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INTRODUCTION

REVIEW OF LITERATURE

NEED/IMPORTANCE OF THE STUDY

STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESES

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

CONCLUSIONS

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APPENDIX/ANNEXURE

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- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

JOURNAL AND OTHER ARTICLES

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

CONFERENCE PAPERS

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–22 June.

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- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, KurukshetraUniversity, Kurukshetra.

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- Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

THE USE OF INTERNATIONAL STANDARDS FOR THE PROFESSIONAL PRACTICE OF INTERNAL AUDITING NO. 1300: QUALITY ASSURANCE AND IMPROVEMENT PROGRAM BY INTERNAL AUDITORS IN JORDANIAN INSURANCE COMPANIES

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ABSTRACT

The aim of this research paper was to investigate whether internal auditors in Jordanian insurance companies use or comply with International Standards for the Professional Practice of Internal Auditing No. 1300 termed Quality Assurance and Improvement Program .Also, Identifying the violation of Institute of Internal auditor requirements by the internal auditors of Jordanian insurance companies through Significant lack of use or compliance with International Standards for the Professional Practice of Internal Auditing No. 1300 termed Quality Assurance and Improvement Program. Research hypothesis was tested using Statistical Package of Social Sciences (SPSS)and using one sample T-test to test the hypothesis of the study. Results of research indicated that internal auditors in Jordanian insurance companies do not use quality assurance and improvement programs, particularly relating to external assessments.

KEYWORDS

International Standards for the Professional Practice of Internal Auditing, Quality Assurance and Improvement Program, Internal Auditors, Jordanian Insurance companies**.**

INTRODUCTION AND MOTIVATION TO THIS STUDY

The globalization of economy, technological advancements, complexity of business and allegations of fraudulent financial reporting have recently sharpened the ever-increasing attention to internal controls and internal auditing (Karagiorgos et al., 2009). Internal audit activities have broad mandates to cover financial, operational, information technology, legal/regulatory, and strategic risks. So, the internal audit activity designed to achieve added value to organizations throughout the evaluates and contributes to the improvement of risk management, control, and governance processes using a systematic and disciplined approach (IIA, 2011).

The internal audit activity must assist organizations in maintaining effective controls by evaluating their effectiveness and efficiency and by promoting continuous improvement (Gleim,2011).

Many organizations will experience control breakdowns. Often, when controls fail or frauds occur, someone will ask: where was the internal auditor?. AS we know, many internal auditing activities face challenges related to the availability of qualified personnel in the global labor markets, increased compensation costs, and high demand for specialized resources. The combination of these factors results in a high level of risk for an internal audit activity such as audit failure, false assurance, and reputation risks (Rahahleh, 2010).

The internal audit failures may not only be embarrassing for internal audit activities, but they can also expose an organization to significant risk (Gleim,2011). In addition, the internal audit activity could be a contributing factor to risk for an internal audit activities due to an inappropriate quality assurance and improved program (International Standards for the Professional Practice of Internal Auditing No. 1300).

Chief audit executives (CAEs) are required to use and comply with the International Standards for the Professional Practice of Internal Auditing, which promulgated by the Institute of Internal Auditors (IIA) to be an authoritative source for the practice of internal auditing by individuals and organizations worldwide (Abdolmohammadi,2009). The International Standards for the Professional Practice of Internal Audit states that :"The chief audit executive must develop and maintain a quality assurance and improvement program covering all aspects of the internal audit activity (standard No.1300). So, the current study looks at identifying the use level of this standard by internal auditors in Jordanian insurance companies.

A QAIP is designed to enable an evaluation of the internal audit activity's conformance with the Definition of Internal Auditing and the Standards and to evaluate whether internal auditors apply the Code of Ethics. The program also assesses the efficiency and effectiveness of the internal audit activity and identifies opportunities for improvement.

The QAIP does not only provide a means for evaluation of conformance with the Standards, but also evidence to the audit committee and management that the internal audit activity is concerned about the organization's internal controls, ethics, governance, and risk management processes. It builds stakeholder confidence and documents a commitment to quality, leading practices, and the internal auditors' mindset for professionalism.

RESEARCH OBJECTIVES

This study attempted to achieving the following objectives:

1- To investigate whether the internal auditors in Jordanian insurance companies use or comply with International Standards for the Professional Practice of Internal Auditing No. 1300 termed Quality Assurance and Improvement Program.

2- To investigate whether internal auditors in Jordanian insurance companies mitigate the internal audit risk.

3- To identify violation of Institute of internal auditor requirements by the internal auditors of Jordanian insurance companies through Significant lack of use or compliance with International Standards for the Professional Practice of Internal Auditing No. 1300 "Quality Assurance and Improvement Program " .

4- To investigate whether internal auditors in Jordanian insurance companies improve organizational processes and operations by implementing or using International Standards for the Professional Practice of Internal Auditing No. 1300 "Quality Assurance and Improvement Program".

SIGNIFICANCE OF THE STUDY

The importance of this study derives from the benefits that organizations can gain from the assessment of internal audit activities. The importance of the study can be summarized in the following points:

- The assessment provides a means for evaluating conformance with the Standards, And its evidence to the audit committee and management that the internal audit activity is concerned about the organization's internal controls, ethics, governance, and risk management processes.
- The assessment builds stakeholder confidence and documents a commitment to quality, leading practices, and the internal auditors' mindset for professionalism
- The assessment allows internal auditors to state that their activity "conforms to the International Professional Practice Framework of Internal Auditing."
- Its also builds stakeholder confidence by documenting management's commitment to quality and successful leadership practices, and the internal auditors' mindset for professionalism.

- It provides evidence to the board, management, and staff that the audit committee and the internal audit activity adds value through improving an organization's operations and contributing to the attainment of objectives.

RESEARCH PROBLEM

Internal audit failures may not only be embarrassing for internal audit activities, but they can also expose an organization to significant risks, So, the internal audit activities, regardless of industry, sector, or size of audit staff - even those outsourced or co-sourced- can mitigate those risk through implementing quality assurance and improvement program that contains both internal and external assessments.

A Quality Assurance and Improvement Program (QAIP) enables an evaluation of the internal audit activity's conformance with the Definition of Internal Auditing and the International Standards for the Professional Practice of Internal Auditing (Standards) and an evaluation of whether internal auditors apply the Code of Ethics. The program also assesses the efficiency and effectiveness of the internal audit activity and identifies opportunities for improvement.

Quality assessment programs are essential to performing and sustaining high-quality production. Initiatives should emphasis on ensuring that the audit cycle is designed and executed to influence management to become more anticipatory and proactive in assessing risk, and either responding where risk levels are excessive or recognizing when accelerated/increased investments create potential economic upside.

So, the problem of study was represented by the following question:

Do Jordanian internal auditors insurance companies use or comply with International Standards for the Professional Practice of Internal Auditing No. 1300 termed Quality Assurance and Improvement Program ?

HYPOTHESIS

Jordanian internal auditors at insurance companies do not use or comply with International Standards for the Professional Practice of Internal Auditing No. 1300 termed Quality Assurance and Improvement Program.

DATA DESCRIPTION AND DATA COLLECTION

Our sample was mainly drawn from the annual reports of companies listed on the Amman Stock Exchange for the year 2011. The data used in this paper were retrieved from Jordan Security Commission website (http://www.jsc.gov.jo). Our sample consisted of (34) Jordanian internal auditors in insurance companies .

STATISTICAL MODELS

The researcher used a questionnaire as a primary data collection tool to collect the necessary data for the study. Also, the researcher used the program package Statistical Social Sciences (SPSS) is a short version of (Statistical package For Social Sciences) for data analysis. The researcher selected the appropriate statistical methods to achieve the objectives of the study and to test hypotheses. In doing so, the researcher extracted frequencies in order to know the characteristics of the study sample. Also, the researcher used the arithmetic mean as a measure of central tendency used to describe the study sample answers and the order of importance of items and degrees of approval or rejection for the items contained in the questionnaire.

Finally , the researcher used one sample T-test to test the hypotheses of the study to enable the researcher to test hypotheses in the absence of our knowledge of the average value and standard deviation of the society as a whole .

DATA ANALYSES AND RESULTS

TABLE (1) STATISTICAL DATA

Items	Mean	S.D
1- The chief audit in your organization evaluates the internal audit activity conformance with definition of internal auditing, standards, and code of ethics.	3.36	.94
2- There is a day to day supervision or review of the performance of the internal audit activity in your organization.	3.51	1.01
3- There is an ongoing monitoring of the performance of the internal audit activity in your organization.	1.78	.88
4- Internal Audit Policies and Procedures are used for each engagement to ensure compliance with applicable planning, fieldwork and reporting standards.	2.98	.86
5- Regular, documented review of work papers during engagements are used by appropriate Internal Audit staff.	3.42	1.11
6- There is periodic reviews performed through self-assessment (by internal audit department) of the performance of the internal audit activity.	3.29	.72
7- There is periodic reviews performed by persons in the organization from outside internal audit department of the performance of the internal audit activity.	3.44	1.15
8- There is an external assessment of internal audit conducted at least once every five years.	2.76	1.01
9- The chief audit executive discusses with board of directors the need for more frequent external assessments.	1.58	1.19
10- The chief audit executive discusses with board of directors the qualification of the external reviewers.	2.43	1.21
11- The chief audit executive discusses with board of directors the independency of external reviewer.	2.85	.77
12- The chief audit executive assesses whether the external reviewer demonstrate sufficient qualified or not.	2.4	.93
13- The chief audit executive communicates the result of a quality assurance and improvement program to senior management.	2.9	0.88
14- The chief audit executive communicates the result of a quality assurance and improvement program to board.	1.89	0.91
Total Score	**2.80**	**0.78**

Table (1) shows that the attitudes of the study sample were negative in general for items measuring the level of the internal auditors in Jordanian insurance companies use or compliance with International Standards for the Professional Practice of Internal Auditing No. 1300. As shown, means scores for the answers on statements of the hypothesis was less than (3) the value of the arithmetic mean of the measurement tool on Likert scale , and got item (2), which states that there is a day to day supervision or review of the performance of the internal audit activity in your organization. "on the arithmetic average was (3.51) and standard deviation (1.01), followed by Paragraph (5), which states that Regular, documented review of work papers during engagements by appropriate Internal Audit staff with arithmetic average was (3.42) and standard deviation (1.11).

The lowest negative item were (9), which states that the chief audit executive discusses with board the need for more frequent external auditing (M=1.58, SD=1.19), followed by item (3), which states that "There is ongoing monitoring of the performance of the internal audit activity in your organization (M=1.78, SD=0.88).

Moreover, the total number of items measuring the internal auditors in Jordanian insurance companies use or compliance with International Standards for the Professional Practice of Internal Auditing No. 1300 (M=2.80) which is the average arithmetic is weak, and to detect the presence of a significant relationship, T-test was used (t-test) Table (2) illustrates this.

TABLE (2): T-TEST

Hypothesis	N	Mean	S.D	df	T-calculated
The internal auditors in Jordanian insurance companies do not use or comply with International Standards for the Professional Practice of Internal Auditing No. 1300 "Quality Assurance and Improvement Program".	34	2.8	0.78	33	-1.473

We can conclude that the value of the means scores were (2.8) and was lower than mean (3) in the instrument of the study, and the value of (t) calculated are (-1.473) is lower than the tabular value of t (2.704) at the significance level ($\alpha = 0.05$), indicating that the internal auditors in Jordanian insurance companies do not use or comply with International Standards for the Professional Practice of Internal Auditing No. 1300 termed Quality Assurance and Improvement Program.

RESULTS

The previous sections of this chapter presented the results of this study. In this section, I will recap and analyze these results.

First, the internal auditors in Jordanian insurance companies do not implement external assessments dimension in the Quality Assurance and Improvement Program. Items number (8), (9),(10),(11),(12) indicated that. So , we can not conclude that the internal auditors in Jordanian insurance companies participating in the current study did not achieve the added value to the organization. These include

- Assisting organizations in maintaining effective controls by evaluating their effectiveness and efficiency and by promoting continuous improvement.
- Mitigate internal audit risk due to an inappropriate quality assurance and improved program .
- Builds stakeholder confidence and documents a commitment to quality, leading practices, and the internal auditors' mindset for professionalism.
- Improved organizational processes and operations.
- Provides evidence to the board of directors, management, and staff that the audit committee and the internal audit activity add value through improving organization's operations and contributing to the attainment of objectives.

Second, the internal auditors in Jordanian insurance companies implement quality assurance and improvement program that contain internal assessments. Items (2), (5),(6),(7), indicated that.

RECOMMENDATIONS

1- It is necessary that internal auditors in Jordanian insurance companies use or comply with International Standards for the Professional Practice of Internal Auditing No. 1300"Quality Assurance and Improvement Program, especially in relation to external assessments.

2- Further studies are needed to find out constraints preventing the use of the standard.

REFERENCES

1. Irvin ,Gleim . fifteenth edition of CIA Review, Part one, Internal audits role in Governance ,risk , and control, Gleim publication insurance, University station.
2. Karagiorgos, T., Drogalas, G., Gotzamanis,. and Tampakoudis, I., 2009, 'The Contribution of Internal Auditing to Management', International Journal of Management Research and Technology, 3, 2, Serials Publications, pp. 417-427.
3. Mohammad J. Abdolmohammadi , Factors Associated with the Use of and Compliance with the IIA Standards: A Study of Anglo-culture CAEs, International Journal of Auditing, vol. 13: 27–42 (2009).
4. Rahahleh, Mohammad Yasen, 2010, Regulating the Profession of Internal Auditing in Jordan, European Journal of Economics, Finance and Administrative Sciences, Issue 20
5. http://www.jsc.gov.jo
6. https://global.theiia.org/Pages/globaliiaHome.aspx.
7. www.theiia.org

COMPUTERIZATION OF NIGERIAN UNIVERSITY LIBRARY SERVFICES

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ABSTRACT

Reported here are the results of a research project that examined the progress that has been made by Nigerian University libraries in computerization of their services. Fourteen university libraries that said that their libraries were automated were investigated using structured questionnaires. The research design was carried out in two stages by the use of structured questionnaires. The study population consisted of 47 university libraries, of which 24 were Federal, 17 state and 6 private. While the sample population was limited to the 13 University libraries that said they were automated. The response rate was 100% The services that were investigated or surveyed include Cataloguing, Acquisition, Circulation, Serials, Reference, Opac, CD-ROM, Internet, Intranet and e-mail. The study shows that a great progress has been made in automating university libraries in Nigeria. The main issues facing automation in Nigerian university libraries concerned among others, funding, electricity, staffing and inadequate infrastructures. The result of the surveys shows that none of the libraries were fully automated, while some were strongly with the issue of migration from one library management software to the other.

KEYWORDS

Computerization; Automation; Nigeria; University Libraries.

INTRODUCTION

The library as a support service to the university provides the needed resources to its clientele and for a library to fulfill these functions it must be guided by the goals and functions of the parent institution, which are usually outlined in the laws that established them. Anafulu (1996) says, "A typical university law empowers the university to, among other things; erect, provide, equip and maintain libraries and other facilities. The functions according to him are to support the learning, teaching and research process in the university and in conservation of knowledge and ideas and participate in community service". The main duty of the university library therefore is in the fulfillment of these objectives. Fulfilling these roles requires that the library must formulate its own objectives to direct its future activities. The university library is a service center or organization and, this requires that it must provide the bibliographic material through acquiring, processing, organizing, and making them available in all formats.

If a library is to support the universities objectives, which are in the areas of learning, teaching, research and services, scholars and students should have access to a wider portion of the information available in their disciplines. However, users in university libraries do not have enough access to relevant and appropriate information in their fields of interest (Aina, 2003). The reason is due to escalating cost of information materials and dwindling allocation of funds to universities by both Federal and State Government (Anafulu 1996); Okebukola (2002)

Ekpeyong (1991) argues that the problem created by information explosion can only be solved by automation. Hoare (1986) as cited by Ekpeyong argued that automation is the only means to the control and coordination of universal bibliographic literature and research materials in all the subject fields and formats needed by their readers.

OBJECTIVES OF THE STUDY

1. To report progress that has been made by university libraries in Nigeria to automate their services.
2. To ascertain the problems faced by them in computerising.

LITERATURE REVIEW

In Nigeria, university libraries attempts at automation started with single applications, following the same trends as in the United Kingdom and the United States of America Abifarin, 2003). However, processes were based mostly on the available computing facilities in their various computer centers (Ehikhamenor, 1990) and were limited to the production of lists of books on reserve, serials holdings and shelf list records. Attempts at computerization of university libraries in Nigeria, which started with single application, were limited to serials and circulation control according to Edoka, (1983) and Abifarin, (2003).

