising and reasonable showcasing, alludes to an association’s endeavors at planning, advancing, evaluating and disseminating items that won’t hurt the earth.

**According to Tapan K. Panda (2007)** “Green or Environmental Marketing comprises of all exercises intended to produce and encourage any trade planned to fulfill human needs or needs to such an extent that the fulfillment of these requirements and wants occurs with minimal detrimental impact on natural environment”. An important aspect of green marketing is the willingness and ability of the consumers to buy green products and pay more for it.

**According to American Marketing Association,** Green promoting is the advertising of items that are ventured to be earth safe. Hence green promoting fuses the expansive scope of exercises including, item alteration, and changes to creation process just as adjustment ad. However characterizing green showcasing is definitely not a basic entrusting here a few significance meet and negate one another.

**According to Peattie(2001),** the development of green promoting has three stages:

- First stage was named as „ecological green advertising. During this period all showcasing exercises were worried to help condition issues and solutions for condition issues.
- The Second stage was ecological green advertising and afterward center moved around clean innovation that included structuring of imaginative new items which deal with contamination and waste issues.
- Third stage was maintainable green showcasing. It became a force to be reckoned with in the late 1990s and 2000.



**Figure 1: The Many Meanings of Green**

Source: (Peattie, K. (1995), Environmental Marketing Management, p. 26).

### Green Marketing Methods

- Using eco-friendly paper and inks for print marketing materials
- Skipping the printed materials altogether and option for electronic marketing
- Having a recycling program and responsible waste disposal practices
- Using eco-friendly product packaging
- Using efficient packing and shipping methods
- Using eco-friendly power sources
- Taking steps to offset environmental impact

### Review of Literature

**Prothero, A. and Fitchett, J.A. (2000)** contend that more noteworthy biological edification can be

made sure about through free enterprise by utilizing the attributes of ware culture to additionally advance ecological objectives. Promoting not just can possibly add to the foundation of progressively practical types of society however, as a standard specialist in the activity and multiplication of ware talk, additionally has an impressive duty to do as such.

**Oyewole, P. (2001)** Study speaks to a theoretical connection between green promoting, natural equity, and modern biology. Paper contends for more noteworthy attention to ecological equity in the training for green showcasing. The examination has at last recommended deciding purchasers' attention to natural equity, and their readiness to endure the expenses related with it.

**Donaldson (2005)** In his examination understood that the Great Britain at first inferred that when all is said in done the biological mentality of customers changed decidedly. This examination closed the solid confidence of shoppers in the known business brands and in the weak conduct alluding to the "green" claims, which was the primary driver behind the devouring inability to decipher their interests past the earth in their conduct.

**Yazanifard, Mercy (2011)** For organizations to get by in the market, they have to make strides toward environmental friendliness in all parts of their business. Purchasers need to recognize themselves with organizations that are green skilled and are happy to pay a premium for a greener life. Green showcasing isn't only an ecological insurance apparatus yet additionally a promoting methodology.

**Jaya (2014)** in this examination paper, principle accentuation has been made of idea, need and significance of green promoting. It investigates the fundamental issues in selection of green promoting rehearses. The paper depicts the present Scenario of Indian market and investigates the difficulties have with green advertising.

**Jain and Kaur (2004)** found that Indian customers reviewed report a significant level of worry for nature and commitment in ecological conduct. They display eagerness to take Green Marketing: Challenges and Strategies for Indian Objectives.

The objectives of present study are:

- 1) To explain the concept of Green Marketing
- 2) To study the awareness level of consumers with respect to Green Products?
- 3) To study the opportunities of Green Marketing.
- 4) To know the barriers and challenges are being faced by Green Marketing.

### Limitation of the Study

The study has been conducted only by collecting the secondary data.

### Research Methodology

This study is descriptive in nature. The researcher has used only secondary data that has been collected from various articles, journals, books, websites etc. All the data included is the secondary base and proper references have been given wherever necessary.

### Benefits of Green Marketing

- **Company and brand image:** it will increase the company and brand image as well.
- **Savings:** it saves money in the long run as the cost is high initially.
- **Sustainability:** it ensures long term sustainability along with profitability.
- **Employee's confidence:** representatives likewise feel arrogant and mindful to be working for an ecologically capable organization.
- **Market Access:** It helps in access the new markets.
- **Profitability:** save energy, creates less wastes
- **Better products** Green based products are higher in quality in terms of energy saving, performance, convenience, safety

### Opportunities

- In India, around 25% of the buyers lean toward natural amicable items, and around 28% might be viewed as sound cognizant. A few instances of firms who endeavor to turn out to be even more ecologically capable, trying to all the more likely fulfill their buyer needs are: -
- McDonald's supplanted its shellfish shell bundling with waxed paper in light of expanded buyer concern identifying with polystyrene creation and Ozone consumption.
- Tuna makers adjusted their angling methods due to the expanded worry over driftnet angling, and the subsequent passing of dolphins.

### International Access

Products with environmentally friendly designs that comply with sustainability standards for products and processes have an advantage in international market. Many suppliers are providing their practices more sustainable in order to fix their position within international supply chain.

### Social Responsibility

Numerous organizations started to understand that they are a piece of the more extensive network and should act in an ecologically mindful way. This converts into firms that accept they should accomplish natural destinations just as benefit related targets. This outcomes in natural issues being coordinated into the company's corporate culture. Firms in this circumstance can take two points of view

- They can utilize the way that they are ecologically dependable as an advertising apparatus
- They can get dependable without advancing this reality.

### Competitive Advantage

One more opportunity provided by green marketing is that companies using it have competitive

advantage. Consumer is more environmental conscious so they like to use those products which cause less harm to environment.

### **Cost-Reduction**

Decreasing of dangerous waste may prompt sizeable cost cutting. For instance, the fly debris created by warm force plants, which would some way or another added to an immense quantum of strong waste, is utilized to produce fly debris blocks for development purposes.

### **Competitive Pressure**

To confront the serious market the organizations are exchanging over to Green showcasing. For instance, organizations, for example, Body Shop and Green and Black have spurred their nearby rivals to tail them in green advertising.

### **Challenges**

#### *New Concept*

Indian proficient and urban shopper is getting increasingly mindful about the benefits of green items. Be that as it may, a large portion of individuals of India live in towns and there training level is exceptionally low. These individuals don't know about green items and advantage of utilization them. The shoppers should be taught and made mindful of the natural risk. The new green development will take part of time and endeavors to arrive at the majority.

#### *Lack of Financial Resources*

Green products require recycle the material and also require new technology to recycle which result firm need to invest large amount in research and development? On the other side renewable and recycle material also much costly. So production of green products put extra financial Burden on manufacturer and consumers are also not willing to pay premium price for green products.

#### *Green can be associated with lower quality*

Customers think that green products are of lower quality because many of the environmentally harmful

elements of certain products are the ones that give them recognizable quality.

#### *Green isn't motivational factor in itself*

There's only a certain small subset of the consumer population for whom greenness is motivational enough to buy products and services which makes them a less than ideal target market. But for some consumer, green isn't quite enough to motivate them to buy a product or service.

#### *Patience and perseverance*

The financial specialists and corporate need to consider the to be as a drawn out speculation opportunity, the advertisers need to take a gander at the drawn out advantages from this new green development. It will require a great deal of tolerance and no quick outcomes. Since it is another idea and thought, it will have its own acknowledgment period.

#### **Absence of Standardization**

There is no normalization set up to affirm an item as natural. Except if some administrative bodies are engaged with giving the explanation there won't be any undeniable methods.

#### **Persuading Clients**

The clients may not have confidence in the company's methodology of Green promoting, so the association ought to guarantee that they embrace every conceivable measure to persuade the client about their green item, the most ideal alternative is by executing Eco-marking plans.

#### **Deflect Green Myopia**

The first guideline of green advertising is concentrating on client benefits for example the essential motivation behind why customers purchase certain items in any case. Do this right, and spur buyers to switch marks or even compensation a premium for the greener other option. It won't help if an item is created which is totally green in different perspectives however doesn't pass the consumer loyalty standards.

### Present Trends of Green Marketing in India

Associations see Green Marketing as an Opportunity to accomplish its goals. Firms have understood that shoppers lean toward items that don't hurt the indigenous habitat as likewise the human wellbeing. Firms advertising these green items are favored over the others not doing as such and accordingly build up a serious reasonable bit of leeway, all the while meeting their business objectives.

Legislative Bodies are constraining organizations to turn out to be increasingly dependable. Much of the time the administration powers the organizations to embrace arrangement which ensures the interests of the buyers. It does as such in following manners:

1. Reduce creation of destructive merchandise or by items
2. Modify customer and industry's utilization and/or utilization of unsafe merchandise.
3. Ensure that a wide range of buyers can assess the natural structure of merchandise.

Contenders' Green Activities Pressure Firms to change their Green Marketing Activities. So as to rival contenders guarantee to being ecofriendly, firms change over to green advertising. Result is green showcasing channel whole industry.

Cost Factors Associated with Waste Disposal or Reductions in Material Usage Forces Firms to Modify their Behavior. With cost cutting turning out to be a piece of the technique of the organizations it embraces green promoting according to these exercises. It might seek after these as follows:

1. A Firm builds up an innovation for diminishing waste and offers it to different firms.
2. A waste reusing or evacuation industry creates.

### Future of Green Marketing

In the most recent decade it was the test for the organizations to make the clients mindful for green

items as they are increasingly helpful contrasted with non-green ones and what sort of advantages they can pick up later on. Be that as it may, presently eventual fate of Green Marketing in India is brilliant as the vast majority of the customers are currently wellbeing cognizant and offers significance to eco-accommodating items. At the point when they investigate the advantages of Green items they wouldn't fret spending more for more beneficial. Cleaner and greener condition The Government is additionally supporting the green advertisers. Green advertising expect much more significance and importance in creating nations on the planet like India which ought to be way breakers and trailblazers for all others to follow.

### Findings and Conclusion

Green showcasing is a device for securing the earth for people in the future. It won't be a simple idea. The firm needs to plan and afterward do research to discover how doable it will be.

Green Marketing offers business top-level development prospects. It appears that individuals who have a place with the administration classification among occupations are progressively mindful and ready to purchase eco-accommodating items. Advertisers additionally have the duty to cause the buyers to comprehend the requirement for and advantages of green items when contrasted with non-green ones. In green showcasing, shoppers are eager to pay more to keep up a cleaner and greener condition. At last, purchasers, modern purchasers, and providers need to pressurize to limit the negative impacts on the earth well disposed. Green showcasing accept considerably more significance and importance in creating nations like India. By augmenting and extending the significance of green, pertinent on-screen characters will have a monetary motivating force to seek after green item improvement. The administration should make the severe standards to spare the world from contamination and its negative impacts. Everyone should utilize vitality productive lights and other electrical gadgets.

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# A Comparison of Vulnerability Assessment Tools OWASP 2.7.0 & Pentest on Demo Web Application

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## Abstract

*In order to discover weakness of web application, security testing is performed with intent to discover new vulnerabilities. The basic objective is to protect data and available resources of web application from unknown intruder. This should be carried out on a regular basis, for its effective result and consequences.*

*I have used two security testing tools to expose security of web application & possibly their countermeasures. The tools are OWASP and Pentest are used to exploit vulnerabilities with intent to give quick, reliable and efficient result. The OWASP Zed Attack Proxy (ZAP) is an automated tool which is used to exploit based on the Web protocols like HTTP, TCP/IP, SSH etc. The result obtained from vulnerability testing are quick & reliable as compared to manual testing which is time consuming and the result may not be accurate as well. The automated tool offers a great experience for security analysis of web application.*

**Keywords: Vulnerability Assessment & Penetration Testing (VAPT), Cross-Site Scripting (XSS), System Development Life Cycle (SDLC), Quality Control (QC), Secured Socket Layer (SSL), Uniform Resource Location (URL), Hyper Text Transfer Protocol Secure (HTTPS), SQL Injection (SQL-i), Open Web Application Security Project (OWASP), Distributed Denial of service (DDOS).**

## Introduction

Software testing is an integral part of SDLC. Software testing ensure assurance and is not limited to accepting software, but it is an extended to day to day operations of software development process. In case a system fail, it costs high to the company, therefore the process of testing is now more importance nowadays. In order to ensure security from cyber threats, the issues in security testing need to be dealt appropriately. Security testing ensures security of web application by identifying security loopholes whereas penetration testing is used to identify vulnerability and how they are further exploited. Security testing can be carried out manually as well as automation. There are many pen testing tools are available, the tool may be chosen based on availability –open source or commercial, area of vulnerability.

In this paper, a OWASP 2.7.0 is used and pentest online application is also applied on a set of demo web application that allows penetration.

## Web Application Vulnerability

Vulnerability is a weakness in the security of system in terms of design, code, design and implementation that may result in the violation of the system's security policy. Vulnerability Assessment reduces the risk of unauthorized access. Penetration testing in web application identifies potential vulnerabilities related to the following:

### a. SQL Injection

This type of attack occurs when there is improper filtering in database when the values received from form accepting input uses cookies. The data may be deleted, updated or injected by virtue of SQL injection

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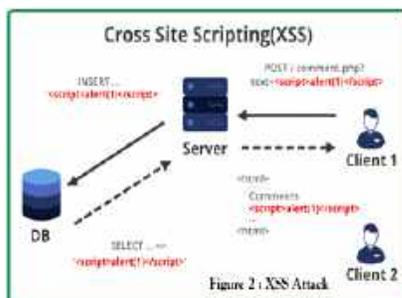
using malicious code injected into remote server by decrypting login credentials. For example to bypass authentication login in RDBMS uses SQL Where CLAUSE with boolean true condition (‘or ‘1’=’1 ; ‘or “1”=”1 ; etc.)



Upon successful SQL injection attacks occur as the input variable is not properly sanitized or by not stripping out anything that appears to be SQL code. The tester needs to diagnose application for injection attack, for possible data to dump all of its stored usernames and passwords from the website.

### b. Cross Site Scripting (XSS)

XSS are special target scripts inserted deliberately in the webpage in order to get executed by the client. These vulnerabilities are used to hackers to hijack session & denial of service attack. XSS attack is risk to company by placing malicious code into targeted locations and thereby there is loss of sensitive data such as – login credentials, credit or debit card information without the owner not even realizing the information is lost and misused by the intruder.



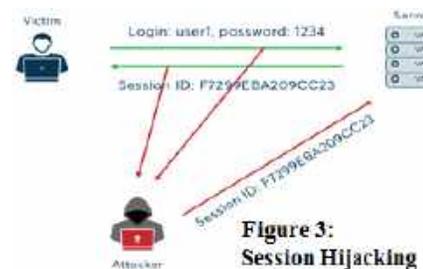
Types of XSS are:

- (1) Persistent XSS: This type of attack is used to inject malicious script into web server, and then it is visible to other users also who visit that webpage after the malicious code has altered the content of webpage.

- (2) Non Persistent XSS: In non persistent XSS the input sent by the client to the server is returned back in the form of an error message, search result, or any other response.
- (3) DOM-based XSS: DOM-based XSS attack uses HTTP query parameters or URL parameter field. This type of attack is successful if the server runs the malicious script which is injected via the URL and display output of the script at the client. For example attacker wants to display an alert message “111” in his own browser. The script is made to run at the server and alert message shows ‘111’ in the webpage on attacker’s browser.

### c. Session Hijacking

Session Hijacking is a condition when attacker gets unauthorized access to the session of a specific user. The attacker attempts to gain access using a valid session ID required to get permission into the system and steal or destroy the data. This session is established between the client and server. Hacker inadvertently gain session ID and send the request to the server. Server validates the malicious request due to the same session ID and gives successful response thereby giving appropriate response.



### d. Exploiting register\_globals in PHP

IN PHP Language the Register\_globals is a setting that is used to controls the value and scope of “superglobal” variables in a PHP script. When the value of register\_globals is set to “ON” in file php.ini, it allows the user to initialize uninitialized variables remotely by intruder. Such an access to the uninitialized variable could lead to the execution of arbitrary files from local/remote locations.

**e. Privilege Escalation**

In this the user gains access by virtue of getting privileges of other user.

If such privileges are gained they can be used to delete the files, view private information or install unwanted programs such as viruses & worms.

**f. Cross Site Request Forgery**

Cross site request forgery is a fake request as the attacker can mount any of the actions related to creating user/entries, modifying /deleting data. This is possible because there is no client level components that can help server differentiate between a legitimate and illegitimate request.

**g. File Upload**

Vulnerable File upload functionality is found as the file extension is not being parsed for malicious intents between the server’s and client’s side. Unrestricted file upload vulnerabilities can allow missing proper validation of file characteristic such as file name, file content and size etc.

**4. Tools used in Security Testing**

The result are based on Vulnerability exposed using

- <https://pentest-tools.com/home> #
- OWASP ZAP 2.7.0

In my scan report I have used web-application testing, permitted on free credit for a registered account member with limited capabilities.I have applied the pen testing tools on available demo vulnerability sites.

Name of Web Application	Details
bWAPP (Buggy Web Application)	Open source deliberately insecure web application buit in PHP & MYSQL database (family of OWASP
Google Gruyere	It's written in Python and offers a range of vulnerabilities including XSS, CSRF and remote code execution
HackThis!!	HTS. An online hacking and security website founded by Jeremy Hammond.

**5. Result**

**5.1 Vulnerability Testing on bWAPP**

OWASP ZAP		Pentest-tools.com				
Overall	High - 0 Medium - 1 Low - 2 Info - 0	High Level				
Medium (Medium)	<b>X-Frame-Options Header Not Set</b> Description: X-Frame-Options header is not included in the HTTP response to protect against 'Clickjacking' attacks.	7.8	CVE-2018-16844	nginx before versions 1.15.6 and 1.14.1 has a vulnerability in the implementation of HTTP/2 that can allow for excessive CPU usage. This issue affects nginx compiled with the ngx_http_v2_module (not compiled by default) if the 'http2' option of the 'listen' directive is used in a configuration file.	N/A	Ngix 1.12.2
Solutions	Most modern Web browsers support the X-Frame-Options HTTP header. Ensure it's set on all web pages returned by your site (if you expect the page to be framed only by pages on your server (e.g. it's part of a FRAMESET) then you'll want to use SAMEORIGIN, otherwise if you never expect the page to be framed, you should use DENY. ALLOW-FROM allows specific websites to frame the web page in supported web browsers).	7.8	CVE-2018-16843	nginx before versions 1.15.6 and 1.14.1 has a vulnerability in the implementation of HTTP/2 that can allow for excessive memory consumption. This issue affects ngxins compiled with the ngx_http_v2_module (not compiled by default) if the 'http2' option of the 'listen' directive is used in a configuration file.	N/A	Ngix 1.12.
Risk description: These vulnerabilities expose the affected applications to the risk of unauthorized access to confidential data and possibly to denial of serviceattacks. An attacker could search for an appropriate exploit (or create one himself) for any of these vulnerabilities and use it to attack the system. Recommendation: We recommend you to upgrade the affected software to the latest version in order to eliminate the risk of these vulnerabilities.						