The University of Ibadan was the first to produce a catalogue of serial holdings as at 1973 in the library in March 1975 (Abifarin, 2003; Ehikhamenor, 1990). The University of Lagos computerized its catalogue of serials in 1977, while Nnamdi Azikiwe University library Nsukka, compiled work on its computerized serial catalogue the same year (Ehikhamenor, 1990). An in-house serials control programme, which was handled by the computer center at the University of Ilorin Library, failed after capturing above 700 serial titles

Some other libraries had plans to automate their serial control systems and the interest in this area motivated the conference of university librarians with a view to putting their serial holdings into machine-readable format. (Abifarin, 2003). The University of Ibadan also first conceived the automation of circulation control in Nigerian university libraries as early as 1975 with the idea of two automated systems .The two systems were the Automated Library System (ALS) and the Plessey Library Pen System. The Nnamdi Azikiwe library also was considering the automation of its circulation control system. The University of Ife also began to consider automation to resolve the problems in the circulation. Other attempts were also made at the University of Ilorin and the Kashim Ibrahim Library of the Ahmadu Bello University (Ehikhamenor, 1990). At the Kashim Ibrahim library, an in-house circulation control system was envisaged in 1978. The implementation also failed. There were plans at the University of Benin Library to computerize its entire library collection in 1976. That year, the coordinators in the Faculty of Science had carried out a feasibility study. This resulted in the design specification of a computer-based books and periodical control system (Ifediba, 1976)..

Edoka (1988) carried out a survey of Nigerian university libraries, with prospect of introducing computer-based systems. The results showed that six university libraries at Ibadan, Nsukka, Ife, Zaria, Lagos and Benin – had plans for computer based circulation systems. He also found that feasibility studies had been completed in respect of circulation procedures as a prelude to computerization in Ibadan, Ife, Zaria and Benin. Edoka further confirmed his study found out that the libraries surveyed appeared to have decided to automate even before embarking on feasibility studies. Two years later, Ehikhamenor (1990) in another study of automation in Nigerian university libraries also found that 10 of the 19 universities surveyed had no clear focus on automation. His study confirmed the findings of Edoka's (1988) survey.

RATIONALE FOR COMPUTERIZATION

The need for effective management of information explosion and easy access to users of informational materials informed the need for libraries to computerize their services (Adeogun, 2003). The manual system could no longer cope with information management in libraries. Ekpeyong (1991) argues that the problem created by information explosion can only be solved by automation and that automation is the only means to the control and coordination of universal bibliographic literature and research materials in all the subject fields and formats needed by their readers.

Line (1991) as cited by Tedd (1993) listed some criteria for the development of such systems. He advanced reasons, which are applicable to any type of library. The reasons are;

i. To provide a service at a lesser or no great a cost

ii To give added benefits at lesser cost. Such services to users from computerization include on- line service which make it possible for vast resources of published literature to be searched in any specific field, either through internet or CD-ROM.

iii. Computerization enables tasks to be completed more accurately, more quickly and with increased control than with manual system. Such task include clerical, routine and repetitive tasks that are and thus prone to human error.

The above reason may not be the only compelling reasons for automating library system.

Ojo-Igbinoba (1993) identified the following four reasons to justify library automation in Nigeria:

i. The manual charging or issuing system was characterized by long queues and annoying delays;

ii. The filling of user cards and counting of statistics is not only cumbersome but sometime got out of control;

iii. Maintenance of the manual catalogue is usually problematic. The production and filing of catalogue cards often lag behind schedule sometimes books that have been shelved in the collection had no records in the catalogue;

iv. Serials control and maintenance is equally problematic with many records to create.

METHODOLOGY

The type of research design used for this study is the survey design. It looked at the fact as they have occurred.

POPULATION

The population of study consisted of the university libraries in Nigeria. As at 2002 there were 47 university libraries in Nigeria of which the Federal Government owned 24, State government owned 17, while 6 are privately owned.

SAMPLING

The sample population for the study is limited to the 13 university libraries that have computerised or are computerising their services. The study population therefore include the following: Abubakar Tafawa Balewa University, Bauchi; Babcock University, Ilishan; Delta State University, Abraka; Ahmadu Bello University, Zaria; Ladoke Akintola University of Technology, Ogbomoso; Obafemi Awolowo University, Ile-Ife; University of Agriculture, Abaokuta; University of Benin, Benin City; University of Lagos, Lagos, University of Jos, Jos; University of Ibadan, Ibadan, University of Ilorin, Ilorin, and Rivers State University of Science and Technology, Port-Harcourt

A multi stage design method was used for this study. The first stage was to design a 4-item questionnaire to determine the universities that have computerized or were computerising their services. This was administered to university libraries that were present at the NLA Conference and Annual General Meeting held in Bauchi in September 2003. The result showed that thirteen (13) universities have automated or were automating their services .The result was then compared with the study on the status of library automation by Ogunrombi (2001).

The second stage was the design of a 35-item questionnaire that was then distributed to the thirteen university libraries that were computerized.

DATA ANALYSIS

TABLE 1: CATEGORIZATION OF RESPONDENTS' UNIVERSITIES

Type of University	Number	Percentage
Federal	9	69.2
State	3	23.1
Private	1	7.7
Total	13	100

Table 1 shows the analysis of the thirteen University Libraries that considered that they have computerised various functions in their libraries. Out of this thirteen, 9 or 69.2% are Federal Universities, 3 or 23.1% are state owned and 1 or 7.7% is a private University.

TABLE 2: FUNCTIONS AND SERVICES THAT HAVE BEEN COMPUTERIZED

Function Services	Yes	%	No	%
Cataloguing	8	61.5	5	38.5
Acquisition	7	53.8	6	46.2
Circulation	8	61.5	5	38.5
Serials	7	53.8	6	46.2
Reference	5	38.5	8	61.5
OPAC	6	46.2	7	53.8
CD-ROM	6	46.2	7	53.8
Internet	4	30.8	9	69.2
Intranet	1	7.7	12	92.3
E-Mail	4	30.8	9	69.2

Table 2 shows that all the traditional functions are performed in all the thirteen libraries apart from binding and photocopying services. The above analysis indicates clearly that electronic resources such as Internet, CD-ROM, Intranet and e-mail are poorly developed. Electronic resources offer the capability to conduct remote classes, provide access to remote libraries and create an environment where students and researchers can have innovative cooperative learning experiences. The Internet offers access to a vast wealth of knowledge and other library databases online, while intranet infrastructure enables easy communication among staff within a university community. These services are necessary steps toward a digital library.

TABLE 3: TYPE OF NETWORK INFRASTRUCTURE

Network	Yes	Percent
Stand alone	5	38.5
LAN	10	76.9
Campus Wide Network	7	53.8

An ideal situation for an automated library is to be connected to a campus backbone, to enable library resources to be accessed both from within and outside the university. As shown in Table 3, 53.8% have campus-wide network, 76.9% have local area network, while 38.5% have standalone. The data indicate that some libraries have more than one networking configuration.

TABLE 4: TYPE OF SOFTWARE

Software	Frequency	Percent
Tinlib	5	38.5
X-Lib	3	23.1
Glass	1	7.7
SLAM	1	7.7
Alice for Windows	3	23.1
Total	13	100

On the type of software installed, Table 4 shows that out of the 13 libraries, 38% installed TinLib, 3 or 23.1% Alice for windows, 3 or 23.1 X-Lib, SLAM and Glas both account for only 1 or 7.7 each. These findings indicate that TINLIB software is the most common software for now among the university libraries in Nigeria. There is an indication that some libraries are migrating to up to date system.

TABLE 5: NUMBER OF COMPUTER EXPERTS

Categories	**Frequency**	**Percent**
System Manager	6	46.2
Systems Analyst	5	38.5
Network Administrator	5	38.5
Systems Librarian	4	30.8
Data Entry Clerks	7	53.8

Computerisation cannot succeed without the necessary personnel to provide the strength, intelligence, enthusiasm and expertise in selecting, acquiring and installing various CD-ROM databases, for the new change. As show in Table 5, 46.2% have systems managers in their libraries, 38.5% have systems analysts, while the same 38.5% also have network administrators, As expected 53.8% engage the services of data entry clerks.

TABLE 6: METHOD OF RECORD CONVERSION

Characteristics	Frequency	Percentage
Parallel conversion	4	30.1
Complete changeover	1	7.7
Phased approach	8	61.5
Total	13	100

On record conversion the study shows that majority of the libraries adopted the phased approach in converting their catalogue records (61.5%), while 30% adopted the parallel approach. Only one library changed over completely. Interestingly, 6 or 46.2% have displayed their OPAC.

TABLE 7: METHOD OF TRAINING OF STAFF AND LIBRARY USERS

Characteristics	Frequency	Percentage
Before installation	3	23.1
After installation	3	23.1
Before and after installation	7	53.8
Total	13	100

The study sought to know how the training aspect was carried out. The Table 7 shows that out the greatest number of university libraries, (53.8%) reported that they carried out training before and after installation, (23.%) before installation and 23.% after installation.

TABLE 8: BENEFICIARIES OF TRAINING

Categories	Yes	%	No	%
Senior staff	13	100	0	0
Junior staff	5	38.5	8	61.5
Typist	10	76.9	3	23.1
Library users	2	15.5%	13	100

Table 8, shows that majority of the libraries do not train their library users with only (15.5%) reporting that they carryout training on how to use the computers for this category of users. The library user often deserves to be given first consideration before computerization begin because of the services to be improved so that they are aware of these services. But this is not the case with university libraries surveyed. The users must be given consideration when computerisation is being planned.

TABLE 9: RELIABILITY OF THE SYSTEMS

Response	**Frequency**	**Percentage**
Yes	10	76.9
No	3	23.1
Total	13	100

Although libraries started automation in Nigeria the early 1980, the process did not complete successfully in most university libraries. The study attempted to find out the reliability of the systems in the libraries that have automated. Table 9 shows that 76.9% considered that their systems were reliable and virile, while the remaining 23.1% did not answer the question. This is an indication that 3 libraries have not carried out any evaluation of their systems.

TABLE 10: REASON FOR MIGRATION

Reasons	Frequency	Percent
Lack of knowledge of software	1	7.7
Lack of upgrade facility	3	23.1
No response	9	69.2
Total	13	100

TinLib was the software that was supplied to all the university libraries in Nigeria by the National Universities Commission in 1993 to automate libraries. From this survey only 4 (30.8%) of the 13 libraries responded to the question why they migrated. While one library said that they changed because of lack of knowledge of software, 3 (23.1%) said they changed because of lack of upgrade facility. The fact that a library had to change from software to another is an indication that the computer configuration of the hardware and software requirement was not properly determined before automation started.

TABLE 11: PROBLEMS OF COMPUTERISATION

Problems	Frequency	Percent
What are the constraints that militate against computerisation?		
Inadequate funding	12	92.3
Irregular electricity	10	76.9
Dearth of technical experts	9	69.2
Lack of interests	5	61.5
Human factors	6	46.8
Environmental factors	1	7.7

The investigator sought to know the problems that have hindered computerization. From the data in table 11, out of the 13 Libraries, 12 or 92.3% attributed their major hindrance to inadequate funding; 10 or 76.9%said that irregular electricity was a constraint; 9 or 69.2% said the problem was the dearth of technical experts; 6 or 47 % of the 13 Libraries listed human factors as a problem; 5 or 38.5% said lack of interest; while only 1 or 7.7% of the 13 libraries listed environmental factors as a problem

DISCUSSIONS

SERVICES THAT HAVE BEEN COMPUTERISED

The study show that one library has no plans yet to automate acquisitions, 3 libraries have no plans yet to automate serials and sadly twelve libraries are not developing intranet facilities a means that can facilitate access to library collections through the Online Public Access Catalogue (OPAC) and communication among colleagues in the same campus. The analysis from the study also indicates clearly that electronic resources such as Internet, CD-ROM, Intranet and e-mail are poorly developed. Electronic resources offer the capability to conduct remote classes, provide access to remote libraries and create an environment where students and researchers can have innovative cooperative learning experiences. The Internet offers access to a vast wealth of knowledge and other library databases online while intranet infrastructure enables easy communication among staff within a university community.

FACTORS THAT AIDED OR HINDERED COMPUTERISATION

The study shows that availability of computer centers, the relationship with the libraries and the availability of alternative source of power-aided computerisation in their libraries. The study show that all the thirteen libraries surveyed have computer centers in their universities and they assists the libraries advisory capacity, supply of systems analysts, training of staff and users and maintenance of systems

The study also revealed that computerisation of the libraries were hindered by several factors which include inadequate funding, irregular electricity, dearth of technical expert, lack of interests, human and environmental factors. These findings agree with the findings of Abdullah Idakwo and Ali (2002) and Nwalo (2000) who noted in their work that lack of finance has hindered computerisation process in most libraries in Nigeria.

NETWORKING

The study shows that some libraries have more than one form of networking, for example, ten out of the of Thirteen libraries surveyed have Local Area Network (LAN), seven libraries have Campus Wide Area Network (WAN).

The findings indicate that despite the problems faced by some libraries there is still a bright future for automation internetting in Nigeria libraries. Mohammed (1999) had earlier argued that with political administrative will and commitment, libraries and information centers with partial or full automotive systems and services can engage in automated Local or Wide Area Network services including internetting, E-mail and Telecasting. With this in place leap frogging will be possible with emerging technologies (Ajayi 2000, Nwalo 2000).

SOFTWARE

The study also shows that the most common software used is Tinlib being used by 5 of the libraries. Three libraries each use Alice for Windows and X-Lib. There have been gradual migration from Tinlib which was supplied by the NUC to all the federal University libraries in 1993 to other software such as x-lib, Alice for Windows and SLAM.

REASON FOR COMPUTERIZING

The study revealed that the most important reason for embracing computerisation is to improve and increase customer services. These findings are in agreement with several authors (Oketunji, Daniel, Okojie and Abdulsalain, 2003, Ojo-Igbinoba, 1993, Tedd, 1993, & Olanlokun 1993).

STATUS OF THE COMPUTERISATION PROCESS

The results of the findings indicate that twelve libraries are fully or partially automated. While six libraries said they were fully automated, another six said they were fully automated.

As a matter of fact none of the thirteen libraries surveyed is fully automated; rather they are all partially automated.

The study also indicates that the systems are reliable. Ten out of the thirteen libraries surveyed said that their systems are reliable, while three said that their systems are not reliable. This study did not go further to ascertain the degree of reliability, which Carbine (1988) defined as the ability of an automated function to operate at a specified level of performance or effectiveness for a stated period of time, and usually measured as a percentage.

CONCLUSION

The major conclusion that can be drawn from the study is that although planning for computerisation in majority of the university libraries in Nigeria is not consistent with established planning framework,great progress has been made in automating university libraries in Nigeria. Other conclusion is that electronic resources and the infrastructure are poorly developed, while the major hindrance to computerisation is inadequate funding, irregular electricity and lack computer personnel's. Although evaluation has not been carried out in majority of the libraries surveyed, their systems are virile and reliable.

RECOMMENDATION

Based on the findings of this study the following recommendations are made:

Looking at the problem from National perspectives, the National Universities Commission (NUC) should make deliberate effort to ensure that computerisation is adequately funded by ensuring that the 10 percent budgetary allocation meant for Library development is promptly and faithfully released. For the Universities, it is recommended that those that have no strategic plans should formulate strategic planning that should guide library automation in the institutions. In the light of the findings of this study Librarians urgently require professional development in Information and Communication Technology so that they can contribute meaningfully to planning for systems development. Librarians who are interested in automation should be targeted for ICT development and the library must be prepared to pay a premium to retain them, for as enthused by Markuson (1979), there is no excuse for the library staff involved in automation not to understand clearly how all parts of the system work, what the cost will be and perhaps most importantly, the capability for growth. Each library must ensure that adequate infrastructure are put in place for both intranet and internet connectivity, Local area Network (LAN) and/Campus Area Network should be installed within the university campus to ensure easy communication and access to internet and other electronic library resources.

SUGGESTION FOR FURTHER RESEARCH

The study revealed that both foreign and indigenous library software, are used in Nigeria with varied success. A comparative study of the features, relevance of indigenous and foreign software used in Nigeria University libraries is worthwhile.

REFERENCES

1. Abifarin, F. P. (2003), "Developing a computer-based circulation system for Nigerian academic libraries". *The Journal of Information and Communication Technology,* vol.12, pp.1-7.
2. Aina, L.O. (2003). "*Strengthening information provision in Nigerian university libraries; the digital option*: Access Policy; media-information culture; *a compendium of papers presented at the 41st Annual National Conference and AGM* held at Tarka Foundation, Makurdi, Benue State,Nigeria, September, 7-12. NLA.
3. Anafulu, J.C (.1996). "Trends in funding academic libraries in Nigeria". Library Bulletin of the Nigerian University Library System*, vol.No.12,pp. 9-33.*
4. Edoka, Benson E.(1983). "Prospects of computer-based circulation system in Nigerian university libraries". Nigerian Library & Information Science Review, Vol. 1, pp.109-116
5. Ehikhamenor, Fabian A. (1990). "Automation in Nigerian University Libraries: Progress or mirage?" *Nigerian* Library and Information Science Review, Vol.8, No.1, pp. 1-11.
6. Ekpeyong, Georgina Dren. (1991). "Prospect of new Information Technology in Nigerian Libraries*". Library Review, Vol.*40, No5,pp. 12-16.
7. Ifediba, E.C. (1976)." Design Specification for a computer-based books/periodical control system for the University of Benin Library". Mimeograph.
8. Markuson, Barbara Evans. (1979). "Granting amnesty and other fascinating aspects of automated circulation". In: Bill Katz ed. *Library Literature 9- the best of 1978*. Metuchen N.J.: Scarecrow: 222-237.
9. Ojo-Igbinoba, M.E. (1993). "History of libraries and library education". Lagos: Uto publication,.Ile-Ife, Nigeria.
10. Okebukola, Peter (2002). *"NUC Report on the performance of the Federal University system 2002*". Paper presented at the special meeting convened by the honorable minister of Education on Thursday, December 12, 20002, p.4.
11. Tedd, Lucy A. (1993). *"An introduction to computer-based library systems*". (3rd ed, John Wiley & Sons.). Cochester.