**5.2 Vulnerability Testing on \_google gruyere (Using OWASP & pentest-tools)**

OWASP - ZAP Scanning Report	Pentest - tools.com										
Overall Risk	Medium										
Risk (TOTAL)											
Summary of Alerts	<table border="1"> <thead> <tr> <th>Risk Level</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>0</td> </tr> <tr> <td>Medium</td> <td>1</td> </tr> <tr> <td>Low</td> <td>3</td> </tr> <tr> <td>Informational</td> <td>6</td> </tr> </tbody> </table>	Risk Level	Count	High	0	Medium	1	Low	3	Informational	6
Risk Level	Count										
High	0										
Medium	1										
Low	3										
Informational	6										
High (Medium)	Communication is not secure										
SQL Injection	Risk description: The communication between the web browser and the server is done using the HTTP protocol, which transmits data unencrypted over the network. Thus, an attacker who manages to intercept the communication at the network level, is able to read and modify the data transmitted (including passwords, secret tokens, credit card information and other sensitive data). Recommendation: We recommend you to reconfigure the web server to use HTTPS - which encrypts the communication between the web browser and the server.										
SQL Injection	Method GET Parameter query Attack query' AND '1'='1' -- Solutions Do 'not' concatenate strings into queries in the stored procedure, or use 'exec', 'exec immediate', or equivalent functionality! Do not create dynamic SQL queries using simple string concatenation. Escape all data received from the client. Apply a 'whitelist' of allowed characters, or a 'blacklist' of disallowed characters in user input. Apply the principle of least privilege by using the least privileged database user possible.										
High (Medium) - Cross Site Scripting (Reflected)	Missing HTTP security headers 										

	<p>Instance Phase: Architecture and Design Solutions: Most modern Web browsers support the X-Frame-Options HTTP header. Ensure it's set on all web pages returned by your site (if you expect the page to be framed only by pages on your server (e.g. it's part of a FRAMESET) then you'll want to use SAMEORIGIN, otherwise if you never expect the page to be framed, you should use DENY. ALLOW-FROM allows specific websites to frame the web page in supported web browsers).</p>	<p>Risk description: Because the X-Frame-Options header is not sent by the server, an attacker could embed this website into an iframe of a third party website. By manipulating the display attributes of the iframe, the attacker could trick the user into performing mouse clicks in the application, thus performing activities without user's consent (ex: delete user, subscribe to newsletter, etc). This is called a Clickjacking attack and it is described in detail here: <a href="https://www.owasp.org/index.php/Clickjacking">https://www.owasp.org/index.php/Clickjacking</a> The X-XSS-Protection HTTP header instructs the browser to stop loading web pages when they detect reflected Cross-Site Scripting (XSS) attacks. Lack of this header exposes application users to XSS attacks in case the web application contains such vulnerability. The HTTP X-Content-Type-Options header is addressed to Internet Explorer browser and prevents it from reinterpreting the content of a web page (MIME-sniffing) and thus overriding the value of the Content-Type header. Lack of this header could lead to attacks such as Cross-Site Scripting or phishing. Recommendation: We recommend you to add the X-Frame-Options HTTP response header to every page that you want to be protected against Clickjacking attacks.</p>
	<p>Medium : X-Frame-Options Header Not Set Solution: Most modern Web browsers support the X-Frame-Options HTTP header. Ensure it's set on all web pages returned by your site (if you expect the page to be framed only by pages on your server (e.g. it's part of a FRAMESET) then you'll want to use SAME ORIGIN, otherwise if you never expect the page to be framed, you should use DENY. ALLOW-FROM allows specific websites to frame the web page in supported web browsers).</p>	<p>Robots.txt file found Risk description: There is no particular security risk in having a robots.txt file. However, this file is often misused to try to hide some web pages from the users. This should not be done as a security measure because these URLs can easily be read from the robots.txt file.</p>

### 3. Vulnerability Testing on <https://www.hacking-lab.com/index.html> (Using OWASP & pentest-tools)

Overall Risk	OWASP - ZAP Scanning Report	Pentest - tools.com										
<p>Risk (TOTAL)</p> <table border="1" data-bbox="267 955 511 1134"> <thead> <tr> <th>Risk Level</th> <th>Number of Alerts</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>0</td> </tr> <tr> <td>Medium</td> <td>1</td> </tr> <tr> <td>Low</td> <td>5</td> </tr> <tr> <td>Informational</td> <td>0</td> </tr> </tbody> </table>	Risk Level	Number of Alerts	High	0	Medium	1	Low	5	Informational	0		
Risk Level	Number of Alerts											
High	0											
Medium	1											
Low	5											
Informational	0											
<p>Alert: Medium <a href="https://www.hacking-lab.com/events/registerform.html?eventid=137">https://www.hacking-lab.com/events/registerform.html?eventid=137</a></p>	<p>This page contains an error/warning message that may disclose sensitive information like the location of the file that produced the unhandled exception. This information can be used to launch further attacks against the web application. The alert could be a false positive if the error message is found inside a documentation page.</p>	<p>Software: JQUERY JavaScript Frameworks Risk description: An attacker could use this information to mount specific attacks against the identified software type and version. Recommendation: We recommend you to eliminate the information which permit the identification of software platform, technology, server and operating system: HTTP server headers, HTML meta information, etc.</p>										
<p>Alter :LOW</p>	<p><b>Incomplete or No Cache-control and Pragma HTTP Header Set</b> Description: The cache-control and pragma HTTP header have not been set properly or are missing, allowing the browser and proxies to cache content.</p>	<p>Recommendation: We recommend you to eliminate the information which permit the identification of software platform, technology, server and operating system: HTTP server headers, HTML meta information, etc.</p>										
<p>Alter :LOW</p>	<p><b>X-Content-Type-Options Header Missing</b> Description: The Anti-MIME-Sniffing header X-Content-Type-Options was not set to 'nosniff'. This allows older versions of Internet Explorer and Chrome to perform MIME-sniffing on the response body, potentially causing the response body to be interpreted and displayed as a content type other than the declared content type.</p>	<p>List of tests performed (1/17/18):</p> <ul style="list-style-type: none"> <li>✓ Checking for status address of javascript:malicious...</li> <li>✓ Analyzing the content of HTTP cookies...</li> <li>✓ Analyzing the content of HTTP cookies...</li> <li>✓ Analyzing HTTP security headers...</li> <li>✓ Checking for remote content injection...</li> </ul> <p>Score parameters: Web site URL: <a href="https://www.hacking-lab.com/index.html">https://www.hacking-lab.com/index.html</a> Scan type: Full Scan date: 2020-07-10 10:10:10</p> <p>Recommendation: We recommend you to eliminate the information which permit the identification of software platform, technology, server and operating system: HTTP server headers, HTML meta information, etc.</p>										

### 6. Conclusion

OWASP & Pen-test is able to exploit the known vulnerabilities in demo web application. OWASP test web application for SQL injection attack, broken authentication, sensitive data exposure, security misconfiguration, XSS etc.

Pentest-tools is able to perform automated testing analyze http header for security misconfiguration, security of http cookies, SSL certificate, analyze robot.txt, wildcard file access,. The paid version also perform test related to crawl website, check for sql injection & XSS, OS command injection, check for sensitive files (achieve, backup, security & certificates) etc.

In this paper both the automated test freeware are applied to demo web application not only to find vulnerability but also to compare between the two. The overall risk is an important attribute outcome is present with pentest-tool whereas absent in owasp. Also a description and recommendation is a feature of pentest-tools. But the pentest-tools free version comes with limited capabilities whereas the capabilities of OWASP are comparatively more as far as features are concerned. No single tool can effectively capture more than a quarter of security issues on a broad set of application technologies. Moreover, relying on automated assessment techniques alone means missing out on a significant number of potential security issues. I would like to recommend an approach of integrated manual and automated testing approach so as to increase accuracy in identification of vulnerabilities in web applications.

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# A Study on Role of Green Marketing of Services and Consumer Awareness

Mr. Kamal Batra\*

## Abstract

*In today's highly competitive business scenario lots of competition is there in the market and customers are very sensitive towards green marketing of various services. In most of the countries of the world, the respective government is concerned about the environmental problems. In today's business, environmentally sustainable development has become a key issue or requirement for any country. Thus green marketing especially green marketing of services may be considered as one of the foremost strategies that a firm can adopt to fulfil this requirement. In other words, green marketing represents the ways of making promotion of products and/ or services depending on their environmental usefulness. In fact, such products and services are being produced or generated in environmentally friendly manner.*

*Today, Environment issues are seen everywhere in the world. Today, environmental related issues are seen almost all places in the world and these are extremely important; some of which influencing our day to day lives are: global warming, waste disposal, climate change, pollution control, etc. By this time many corporates are still feeling uncomfortable or hesitant for using green marketing service practices even after government compulsion. The main reason for this is that firm still thinks that green marketing practice may increase their cost of production and services and reduce the profit.*

*In this paper an attempt has been made to show the gainful applications of green marketing of services in a number of service sectors.*

**Keywords: Green Marketing, Consumer Awareness, Green Marketing of Services, Service Sector, Green Product.**

## Introduction

**Green Marketing** has been defined by **AMA (American Marketing Association)** as “The study of the positive and negative aspects of marketing activities on pollution, energy depletion and non-energy resource depletion”. However, it is generally assumed that potential consumers would be willing to pay more for a green product.

Green marketing is also referred to as environmental, organic or sustainable marketing. In other words, green marketing represents the marketing of environmentally friendly products and services. Now a day's green marketing is also very popular in the world of internet, as more and more people are concerned with environmental issues and as such preferring to purchase green products and

services which are expected to be better for the earth as a whole.

Green marketing may represent different aspects of operations namely, creating an eco-friendly product, using eco-friendly types of packaging, using sustainable business practices, concentrating marketing efforts on such messages that communicate a product's green or environmental related benefits, etc.

This type of marketing can be initially more expensive, but it can also be profitable in the long run due to the increasing demand. For example, products made locally in North America tend to be more expensive than those made overseas using cheap labour, but they have a much smaller carbon footprint because they don't have to fly across the

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globe to get here. In fact, environment conscious consumers and business owners strongly feel that in the long run environmental benefits can outweigh the price advantage.

(<https://www.shopify.in/encyclopedia/green-marketing>).

### LOHAS

Those consumers who generally likes to purchase green products and services are categorized as 'LOHAS', which stands for 'Lifestyles of Health and Sustainability'.

According to Wikipedia: "LOHAS describes an integrated, rapidly growing market for goods and services that appeal to consumers whose sense of environmental and social responsibility influences their purchase decisions."

These consumers are active supporters of environmental health and are the heaviest purchasers of green and socially responsible products. They are also having the capability to easily influence other consumers. (<https://www.shopify.in/encyclopedia/green-marketing>)

### Green Marketing Methods

Besides producing environment friendly products and services, the business owners as a part of popularizing green marketing can also implement the following activities:

- (i) Using eco-friendly papers and inks for printing marketing materials.
- (ii) Skipping the printed materials altogether and adopting option for electronic marketing.
- (iii) Having a recycling program and responsible waste disposal practices.
- (iv) Using eco-friendly product packaging.
- (v) Using efficient packing and shipping methods.
- (vi) Using eco-friendly power sources.
- (vii) Taking steps to offset environmental impact.

(<https://www.shopify.in/encyclopedia/green-marketing>)

Besides the above mentioned aspects, many more green marketing services can be there these days, such as:

- (i) Using paper straws instead of plastic straws for soft drinks. Here we can take the example of McDonalds.
- (ii) Use small towel instead of tissue papers in a good restaurants for wiping wet scrubbed hands with lemon in hot water.
- (iii) Issuing e-bills instead of paper bills by telecommunication sectors.
- (iv) Issuing e-contract notes instead of physical contract notes in stock trading by broking companies to its investors.

### Review of Literature

Green marketing is a phenomenon which has become extremely important in the modern market. In fact, the green marketing concept facilitates re-marketing and re-packaging of existing products as per certain guidelines. Further, green marketing has created the opportunities for companies to co-brand their products into separate distinct tagline, thereby indicating the environment friendliness of such items. (Kumari Sima, Yadav Sameer, 2012).

In general, green marketing involves quite a large range of activities namely, modification in products and/ or production processes, changes in packaging types and methods, redesigning advertising, etc. Many firms are beginning to realize that they are members of the wider community and therefore must behave in an environmentally responsible fashion. Apart from this, consumers are well aware further, the present days consumers also know it very well that the productivity of business organizations can be substantially improved through green revolution. Now a days, people all over the world are very much aware of green environment, since ecologically it is less harmful to the society and hence the companies can implement this concept for overall betterment of their business. (Altaf Nufazil, 2013).

It has been observed that there is a gradual change in consumers' behaviours and attitudes towards the environment. The present day's consumers are becoming more and more conscious about the potential benefits in the conservation of natural resources and such environment friendly attitudes are being pronounced in larger degree amongst the young generation segment. However, there is still a gap existing between the consumers' beliefs and behaviours in being green and environment friendly and the actual actions which are required to be taken in achieving the same. In fact, presently consumers' knowledge about global warming and its mitigation is still quite low and hence it is felt that various existing business brands of India need to take effective actions in increasing the people's awareness in this regard. (Maheshwari P S, 2014)

Presently environment related issues are observed almost everywhere in the world. Such issues may comprise of global warming, waste disposal, climate change, pollution control, etc., which in turn can appreciably affect our daily lives. Off course the implementation of green marketing also needs to consider the economic aspects of businesses as well. In fact, present days customers are quite willing to pay even a premium price for green or eco-friendly products. Hence, the producers worldwide need to appropriately take into account both the green as well as economic aspects in designing their products, so as to improve their overall performance as well as strengthen customers' loyalty and also command a higher price. Consumers also ready to pay more amounts to maintain greener and cleaner surroundings. Consumers are also aware about initiatives taken by corporates about the attributes and use of products that's why they demand for green products. (Sharma K N, 2015)

### Discussions

In a real sense the environmental safety is highly required and appreciable. Everyone is aware of and believes a green life is a better and healthier life for present and upcoming generations. The pattern by which mostly consumers shows their spending that they have a desire for brands that 'go green' and eco-friendly too. These days customers are highly sensitive, knowledgeable, educated and aware

of, as they not only willing to buy green products and services only but are willing to pay prices for the same because of their green and sophisticated features.

As per one research study, it is found that around 70% of some 2000 people surveyed in countries like US, UK, Germany, Netherlands, Australia and Japan are very much willing to pay premium prices for energy generated from alternative renewable sources namely wind and solar power. Further, consumers are gradually becoming keen and motivated in buying products from those companies whose production are eco-friendly in nature. Now-a-days when a company displays the green logo on their products, it indicates that its products and services are quite distinct in nature which in turn gives it a competitive edge in the long run. Further, presently the buying decisions of most of the customers are very much influenced by green product labels such as, US energy star logo, Green label in Thailand, Korea Eco label and many such labels worldwide. (Yazdanifard, R, 2011).

It may be further mentioned that during the past decade an increasing awareness amongst all types of consumers in respect of green products and services has been observed and accordingly more and more focus is being given by organizations all over the world towards eco-friendly manufacturing processes. In this regard the various service sectors organizations are also having their social responsibilities towards proper preservation of environment. By presenting the importance of various green aspects to a product, such as longevity or specific mode of marketing of green practices among services, a framework to describe green activities across the service sector and a pragmatic means to implement a green programme for service organizations can be made effectively (Grove, S et al, 1996).

### Current Green Marketing Scenario in India

Many analysts are predicting that forthcoming years will be a 'make-or-break-it year' for many green businesses as increasing competition in the green sector drives some businesses to new heights of innovations and services while other businesses lag

behind. In the domain of green marketing of services, various trends may come and go, and of course, it may be impossible for any green business to stay on top of all of them and it is not worthwhile also to try the same. Further, constant tracking of the present green business trends all over the world can help our business in staying fresh, flexible and innovative especially in the contemporary competitive scenario, being the surest way to green business success in near future. Some of the measures initiated by Indian consumers, producers and Government towards adopting green marketing of services in various sectors are illustrated below:

#### *(a) Indian Consumers*

As per research, India is the only country to choose deforestation and reduction of air pollution as the most important green issues. India is the only country in which more consumers now say that it should be the developing countries that should focus more on green innovation as compared to developed countries. The results of the 2011 edition of the 'Global Image Power green Brands Survey' show that the concerns of consumers towards the environment is gradually translating into a willingness to pay for a premium for green products. Around 64% of Indian consumers now indicate that they plan to spend more on green products next year. Moreover, it is observed that now-a-days Indian consumers are ready to pay premium prices for green products and services. In fact, it is found that 48% of Indians are now willing to spend even more than 10% of usual prices towards such green products and services. Besides as compared to other countries, Indian consumers have started believing more on green products advertising with around 86% of them reporting that such advertisements have helped them in making proper choices. In India 28% of consumers intend to purchase automobiles in the next year as compared to purchase of 16% in last year. (Shrikanth, R and Raju, N.S.D, 2012).

#### *(b) Indian Producers*

The famous Indian milk producing giant company 'AMUL' has been rated as the 'Top Indian Green

Brand' by Global Green Brands Survey. The International Dairy federation has also awarded AMUL Green movement as the best Environment Friendly Initiative in the 'Sustainability Category' in 2010. Further the Company has also got 'Srishti's good green Governance' award continuously for four years since 2011.

During recent years the top 10 Green Brands in India are as follows:

- (i) AMUL
- (ii) Dabur India Ltd.
- (iii) Infosys
- (iv) Taj Hotels
- (v) Britannia Industries Ltd.
- (vi) Suzlon India
- (vii) Hindustan Unilever Ltd.
- (viii) Wipro technologies Ltd.
- (ix) Maruti Udyog Ltd.
- (x) Godrej Consumer Products

The findings emphasize that in today's situation being both green and consumer friendly are the only mantras for long term success of any business.

#### *(c) Indian Government*

The Indian government has also tried to do its best in promoting green marketing and eco friendliness by way of: (i) banning plastic bags from daily use, (ii) helping its automotive industry to develop greener vehicles by supporting hybrid and electric vehicles (EVs), (iii) investing in greener cars, etc. In fact, through various recent measures in automobile sector the Government of India is attempting to capitalize on an underutilized segment and building an infrastructure that can generate economic growth and reduce emissions. Further, the government has also taken the initiative of promoting green buildings construction and usage of alternate sources of energy by companies. In fact, most of the government organizations/ bodies are now insisting the firms to become more responsive from environment friendliness point of view. In most cases, the government forces the firms to adopt such policy which protects the interests of the consumers by reducing production of harmful

goods or by-products and modify consumer and industry's use and/or consumption of harmful goods; as well as ensuring that all types of consumers have the ability to evaluate the environmental composition of goods. (Shrikanth, R and Raju, N.S.D, 2012).

In short green marketing encourages consumers to use eco-friendly products and manufacturers to develop more such items. The awareness about the green products and services should be done through large scale advertising by the government, so that individual buying behaviour can be changed which can have an impact on the welfare of the environment in near future.

In this connection, it may be mentioned that green consumers are those who adopts environment friendly behaviour and/ or try to purchase green products and services instead of merely standard versions. In fact, green consumers are very conscious and more disciplined and methodical as they feel that an individual consumer can be extremely effective in proper protection of their environment. Thus, they feel that the job of environmental protection should not be left to the government, business, environmentalists and scientists only; rather they as consumers can also play a valuable and effective part in the same.

Such green consumers are in fact quite flexible and open minded in rapidly accepting green products and services. (Boztepe A, 2012).

As discussed in introduction part about the upcoming ways which organisation already doing and can adopt more and more in future to increase the need and awareness of green marketing of services in the mind of potential consumers and can increase customer loyalty and finally customer satisfaction level will increase because of special services related to green marketing and customer retention will be on positive track. These satisfied customers definitely create a word of mouth for the organisation and it will create a new customer base for service industry to provide good green marketing of services individually and along with various products also. Examples of green marketing of services are:

- (i) Using paper straws and lids too instead of plastic straws for soft drinks. Here we can take the example of McDonalds and Berger King as well.
- (ii) Providing a towel or small cotton cloth instead of tissue papers in good restaurants for wiping wet scrubbed hands with lemon in hot water in any good restaurant or hotel.
- (iii) Providing e-bills facility instead of paper bills by telecommunication sectors.
- (iv) Providing e-statement facility for bank accounts and credit cards etc. in banking sector.
- (v) Providing e-contract notes instead of physical contract notes in stock trading by broking companies to its investors for their investments holdings and all. So same will be convenient.
- (vi) Providing facility of sanitizer in few restaurants (Example: Domino's) and hospitals (Example: Ganga Ram Hospital, Aakash Healthcare) to Customers/Patients and attendants to clean their hands and protect from germs as a part of green marketing services.
- (vii) Using good quality water absorbing tissue paper by different Saloons/Parlours after applying water spray on face for various beauty services. Customer is ready to pay for the same because of hygiene.
- (viii) Use of paper bags instead of plastic bags to make environment eco-friendly.