ANTECEDENTS OF CUSTOMER LOYALTY IN THE MOBILE TELECOMMUNICATION SECTOR IN KENYA

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ABSTRACT

Past studies have not sufficiently explained why some customers remain loyal to a product or service provider and/ or why others switch. This study follows a composite customer loyalty approach providing both behavioral aspects (purchase intentions) and attitudinal loyalty in order to explain the concept of customer loyalty. We therefore analyze the antecedents of customer loyalty in Kenya's mobile telecommunication sector using 140 usable respondents. It was found that service value, service quality, and social pressure were significant predictors of customer loyalty, while company image, and customer satisfaction were not significant. We recommend that in order to have loyal customer base, mobile telecommunication service companies should place more emphasis on the value offered to customers. They should also pay attention to the needs of the social units like family, friends and colleagues which have been shown to have a significant impact on the loyalty of individual consumers.

KEYWORDS

Customer Loyalty, Kenya, Customer Satisfaction, Service Quality, Telecommunication.

INTRODUCTION

Research on customer behavior has undergone tremendous developments in the last three decades. During the 1970s and 1980s, researchers gave prominence to customer satisfaction as the primary determinant of consumer behavior (Oliver 1999). However, more recently marketing scholars have expanded the horizon of behavioral research beyond satisfaction into the realms of customer commitment (Garbarino & Johnson, 1999) and customer loyalty (Oliver, 1999; Berry, 1995). This new interest is underscored by the long held view that mere acquisition of new customers and getting them satisfied cannot guarantee sustained business and that a loyal customer base is the only assurance firms have against possible losses (Berry, 1995).

A new frontier of competition whereby companies not only seek to acquire new customers, but also worry about the looming threat of losing their customers to competitors has emerged. According to Oliver (1999), calls for a paradigm shift to the pursuit of customer loyalty as a strategic business goal is becoming prominent. In support of this view, Berry (1995) argues that attraction of new customers should be viewed only as an intermediate step in the marketing process and that business managers should strive for long term relationships with customers.

Researchers have generated and tested several constructs believed to be antecedents of customer loyalty such as service quality (Zeithaml *et al.,* 1996), perceived service value (Yang and Peterson, 2004), customer satisfaction (Cronin *et al.*, 2000; Chandrashekaran, *et al.*, 2007; Lai *et al.,* 2008), customer trust and commitment (Garbarino & Johnson, 1999) and perception of corporate image (Gummesson & Gronroos, 1988; Hart and Rosenberger, 2004). These constructs influence customer purchase decisions to varying degrees depending on the industry context (Zeithaml, 2000; Jones & Sasser, 1995; Eskildsen *et al.,* 2004). For instance, De Ruyter *et al.,* (1998) studied determinants of service loyalty in five different service industries and found that the determinants vary per industry and so the findings from one industry cannot be generalized in other industries. In this regard, most studies have focused on hotel industry (Kandampully and Suhartanto, 2000; Kandampully and Suhartanto, 2003), airline industry (Ostrowski *et al.,* 1993; Zins, 2001; An and Noh, 2009; Chen, 2008), healthcare (Andreasen, 1985; Boshoff and Gray, 2004), supermarkets (Barnes and Cumby, 1995), retail outlets (Wong and Sohal, 2003), and banking industry (Bloemer *et al.,* 1998; Lewis and Soureli, 2006). Research on telecommunication industry is scanty, and more so in Kenya partly because of the relatively short history of the industry.

Over the last three decades, massive investment in telecommunication technology has led to the proliferation of advanced digital applications such as wireless internet, high speed data communication and multimedia. Further, the fast adoption of social media particularly among the younger generation has created higher demand for more versatile mobile communication platforms. As a result, highly competitive conditions have emerged with firms in the rush to not only attract new customers, but also retain existing ones.

Kenya's mobile telecommunication market exhibits one of the most competitive industry in the region. Some of the competitive strategies employed by mobile operators to secure and maintain the market share include high cross-network charges, tariff cuts, airtime top-up discounts, free call bonuses, switching fee waivers, added service menus (e.g. mobile cash transfer, free internet services etc), air time credit facility, mobile banking, network spread, customer support services, and general improvement in customer service. According to Communications Commission of Kenya (2011), the sector has recorded a phenomenal growth hitting 25.27 million subscribers by June 2011 representing 64.2% of the total population. CCK (2011) statistics further indicate that the total number of mobile subscriptions has tripled over the last five years. Although there are four mobile service providers: Safaricom, Airtel Network, Telkom Orange and Essar, Safaricom still controls the largest market share accounting for 68.6 percent of the total market (CCK, 2011). This has generated intense competition among the mobile service providers to retain their existing customers and attract new customers, and so is expected to engage in strategies that enhance customer loyalty. What makes Kenyan mobile industry unique is the absence of prevailing industry "locking in" by means of restrictive contracts that are common in other countries and the introduction of Mobile Number Portability (MNP). This allows customers to exercise their freedom in choice making regarding the mobile service providers and so the study examined various antecedents of customer loyalty such as perceived service value, corporate image, service quality, customer satisfaction and social pressure.

THEORY AND HYPOTHESES DEVELOPMENT

THE CONCEPT OF CUSTOMER LOYALTY

Customer loyalty has received considerable attention in the marketing literature. Research indicates that defining customer loyalty is extremely difficult (Yang and Peterson, 2004). Customer loyalty is a buyers' overall attachment or deep commitment to a product, service, brand or organization (Oliver, 1999). Studies have demonstrated that customer loyalty is a multi dimensional concept involving both behavioral and attitudinal elements (Oliver, 1999; Zaithaml, 2000; Rauyruen and Miller, 2007). Attitudinal perspective views customer loyalty as a specific desire to continue a relationship with a service provider (Oliver, 1999; Kim *et al.,* 2004). Behavioral view on the other hand defines customer loyalty as repeat patronage (i.e. repeat purchases) as measured based on the number of times a customer chooses the same product or service in a specific category compared to the total number of purchases made by the buyer in that category. Researchers have argued that defining loyalty based on behavior alone (i.e. repeat purchase) may not exhaustively capture the reasons behind sustained customer loyalty, implying the need to continuously examine the underlying customer attitudes.

In order to understand customer loyalty formation process, Oliver (1999) developed four stages of brand loyalty. The first stage is cognitive loyalty wherein customers become loyal to a brand based on the information supplied about that brand. The second stage is affective loyalty, which entails customers developing positive attitude toward the product or service. Third step is conative loyalty (behavioral intention) in which the customer develops deep commitment to buy the product or service. And lastly, the customer takes action and makes the purchase. The repetition of these transactions increases interactions which overtime lead to cultivation of relationships between the firm and the customers.

Customer loyalty manifests itself in a variety of behaviors, the common ones being recommending customers to the service provider and repeatedly patronizing the service provider (Dwyer *et al.,* 1987; Fornel, 1992). Several scholars have treated these two behaviors as customer loyalty indicators (Sirdeshmukh *et al.,* 2002; Lam *et al.,* 2004; Zeithaml *et al.,* 1996). In the same vein, this study conceptualizes customer loyalty using these two manifestations.

Customer loyalty is important for both the firm and the customer. As regards the firm, loyal customers are willing to make repeat purchases in the business that delivers value beyond their expectation. Loyal customers often will, over time bring substantial revenues and demand less attention from the firms they patronize (Yang and Peterson, 2004). Indeed, it is common to find loyal customers forgiving poor service, displaying less sensitivity to price, and disseminating positive word of mouth about the service to others (Yang and Peterson, 2004). On the other hand, loyalty is important to customers because loyal customers incur less time and costs in searching for information and evaluating purchase decisions, and also incur less or no switching costs. Consequently, customer loyalty is beneficial to both the customer and the service provider and so is a major source of sustained competitive edge (Keaveney, 1995).

PERCEIVED CUSTOMER VALUE AND CUSTOMER LOYALTY

Researchers have presented various and sometimes conflicting views of perceived customer value (Yang & Patterson, 2004). A distinction has been drawn by some authors between customer value from the firm's perspective on one hand and customer value from the perspective of the customer on the other (Maas and Graf, 2008). We, however, follow the concept of value from the perspective of the customer. In this regard, value involves the consideration of sacrifices by a customer versus the benefits obtained in return. Customer perceived value emanates from rewards and sacrifices associated with purchase decisions. The sacrifice is the monetary and non monetary costs such as time consumption, energy consumption, and stress experienced by the customers (Yang and Peterson, 2004), while rewards are the benefits derived from the purchase decisions such as satisfaction. And so, customer value is a trade-off between total benefits received to total sacrifices made, taking into consideration the available suppliers' offering.

Extant literature indicates that perceived customer value is critical for organizations. For instance; Holbrook (1994) argue that perceived customer value is the fundamental basis for all marketing activity because it can help the organization to penetrate existing market segments, develop new markets, create new products and services, and more importantly enhance customer patronage. Research has shown that perceived customer value enhances customer loyalty towards a particular product or service as long as such exchanges provide superior value (Sirdeshmukh *et al.,* 2002; Yang and Peterson, 2004; Aydin and Özer, 2005; Lewis and Soureli, 2006). Oliver (1999) observed that value determines customer expectations, which in turn form comparison standards for evaluating satisfaction levels. The satisfaction levels then determines the customer loyalty. Scholars have argued that customers may stay loyal to a company if they feel that they are receiving a greater value than they would from competitors (Bolton and Drew, 1991; Sirdeshmukh *et al.,* 2002). Using structural equation modeling on users of mobile commerce in Taiwan, Lin and Wang (2006) found that customer loyalty was affected by perceived customer value. In this paper we argue that one way to maintain customer loyalty is to deliver products and services that are perceived to be of superior value viz a viz competitors because we believe that perceived value has the greatest effect on customer loyalty. We therefore hypothesize that:

H1: High customer service value perception positively affects customer loyalty

COMPANY IMAGE AND CUSTOMER LOYALTY

Several studies have indicated that company image is an important determinant of customer loyalty (Gummesson & Gronroos, 1988; Andreassen and Lindestad, 1998; Lewis and Soureli, 2006). Corporate image is a perception of an organization held in customers' memory and works as a filter which influences the perception of the operations of the firm (Keller, 1993). According to Weiwei (2007) company image is the customer response to the product or service offering, beliefs, ideas and impressions that a stakeholder has about an organization. It could relate to business name, architecture, variety of products or services, tradition, ideology and to the impression of quality communicated by stakeholders interacting with the organization.

Attitude theory scholars suggest that service evaluations are the leading cause of corporate image and that these attitudes increase in predictive value as they become more accessible in memory (Fazio & Zanna, 1978). Customer attitude reinforces a corporate image in the memory which acts as a predictor of customer loyalty. Customers who develop a positive mental schema of a company or brand will tend towards high customer loyalty. This perspective notwithstanding, research on the effect of corporate image on customer loyalty has been equivocal. Most researchers generally agree that that there is a strong relationship between corporate image and customer loyalty (Andreassen & Lindestad, 1998). These researchers argue that corporate image, through a filtering effect, impacts on customer's evaluation of service quality, value, satisfaction and ultimately customer loyalty. Corporate image creates a 'feel-good' halo effect on customer satisfaction. Lewis and Soureli (2006) also found that corporate image impacts customer loyalty directly. Ostrowki *et al.,* (1993) and Zins (2001) in a survey of commercial airline service using structural equation modeling argue that positive experience over time will ultimately lead to positive corporate image and consequently customer loyalty. Kandampully and Suhartanto (2003) found a positive relationship between image and customer loyalty from data collected from chain of hotels in New Zealand. A study by Aydin and Özer (2005) in Turkish mobile telecommunication market using structural equation modeling (SEM) on a bigger sample of 1,662 users of mobile service found corporate image to be a significant predictor of customer loyalty. A study by Chen and Chang (2008) targeting international air passengers in Taiwan found that brand image is positively related to purchase intentions. However, they noted that the effect of brand image is not significant for passengers with low switching costs. In another study by Cretu and Brodie (2007) targeting small firms buying from manufacturers found that company image and reputation influence customer loyalty.

A study by Nguyen and LeBlanc (2001) using data collected in three industries, namely, consumers in the retail sector, clients of a major long distance company and students of a faculty of business administration found that the degree of customer loyalty has a tendency to be higher when perceptions of corporate image are favorable. Similarly, with data collected from 395 students of a business school, Nguyen and LeBlanc (2001) found that the degree of loyalty has a tendency to be higher when a perception of institutional image is favorable.

Other scholars (see for example, Lai *et al.,* 2001; Bloemer *et al.,* 1998) demonstrate that corporate image has no significant effect on customer loyalty. However, we believe that companies with good corporate image acts as a warranty and assurance to customers that the products or services offered are superior in the market. Similarly, good corporate image is cultivated when companies engage in excellent interactions with other stakeholders and in the process; these relationships are communicated via word of mouth to customers. As a result, customer loyalty increases.

We therefore hypothesize that:

H2: Good company image positively influence customer loyalty

SERVICE QUALITY AND CUSTOMER LOYALTY

Recent research on service quality has argued that the relationship between service quality and customer loyalty require further empirical validation and elaboration (Bloemer *et al.,* 1999) because of the inconsistencies in results. However, Zahorick and Rust (1992) believe that modeling perceived service quality as a predictor of customer loyalty will provide significant diagnostic results. Indeed previous research has confirmed this argument, for instance, De Ruyter *et al.,* (1998) studied the relationship between perceived service quality and service loyalty in five different service industries and categorized service loyalty into three dimensions: preference loyalty, price indifference loyalty, and dissatisfaction response. The study found positive and significant relationship between perceived service quality and two dimensions of service loyalty: preference loyalty and price indifference loyalty.

Wong and Sohal (2003) examine the effect of service quality and customer loyalty on two levels of retail relationships: person-to-person (salesperson level) and person–to-firm (store level) and found a positive relationship between service quality and customer loyalty. A significant relationship was found to exist between service quality and customer loyalty in the commercial airline industry (Ostrowski *et al.,* 1993; Zins, 2001). Other scholars, for example, Wong and Sohal (2001), and more recently Lewis and Soureli (2006), have included service quality in the model and strongly believe that service quality positively affect customer loyalty. We also believe that service quality is an important antecedent of customer loyalty and so we hypothesize that:

H3: Service quality affects customer's loyalty such that improved quality of services enhances customer loyalty

CUSTOMER SATISFACTION AND CUSTOMER LOYALTY

Customer satisfaction is perhaps the most researched construct in marketing literature (Johnson & Fornell, 1991; Fornell, 1992; Anderson *et al.*, 1994; McDaugall and Levesque, 2000). Customer satisfaction is a person's feelings of pleasure or disappointment that result from comparing a product's perceived performance to their expectations (Kotler & Keller, 2006). Thus, a customer is dissatisfied if the outcome of the interaction falls short of expectations, satisfied if it matches expectations and delighted if it exceeds expectations. Customer satisfaction is an overall evaluation based on the purchase and consumption experience with a product or service over time (Oliver, 1999; Anderson *et al.*, 1994).

In research on customer loyalty on services, satisfaction has been mentioned as an important determinant (Mittal & Lassar 1998; Boshoff and Gray, 2004; Lam *et al.,* 2004; Bloemer *et al.,* 1998; Lewis and Soureli, 2006; Eshghi *et al.,* 2007). However, evidence concerning the relationship between customer loyalty and customer satisfaction remain equivocal (De Rutyer *et al.,* 1998). Some studies have shown that customer satisfaction affect key indicators of customer loyalty (Mittal and Kamakura, 2001; Kandampully and Suhartanto, 2003; Lin and Wang, 2006). For instance, a satisfied customers' attitude toward a service provider could motivate the customer to make repeat purchases from the service provider and even recommend the service provider to other customers (Lam *et al.,* 2004). Research in hotel industry by Kandampully and Suhartanto (2000) found significant positive effect of customer satisfaction on customer loyalty. A study of online customers by Yang and Peterson (2004) indicated that customer loyalty can be generated through improving customer satisfaction. In a similar study by Lam *et al.,* (2004) using structural equation modeling on B2B (Business-to-Business) service context, they found a significant positive relationship between customer satisfaction and customer loyalty. Murali *et al.,* (2007) studied a large organization engaged in B2B service in both US and Canada by using probit model and found a strong positive relationship between customer satisfaction and loyalty. Research by Zins (2001) on commercial airline industry using structural equation modeling also found customer satisfaction as an important predictor of customer loyalty.

Although there is widespread consensus on the important role of customer satisfaction in establishing customer loyalty, some scholars argue that it is not automatic that customer satisfaction will lead to customer loyalty (Mittal and Lassar, 1998; Oliver, 1999; Garbarino Johnson, 1999) because it is possible to find situations where customers change patronage despite high degree of satisfaction. We argue in this study that customer satisfaction is an important determinant of customer loyalty because satisfied customers have a tendency to make repeat purchases and repeat purchases may result in development of relationship which strengthens customer loyalty.

H4: Customer satisfaction has a positive and significant effect on customer loyalty

SOCIAL PRESSURE AND CUSTOMER LOYALTY

Researchers in consumer behavior have explained the complexity of consumption patterns on the basis of sociological dynamics. Studies have shown that consumer choice making is influenced by the social or the peer pressure (Mangleburg *et al.,* 2004; Makgosa and Mohube, 2007). Social pressure refers to the influence of 'outside entities' such as family, friends, peer groups, and symbols (e.g. celebrities) in customer decisions (Lee & Murphy, 2005).

Extant literature indicate that customers tend to possess deeply rooted need to conform, copy and act like their peers and so they make purchase decisions that conforms to their expectations (Clark and Oswald, 1998). Social pressure is likely to be high in technology oriented products because customers are likely to seek advice before making purchase decisions. Such advice may guide the customer on the quality of service and consequently enhance their loyalty. Using a sample of university students in Botswana, Makgosa and Mahube (2007) found the existence of normative peer influence on the use of cell-phones. The word of mouth of peers has been demonstrated to be a strong determinant of purchase decisions (Mangleburg *et al.,* 2004) thereby acting as a booster to customer loyalty.

Other studies such as Lee & Murphy (2005) found that social pressure ranks low in determining loyalty because mobile phone services have been relegated to ordinary commodity status and no longer enjoys the high status influence. We argue that social pressure is an important antecedent of customer loyalty because as has been demonstrated from sociological literature, increased interaction with friends, family and colleagues within a mobile telecommunication network tends to create a sense of belonging and contentment creating conditions for sustained customer loyalty. We therefore hypothesize that:

H5: The higher the social pressure to use a service the higher the customer loyalty

METHODS

We tested study hypotheses using data collected from users of mobile telecommunication services in Kenya. The approach of using one industry is consistent with prior research in customer loyalty research (see for example Lam *et al.,* 2004; Shankar *et al.,* 2003; Kandampully and Suhartanto, 2000; Kandampully and Suhartanto, 2003; Bloemer *et al.,* 1998; Wong and Sohal, 2003; Ostrowski *et al.,* 1993; Boshoff and Gray, 2004). Focusing on one industry allows for customization of items in the questionnaire to suit the characteristics of the industry being studied. In the same vein, single industry studies helps to improve internal validity of the instruments and this could reduce error variance (Lam *et al.,* 2004) resulting in increased power of hypothesis testing. Structured questionnaires were utilized to collect data from a random sample of 300 respondents in which 140 usable questionnaires were used in the analysis.

VALIDITY AND RELIABILITY

To ensure content validity of the scale used, the study adapted measurement scales from prior researches (Luarn & Lin, 2003; Lai *et al.*, 2009). Test re-test was conducted to ensure the reliability of the data collection instruments. Cronbach alpha was used to test the reliability of the questionnaire. Construct validity was assessed using exploratory factor analysis on the 18 items in the questionnaire. Customer loyalty yielded a one-factor solution with an eigen value of 2.68 and item loadings of 0.83. Similarly, all the independent variables had eigen values greater than 1 and factor loadings greater than the rule of thumb of 0.7, indicating evidence of convergent validity in our measure (Nunnally, 1978).

VARIABLES MEASUREMENTS

Dependent Variable: We measured customer loyalty using two items scale (α=.79) adapted from Zeithaml *et al.,* (1996), Lam *et al.,* 2004, and more recently used by Lai *et al.*, (2009). It is anchored on a five point Likert scale (1 for very unlikely and 5 for very likely). The first item assessed the intention to repeat a purchase (patronize) or switch and the second related to the willingness to recommend the service to other customers. Overall the measure is found to be reliable with cronbach alpha of .79.

Independent Variables: Perceived customer value was measured using two items (α= .89) adapted from Lai *et al.,* (2009). The first item sought to measure how valuable the respondents perceived service value from a company and the second sought to find out from respondents whether they considered the service received as worth their expectations. The items were presented on a five-point Likert scale ranging from 1 for strongly disagree and 5 for strongly agree.

We measured company image using four indicators. Three of these items reflected the company's overall reputation, prestige and brand reputation (Selnes, 1993), while the fourth item compared the reputation of the customer's current provider viz-a-viz competition (Selnes, 1993). The indicators were presented in

the form of statements and respondents were expected to select their perceptions based on a five-point Likert scale ranging from 1 very low to 5 very high. The measure was found to be reliable (α= .97).

Service quality was measured with five items adapted from Parasuraman *et al.,* (1988). These include tangibility, responsiveness, reliability, assurance, and empathy. In tandem with previous studies, these items were expected to capture a customer's perception of service quality (Cronin & Taylor, 1994; Debholkar *et al.,* 1996). Respondents were asked to rate these elements in a five point Likert scale ranging from 'strongly agree' to 'strongly disagree' and the measure is reliable (.98).

Customer satisfaction was measured using two items adapted from Lai *et al.,* (2009). The first item asked the respondents how satisfied they were with the services received from a company and second how satisfied they were with the company offering the services. These items were measured on a five-point Likert scale with 1= "very dissatisfied' and 5= 'very satisfied' (α=.74).

We measured social pressure using three items adapted from (Makgosa & Mohube, 2007) which capture the effect of family and friends on customer's initial decision to subscribe to his current provider, whether friends' suggestions could influence their switching and whether the customer could move to another provider regardless of the position of friends and relatives. The responses were based on five point Likert scale measurements ranging from 'strongly agree' to 'strongly disagree' (α=.71).

ANALYTIC APPROACH

Most studies in customer loyalty have used structural equation modeling to test research hypotheses (see for example, Lin and Wang, 2006; Lam *et al.,* 2004; Lai *et al.,* 2009). In this study we use multiple regression analysis to test our hypotheses. Before testing the hypotheses, we examined variables for multicollinearity following the procedure set out in Hair *et al.,* (2006). Multicollinearity exists when there is a strong correlation between two or more predictors in a regression model (Field, 2005). To assess multicollinearity, Variance Inflation Factors (VIF) was used. Hair *et al.,* (2006) suggested a threshold of VIF values of 10 in which case all study variables range from 1.06-3.92 which falls within acceptable limits, and hence indicate no problem of multicollinearity. Secondly, assumptions of normality were tested using residual plots for all variables in the regression equations and found no major violations of normal distribution.

The regression specification is as follows:

$$Customer\ loyalty = \alpha + \beta_1 (Service\ value) + \beta_2 (Company\ image) + \beta_3 (Service\ quality) + \beta_4 (Customer\ satisfaction) + \beta_5 (Social\ pressure) + \varepsilon$$

RESULTS

Out of the 300 respondents presented with questionnaires, only 144 (representing 48%) returned completed questionnaires. The response rate was consistent with other studies using survey method, for example, Lai *et al.,* (2009), utilized a smaller sample size of 118 Chinese respondents and the results were robust. The results were therefore analyzed based on earlier researchers' demonstration that a lower response rate does not automatically render the results unrepresentative (Holbrook *et al.*, 2007; Buyl *et al.,* 2011).

CORRELATION ANALYSIS

Table 1 presents the means, standard deviations and bivariate correlations among the study variables. The correlations indicate that all the independent variables are positively correlated with customer loyalty. However, social pressure although significantly related to customer loyalty is not significantly correlated with other variables. These results are expected given the fact that these variables are related. Some studies have shown that some variables mediate the relationships while others moderate the relationships.

TABLE 1: CORRELATION MATRIX

Variable	Mean	Std. Dev.	Customer Loyalty	Service Value	Company Image	Service Quality	Customer Satisfaction	Social Pressure
Customer loyalty	3.14	1.09	1					
Service value	3.59	0.94	.67**	1				
Company image	2.91	1.02	.65**	.84**	1			
Service quality	3.92	0.51	.66**	.70**	.72**	1		
Customer satisfaction	3.81	0.93	.62**	.74**	.61**	.81**	1	
Social pressure	3.03	1.4	.56**	.10	.12	.12	.03	1

***significant at 0.01 level; N=144*

REGRESSION RESULTS

Table 2 presents the regression results for testing hypotheses. Hypothesis 1 proposed that high perceived customer service value perception positively affects customer loyalty. The results supports this hypothesis (β = 0.193; $p < 0.01$). This means that high perceptions of service value could predict stronger loyalty bonds between a customer and a mobile service provider. Therefore, service value is an important antecedent in the establishment of customer loyalty. Hypothesis 2 was not supported by the results, which show that company image does not significantly affect customer loyalty (β = 0.117; p =.196). This means that customers in the mobile industry are not motivated by the image of the company in order to remain loyal to the services.

The results support hypothesis 3, that there is a positive and significant relationship between service quality and customer loyalty (β = 0.173; t=2.57; p< 0.05). Our evidence is consistent with existing theory that high quality service enhances customer loyalty (cite). Hypothesis 4 predicted that customer satisfaction is positively related with customer loyalty. This hypothesis was rejected (β = 0.066; p=.263). Therefore customer satisfaction did not significantly influence customer loyalty. This finding is consistent with the findings of Jones and Sasser (1996) who found that satisfied customers are not necessarily loyal.

Hypothesis 5 suggested that the higher the social pressure among the users of mobile services, the higher the customer loyalty. As shown in Table 2, this hypothesis is supported (β = 0.159 and $p < 0.01$). Results reveal that higher social pressure among the peer would result to higher loyalty to the service rendered.

TABLE 2: REGRESSION RESULTS

Dependent variable: Customer loyalty

Predictor Variable	Parameter Estimate	t-value	*p*-value	VIF
Service Value	0.285	2.647	0.009	3.924
Company Image	0.137	1.299	0.196	3.776
Service Quality	0.254	2.571	0.011	3.294
Customer satisfaction	0.096	0.908	0.365	3.804
Social pressure	0.260	4.655	0.000	1.056
R^2			0.599	
Adjusted R^2			0.584	

TABLE 3: SUMMARY OF HYPOTHESES AND REGRESSION RESULTS

Hypotheses	Estimate	*p*-value	Decision
H1: High service value perception positively affect customer loyalty	0.193	0.009	Accept
H2: Company image positively affects customer loyalty	0.117	0.196	Reject
H3: Service quality positively affects customer loyalty	0.173	0.011	Accept
H4: Customer satisfaction has a positive effect on customer loyalty	0.066	0.365	Reject
H5: The higher the social pressure to use a service the higher the customer loyalty	0.159	0.000	Accept

DISCUSSIONS AND CONCLUSIONS

The goal of the present study was to explore the antecedents of customer loyalty using a sample of respondents in the mobile telecommunication industry. We postulated that high perceived service value, company image, service quality, customer satisfaction and social pressure enhance customer loyalty. Our results provide support to some of the hypotheses. In line with our expectation and previous research (Yang & Peterson, 2004), perceived service value increases customer loyalty. We argue that customers exercise rational decision making to determine the value for money. It follows that services that match or exceed customer value expectation would influence the customer to make repeat purchases. Such repeat purchases may in the long run facilitate the formation of relationships that may foster customer loyalty.

Results also suggest that customers in the mobile industry do not regard the image of the company as an important attribute in their quest to remain loyal. We argue that Kenya's mobile telecommunication service consumers may not base their loyalty to a service provider based on the company image. The probable reason for this is that given the dynamic nature of the industry and the intensive competition it exhibits, it is possible that customers place emphasis in other tangible benefits to the exclusion of company image.

Consistent with other studies (see Lewis and Soureli, 2006, and Wong and Sohal, 2001), service quality is positively related to customer loyalty because service quality in the mobile telecommunication industry is critical to customers. More importantly, the voice and data transfer service is expected to meet customer expectations otherwise customers may be unable to enjoy the service. Mobile service providers that do not offer clarity say in voice related services or less network coverage may jeopardize customer communications and consequently cause customer dissatisfaction. Because in the Kenyan context, voice calls still dominate the mobile service menu, we argue that the initial choice and continued patronage by customers may be strongly influenced by quality of service rendered.

Although prior studies (Mittal and Lassar, 1998; Kandampully and Suharto, 2000; Murali *et al.,* 2007) have suggested that customer satisfaction is a determinant of customer loyalty; our study shows that customer satisfaction does not enhance customer loyalty. This suggests, in line with Jones & Sasser (1995) study that satisfied customers have been found to switch to competitors. We argue that satisfaction is a fleeting evaluation which can vary on a day to day basis depending on multiple factors and type of service.

Consistent with previous studies, social pressure was the strongest predictor of customer loyalty in this research. The results support past research (see for example Makgosa & Mohube, 2007), who found that peer pressure on young adult's consumption trends was a strong predictor not only on the initial purchase, but also on a customer's continuous subscription to a service provider. Literature derived from sociology argue that peer pressure conditions a 'herd behavior' in decision making wherein the peers stand on the way of decision making and ratify choice of other peers (Clark and Oswald, 1998). Peers who are loyal to a particular service may prevail upon other undecided users within their network to remain loyal, thereby establishing wider and stronger loyalty bonds.

We argue that social and peer pressure in the mobile industry is high because the dynamism in the industry requires users to constantly seek information on the services from family, friends and colleagues. Customers are therefore more likely to be influenced in the decision making both at initial purchase and repeat patronage. In conclusion, customers in the mobile telecommunication industry will to a greater extent remain loyal to a particular service provider if they consider the services offered to them as valuable if the quality of the services is high, and when they are under social influence.

PRACTICAL IMPLICATIONS

In order to better understand customer loyalty, perceived customer value, service quality and social pressure should be taken into consideration. Lately, technological change has shifted competition in telecommunication industry from price and core services to value added services. Therefore, service providers should differentiate their services and guarantee customers value for money and high quality service. This eventually triggers a campaign by customers via word of mouth of the nature of the service, and as such peer pressure is expected to act as a lock in mechanism. A clear understanding of the postulated relationships among the studied variables might encourage the mobile service providers to figure out appropriate course of action to win customer loyalty.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Evidently, our study is not without limitations. First, our final sample of 140 mobile users is relatively small. However, it should be noted that these respondents are the users of mobile telecommunication services and were selected from a population that is fairly informed about the existing technology. Future research on larger samples, using different measures as well as within different contexts would help in moving theory forward.

Secondly, our study was performed in one particular industry, limiting the generalizability of the findings. We believe, however, that the results can be replicated to other service sectors operating in other diverse environments.

Finally, the research obtained unguided comments from some respondents regarding their intentions to switch to other networks but had been unable to because of various factors. It is possible that some subscribers were 'involuntarily loyal' to particular providers and would not hesitate to switch at the earliest opportunity. This group of clients seemed held back by some 'force'. Zeithaml (1981) indicated that switching barriers in some service industries are responsible for customer retention. Future research may explore this phenomenon in Kenya's mobile telecommunication sector.

REFERENCES

1. An, M., and Noh, Y. (2009), "Airline Customer Satisfaction and Loyalty: Impact of In-flight Service Quality", Service Business, Vol. 3, No. 3, pp. 293-307.
2. Anderson, E.W., Fornell, C. and Lehman, D.R. (1994), "Customer Satisfaction, Market Share and Profitability: Findings from Sweden". Journal of Marketing, Vol. 58, No. 2, pp. 112-122.
3. Andreassen, T. (1985), "Consumer Responses to Dissatisfaction in Loose Monopolies". Journal of Consumer Research, Vol. 12, pp. 135-141.
4. Andreassen T. W., and Lindestad, B. (1998), "Customer Loyalty and Complex Services: The Impact of Corporate Image on Quality, Customer Satisfaction and Loyalty for Customers with varying degrees of Service Expertise". The International Journal of Service Industry Management, Vol. 9, No. 1, pp. 7-23.
5. Aydin, S. and Özer, G. (2005), "The Analysis of Antecedents of Customer Loyalty in the Turkish Mobile Telecommunication Market". European Journal of Marketing, Vol. 39, No. 7/8, pp. 910-925.
6. Barnes, J. G. and Cumby, J. A. (1995) The Cost of Service: Extending the Boundaries of Accounting Systems to enhance Customer Value, Edited by Glynn, W. and Barnes, J. G, Understanding Services Management, pp. 178-202.
7. Berry L. L. (1995), "Relationship Marketing of Services". Journal of the Academy of Marketing Science, Vol. 23, No. 4, pp. 236-245.
8. Bloemer, J., De Ruyter, K., and Peeters, P. (1998), "Investigating Drivers of Bank Loyalty: The Complex Relationships between Image, Service Quality and Satisfaction". International Journal of Bank Marketing, Vol. 16, No. 7, pp. 276-286.
9. Bloemer, J., De Ruyter, K., and Wetzels, M. (1999), "Linking Perceived Service Quality and Service Loyalty: A Multi-dimensional Perspective", European Journal of Marketing, Vol. 33, No. 11/12, pp.1082 – 1106.
10. Bolton, R. N., and Drew, J. H. (1991), "A Multistage Model of Customer's Assessments of Service Qualityand Value". Journal of Consumer Research, Vol. 17, No. 4, pp. 375-384.
11. Boshoff, C., and Gray, B. (2004), "The Relationship between Service Quality, Customer Satisfaction and Buying Intentions in the Private Hospital Industry", South African Journal of Business Management, Vol. 35, No. 4, pp. 27-37.
12. Buyl, T., Boone, C., Hendricks, W., and Matthyssens, P. (2011), "Top Management Team Functional Diversity and Firm Performance: The Moderating Role of CEO Characteristics", Journal of Management Studies, Vol. 48, No. 1, pp. 151-177.
13. Chandrashekaran, M., Rotte, K., Tax, S. S., and Grewal, R. (2007), "Satisfaction Strength and Customer Loyalty". Journal of Marketing Research. Vol. XLIV, pp. 153-163.