## Conclusions

Implementation of green marketing concepts in the business domain is not very easy task. The firm has to plan and then carry out research to find out the feasibility of implementing the same. In fact, Green Marketing is still in the stage of childhood in the Indian companies. Thus Green marketing has to evolve a lot since it is still at its infancy stage because irrespective of the consumer awareness about green marketing, still many consumers are not showing their proper behaviour or interest for green marketing of services always. Key results

of the study reflect that Industries these days are having high concern for environmental protection and strong belief that green marketing of services can definitely be used as an effective tool for making long term competitive and sustainable growth. Some companies are initiating and implementing these practices as a part of their corporate social responsibility as discussed earlier. However environmental strategy formation and implementation are slowly making it to the priority lists of Indian corporate. Green marketing of services should not be considered as just one more approach to marketing, instead should be pursued with greater vigour as it has societal and environmental dimensions. With this view organizations are now aware of the fact that without adopting green in the core of their strategy they cannot survive in the present competitive era in the long run.

In present scenario lots of competitions are there in the market and customers are very sensitive for various types of green marketing of services. We can conclude about the gainful applications of green marketing of services as discussed above in a number of service sectors namely banking and financial services, retail services, beauty related services, hospitality services, hotel services, healthcare services etc.

If we adopt all the above strategies for green marketing of services then it is expected to be very much helpful for industries in service sector and the same is beneficial for the society as a whole. The same is also expected to increase the level of customer satisfaction and customer loyalty in the long run and simultaneously it will help the future generation and various industries to a great extent.

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# Perception of Health Seekers in Yog Gram using AMOS Graphics and Correlation

Dr. Madhu Arora\* Sandeep Kumar Mittal\*\*

## Abstract

*Health is common concern to all human beings. Yog Gram is a health centre where health seekers are cured using nature without using any medicine. This paper makes an attempt to study health seeker perception in treatment in Yog Gram related to physiological, psychological, spiritual treatment in relation to overall treatment. Based on five point likert scale, a questionnaire was designed with the help of expert doctors and patients in Yog Gram. Selective sampling is done for choosing respondents for collecting cross sectional primary data. Analysis of Moment Structure (AMOS) graphic is used for measurement models as observed variables and factors affecting using CFA. Findings include that there is significant correlation observed on physiological treatment with psychological treatment. It is also found that spiritual treatment and overall transformation are also significantly correlated with physiological treatment. Further scope of research may include doctors' perception and employees' perception working in Yog Gram.*

**Keywords: Physiological, Psychological, Spiritual, Overall, Yog, Gram.**

## 1. Introduction

As per report of World Health Organization (WHO), 2018 General public needs to be allowed and well-versed to enthusiastically involve in fitness programmes and in crafty new models of care to encounter the requirements of their indigenous groups. People who are involved in providing health care services should comprehend health seekers as companions and oblige themselves for providing and utilizing facts to exhibit the efficiency as well as security of well-being upkeep. Yog Gram is always keen to treat health seeker as partner and their slogan is that everyone should be his/her own doctor. So health seeker is provided physiological, psychological and spiritual treatment during their stay. Whether health seekers treat these therapies as overall transformation or not, is the crux of the study. Author has made an attempt to find out relationship of treatment therapies with overall transformation on the basis of data collected from respondents who were present in Yog Gram.

## About Yog Gram

A Naturopathy Centre, aimed at providing physiological, psychological and spiritual health to people suffering from several incurable ailments and stress through cohesive healing of Ayurveda in the surroundings in garden-fresh as well as unpolluted appearance, lush and vivacious flora.

Kuamr and Mehrotra (2006) studied the requirement of health study related to Complementary and Alternative Medicine (CAM) and checked the effectiveness of self-care ad found significant. Hasan, etal(2001) also found that high recurrence of self-awareness using CAM in Malaysia was significant. Choietal(2017) found conventional medicine was managing in parallel form and was important in treatment. Farooqui (2016) studied on tumor patients and found that using local herbs were found useful with the treatment as they were claiming cure of sarcoma. Wazaify (2011) in a study at Jordon found that herbal use among patients was found commendable. Also Qureshi (2016) estimated the

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presence of CAM use provided affirmative inscience towards CAM. Kumar, Mamidala Jagadesh(2017) laid impact of happiness with technology advancement. In A survey, Sharma and Prajapati and Tripathi (2018) presented a state of art over diverse attitudes for accomplishment as well as development of several ophthalmic concert rebukes. Data Mining and machine learning plays important role for insight into dataset automatically. The work done by Mittal etal(2011-2019) is noteworthy in this direction.

## 2. Research Methodology

The present study is descriptive in nature. Objective of the study is to confirm the factors affecting perception of health seekers in Yog Gram with AMOS Graphics using CFA.

### 2.1 Sample Profile

In present study, the population considered is all 200 health seekers present in December 24-30, 2018. Judgment sampling was used to collect the data from the health seekers. A sample 100 questionnaires was distributed with deliberate sampling and finalized completed forms of 52 study participants from a population of 200 health seekers were found complete for further process. Questionnaire was not given to those health seekers who had just joined as their feedback can't be based on self-experience.

Sample size of 5 per cent or more of population is considered justified, hence 25 percent sample size is appropriate to find results.

### 2.2 Data Collection

*The present study is based on both primary and secondary data. Primary data were collected through well-structured questionnaire on 5-point Likert scale i.e. Strongly Disagree (SD), Disagree (D), Indifferent (I), Agree (A) and Strongly Agree (SA). After examination, 52 responses from health seekers were found complete in all respect and considered for further analysis. Secondary data were extracted from articles published in various journals, magazines and websites.*

### 2.3 Scale Reliability Statistics for Constructs

Constructs/Latent variable	Cronbach's $\alpha$
Physiological Treatment	0.741 (5 items)
Psychological Treatment	0.731 (3 items)
Spiritual Treatment	0.791 (4 items)
Overall Treatment	0.810 (5 items)

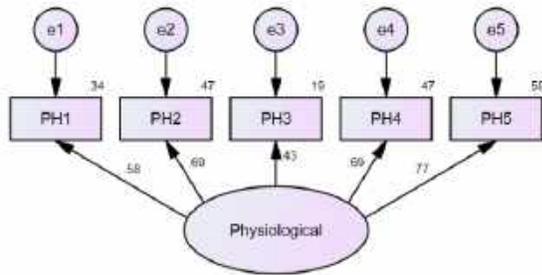
Reliability statistics for constructs shows internal consistency of statements in each construct. Cronbach's  $\alpha$  is  $> 0.6$  shows high internal consistency and data is fit for further analysis. Physiological Treatment have five statements showing Cronbach's  $\alpha = 0.741$ , Psychological Treatment have three statements showing Cronbach's  $\alpha = 0.731$ , Spiritual Treatment have four statements showing Cronbach's  $\alpha = 0.791$ , Overall Treatment have five statements showing Cronbach's  $\alpha = 0.810$ , representing that there is high internal consistency and constructs are fit for further analysis.

### 2.4 Limitations of the Study

Present study is done in December 2018. Result may vary in another time period.

## 3. Some Part of Data Analysis

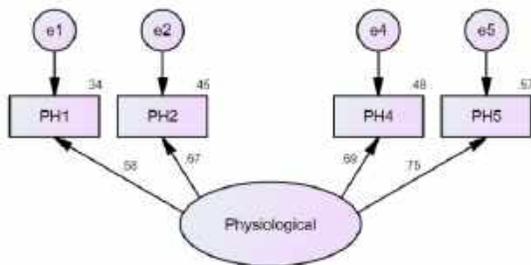
Measurement model are useful tests for checking convergent validity. Figure 1 demonstrates the Measurement Model for latent variable Physiological Treatment in Yog Gram. PH1 stands observed variable for gaining health for treatment for particular disease ( $r=.58$ ), PH2 is observed variable Yog gram morning and evening yoga session are helpful in curing my disease ( $r=.69$ ), PH3 for The specific food provided in Yog gram is helpful in curing my disease ( $r=.43$ ), PH4 for Treatment centres are useful to provide me health better ( $r=.69$ ) and PH5 for I feel my body rejuvenates with its various therapies in all values ( $r=.77$ ). PH3 statement will be dropped being value less than 0.50 being more related to physiological treatment as per respondents' perception. For modified measurement model is prepared taking all other statement to be eligible for model fit..



**Figure 1: Measurement Model for Physiological Treatment**

**4. Modified Measurement Model for Physiological Treatment**

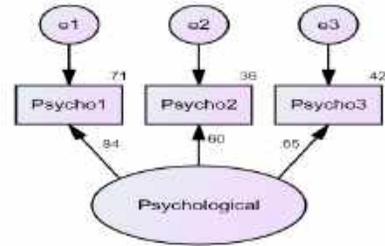
All statements are  $>0.50$  which shows all statement except PH3 are eligible for model fit. So PH3 statement will be dropped for modified measurement model in Figure 2. PH1 ( $r=.58$ ), PH2 ( $r=.67$ ), PH4 ( $r=.69$ ) and PH5 ( $r=.75$ ) all values are now more than 0.5, which indicates Modified Measurement Model for Physiological Treatment is fit for further analysis.



**Figure 2: Modified Measurement model for Physiological Treatment**

**5. Measurement Model for Psychological Treatment**

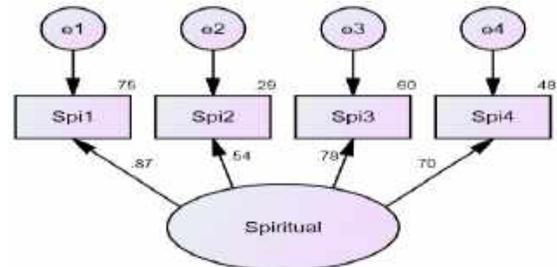
Figure 3 portrays the Measurement Model for Psychological Treatment in Yog Gram. Psycho1 stands for Laughter therapy is useful to feel fresh and cure in my disease ( $r=.84$ ), Psycho2 Mediation provided in Yog Gram relieves my stress and fills positivity ( $r=.60$ ), Psycho3 for Advice given by doctors in question answer gives me psychological satisfaction that I may be my own doctor ( $r=.65$ ) again all values are more than 0.50 so are eligible for model fit.