14. Clark, A.E., and Oswald, A.J. (1998), "Comparison-concave utility and following behavior in social and Economic settings", Journal of Public Economics, Vol. 70, pp. 133-155.
15. Communication Commission of Kenya (2011), Quarterly Sector Statistics Report 4th quarter April-June 2011.
16. Cretu, A. E., and Brodie, R. J. (2007), "The Influence of Brand Image and Company Reputation where manufacturers Market to Small firms: A Customer Value Perspective", Industrial Marketing Management, Vol. 36, No. 2, pp. 230-240.
17. Cronin, J. J., and Taylor, S. A. (1994), "SERVPERF Versus SERVQUAL: Reconciling Performance-Based and Perception Minus Expectations Measurement of Service Quality", The Journal of Marketing, Vol. 58, No. 1, pp. 125-131.
18. Cronin J.J, Brady M. K & Hult G. T. M. (2000), "Assessing the Effects of Quality, Value and Customer Satisfaction on Consumer Behavioral Intentions in Service Environments" Journal of Retailing. Vol. 76, No. 2, pp. 193-218.
19. De Rutyer, K., Wetzels, M. and Bloemer, J. (1998), "On the Relationship between Perceived Service Quality, Service Loyalty and Switching Costs", International Journal of Service Industry Management, Vol. 9, No. 5, pp. 436-453.
20. Debholkar, P.A., Thorpe, D.I. and Revitz, J.O. (1996), "A Measure of Service Quality for Retail Stores: Scale Development and Validation" Journal of the Academy of Marketing Science, Vol. 24, No. 1, pp. 3-16.
21. Dwyer, R. F., Schurr, P. H. and Oh, S. (1987), "Developing Buyer-Seller Relationships", Journal of Marketing, Vol. 56, pp. 11-27.
22. Eshghi, A., Haughton, D., and Topi, H. (2007), "Determinants of Customer Loyalty in the Wireless Telecommunication Industry", Telecommunication Policy, Vol. 31, No. 2, pp. 93-106
23. Eskildsen, J. Kristensen, K., Juhl, J. H., and & Østergaard, P. (2004), "The Drivers of Customer Satisfaction and Loyalty. The Case of Denmark 2000–2002" Total Quality Management & Business Excellence, Vol. 15, No. 5-6, pp. 859-868.
24. Fazio, R. H., and Zanna, M. P. (1978), "Attitudinal Qualities relating to the Strength of the Attitude-Behavior Relationship", Journal of Experimental Social Psychology, Vol. 14, No. 4, 398-408.
25. Field, A. (2005), "Discovering statistics using SPSS", 2nd Ed, Sage, London.
26. Fornell, C. (1992), "A National Customer Satisfaction Barometer: The Swedish Experience". Journal of Marketing, Vol. 56, pp. 6-21.
27. Garbarino, E. & Johnson, M. S. (1999), "The different Roles of Satisfaction, Trust and Commitment in Customer Relationships" Journal of Marketing, Vol. 63, No. 2, pp. 70-87.
28. Gummesson, E. and Gronroos. C. (1988), Quality of Services, Lessons from the Product Sector. Edited by Suprenant C., Add Value to your Service. American Marketing Association, Chicago IL.
29. Hair J. F, Black W., Babin, B. J., Anderson, R. E., and Tatham, R. L. (2006), Multivariate Data Analysis, 6th Ed. Upper Saddle River, New Jersey, Prentice Hall.
30. Hart, A. L., and Rosenberger, P. J. (2004), "The Effect of Corporate Image in the Formation of Customer Loyalty: An Australian Replication". Australasian Marketing Journal. Vol. 12, No. 3, pp. 88-96.
31. Holbrook, M. B. (1994), The Nature of Customers' value: An Axiology of Services in Consumption Experience. In R. T. Rust, & R. L. Oliver (Eds.), Service Quality: New Directions in Theory and Practice (pp. 21-71). Thousand Oaks, CA: sage Publications.
32. Holbrook, A., Krosnick, J., and Pfent, A. (2007). "The Causes and Consequences of Response Rates in Surveys by the News Media and Government Contractor Survey Research Firms." In Advances in Telephone Survey Methodology, Chapter 23.
33. Johnson, M. and Fornell, C. (1991), "A Framework for comparing Customer Satisfaction across individuals and Product Categories", Journal of Economic Psychology, Vol. 12, No. 2, pp. 267-286.
34. Jones T. O., & Sasser W. E. (1995), "Why Satisfied Customers Defect". Harvard Business Review, Vol. 73, No. 6, pp. 88-99.
35. Kandampully, J. (1998), "Service Quality to Service Loyalty: A Relationship which goes beyond Customer Services", Total Quality Management Journal, Vol. 9, No. 6, pp. 431-443.
36. Kandampully, J., and Suhartanto, D., (2000), "Customer loyalty in the hotel industry: the role of customer satisfaction and image", International Journal of Contemporary Hospitality Management, Vol. 12, No. 6, pp. 346 - 351
37. Kandampully J. and Suhartanto, D. (2003), "The Role of Customer Satisfaction and Image in gaining Loyalty in the Hotel Industry", Journal of Hospitality & Leisure Marketing, Vol. 10, No. 1-2, pp. 3-25.
38. Keaveney, S. M. (1995), "Customer Switching Behavior in Service Industries: An Exploratory Study," Journal of Marketing, Vol. 59, pp. 71-82
39. Keller K. (1993), "Conceptualizing, Measuring and Managing Customer based Equity", Journal of Marketing, Vol. 57, No. 1, pp. 1-22.
40. Kim M. K., Park M. C. and Jeong D. H. (2004), "The effects of customer satisfaction and switching barrier on customer loyalty in Korean mobile Telecommunication services", Telecommunications Policy, Vol. 28, pp. 145-159.
41. Kotler, P. and Keller, K.L. (2006), "Marketing Management" (12th Ed). Upper Saddle River N.J: Prentice Hall.
42. Lai, F., Griffin., M. and Babin, B. J. (2009), "How Quality, Value, Image and Satisfaction create Loyalty at a Chinese Telecom", Journal of Business Research, Vol. 62, pp. 980-986.
43. Lam, S. Y., Shankar, V., Erramilli, M. K., and Murthy, B. (2004), "Customer Value, Satisfaction, Loyalty, and Switching Costs: An Illustration From Business-to-Business Service Context", Journal of the Academy of Marketing Science, Vol. 32, No. 2, pp. 293-311.
44. Lee, R., and Murphy, J. (2005), "From Loyalty to Switching: Exploring the determinants in the transition", Journal of Marketing, Vol. 13, No. 2, pp. 71-82.
45. Lewis, B. R., and Soureli, M. (2006), "The Antecedents of Consumer Loyalty in Retail Banking", Journal of Consumer Behavior, Vol. 5, No. 1, 15-31.
46. Lin, H. H., and Wang, Y. S. (2006), "An Examination of the Determinants of Customer Loyalty in Mobile Commerce Contexts", Information and Management, Vol. 43, No. 3, pp. 271-282.
47. Luarn, P., and Lin H. H. (2003), "A Customer Loyalty Model for E-service context", Journal of Electronic Commerce Research, Vol. 4. No. 4, pp. 156.
48. Maas, P., and Graf, A. (2008), "Customer Value Analysis in Financial Services", Journal of Financial Services Marketing, Vol. 13, pp. 107-120.
49. Makgosa, R., and Mohube, K. (2007), "Peer Influence on young adults: Product Purchase Decisions", African Journal of Business Management, pp. 64-71
50. Mangleburg, T. F., Doney, P. M., and Bristol, T. (2004), "Shopping with Friends and Teens' Susceptibility to Peer Influence", Journal of Retailing, Vol. 80, No. 2, pp. 101-116.
51. McDougall, G. H. G., and Levesque, T. (2000), "Customer satisfaction with services: putting perceived value into the equation", Journal of Services Marketing, Vol. 14, No. 5, 392 – 410.
52. Mittal, V., and Kamakura, W. (2001), "Satisfaction, Repurchase Intent and Repurchase Behavior: Investigating the Moderating Effects of Customer Characteristics", Journal of Marketing Research. Vol. No. 38, pp. 131-142.
53. Mittal, B., and Lassar, W. (1998), "Why Do Customers Switch? The Dynamics of Satisfaction versus Loyalty", Journal of Services Marketing, Vol. 12, No. 3, pp. 177-194.
54. Murali, C., Rotte, K., Tax, S. S., and Grewal, R. (2007), "Satisfaction Strength and Customer Loyalty", Journal of Marketing Research, Vol. XLIV, pp. 153-163.
55. Nguyen, N., and LeBlanc, G. (2001), "Corporate Image and Corporate Reputation in Customers' Retention Decisions in the Services", Journal of Retailing and Consumer Services, Vol. 8, No. 4, pp. 227-236.
56. Nunnally, J. (1978), "Psychometric Theory", McGraw Hill, New York. NY.
57. Oliver, R. L. (1999), "Whence Consumer Loyalty?", Journal of Marketing, Vol. 63, pp. 33-44.
58. Otrowski, P. L., O'Brien T.V., Gordon G.L. (1993), "Service Quality and Customer Loyalty in the Commercial Airline Industry", Journal of Travel Research, Vol. 32, No. 2, pp. 16-24.
59. Parasuraman, A. and Grewal, D. (2000), "The impact of Technology on the Quality-Value-Loyalty chain: A Research Agenda", Journal of the Academy of Marketing Science, Vol. 28, No. 1, pp. 168-174.

60. Parasuraman, A., Zeithaml, V. and Berry, L. (1988), "SERVQUAL: A Multi-item scale for measuring Customer Perceptions of Service Quality", Journal of Retailing, Vol. 64, pp. 12-40.
61. Rauyruen, P., and Miller, K. E. (2007), "Relationship Quality as a Predictor of B2B Customer Loyalty", Journal of Business Research, Vol. 60, No. 1, pp. 21-31.
62. Selnes F. (1993), "An Examination of the Effect of Product Performance on Brand Reputation, Satisfaction and Loyalty", European Journal of Marketing, Vol. 27, No. 9, pp. 19-35.
63. Shankar, V., Smith, A. K., and Rangaswamy, A. (2003), "Customer Satisfaction and Loyalty in Online and Offline Environments", International Journal of Research in Marketing, Vol. 66, No. 1, pp. 15-37.
64. Sirdeshmukh, D., Singh, J., and Sabol, B. (2002), "Consumer Trust, Value, and Loyalty in Relational Exchanges" Journal of Marketing, Vol. 66, pp. 15-37.
65. Weiwei, T. (2007), "Impact of Corporate Image and Corporate Reputation on Customer Loyalty: A Review", Journal of Management Science and Engineering, Vol, 1. No. 2, pp. 57-62.
66. Wong, A. and Sohal, A. (2003), "Service Quality and Customer Loyalty Perspectives of Two Levels of Retail Relationships", Journal of Services Marketing, Vol. 17, No. 15, pp. 495-513.
67. Yang, Z. & Peterson, R. T. (2004), "Customer Perceived Value, Satisfaction and Loyalty. The Role of Switching Costs", Journal of Psychology and Marketing, Vol. 21, No. 10, pp. 799-822.
68. Zahorik, A. J. and Rust, R. T. (1992), "Modeling the of Service Quality on Profitability: A Review", Advances in Services Marketing, Vol. 1, pp. 247-276.
69. Zeithaml, V. A., Berry, L. L., and Parasuraman, A., (1996), "The Behavioral consequences of Service Quality", Journal of Marketing, Vol. 60, pp. 31-36.
70. Zeithaml V. A. (2000), "Service Quality, Profitability and the Economic worth of Customers: What we know and what we need to Learn", Journal of the Academy of Marketing Science, Vol. 28, No. 1, pp. 67-85.
71. Zins, A. H. (2001), "Relative attitudes and commitment in customer loyalty models: Some experiences in the commercial airline industry", International Journal of Service Industry Management, Vol. 12, No. 3, pp. 269 – 294

APPENDIX

APPENDIX 1: FACTOR ANALYSIS

Variable	Scale items	Factor loading	Eigen values	% variance
Service Value	Overall, the service I receive from my current mobile service provider is valuable.	0.83	3.28	18.79
	The service quality I receive from my current provider is worth my time, energy and efforts.	0.78		
Corporate Image	This is how I rate the reputation of my current mobile service provider	0.84	2.72	15.73
	This is how I rate the prestige of my current mobile service provider	0.66		
	This is what I think about the reputation of my current mobile service provider's products & services	0.58		
	Compared with the competitors, this is what I think about the reputation of my current mobile service provider.	0.77		
Service quality	My current service provider has attractive offices and pleasant likeable staff.	0.84	2.80	14.22
	My current service provider is reliable in providing services as promised.	0.80		
	My current service provider always shows willingness to help customers and provide prompt service	0.93		
	My current mobile provider's staff inspires trust and confidence in me when I visit their offices	0.86		
	My current mobile provider's staff provides me with caring and individualized attention whenever I visit their offices.	0.75		
Satisfaction	This is how I rate my satisfaction with the services I receive from my current mobile service provider.	0.75	2.59	13.08
	Overall, this is how I rate my satisfaction with the company offering the services	0.84		
Social Pressure	My friends' suggestion & recommendation will influence my decision to switch to a new mobile provider.	0.94	2.42	12.68
	I will NEVER switch to a new mobile service provider as long as most of my colleagues are with my current provider	0.82		
	My family determined the mobile service provider I am currently subscribed.	0.80		

DEPENDENT VARIABLE

Variable	Scale items	Factor loading	Eigen values	% variance
Customer Loyalty	It is probable that I will switch to another mobile service provider in the near future	0.82	2.68	67.47
	It is likely that I will recommend my current service provider to my friends and relatives?	0.88		

SIX SIGMA FOR IMPROVING PRODUCTIVITY AND ATTAINING SUSTAINABLE PERFORMANCE BREAKTHROUGH: THE BANGLADESH PERSPECTIVE

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ABSTRACT

The twenty first century is marked substantially by technological revolution. In this era, no country can go ahead without technological innovation. Additionally, technological innovation is becoming absolute very rapidly. So, the guiding philosophy of world has become, "what is enough for today may not be enough for tomorrow". As a result, organizations should be technologically updated which will give competitive advantage in a highly volatile, turbulent, fast changing world environment. The study shows how different firms have gained remarkable success pertaining to using new technology like Six Sigma. By incorporation of Six Sigma in the production process, myriad firms achieved significant improvement in terms of quality, productivity and profitability. Bangladesh, as an underdeveloped country, has not been an advantageous position concerning productivity growth. This paper will show how quality and productivity are interrelated and how Six Sigma can contribute to the productivity growth. In addition, this article will show how different companies in Bangladesh can compete nationally and internationally by improving quality of the goods and services using Six Sigma. This paper will expose how a firm can attain sustainable performance breakthrough by incorporating Six Sigma. The bottom line of this article is that if firms can incorporate Six Sigma and manage it properly, it will assist to improve productivity and attain sustainable performance breakthrough in the twenty first century.

KEYWORDS

productivity, quality, Six Sigma, sustainable performance breakthrough (SPB).

INTRODUCTION

Today, businesses accept the fact that, to prosper, they must view customers, suppliers, facility locations, and competitors in global terms. Most products today are global composites of materials and services from throughout the world. Due to globalization strong global competition affects industries everywhere. The world businesses have witnessed several trends. One trend has been an increasing emphasis on competing on the basis of quality, time, and technological advantage (Ritzman et al., 2002, p. 18). Part of the success of foreign competitors has been their ability to provide products and services of high quality at reasonable prices. Without quality products and services, a firm loses its ability to compete in the market place, and its cost structure can also become uncompetitive (because of scrap, rework, and warranty costs).

Another important trend is that more firms are competing on the basis of time: filling order earlier than the competitors, introducing new products and services quickly, and reaching the market first while enjoying first mover advantage. Another trend is technological change. It affects the design of new products and services and a firm's process themselves. Introducing any new technology involves risk, and employee attitudes toward it depend on how the change is managed. The right choices and effective management of technology can give a firm a competitive advantage.

In order to combat the challenges unleashed by globalization, firms need to come out from the traditional technique, tools, and methods of improving quality. Six Sigma is a new technology that can improve the quality of products and services by reducing the defects to an unprecedented level.[1] Most of the industrialist countries have been successful in applying Six Sigma in the business processes and enjoying high profitability over other countries by distributing high quality products to the customers. Additionally, there is a close interrelation between quality and productivity. Park (2003) has shown how productivity and quality is related. Juran et al. (1995) has also supported this view. If company can increase quality of its products services, this will increase productivity as well. On the other hand, by sing Six Sigma firms can reduce the cycle time of the products and services which in turn help to deliver products firstly in the market.

Technology can be a competitive weapon for the industries in Bangladesh. Without technology, a country can not compete in the world market. Some experts argued in favor of policy reform. Their argument is that liberal trade policy will enhance Total Productivity Growth (TFP) through improved allocation of resources and better productive capacity realization. (Handoussa *et al*., 1986; Tybout *et al*., 1991; Alam & Morrison, 2000). It is found that after than a decade of economic policy reform, Bangladesh has not produced the expected improvement in growth rates. Thus, the linkage between policy reforms and productivity gains is still not properly understood. Rodrik (1992, p. 170) notes that "There is as yet no convincing empirical evidence for developing countries that shows liberalization to be conducive to industry rationalization".

Similarly, Pack (1988, p. 353) observes that "… to date there is no clear confirmation of the hypothesis that countries with an external orientation benefit from greater growth in technical efficiency in the component sectors of manufacturing"

More importantly, in a study on food manufacturing firms of Bangladesh, it is found that technological progress is the major force in TFP growth in industries (Ruhul, 2003, p. 95). Six Sigma can be a new technological weapon for Bangladeshi firms to compete in the era of globalization that increase productivity and helps to attain sustainable performance breakthrough.

The basic objective of this article is to get a general idea regarding the concepts of Sig Sigma, its methodologies, benefits, its superiority over other quality improvement program, its criticism against Six Sigma. Moreover, this article will explore different quality management tools that can be used in order to improve quality which in turn will lead to productivity improvement in Bangladesh. Additionally, this paper will unveil the answers some of the questions like how Sig Sigma is contributing towards the productivity improvement throughout the world's different firms, how Sig Sigma can create sustainable performance breakthrough, how Sig Sigma team can be managed in order to get competitive advantage. This paper will expose some guidelines for Bangladeshi firms concerning how to implement Six Sigma to improve quality, productivity, profitability and above all, how to generate sustainable performance breakthrough.

The data have been collected only from secondary sources like journals, articles, books, research papers, project papers, conference papers, websites etc.

SIX SIGMA

SIX SIGMA: MEANING, GENESIS & METHODOLOGIES

MEANING

Before going to define what Six Sigma connotes lets have a brief idea about sigma. Sigma is the eighteenth letter of Greek alphabet. The name of sigma, according to one theory (Jeffery et al., 1961), may continue that of Phoenician Samekh. According to another theory (Woodard et al., 2006), its original name may have been "*San*" (the name today associated with another, obsolete letter), while Sigma was a Greek innovation that simply meant hissing. In terms of lower case it is symbolized as σ and in upper case it is symbolized as ∑carrying 'S' sound(Oxford dictionary of Biochemeistry,1997). The former frequently denotes a standard deviation; the latter is used in mathematics for the sum of the values of the term nominated (Saunders Veterinary Dictionary, 2007).

However, different definitions and descriptions of Six Sigma have been presented over the years. Let us therefore briefly look at some definitions found in recent literature of Six Sigma. Tomkins (1997) defines Six Sigma to be "a program aimed at the near-elimination of defects from every product, process and transaction." Harry (1998) defines Six Sigma to be "a strategic initiative to boost profitability, increase market share and improve customer satisfaction through statistical tools that can lead to breakthrough quantum gains in quality." Breyfogle et al., (2001) defines Six Sigma to be "an initiative that is designed to change the culture in an organization by way of breakthrough improvement in all aspects of the business." Pearson (2001) defines "Six Sigma is a programme that combines the most effective statistical and non-statistical methods to make overall business." Snee (2004) defines, "Six Sigma is a business improvement approach that seeks to find and eliminate causes of mistakes or defects in business processes by focusing on process outputs that are of critical importance to customers."[2] From the above definitions we can say that Six Sigma is a philosophy, vision, initiative, goal, method, tool, a means to stretch thinking with respect to quality (Six Sigma Academy, 2006). The basic premise of Six Sigma is that variations can be identified, quantified, eliminated or controlled. It is focused on strategic or core processes, right things and data driven. This methodology provides the techniques and tools to improve the capability and reduce the defects in any process. It is a highly disciplined approach used to reduce the process variations to the extent that the level of defects are drastically reduced to less than 3.4 per million process, product or service opportunities (DPMO)[3] (Hemant, 2000; Tennant et al., 2001;Motorola university Six Sigma dictionary,2006).

In a nutshell, Six Sigma is a company-wide management strategy for the improvement of process performance with the objective of improving quality and productivity to satisfy customer demands and reduce costs. Six Sigma is not like other quality improvement programs e.g., TQM which will be discussed in another section.[4] It is regarded as a new paradigm of management innovation for company survival in the 21st century.

GENESIS OF SIX SIGMA

Six Sigma originated with a view to improving manufacturing process and eliminating defects. Six Sigma started as a defect reduction effort in manufacturing and was then applied to other business processes for the same purpose (Motorola University, 2009). Six Sigma has its roots in the early industrial era of Europe during the 18th century and was introduced with just one conceptual normal curve metric by Carl Frederick Gauss. In the 1920s Walter Shewhart showed how 3 sigma deviations from the mean required process correction. Later, the core of Six Sigma was taken birth at Motorola in the 1970s out of a criticism of an executive (Art Sundry) regarding Motorola's bad quality (Schroeder et al., 2006). Motorola discovered a connection between increases in quality and decreases in costs of production as a result of this criticism. At that time, the prevailing view was that quality costs extra money. In fact, it reduced total costs by driving down the costs for repair or control (Harry, 2000).Several research papers indicate regarding the inception of Six Sigma in Motorola. George Eckes (2003) has written in *Six Sigma for everyone*-"Motorola is where Six Sigma began. A highly skilled, confident, and trained engineer who knew statistics, Mikel Harry who is regarded as godfather of Six Sigma, began to study the variations in the various processes within Motorola." Pande, Neuman, and Cavanaugh have identified Motorola as the inventor of Six Sigma.

In the book *The Six Sigma Way: How GE, Motorola, and Other Top Companies are Honing their Performance (2000),* they quoted "Like many companies at the time, Motorola didn't have one "quality" program, it had several. But in 1987, a new approach came out of Motorola's Communications Sector – at the time headed by George Fisher, later top exec at Kodak. This innovative improvement concept was called "Six Sigma". So we can deduce that Six Sigma was developed in Motorola first by different individuals like Mikel Harry, George fisher etc. Another contributor was Bill Smith. Gygi, Craig, Neil DeCarlo, and Bruce Williams (2005) quoted in the book *Six Sigma for Dummies* –"Six Sigma per se didn't exist twenty years ago. Miraculously, a single individual working for a large corporation in a cubicle at a nondescript office building saw something…the late Bill Smith, a reliability engineer at Motorola in Arizona".

For his contribution, Bill Smith is called father of Six Sigma (Harry, 1984). However, we cannot ignore the contributions made by Unisys Crop in 1988. Asea Brown Boveri developed Six Sigma into its current form, which places importance on bottom lines and customer satisfaction in 1993. When Six Sigma developed in Motorola, the prevailing view was that quality costs extra money. In fact, it reduced total costs by driving down the costs for repair or control (Schroeder et al., 2000). Six Sigma was heavily encouraged by the quality improvement methodologies of the six preceding decades, such as quality control, Total Quality Management (TQM), and Zero Defects, based on the work of pioneers such as Shewhart, Deming, Juran, Ishikawa, Taguchi and others (Stamatis, 2004; Montgomery et al., 2009).

Now a day, Six Sigma core concepts concentrate around *defects* and *process variations*. Defects are offsets from the standard. Nothing is subjective, as all parameters are quantifiable. Basic measurable dimensions include time/delivery, cost/price, quality etc. In industry jargon these are called Critical to Delivery (CTD), Critical to Price (CTP) and Critical to Quality (CTQ), respectively. Each of these has a different significance to different industries, which needs to be identified before embarking on Six Sigma implementation. Process Variability is the second Six Sigma core concept. The more variability in a process, the larger the probability for a defect somewhere.[6] At the heart of this concept is elimination of variation of process for defect removal. So we can say that the concept of Six Sigma is to improve the existing methodology or create a new, defect- free methodology for production. This is achieved through two methodologies i.e., DMAIC and DMADV (De Feo et al., 2005).

SIX SIGMA METHODOLOGIES

The traditional PDCA (Plan, Do, Check, and Act) cycle was developed to identify sources of variations that cause products to deviate from customer requirements from any business process (Deming, 1950).[7] However, it has given the direction towards the evolution of two Six Sigma methodologies named DMAIC and DMADV where former is used for projects aimed at improving an existing business process and the latter is used for projects aimed at creating a new product or a new process design (Joseph, 2005). The following paragraph will explore pros and cons of DMAIC and DMADV methodologies.[8]

DMAIC

The Six Sigma DMAIC process methodology is a system that brings measurable and significant improvement to existing processes that are falling below specifications. The DMAIC methodology can be used when a product or process is in existence at company but is not meeting customer specification or is otherwise not performing adequately. DMAIC is an acronym for five interconnected, interrelated and interdependent phases where D stands for Define; M stands for Measure; 'A' stands for 'Analyze'; 'I' stands for 'Improve' and 'C' stands for 'Control'.

DMADV

Another important methodology is DMADV. DMADV is used for projects aimed at creating new product or process designs (Joseph, 2005). DMADV stands for Define, Measure, Analyze, Design and Verify. The DMADV project methodology is also known as DFSS (Design For Six Sigma). In DMADV methodology, the first step is to define design goals that are consistent with customer demands and the enterprise strategy. Second step is to measure and identify CTQs (characteristics that are **C**ritical **T**o **Q**uality), product capabilities, production process capability, and risks. The third step is to develop and design alternatives, create a high-level design and evaluate design capability to select the best design.

The next step is to design details, optimize the design, and plan for design verification. This phase may require simulations. And the last step but not the least one is to verify the design, set up pilot runs, implement the production process and hand it over to the process owner(s).On the other hand, according to Six Sigma Academy, DFSS (IDOV) process consists of eight phases which align to the four main steps. The first step is to ***identify***. Here Six Sigma team identifies customer needs and strategic intent. In second step ***design***, the team delivers the detailed design by evaluating various alternatives. The next step is to ***optimize***. Here basic function is to optimize the design from a productivity (business requirements) and quality point of view (customer requirements), and realize it. The next step is to ***validate***. It involves piloting the design, updating as needed and preparing to launch the new design. Basically, DFSS design teams apply advanced

design methods and tools throughout the phases of a rigorous product, service, or process design roadmap to ensure proper design discipline and superior results (Six Sigma Academy, 2001-2005).

BENEFITS OF SIX SIGMA

A company can use Six Sigma as a quality management tool to improve proficiency in its strategy implementation (Mannan, 2010, p. 210). Six Sigma aims at producing not more than 3.4 defects per million of parts produced in a manufacturing process. The benefits of Six Sigma can be summarized as follow:

- Six Sigma statistically ensures that 99.9997% of all products produced in a process are of acceptable quality.
- If a given process fails to meet the criterion (3.4 defects per million opportunities), it is reanalyzed, altered and tested to find out if there are any improvements by applying Six Sigma methodologies. If no improvement is found, the process is reanalyzed, altered, and tested again. This cycle is repeated until an improvement becomes visible. Once an improvement is found, it is documented and the knowledge is spread across other units of the company so they can implement his new process and reduce their defects per million opportunities (Hitts et al., 2004).
- Six Sigma improves profitability through improving quality and efficiency. Evidence shows that many companies that implemented Six Sigma have seen profit margins grow 20% year after for each sigma shift (up to 4.8 to 5 sigma).
- Six Sigma is a fresh quality management strategy which can replace TQC, TQM and others. That is why, many companies which were not successful in implementing previous quality strategies as TQC, TQM, are eager to introduce Six Sigma.
- Six Sigma provides efficient manpower cultivation and utilization. It employs a belt system in which levels of mastery are classified as green belt, black belt, master black belt and champion. They work together in order to attain significant result.
- Last but not the least, Six Sigma provides flexibility in the millennium of 3Cs which are change, customer and competition (changing society, power is shifted to customer and customer demand is high, competition in quality and productivity) (Park, 2003, p. 04).

Everything is changing very swiftly in this world. In order to survive, organizations should adapt with the changes very quickly. Most notably, power has shifted from producer to customer. The producer-oriented industrial society is over, and the customer-oriented information society has arrived. Competition in quality and productivity has been ever-increasing. Second-rate quality goods cannot survive anymore in the market. So the importance of Six Sigma can be summarized as follows, "Six Sigma with its 4S (systematic, scientific, statistical and smarter) approaches provides flexibility in managing a business unit" (Park, 2003, p. 04).

SIX SIGMA VS. OTHER QUALITY IMPROVEMENT PROGRAMS INCLUDING TQM

SL	Six Sigma	Other quality improvement programs including TQM
1	Six Sigma focuses on making improvements in all operations within a process.	TQM programs focus on improvement in individual operations with unrelated processes
2	Six Sigma has a well-defined project charter that outlines the scope of a project, financial targets, anticipated benefits, milestones, etc. It's based on hard financial data and savings	In TQM, organizations go into a project without fully knowing what the financial gains might be
3	Six Sigma focuses on improving quality by reducing the number of defects.	TQM views quality as conformance to internal requirements.
4	Six Sigma is like running,(Gupta, 2006).	TQM is like walking(Gupta, 2006).
5	Six Sigma represents rapid, radical and dramatic change through innovation	. TQM is for incremental and continual change

To sum up, we can say in tune with the words of Ronald Snee (1999) that Six Sigma is gaining popularity & superiority over other quality improvement programs e.g., QC, SQC, TQC, TQM because of the following eight factors:

- Bottom-line results expected and delivered
- Senior management leadership
- A disciplined approach (DMAIC)
- Rapid (3–6 months) project completion
- Clearly defined measures of success
- Infrastructure roles for Six Sigma practitioners and
- leadership
- Focus on customers and processes
- A sound statistical approach to improvement

Other quality initiatives including TQM have laid claim to a subset of these characteristics, but only Six Sigma attributes its success to the simultaneous application of all eight.

QUALITY MANAGEMENT TOOLS AND METHODS USED IN SIX SIGMA

Different quality management tools are used in QC for continuous improvement. Susan Park has identified 7 QC tools. Since they are so widely utilized by almost every level of the company, they have been nicknamed the Magnificent Seven (Park, 2003, p. 74). They are applicable to improvements in all dimensions of the process performance triangle: variation of quality, cycle time and yield of productivity. Within the individual phases of a DMAIC or DMADV project, myriad tools along with the seven are extensively used in all phases of the improvement methodology.

Cause-and-effect diagram

Six Sigma teams typically use the C&E matrix in the Measure phase of the DMAIC methodology. When constructing a cause-and-effect diagram, it is often appropriate to consider six main causes that can contribute to an outcome response (effect): so-called 5M1E (man, machine, material, method, measurement, and environment).

Check Sheet

The check sheet is used for the specific data collection of any desired characteristics of a process or product that is to be improved.

Control Charts

Six Sigma teams use control charts to assess process stability. Control charts are simple but highly effective tool for monitoring and monitoring and improving process performance over time.[9]

Histogram

A histogram is used to graphically summarize the distribution of a data set. A histogram is constructed by dividing the range of data into equally sized segments. This data tool enables anyone to quickly and easily answer several important questions like what In the "analyze" phase, control charts are applied to judge if the process is predictable; in the "improve" phase, to identify evidence of special causes of variation so that they can be acted on; in the "control" phase, to verify that the performance of the process is under control.

Pareto Charts

A Pareto chart is used to graphically summarize the relative importance of the differences between groups of data.[10] A Pareto chart is constructed by dividing the range of data into groups.

Scatter Diagram

In the improve phase of the Six Sigma improvement methodology, one often searches the collected data for Xs that have a special influence on Y. Knowing the existence of such relationships, it is possible to identify input variables that cause special variation of the result variable. It can then be determined how to set the input variables, if they are controllable, so that the process is improved.

Stratification

Stratification is mainly used in the analyze phase to stratify data in the search for special cause variation in the Six Sigma improvement methodology.

Quality Function Deployment (QFD)

With QFD, Six Sigma teams can more effectively focus on the activities that mean the most to the customer, beat the competition, and align with the mission of the organization.

Failure Mode and Effect Analysis (FMEA)

Using FMEA allows organization to analyze any system or subsystem in manufacturing or service industries in the early stages of the process. FMEA improves the quality of products and services and processes by preventing problems from occurring. An effective FMEA identifies corrective actions required to prevent failures from reaching the customer and will improve performance, quality and reliability.

Design of Experiment (DOE)

DOE helps Six Sigma Black Belts make the most of valuable resources.[11] DOE is a statistical technique that encompasses the planning, design, data collection, and analysis and interpretation strategy used by Six Sigma professionals. Six Sigma teams use DOE to determine the relationship between factors (Xs) affecting a process and the output of that process(Y).