**Figure 3: Measurement model for Spiritual Treatment**

**Measurement Model for Spiritual Treatment**

Figure 4 depicts the Measurement Model for Spiritual Treatment in Yog Gram. Spi1 stands for Chanting mantras with experts give me relief ( $r=.87$ ), Spi2 stands for I feel peace in my mind ( $r=.54$ ), Spi3 for fresh and pure air heals soul of my soul ( $r=.78$ ), Spi4 for the statement ‘peaceful environment gives me feel like the divine nature’ ( $r=.70$ ). All values are more than 0.50, hence are eligible for model fit.

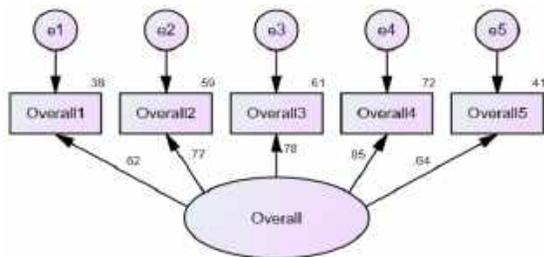


**Figure 4: Measurement Model for Spiritual Treatment**

**5.1 Measurement Model for Overall Transformation**

Figure 5 depicts the Measurement Model for overall transformation Treatment in Yog Gram. Overall 1 stands for I feel all my body being healthy in addition to treatment of disease for which I came here. ( $r=.62$ ), overall2 for I feel presence of God/Spirit after treatment in yog gram ( $r=.77$ ), overall3 for I feel my mood is fresh using all treatment in yog gram ( $r=.78$ ), overall4 for the statement ‘I feel positivity every time after treatment at yog gram’ ( $r=.85$ ) and overall5 stands for I feel my life is

changed to a positive note. All values are more than 0.50, hence are eligible for model fit.



**Figure 5: Measurement Model for Overall Transformation**

### 5.2 Measurement Model for Overall Transformation

Correlation matrix table shows that physiological treatment (PH) has moderate correlation with Psychological treatment (Psycho) ( $r=.684$ ), Spiritual treatment (Spi) ( $r=.674$ ) as well as with overall transformation (Overall) ( $r=.731$ ). Also physiological treatment shows has significant impact on psychological treatment (Psycho) in Yog Gram at 5% significant level as well as 1% significant level. Psychological treatment shows a high correlation ( $r=.811$ ) with spiritual treatment and also high correlation with ( $r=.757$ ) overall transformation.

**Table 1: Correlation Matrix for Physiological, Psychological, Spiritual Treatment and Overall Transformation**

Variable		PH	Psycho	Spi	Overall
PH	Pearson's r	—	0.684***	0.674***	0.731***
	p-value	—	< .001	< .001	< .001
Psycho	Pearson's r		—	0.811***	0.757***
	p-value		—	< .001	< .001
Spi	Pearson's r			—	0.757***
	p-value			—	< .001
Overall	Pearson's r				—
	p-value				—

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Also psychological treatment shows a significant impact on spiritual treatment as well as overall transformation in Yog Gram at 5% significant level

as well as 1% significant level. Spiritual treatment shows a high degree of correlation ( $r=.757$ ) with overall transformation with significant impact on 5% as well as 1% level of significance. Results are similar with Farooqui (2016) as treatment is useful having correlation.

### 6. Conclusion

Present study is an attempt to know whether physiological treatment, psychological and spiritual treatment of health seekers have any correlation with overall transformation or not. From this study authors have made an attempt to find out factors affecting health seekers perception in Yog Gram using a structured questionnaire. Amos Graphics is used for measurement model and JAMOVI for checking correlation. Further research can be made evaluating patient satisfaction and service quality. Also other dimensions like doctors' perception and employees' perception may be studied.

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## Adoption of Organic Food Among the Urban Consumer

Dr. Renu Vashisth\* Ms. Jyoti Gupta\*\*

### Abstract

*Consumer behaviour refers to the actions of consumers in the market place and the underlying motives for those actions. There has been a growing awareness of the vulnerability of the environment. Marketers saw increasing consumer interest in the environment as a marketing opportunity to target ecologically concerned clients. Thus, it is very necessary to make a study on the behavioural aspect of the consumer. Organic foods are made according to certain production standards. The Government of India has set up a National Centre of Organic Farming under Department of Agriculture, Cooperation and Farmers Welfare. The formulate rules, regulations, and certification of organic farm products in conformity with international standards. All this arguments leads the marketers to find answer, to whether their socio economic studies helps the residents to buy organic food products and whether the attitude about organic food product is positive and influences to buy organic food products and In order to answer the above queries, the present study has been carried out.*

*An empirical study entitled “Adoption of Organic Food among the Urban Consumer” has been carried out with an objectives to find out the quantum of purchase of Organic food products by the respondents, purchase behaviour of the respondents and willingness to purchase of Organic food products, Cognitive, Affective and Behavioural aspects of attitude of respondents to Organic Food Products. The study was carried out in Delhi with the sample size of 200 household respondents who reside close to the Organic Food Store “Organic India Departmental Store, Dwarka”, and familiar with Organic Food Products by adopting multistage sampling technique. The null-hypothesis was tested for the socio-economic factors and willingness to purchase organic food products. The data collected were analysed using descriptive statistics, Chi-square test, analysis of variance and factor analysis.*

### Introduction

Organic production is an overall system of farm management and food production that aims at sustainable agriculture, high-quality products and the use of processes that do not harm neither the environment, nor human, plant or animal health and welfare.

There is no common definition of “organic” due to the fact that different countries have different standard for products to be certified “organic”. In simplest words, organic foods are minimally processed to maintain the integrity of the food without artificial ingredients, preservatives or irradiation. Organic Products are obtained by

processes friendly to the environment, by cultivation techniques that consider both the attributes of the final product and the production methods.

With rising concern of health issues and food safety, many consumers have turned their site to organic products. The increased consumers’ interest in organic food has been attributed among others to the growing demand for food from pesticides and chemical residues. Organic food promotes a balance of human, other living organisms and the nature. It also promotes no artificial preservatives and best maintain the originality of food. This prevents excess use harmful ingredients and thereby ensures health.

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In 2016-17, in spite of increase in prices of organic packaged food in India due to commodity inflation, the sales of organic packaged food is growing by 25-30% and is expected to reach \$1.36 billion mark by 2020. Organic packaged food increased in popularity in 2018, which was mainly because of government initiatives such as organic farming and the promotion of organic packaged food through various events and conferences. Manufacturers continued to claim their products were manufactured by using organic ingredients. Consumer awareness has been increasing each year, together with the penetration and distribution of these products in smaller cities. The rise in growth was attributable to an increase in the availability of organic packaged food in traditional grocery outlets in urban India, along with occupying a separate space on leading grocery internet retailing sites, such as bigbasket.com and many more.

### Advantages of Organic Food

- No pesticides, chemicals, or processed additives bogging down your system means a smaller risk of disease, illness, and disorders in yourself.
- Whole foods help to prevent major and minor diseases and illnesses, meaning lower health care costs and less likelihood of missing work.
- Buying organic food from the farmer's market is incredibly inexpensive. You also have the option of bartering with farmers for good or services.
- Chemical pesticides has been linked to breast, prostate and other cancers, non-Hodgkins lymphoma, leukemia, infertility, convulsions, immune and endocrine disorders, Parkinson's disease and depression. Just to name a few
- Herbicides and fertilizers have been connected with various cancers, immune disorders, infertility, cardiac disease, hypertension, and numerous other diseases.

### Objective of the Study

The main objective of this study is to understand

the attitude of the consumers on their intention towards buying organic food products, specifically the study is trying:

- To assess the social economic profile and purchase behaviour of Organic foods by the respondents.
- To conclude the quantum of Organic food products purchased by the respondents.
- To gain knowledge about respondents attitude towards Organic food products.
- To recommend suitable measurement for improving the marketability of Organic food products.

### Scope of the Study

This study attempted to increase knowledge about consumer attitude towards organic food product consumption and to see whether there is any probable this might have for changing their behaviour. The rationale for carrying out this study is that deliberation for the environment could come only from well-informed citizens who are aware of, and fully committed to their rights to a quality health and environment. Nevertheless, before any behaviour can be changed, it is necessary to appraise the current state of consumers awareness and knowledge. Therefore consumer's attitude, discernment towards organic food products, willingness to pay for organic food product and intention to purchase organic food will be the main agenda of this study.

### Review of Literature

**Ramnathan (2006)** stated that the traditional agriculture practiced by our forefather farmers was essentially organic. People used animal excrement on cultivated soil as manure. Though many farmers in India had adopted Green Revolution-like ('conventional') agriculture, there were still a lot of farmers who practice traditional forms of agriculture without modern varieties, synthetic fertilizers and pesticides,

**Heckman (2007)** professor in the Plant Biology & Pathology Department at Rutgers University reported the recent rapid growth of the organic

movement had resulted in a loss of connection with the historical figures and roots of organic agriculture. He further added that

**Kesavan and Swaminathan (2006)**, stated that the term 'green revolution' was coined by William Gaud in 1968 to describe the enhanced photosynthetic activity of the green pigment, chlorophyll, leading to more grain production. This involved not only effective utilization of solar energy and carbon dioxide from the atmosphere, but also water and several nutrients, particularly nitrogen, phosphorus and potassium from the soil.

**Lukas (2007)**, mentioned that from the mid- and late-1960s onwards, the development and introduction of modern varieties together with the introduction of synthetic fertilizers and pesticides, an expansion of the irrigated area, and rural credit schemes resulted in a major breakthrough in agricultural productivity.

**Rai (2008)** mentioned in her lecture on organic agriculture that, the Green revolution technologies involving greater use of synthetic agrochemicals such as fertilizers and pesticides with adoption of nutrient- responsive, high yielding varieties of crops had boosted the production output per hectare in most of the cases. However, this increased in production has slowed down and in some cases there were indications of decline in growth of productivity and production.

**Sharma (2010)** stated that India is doing gradually progress in the field of Organic Agriculture. 20 lacs acres land distributed among 18 districts of Andhra Pradesh had stopped using chemicals in their farm and made their land more sustainable and productive. This made changes in their existing farming method and increased production eventually. The soil had become more fertile and the production cost had decreased to 40%. This raised their income and improved their standard of living.

**Ganie, et al. (2008)** reported in his study on organic farming for sustained productivity in mulberry sericulture that a significant increase in leaf yield was observed from a uniform number of mulberry trees where 10 kg of biofertilizer was applied along with 150:90:56 kg of NPK as against a control

where exclusively only a similar dose of chemical fertilizer was applied. With the addition of organic manure, the mulberry farm had been found to improve soil health.