T-Test

Six Sigma teams might use it to determine if a plan for a comparative analysis of patient blood pressures, before and after they receive a drug, is likely to provide reliable results.

USE OF SIX SIGMA

Business in various industry segments such as services industry (example: Call Centers, Insurance, Financial/Investment services), e-commerce industry (example: B2B/B2C websites), and education can definitely use Six Sigma principles to achieve higher quality which in turn will increase productivity. Many big businesses such as General Electric, Sony, Ford Motors, Nokia, Texas Instruments, Hitachi, Toshiba, Canon, DuPont, American Express, Celanese, Caterpillar, GE, Honeywell, 3M, Polaroid and Motorola have successfully implemented Six Sigma. It is not surprising that some people may perceive Six Sigma as being only for large corporations. It is incorrect to think that Six Sigma process improvement results can only be achieved by large organizations. Small businesses can also succeed in implementing Six Sigma and reap the process improvement benefits that Six Sigma provides.

Certainly, there are factors that can be disadvantageous for implementing Six Sigma in a small business rather than a large business, such as lack of resources and expertise in change initiatives. However, there are also characteristics inherent in small businesses that can speed up the effective implementation of Six Sigma more than in large businesses, such as flexible process flows, a shorter decision-making chain, and higher visibility of senior management. Six Sigma can work in any size business because the nature of Six Sigma is dependent upon characteristics inherent to any business, not on the size of a business.

CRITICISM OF SIX SIGMA

Sig Sigma is a new concept to the industrialists. Hence lots of debates are going in order to explore the strengths and weaknesses of this new technology. Six Sigma has been described as “old wine in a new bottle” since most of the tools ‘packaged’ in it have been around for several decades (Thawani, 2004). Quality guru Juran also expressed similar view points in an interview. According to his words (Juran, August 2002), “from what I have seen of it, it’s a basic version of quality improvement.

There is nothing new there.” Some researchers have concluded that Six Sigma is a tool within TQM framework (Klefsjö et al. 2001; Micklewright, 2004. However, advocates of Six Sigma have argued that many of these claims are in error or ill-informed (Richardson et al., 2007; Ficalora et al., 2007). As a new technology, Six Sigma can bring sustainable performance breakthrough in organization and improve quality, productivity and above all profitability of the organization. There is accumulating evidence in favor of this argument.

SIX SIGMA TEAM

FORMATION AND STRUCTURE OF SIX SIGMA TEAM AND MANAGING SIX SIGMA

FORMATION AND STRUCTUERE OF SIX SIGMA TEAM

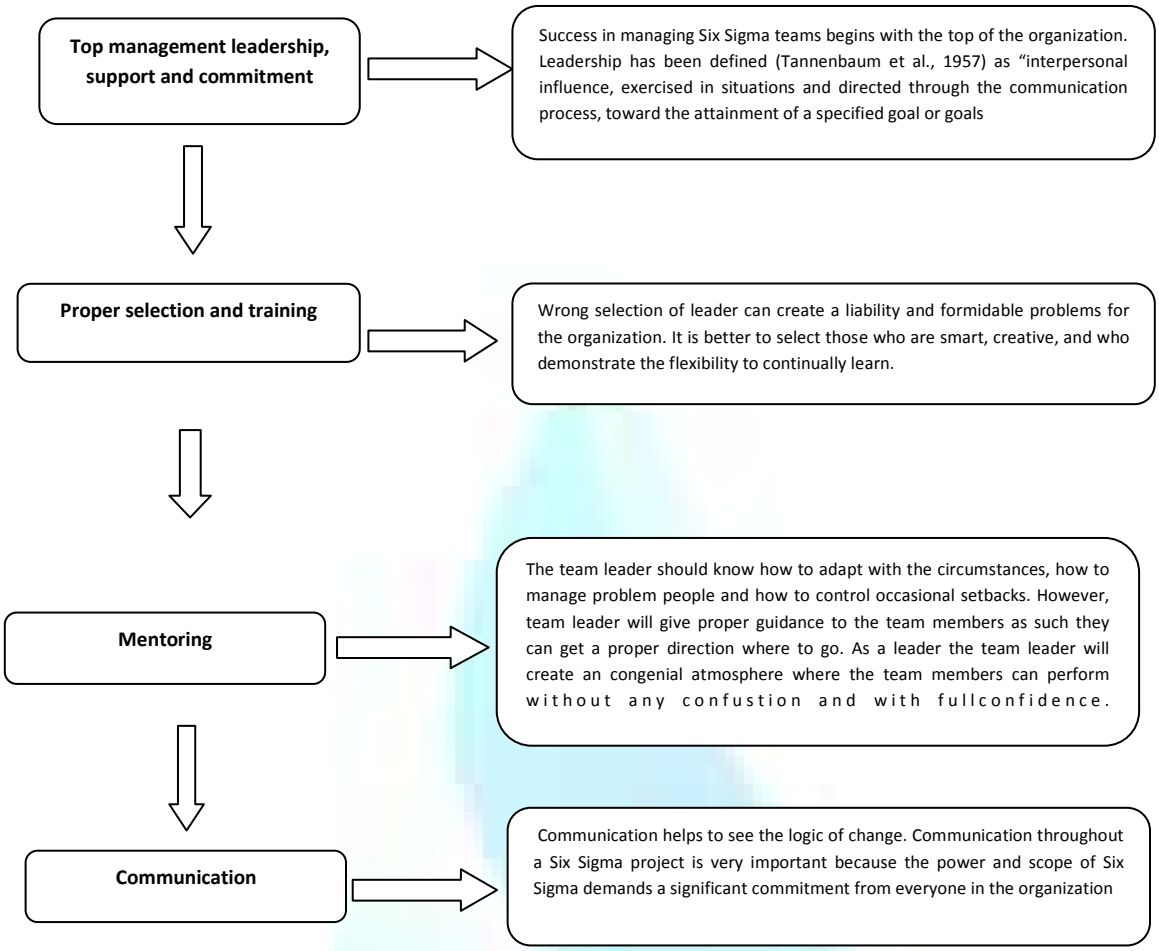
Six Sigma team formations is an important and significant issue in order to get the desired goal.[12] Six Sigma team accomplishes many of the tasks and goals set before them. There are several individual works in a sig sigma team.[13] This section will explore different types of people who work in a Six Sigma team performing myriad different roles and responsibilities. Borrowing a concept from eastern martial arts, practitioners of Six Sigma are ranked by “Belt”. Six Sigma uses a belt tire system in order to organize the trained and certified professionals that work within their methods. They are categorized as Six Sigma Master Black Belts, Black Belts, Green Belts, Yellow Belts and White Belts.[14]

SL	Belt Tire System	Position in a hierarchy and Functions.
1	Six Sigma Master Black Belts	They are the full time experts in Six Sigma integration. They remain at the top of the hierarchy
2	Six Sigma Black Belts	Six Sigma Black Belts are the ones who directly responsible for the execution of Six Sigma projects within an organization. They perform the role of line managers as well as staff managers
3	Sigma Green Belts	Six Sigma Green Belts are the “worker bees” of the Six Sigma project. They gather data and execute experiments in support of the Black Belts
4	Sig Sigma Yellow Belts	Yellow Belt professionals work under the direction of the Green and Black Belt Professionals. They have a solid basic knowledge of the Six Sigma methodology. They remain at the centre of the analyzing, measuring, and collecting of data.
5	Sig Sigma White Belts	They work at the bottom level. help the members working in a project organize a local level

MANAGING SIX SIGMA TEAM

Managing a Six Sigma team is a considerable responsibility. Six Sigma is a team process and requires cooperation and collaboration at each and every level of the organization. It is not an individual approach rather it is a comprehensive, multi-level, organization wide, integrated, coordinated & synchronized approach. Before going to the discussion regarding managing Six Sigma team it will not be unwise to have a brief idea about team and team process.

In order to transform a Six Sigma project team into a high performance effective team organizations have to manage it properly because the difference in productivity between an average team and a turned-on, high-performance team is not 10 percent, 20 percent, or 30 percent, but 100 percent, 200 percent, even 500 percent(Peters, 1996). The following diagram will explore how to manage a Six Sigma team.



SIX SIGMA, PRODUCTIVITY AND SURSTAINABLE PERFORMANCE BREAKTHROUGH

CONTRIBUTION OF SIX SIGMA TO THE PRODUCTIVITY IMPROVEMENT IN THE 21ST CENTURY

In order face the challenges of 21st century companies need to increase the productivity to a great extent. In this case Six Sigma can be an important tool to improve productivity. Improving productivity has become a major goal in virtually every organization (Robbins et al., 2011, p.565). However, before unfolding the contribution of Six Sigma to improve productivity, it is imperative to know the meaning of productivity and the importance of productivity in Bangladesh. Because, most managers do not know what productivity really means, how much vital it is for them organization and for their organization, it can be improved significantly, how to measure and analyze it, what factors affect it and how to improve it (Bernolak, 2000).

Productivity is a multidimensional and dynamic concept (Monga, 2000, p.13). Fabricant defines productivity (as cited in Ali, 1978) in the following words, "always a ratio of output and input". Productivity for industrial activity has been defined in many ways, but the following definition proposed by the European Productivity Agency (EPA) in 1958 is perhaps the best. According to EPA, productivity is the degree of effective utilization of each element of production. EPA, however, added that productivity is, above all, an attitude of mind, it is based on the conviction that one can do things better today than yesterday, and better tomorrow than today, it requires never-ending efforts to adapt economic activities to changing conditions, and the application of new theories and methods, it is a firm belief in the progress of human beings. From the above –mentioned discussion, it is evident that there is a wide range of productivity definitions available in the academic literature.

Productivity and quality are interrelated. The more productive an industry, the better its competitive position because its unit costs are lower. Quality and low cost usually move in same direction (Akkas, 2000, p. 39). Quality of product and services has become the competitive edge in the world marketplace. Whereas price, brand loyalty, attractive design and technical innovation are still important to the consumers in developed countries, the quality of products has surged ahead in relative importance. Importantly, there is accumulating evidence that the delivery of quality products and services to consumers has a direct impact on the success of the organization (Akkas, 2000, p. 39).

Among the different number of options, Six Sigma methodologies can increase productivity which is sustainable. Six Sigma is a powerful business improvement strategy. It helps the organization to identify, reduce, and eliminate defects from any product, process, or transaction. More than a "quality" program, Six Sigma is a flexible and dynamic continuous improvement strategy and process initiative that helps the organization uncover solutions. Six Sigma can reduce cycle time significantly and thus increase yield which in turn will increase productivity.[15] So we can say that, by reducing defects rate at a significant level, Six Sigma can bring unprecedented quality improvement to products and services which in turn will contribute to improving productivity of an organization to a dramatic level.

Now let's look at the fundamental question why productivity improvement is so important in Bangladesh.

Productivity growth is a crucial source of growth in living standards, because more real income improves people's ability to purchase goods and services (whether they are necessities or luxuries), enjoy leisure, improve housing and education and contribute to social and environmental programs. Paul Krugman (1992, p.9) has said 'Productivity isn't everything, but in the long run it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker. The total factor productivity (TFP) of Bangladesh is very trivial. TFP is generally low in many developing countries; it seems to be even lower in Bangladesh (Gazi et al., 2009, p. 2). TFP has been negative up to 1989 and made a positive contribution to growth only since 1990. Its contribution was about 1% during the decade of the 1990s and then decreased to 0.5% during the 8 years of 2000(Gazi et al., 2009, p. 10).

SIX SIGMA AND SUSTAINABLE PERFORMANCE BREAKTHROUGH

Breakthrough means deliberate change. It is a planned change emphasized on second order rather than first order change. It connotes moving from one situation to another situation. It is a dynamic, decisive movement to new and unprecedented levels of performance (Joseph, 2004). And performance means result. Performance can be measured against shareholder value, profitability(ROI, ROS, ROA), sales, market share, cost, customer/client satisfaction,

customer/client loyalty, employee satisfaction, employee loyalty, cycle time, number of errors, defects, rework, redo, scrap, environmental citizenship, community citizenship etc. Sustainable performance breakthrough is not a single time activity. It is rather, aggregate result of many planned, coordinated and meticulously executed individual improvement efforts in multiple functions and levels of the organization. It's a continuous process that, once undertaken is not only capable of rescuing an organization from predicament but also of preventing the predicament from reasserting itself. One of the biggest challenges for the today's managers is to maintain breakthrough process which will create purposeful and unprecedented beneficial change (Juran, 1964) (to improve upon current operations and to adapt to change-to prolong organizational life). However, Six Sigma methodologies help organization to sustain performance breakthrough along with Juran Trilogy.[16] The guiding force behind the Juran Trilogy is Dr Joseph M Juran, who founded Juran Institute in 1979 and developed many of the tools and techniques on which Six Sigma's methodology is based. Dr Juran(2004, p. 21) said "When the planning process is complete then turn the responsibility over to the operating forces to maintain control, detection of any deficiencies traceable to the quality planning process, and quality improvement – the main road to quality leadership. Their job is to maintain the level of quality that management established – not to re-plan. The challenge then is to reduce deficiencies, rejects or errors to the level that has been planned and is acceptable." From the above statement it is clear that Six Sigma methodologies can have a very significant contribution to the reduction of deficiencies & errors. An important effective breakthrough improvement innovation is DMAIC. Systematic application and deployment through proven methodologies like Six Sigma DMAIC and Design for Six Sigma (DFSS) along with Juran Trilogy can prepare an organization to continuously improve at rates faster than competitors and make performance breakthrough sustainable.

CONCLUSION AND RECOMMENDATIONS

The twenty first century is characterized by revolution of technology which is changing very fast and rapidly. This changing nature of technology is posing threats and opportunities simultaneously for an underdeveloped country like Bangladesh. In order to survive, there is no alternative other than welcoming and adapting with the technological change. Most of the companies of our country are not aware of the technological changes that are taking place in the world market (e.g., America, Japan and china etc). If they know, they cannot imagine the huge impact of this technology on the productivity, profitability, and quality of the products of the companies. Most of the companies are prone to think and do business locally not internationally which can outlast them from the world competition. Doing business locally will not give any possibility to become leader in world market. More and more foreign products (e.g., China) are entering into the local market due to trade liberalization and deregulation. We cannot avoid it rather it's a reality. We have to face it. The main competitive weapon is to bring new technology and use the technology in order to innovate to face the challenges unleashed by globalization Six Sigma is a new technology which can bring unprecedented performance breakthrough for the organizations in Bangladesh increasing quality, productivity and profitability of the firms.

So, in order to attain sustainable performance breakthrough and improve productivity through Six Sigma in different companies of Bangladesh, the following recommendations can be made:

- Top management commitment and support is must for the introduction of Six Sigma in the organization. The top manager should incorporate this new technology into its corporate strategy. Then, the company will develop a Six Sigma vision for the company.
- Training and education can give a clear idea about the Six Sigma. Education can make Champions really smart individual which helps him/her to behave as an effective leader. Six Sigma education should be provided to each and every employee of the organization.
- Participation of each and every employee is a must. Participation of all employees is essential for the Six Sigma success. Top management should try not to create a so called elite or strange class within the organization. In Bangladesh, it is a common phenomenon not to allow employee to participate in decision making.
- While introducing Six Sigma, top management should bring this into mind that customer is the boss. So, identifying the core customers and the voice of the customers (VOCs) should be linked with the process.
- In order to sustain Six Sigma success, it is advisable to go for continuous learning rather than few months' intensive training. Top management should make organization a learning organization.
- Communication can play a vital role to the success of Six Sigma. All the improvements should be documented and communicated with the regular intervals.
- Identifying an area where Six Sigma will be introduced is an important decision. After identifying, organization should deploy CTQ from the standpoint of customer specifications to each and every process.
- Infrastructure development is another issue in order to introduce Six Sigma solidly which includes Knowledge management (KM), Data base management system (DBMS), statistical process control (SPC) etc.
- Each day of the month should be declared as "Six Sigma Day". In that day, the top manager will personally check all the Six Sigma progress. He/she will reward individuals for better performance.
- Lastly, all the business processes should be evaluated in order to measure real improvement against benchmark's company performance.

NOTES

[1] Quality means the ability of a product or service to reliably do what it's supposed to do and to satisfy customer expectations (Robbins et al., p. 577). In manufacturing sectors quality dimensions are performance, features, flexibility, durability, conformance, serviceability, aesthetics, perceived quality and in service sectors the quality dimensions are timeliness, courtesy, consistency, convenience, completeness, accuracy (Dean et al., 1994; Roberts et al., 1993; Garvin, 1988; Hitt et al., 2001, p. 211).

[2] A **business process** or **business method** is a collection of related, structured activities or tasks that produce a specific service or product (serve a particular goal) for a particular customer or customers. Business process may be management process, operational process, supporting process, controlling process etc. Six Sigma is widely used in operational process (purchasing, manufacturing etc.)

[3] DPMO means defects per million opportunities. This calculation requires three pieces of data namely unit, defect and opportunity. DPMO is calculated number of defects multiplied by 1 million and divide with the result of multiplication between number of opportunities for error per unit & number of units.