**Lakshmi (2009)** reported about the journey of organic entrepreneur who were bringing back natural living in its purest form. A Vadodara based organic entrepreneur trading in wheat grass powder, variants of amla powder and natural non alcoholic flower based scents believed that although it was a niche segment that actually buys organic products, they were opinion makers and this niche segment would change the way consumers looked at things that were harmful to the environment. Another manufacturer and distributor of green tea reported that the green tea was almost a lifestyle choice today as it was rich in antioxidants that eliminated damaging free radicals.

## Research Methodology

### *Research Design*

The present study is exploratory in nature, as it try to finds ideas and insight to bring out new relationship. It helps in bringing into focus some intrinsic weakness in industry regarding which in depth study can be conducted by management.

### *Data Collection*

1. Primary Data
  - Personal Investigation
  - Observation Method
  - Information from correspondents
  - Information from superiors of the organization

**Tools used:** Questionnaire & Interview

**Sampling method:** Judgmental

**Sampling unit:** The research was conducted at Organic Food Store "Organic India Departmental Store, Dwarka"

**Sample size:** 200

**Target Audience:** The population for the study consisted of customers visiting Organic Food Store "Organic India Departmental Store, Dwarka".

## 2. Secondary Data

- Published resources such as Journals, Government Reports, Newspapers and Magazines etc.
- Websites like organicfoodindia.com and some other sites are also searched to find data.

### Limitations of the Study

The study is confined to the selected area and hence the no generalization can be made. The accuracy depends upon the respondents' information.

### Data Analysis & Findings

The result of the study entitled “**Consumer Acceptance of Organic Food in India: Adoption of Organic Food among the Urban Consumer**” has been obtainable under the following headings.

### Distribution of Respondents Based on Socio Economic Status:

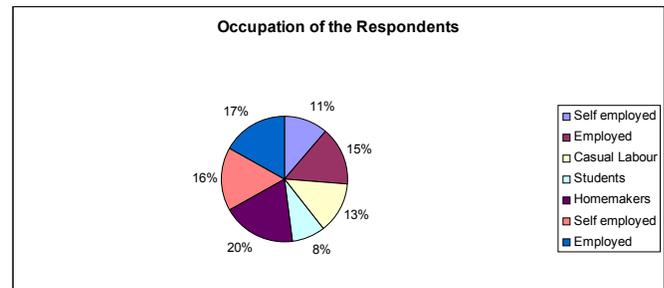
The socio economic profile of the respondents is presented in the Table 1

**Table 1: Distribution of Respondents Based On Socio Economic Status**

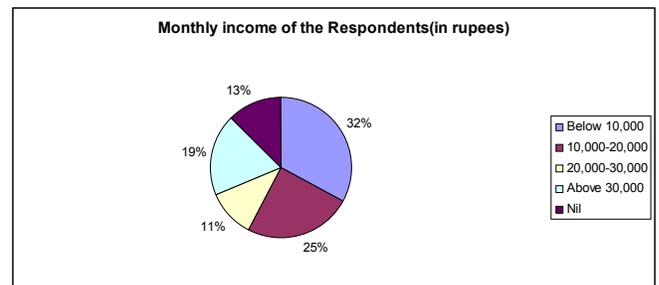
Variables	No. of Respondents	Percentage
Age (in years)	20-30	78 39.00
	30-40	59 29.50
	40-50	30 15.00
	50-60	33 16.50
Gender	Male	90 45.00
	Female	110 55.00
Marital Status	Married	133 66.50
	Unmarried	67 33.50
Education	Primary	42 21.00
	Higher secondary	20 10.00
	Graduate	79 39.50
	Post Graduate	59 29.50
Occupation	Self employed	34 17.00
	Employed	45 22.50
	Casual Labour	39 19.50
	Students	25 12.50
	Homemakers	57 28.50
Monthly income (in Rs)	Below 10,000	66 33.00
	10,000-20,000	49 24.50
	20,000-30,000	22 11.00
	Above 30,000	38 19.00
	Nil	25 12.50

Number of family members	Upto 2	136	68.00
	2 to 4	1	0.50
Below 18 years	Upto 2	183	91.50
	2 to 5	17	8.50
19 - 40 years	Upto 2	191	95.50
	2 to 4	9	4.50
40 - 65 years	Upto 1	195	97.50
	1 to 2	5	2.50
Above 65 years	Vegetarian	80	40.00
	Mostly Vegetarian	60	30.00
	Not Vegetarian	60	30.00

**EXHIBIT: 1**



**EXHIBIT: 2**



It is understood from the Table 1, that majority of the respondents (68.50 percent) belong to the age group between 20 and 40 years, female respondents constitutes (55 percent) and remaining (45 percent) were male. Majority of the respondents (66.50 percent) were married and 33.50 percent were Unmarried. As far as the occupation is concerned 39.50 percent of the respondents with full time employment, 28.50 percent of the respondents were Homemakers, and 19.50 percent were casual Labourers (Exhibit 1). The classification of the respondents based on education showed that 39.50 percent were Graduates, 29.50 percent were post graduates and remaining 31 percent of respondents had education

up to higher secondary level. The respondents were classified based on their monthly income (Exhibit 2).

### Distribution of Respondents Based on Purchase Behaviour

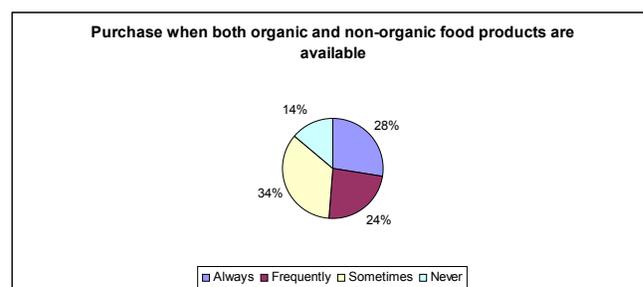
Purchase is a consumer commitment for the product. The respondents purchase behaviour of organic food products and their Pattern of purchase are presented in Table 2.

**Table 2: Distribution of Respondents Based on Purchase Behaviour**

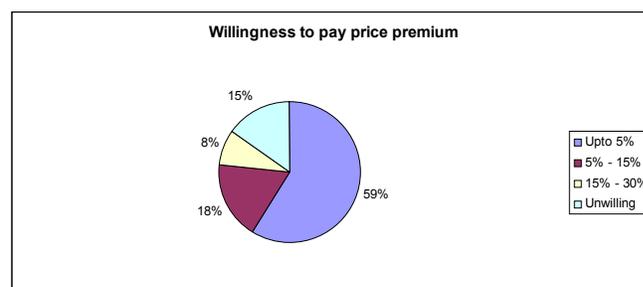
Variables		No. of Respondents	Percentage
Ever buy organic food products	Yes	136	68.00
	No	64	32.00
Purchase when organic and non-organic food products are available	Always	55	27.50
	Frequently	48	24.00
	Sometimes	69	34.50
	Never	28	14.00
Frequency of purchase	Daily	29	14.50
	Weekly	32	16.00
	Monthly	22	11.00
	2-3 times per month	40	20.00
	Once a year	13	6.50
Willingness to pay price premium	Upto 5%	123	61.5
	5% - 15%	38	19
	15% - 30%	17	8.5
	Unwilling	32	16
Quantum of purchase in rise in price	Buy more	26	13.00
	Buy less	91	45.50
	Not at all	83	41.50
Familiarity through	TV	20	10.00
	Radio	11	5.50
	Magazines	12	6.00
	Newspaper	26	13.00
	Internet	15	7.50
	Friend/relative/associate	40	20.00
	In store	37	18.50
Sources of Influence	Not sure	39	19.50
	Advertisement	30	15.00
	Personal reference	10	5.00
	Peer groups	35	17.50
	Parents	28	14.00
	Reference groups	23	11.50
	Culture	32	16.00
	Religion	21	10.50
Environmentalist	21	10.50	

Duration of purchase	More than 3 years	32	16.00
	1-3 years	48	24.00
	6-12 months	47	23.50
	0-6 months	38	19.00
	Never	35	17.50
Place of purchase	Super market	45	22.50
	Grocery shop	50	25.00
	Processing center	45	22.50
	Organic food stores	60	30.00
	Public distribution system	Nil	Nil
Recognition of organic food as a "product"	Labeling	62	31.00
	Marketing	59	29.50
	Promotion	41	20.50
	Stamp	38	19.00
Recommending organic foods to others	Yes	119	59.50
	No	81	40.50

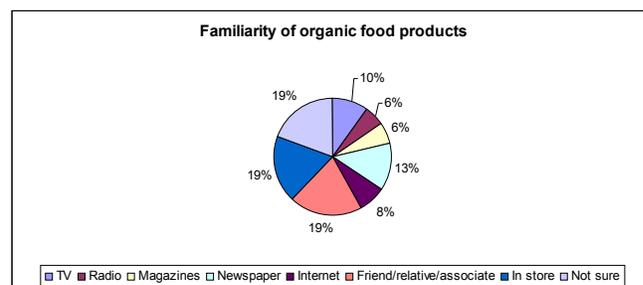
**EXHIBIT: 3**

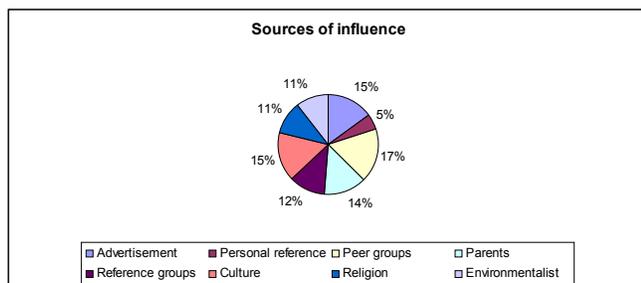
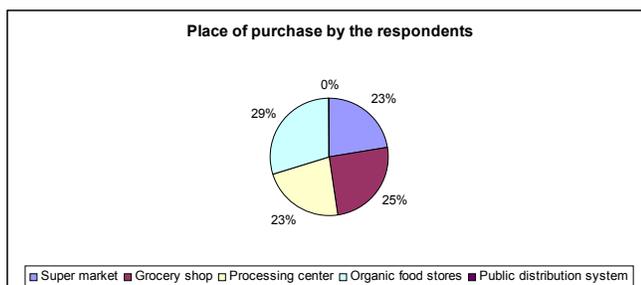


**EXHIBIT: 4**



**EXHIBIT: 5**



**EXHIBIT: 6****EXHIBIT: 7**

It is noted from the table 4.1.2 that when both organic and non-organic food products are available (Exhibit 3), 35 percent of the respondents choose to buy organic products “Sometimes”, 28 percent of the respondents choose “always”, and 24 percent of the respondents choose “frequently” whereas 14 percent of the respondents expressed their “unwillingness” to buy organic food products.

With regard to frequency of purchase of product, 20 percent of the respondents purchased organic food products 2 to 3 times per month, 16 percent purchased once in a week and about 14 percent of the respondents daily, 11 percent respondents once in a month and about 6 percent of the respondents once a year. Majority of the respondents (61.50 percent) were willing to pay price premium upto 5 percent above the price of conventional food products (Exhibit 4).

It is understood that the peer groups (17.50 percent) were the major influencing factors in purchase of organic food products, (Exhibit 5) Culture influenced 16 percent of the respondents and advertisement influenced 15 percent of the respondents to purchase organic food products, whereas parents, Reference groups, Religion, Environmentalism, and Personal reference had considerable influence in purchase

of organic food products.

With regard to place of shopping for organic food products (Exhibit 6), majority of the respondents (30 percent) bought from organic food store and 25 percent from Grocery shop, 22.50 percent respectively from super market and processing center.

In order market the organic food products, as “Products”, (Exhibit 7). About 31 percent of the respondents expressed that “Labeling” is essential, about 30 percent of the respondents expressed that it is required for “Wide marketing”, 19 percent expressed the necessity for “Stamping”, 20 percent of the respondents considered organic food products as equivalent to conventional or local food.

## II Quantum of Purchase and Usage of Organic Food Products by the Respondents

The product usage reflects the purchase propensity indicating customer behaviour and the pattern of demand. The Table 3 shows the purchase and usage of organic food products.

**Table 3: Quantum of Purchase and Usage of Organic Food Products by the Respondents**

Products	Quantity Purchased	No. of respondents	Percentage
Milk (litre. per day)	Up to 2	98	49.00
	2 to 4	99	49.50
	Above 4	3	1.50
Meats, poultry, seafood (kgs. per week)	Up to 1	124	62.00
	1 to 2	58	29.00
	Above 2	18	9.00
Eggs (dozen per week)	Up to 1	176	88.00
	1 to 2	24	12.00
Vegetables (kgs. Per week)	Up to 4	46	23.00
	4 to 8	57	28.50
	8 to 12	65	32.50
	Above 12	32	16.00
Fruits (kgs. Per week)	Up to 3	98	49.00
	3 to 6	94	47.00
	Above 6	8	4.00
Rice (kgs. per month)	Up to 25	54	27.00
	25 to 50	22	11.00
	50 to 75	45	22.50
	Above 75	79	39.50
Dhal (kgs. per month)	Up to 2	108	54.00
	2 to 4	85	42.50
	Above	7	3.50
Millets (gms. occasionally)	Up to .30	92	46.00
	.30 to .60	90	45.00
	Above .60	18	9.00

Millets (gms.occasionally)	Up to .30	92	46.00
	.30 to .60	90	45.00
	Above .60	18	9.00
Flour (kgs.occasionally)	Up to 4	185	92.50
	4 to 8	11	5.50
	Above 8	4	2.00
Pickel, Jam and candy (gms .per month)	Up to .30	140	70.00
	.30 to .60	49	24.50
	Above .60	11	5.50
Masala powder (gms.per month)	Up to .30	92	46.00
	.30 to .60	102	51.00
	Above .60	6	3.00
Beverage (gms.per month)	Up to .40	184	92.00
	.40 to 80	15	7.50
	Above .80	1	0.50
Other provision (gms.per month)	Up to .25	162	81.00
	.25 to.50	23	11.50
	Above .50	15	7.50
Honey (gms occasionally)	Up to .25	78	39.00
	.25 to.50	80	40.00
	Above .50	42	21.00
Cosmetics (gms per month)	Up to .25	137	68.50
	.25 to.50	31	15.50
	Above .50	32	16.00

The table 3 shows the quantity of organic food products purchased by the respondents. It is revealed that, 2 to 4 litres of Milk were purchased every day by majority of the respondents. Majority of respondents bought weekly once, Meat about 1 kgs, 1 dozen of eggs, 8 to 12 kgs of Vegetables and up to 3 kgs of Fruits. The monthly purchase of organic

food products by majority of the respondents consisted of about 75 kgs Rice, 2 kgs of Dhal, about 300 to 600 gms of Masala powder, Pickel, jam and Candy, Beverage, Honey, cosmetics and other provision.

#### 4.1 Affective Component of Purchase Behaviour of Organic Food Products Among Respondents

The affect component leads action, marketers are concerned with understanding affective component in purchase behaviour and is presented in table 4.

It is inferred from table 4 that, the respondents ranked the elements associated with organic food products most liked by the respondents, majority of the respondents assigned first rank to "Better for health" (29.50 percent) "Better taste" (38 percent) and the sixth rank to "Very low yield" (18 percent) the seventh rank to "Better for farmers"(18 percent) and eighth rank to "Ecological" and "Free from harmful substances" (14 percent) the ninth rank to "Better quality" (14 percent) "Low calories" (24.50 percent) and "Certification" (22.50 percent) and eleventh rank to "Better for animal" (20.50 percent) and "contains no dirt and bugs" (22 percent) and twelfth rank to "Expensive" (14 percent) the last rank to "Better for the environment" (15 percent).

**Table 4: Ranking of Affective Component of the Respondents Attitude Towards Organic Food Products (Percentage Analysis)**

Elements	Ranks												
	1	2	3	4	5	6	7	8	9	10	11	12	13
	Percentage of the respondents												
Better Taste	38.00	31.00	0.50	2.50	2.00	2.50	10.50	2.00	2.00	0.50	1.50	5.50	2.00
Better for health	29.50	22.00	8.50	10.50	4.00	3.00	3.00	4.00	1.00	6.00	7.00	1.50	0.00
Better for animal	11.50	11.50	7.00	19.50	4.50	2.50	7.50	4.00	0.00	3.50	20.50	1.00	7.00
Contains no dirt and bugs	3.00	9.50	5.50	19.50	8.00	2.00	8.00	2.50	1.00	2.50	22.50	6.50	10.50
Better for the environment	6.50	6.00	6.00	8.00	4.00	5.00	9.00	4.00	4.00	6.00	12.00	14.50	15.00
Expensive	3.00	6.50	5.50	9.00	10.50	7.50	6.00	6.50	4.00	13.00	7.50	14.00	7.00
Better for farmers	2.50	6.00	5.00	5.50	8.50	13.50	18.00	7.00	4.50	10.50	5.00	7.50	6.50
Very low yield	1.00	1.00	8.00	5.00	11.00	18.00	7.50	15.00	3.50	10.50	2.50	8.00	9.50
Ecological	0.50	1.00	12.50	5.50	6.50	12.50	11.00	13.00	8.00	8.00	3.00	12.00	6.50
Free from harmful substances	2.00	0.50	8.50	3.50	12.50	12.00	3.00	14.00	11.00	9.50	6.50	11.50	5.50
Better quality	1.00	2.00	9.50	5.00	8.00	9.50	6.50	10.00	14.00	11.00	4.50	9.00	9.50
Low Calories	1.50	1.00	11.50	3.50	11.50	5.50	4.50	13.50	24.50	11.00	5.50	2.00	4.50
Certification	0.00	2.00	12.00	3.50	9.00	6.50	5.50	4.50	22.50	8.00	2.50	7.00	17.00

## Conclusion

Consumer behaviour plays a key role in Organic food products segment. The marketers of organic foods need to be innovative and dynamic in order to complete with the changing purchase behaviour in the Organic food products market among urban residents. The importance of organic food products was overlooked for quite a long period. As results of environmental sustainability, importance is shifted towards Organic food products rather than conformist farming. The study brought out the fact that the people were well aware of images and availability, but not loyal wholly to organic food products. The respondent without hesitation attracted towards Organic food products. So the marketers must craft promotions which are both realistic and moral and the product availability in terms of volume and variety are required to become victorious in marketing organic food products.

## Suggestions

- Sustained improvement in product features would lead to increase in consumption of organic food products.
- The increase frequency of viewing the advertisement of organic food products and better taste would influence the purchase organic food products. The pressure of advertisement of organic food products with an increase in education found particularly among graduates.
- To convince to buy organic good products, the variables like familiarity, personal ideology, social interaction and monetary cost and habits had greater influence in buying organic food products.
- The knowledge of the organic food products among customers depends on the promotional efforts of the marketers. The availability organic food products need wider advertisement.
- Allowance of separate shares for organic food products in departmental stores
- Positioning organic food products by their explicit attributes
- Positioning organic food products by influencing consumer beliefs about the benefits they obtain on consuming.
- Positioning by reputation for quality “only organic”.
- The attitudes of “never buying” could be customized by educating consumers on the benefits of organic food products.
- The price premium is the major obstruction for non-buying of organic food products. The customers need motivation to buy even with a small price premium than to just shun on one hand and the cost of cultivation and cost of marketing to be brought under check on the other hand.
- The products initially should be made accessible in important market places and also gradually, in all the shops.
- Education programmes regarding Environment and the declaration of organic farming and utilization of organic food products will formulate the consumers more environmentally mindful “Green Consumer”.
- “Organic” to be endorsed as “the way of life” than considering it as a “product”.
- The agriculture marketing and co-operative units help to facilitate farmers should get a fair price for organic product.
- Assuring superiority of organic items by farmers through certification by the Tamil Nadu Organic Certification division, which abet them get a good price.
- Demand assembling large-scale production and accessibility of organic food products should go hand in hand. According a more responsible advertisement can play a positive and favorable role in bringing out a enviable among homemakers in Organic food products market.

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