[4] TQM is a management philosophy of continuous quality improvement along with cost reduction in an environment of participative management through self directed team development and employee empowerment, and quality supportive culture where trained human resources would focus on monitoring process variations by using necessary tools and techniques for gaining competitive advantage through customer satisfaction. It is a top-down process, and a means to an end, not an end in itself (Mannan et al., 2007, p. 09).

[5] ISO 9000 is a series of international quality management standards established by the International Organization for Standardization (www.iso.org), which set uniform guidelines for processes to ensure that products conform to customer requirements. These standards cover everything from contract review to product design to product delivery (Robbins et al., 2010, p. 579).

[6] For example, if a carriage takes 40 minutes to transport a 5-ton load a distance of 10 miles at 99.9997% defect free Six Sigma; a four sigma will take 45 minutes to cover the same distance per same load but at 99.94% defect free. It might appear that 99.94% is quite good – if this is your conclusion, you will need to think again. Taking Six Sigma concepts into account, this equals a 20% defect in the product, which passes on to the customer.

[7] The PDCA cycle was in fact originally developed by Walter A, Shewhart, a Bell Laboratories scientist who was Deming's friend and mentor, and the developer of Statistical Process Control (SPC) in the late 1920s. So sometimes this is referred to as the "Shewhart Cycle". See *The Man Who Discovered Quality* by A. Gabor, Penguin Books, 1990.

[8] The original Six Sigma process developed for problem-solving at Motorola is MAIC, which means measurement, analysis, improvement, and control. Later, DMAIC instead of MAIC was advocated at GE. IDOV was suggested by GE and has been used most frequently in practice. However, a new methodology, DIDES, was suggested by Qualtec Consulting Company which means Define, Initiate, Design, Execute and Sustain. See Park, S.H. (2003). Six Sigma for Quality and Productivity Promotion, Asian Productivity Organizations, Productivity series 32, Tokyo, Japan, p. 43.

[9] The original concept of the control chart was proposed by Walter A. Shewhart in 1924 and the tool has been used extensively in industry since the Second World War, especially in Japan and the USA after about 1980. Control charts offer the study of variation and its source. They can give process monitoring and control, and can also give direction for improvements. They can separate special from common cause issues of a process. They can give early identification of special causes so that there can be timely resolution before many poor quality products are produced (Shewhart, 1931).

[10] The Pareto chart was introduced in the 1940s by Joseph M. Juran, who named it after the Italian economist and statistician Vilfredo Pareto, 1848–1923. It is applied to distinguish the "vital few from the trivial many" as Juran formulated the purpose of the Pareto chart. It is closely related to the so called 80/20 rule – "80% of the problems stem from 20% of the causes," or in Six Sigma terms "80% of the poor values in Y stem from 20% of the Xs."

[11] The tool, DOE, was developed in the 1920s by the British scientist Sir Ronald A. Fisher (1890–1962) as a tool in agricultural research (Fisher, 1925). The first industrial application was performed in order to examine factors leading to improved barley growth for the Dublin Brewery. After its original introduction to the brewery industry, factorial design, a class of design in DOE, began to be applied in industries such as agriculture, cotton, wool and chemistry. George E. P. Box (1919–), an American scientist, and Genichi Taguchi (1924–), a Japanese scientist, have contributed significantly to the usage of DOE where variation and design are the central considerations.

[12] There are a number of excellent works on team building: for example, see Cleland, 1997; Dyer, 1987; Ford and McLaughlin, 1992; Katzenbach and Smith, 1993; Pinto and Pinto, 1991; Rossy and Archibald, 1992; and Todryk, 1990.

[13] Besides six sigma project team there are other teams like continuous improvement teams(CIT), self-directed teams(SMT), self-directed work teams(SDWT), self managed teams(SMT), high performance teams, cross functional teams(Tom peters, 1996; Smith, 1993; Meredith et al., 2006, p. 217). While these teams may have slightly different structures and may vary somewhat in the amount of decision making authority and autonomy exercised by the team, they are all aimed at improving worker performance as well as improving production methods and product quality. But these teams have some problems. In a multiplant study comparing three team structures, CIT, QC, and SDWT, Bailey (1998, p. 30) found that SDWTs " did not perform as well as more traditionally organized and supervised workgroups whose members participate in" QCs or CITs. This is due to poor design of team involvement, lack of information infrastructure, and a management structure that may not have fully supported the teams. Six Sigma project team is devoid of these problems.

[14] There are two additional individuals i.e., executive Leaders and champions in Six Sigma teams work at the top level. *Executive leadership* includes the CEO and other members of top management. They are responsible for setting up a vision for Six Sigma implementation. They also empower the other role holders with the freedom and resources to explore new ideas for breakthrough improvements. *Champions* take responsibility for Six Sigma implementation across the organization in an integrated manner. The Executive Leadership draws them from upper management. Champions also act as mentors to Black Belts (Harry et al., 2000). More over, Champions are responsible for keeping the Six Sigma program focused within their business area; they select Black Belts, approve projects, set improvement targets, and provide the resources needed to conduct the projects (Watson, 2003).

[15] Every process has a cycle time and yield. The cycle time of a process is the average time required for a single unit to complete the transformation of all input factors into an output. The yield of a process is the amount of output related to input time and pieces. A more efficient transformation of input factors into products will inevitably give a better yield. And better yield will result in improving productivity (Park, 2003, p. 09).

[16]Juran trilogy is a universal approach to managing for quality. Quality guru Juran has coined this term first. That is why, it is named as Juran trilogy. The underlying concept of the quality trilogy is that managing for quality consists of three basic quality-oriented processes e.g., quality planning, quality control and quality improvement. Each of these processes is universal; it is carried out by an unvarying sequence of activities. Furthermore, these universal processes are interrelated. The starting point is quality planning — creating a process that will be able to meet established goals and do so under operating conditions. The subject matter of the planning can be anything: an office process for producing documents; an engineering process for designing products; a factory process for producing goods; a service process for responding to customers' requests. Following the planning, the process is turned over to the operating forces. Their responsibility is to run the process at optimal effectiveness. Due to deficiencies in the original planning, the process runs at a high level of chronic waste. That waste has been planned into the process, in the sense that the planning process failed to plan it out. Because the waste is inherent in the process, the operating forces are unable to get rid of the chronic waste. What they do instead is to carry out "quality control" — keep the waste from getting worse. If it does get worse (sporadic spike), a fire fighting team is brought in to determine the cause or causes of this abnormal variation. Once the cause(s) has been determined, and corrective action is taken, the process again falls into the zone defined by the "quality control'' limits(Juran, "The Quality Trilogy: *A Universal Approach to Managing for Quality "presented* at the ASQC 40th Annual Quality Congress in Anaheim, California, May 20, 1986).

REFERENCES

1. Akkas, A. (2001) 'Productivity through people in the age of globalization: The Bangladesh perspective', Readings in Management, Vol. 1, No. 1, October 2001, pp. 31-65.
2. Alam, I.M.S. & Morrison, A.R. (2000) "Trade reform dynamics and technical efficiency: the Peruvian experience", The World Bank Review, 14, pp. 309–330.
3. Bailey D. E. "Comparison of Manufacturing Performance of Three Team Structures in Semiconductor Plants." IEEE transactions on Engineering Management, February 1998.
4. Baumol, W. J, 1986. "Productivity growth, convergence, and welfare: what the long-run data show". American Economic Review, 76(5), 1072-85.
5. Bergman, B. and Klefsjö, B. (2003) Quality from Customer Needs to Customer Satisfaction, Studentlitteratur, Lund, (available by ASQ Quality Press, www.asq.org).
6. Bergquist, B., Garvare, R. and Klefsjö, B. (2006) 'Quality Management for tomorrow', in Foley, K., Hensler, D. and Jonker, J. (Eds.): To appear in Quality Matters, SAI Global, Sydney, Australia.
7. Bernolak Imre (1980). Interfirm Comparison in Canada. In Bailey David and Huber Tony (eds.) (1980). Productivity Measurement: An International Review of Concepts, Techniques, Programmes and Current Issues, Gower, UK.
8. Brah, S.A., Tee, S.S.L. and Madhu, R.B. (2002) 'Relationship between TQM and performance of Singapore companies', International Journal of Quality and Reliability Management,Vol. 19, No. 4, pp.356–379.
9. Campbell John P and Campbell Richard J (1998a). Introduction: What Industrial –Organizational Psychology Has to Say about Productivity. In Campbell John P, Campbell Richard J and Associates (Contributors). Productivity in Organizations. Jossey- Bass Publishers, USA.
10. Cao, G., Clarke, S. and Lehaney, B. (2000) 'A systematic view of organisational change and TQM', The TQM Magazine, Vol. 12, No. 3, pp.186–193.
11. Cleland, D. I. "The Individual in a Matrix Organization," 'Project management journal, December 1989.
12. D.C. Blood, V.P. Studdert and C.C. Gay, Elsevier (2007). Saunders Comprehensive Veterinary Dictionary, 3rd ed., Oxford University Press, UK.
13. De Feo, Joseph A.; Barnard, William (2005). JURAN Institute's Six Sigma Breakthrough and Beyond - Quality Performance Breakthrough Methods. Tata McGraw-Hill Publishing Company Limited, USA.
14. Deming, W.E. (1993) "The New Economics for Industry, Government and Education", MIT Center for Advanced Engineering Study, Massachusetts, USA.
15. Drug Sanders and Cheryl Hild(2000), A Discussion of Strategies for six sigma implementation, Quality Engineering, Vol. 12, No 3.
16. Dyer, W. G. Team Building: Issues and Alternatives, 2nd ed. Reading, MA: Addition –Wesley, 1987.
17. Fisher, R.A. (1925) Statistical Methods for Research Workers, Oliver and Boyd, London.
18. Foley, K., Hensler, D. and Jonker, J. (Eds.) (2006) Quality Management and Organization Excellence: Oxymorons, Empty Boxes or Significant Contributions to Management Thought and Practice, To appear at Standards Australia International Ltd., Sydney, Australia.
19. Ford R. C., and F. S. McLaughlin. "Successful Project Teams: A Study of MIS Managers," IEEE Transactions on Engineering Management, November 1992.
20. Forrest W Breyfogle III(2000), Implementing Six Sigma- Smarter Solutions Using Statistical Methods published by John Wiley and Sons, Inc., USA.
21. Gerald J.Hahn and Necip Doganaksoy, Roger Hoerl (2000). The Evolution of six sigma, Quality Engineering, Vol. 12, No. 3.

22. Gray F.C., Larson W. E. (2006). Project Management: The managerial Process, 3rd ed., Tata McGraw-Hill publishing Company Limited, New Delhi, India, p. 343.
23. Gygi, Craig; DeCarlo, Neil; Williams, Bruce (2005). Six Sigma for Dummies. Hoboken, Wiley publishing, New Jersey, USA, p. 23.
24. Handoussa, H., Nishimizu, M. & Page, J.M. (1986) Productivity change in Egyptian public sector industries after "the opening", 1973–79, Journal of Development Economics, 20, pp. 53–73.
25. Harry, M.J. (1998). The Vision of Six Sigma, 8 volumes, Phoenix, Arizona, Tri Star Publishing, USA.
26. Harry, M.J. (2000) 'A new definition aims to connect quality performance with financial performance', Quality Progress, Vol. 33, January, pp.64–66.
27. Harry, Mikel J. (1988). The Nature of six sigma quality. Rolling Meadows, Illinois: Motorola University Press, USA, p. 25.
28. Hemant, The Six Sigma Approach, Quality & Productivity Journal: September 2000 Issue, http://www.symphonytech.com.
29. J. Marriotti, "Troubled by Resistance to Change," IW, October 7, 1996, p. 30.
30. J.P. Kotter and L. A. Schlesinger, "Choosing Strategies for Change," Harvard Business Review, March- April 1979, pp. 107-109.
31. Jeffery, Lilian H. (1961). The local scripts of archaic Greece. Oxford: Clarendon. pp. 25–27.
32. Juran, J.M. (1988). Juran on Planning for Quality, Free Press, New York
33. Knights, D. and McCabe, D. (1997) 'How would you measure something like that? Quality in a retail bank', Journal of Management Studies, Vol. 34, No. 3, pp.371–388.
34. Krajewski J. L. and Ritzman P. L. (1996). Operations Management: Strategy and Analysis", 4th ed. Addition Wesly Publishing Company, USA.
35. Krugman P. (1992), The Age of Diminished Expectations: US Economic Policy in the 1980s, MIT Press, Cambridge, p. 9.
36. Losianowycz, G. (1999). Six Sigma Quality: A Driver to Cultural Change & Improvement, an invited lecture by Korean Standards Association at Seoul. (Ms. Losianowycz is a senior lecturer at Motorola University.)
37. Mannan M A., Ferdousi F. (2007). Essentials of Total Quality Management, University Grants Commission of Bangladesh, Dhaka, Bangladesh, p. 09.
38. McAdam, R. and Bannister, A. (2001) 'Business performance measurement and change management within TQM framework', International Journal of Operations and Production Management, Vol. 20, No. 1, pp.88–107.
39. McAdam, R. and Evans, A. (2004) 'The organisational contextual factors affecting the implementation of Six Sigma in a high technology mass-manufacturing environment', International Journal of Six Sigma and Competitive Advantage, Vol. 1, No. 1, pp.29–43.
40. Micklewright, M. (2004) 'Six Sigma is no replacement for a Quality Management System', Quality Digest, January 2005, www.qualitydigest.com.
41. Monga R C (2000). Managing Enterprise and Competitiveness. Working paper PMD-3 International Labour Organization.
42. Montgomery, Douglas C. (2009). Statistical Quality Control: A Modern Introduction, 6th edition, John Willey & Sons, New Jersey, USA, p. 23.
43. Morrison, C.J. (1985) Primal and dual capacity utilization: an application to productivity measurement in the US automobile industry, Journal of Business and Economic Statistics, 3, pp. 312–324.
44. Motorola University Six Sigma Dictionary (2006), Motorola University press, USA.
45. National Productivity Corporation (1999). Handbook on productivity –linked wage system. Malaysia. Performance and Innovation Unit (2001). Resource Productivity. Cabinet Office UK Government London.
46. Oxford Dictionary of Biochemistry (1997). Oxford University Press, UK.
47. Pack, H. (1988) Industrialization and trade, in: H.B. Chenery & T.N. Srinivasan, (Eds) Handbook of Development Economics, Vol. 1 (Amsterdam, North Holland).
48. Park, S. H. (1996). Robust Design and Analysis for Quality Engineering, Suffolk, Chapman & Hall.
49. Peters, T. (1988). Thriving on Chaos: Handbook for a Management Revolution, New York, Knopf, USA.
50. Pinto M. B., and J. K. pinto. "Determinants of Cross Functional Cooperation in the project Implementation Process." Project management journal, June 1991.
51. Rao, B. Bhaskara and Hassan, Gazi (2009).How to increase the long run growth rate of Bangladesh, MPRA, Munich, Germany.
52. Rodrik, D. (1992) Closing the technology gap: Does trade liberalization really help?, in: G.K. Helleiner (Ed.) Trade Policy, Industrialization and Development: New Perspectives (Oxford, Clarendon Press).
53. Rossy G. L., and r. D. Archibald. "Building Commitment in Project Teams." Project management Journal, June 1992.
54. Salim, Ruhul Amin (2003) 'Economic Liberalization and Productivity Growth: Further Evidence from Bangladesh', Oxford Development Studies, Vol.31, No.1, pp.85 – 98.
55. Schroeder, Richard A., Harry (2006) Six Sigma: The Breakthrough Management Strategy Revolutionizing the World's Top Corporations, Sydney, Australia, p. 09.
56. Shewhart, W.A. (1931) Economic Control of Quality of Manufactured Product, Van Nostrand, New York.
57. Snee, R. (1999). Why Should Statisticians Pay Attention to Six Sigma? An Examination for Their Role in the Six Sigma Methodology, Quality Progress, 32(9), pp. 100-103.
58. Stamatis, D.H. (2004). Six Sigma Fundamentals: A complete Guide to the System, Methods, and Tools, Productivity press, New York, USA, p. 01.
59. Stanley, Jennifer (1996). Investment Reports on Honeywell, p. 01
60. Stanley, Jennifer, Solit P.J. (1996).Investment Reports on General Electrics, p. 01.
61. Tennant, Geoff (2001). Six Sigma: SPC and TQM in manufacturing and services. Grower publication Ltd., Aldershot, UK.
62. Thawani, S. (2004) 'Six Sigma – strategy for organizational excellence', Total Quality Management, Vol. 15, Nos. 5–6, pp.655–664.
63. Todryk L. "The project Manager as Team Builder: Creating an Effective Team." Project management Journal, December 1990.
64. Tomkins, R. (1997). GE beats expected 13% rise, Financial Times, (10 October), p.22.
65. Tybout, J.R., de Melo, J. & Corbo, V. (1991) The effects of trade reforms on scale and technical efficiency: new evidence from Chile, Journal of International Economics, 31, pp. 231–250.
66. Woodard, Roger D. (2006). "Alphabet". In Wilson, Nigel Guy. Encyclopedia of ancient Greece. London: Routldedge. p. 38.

WEBSITES

67. www.Six Sigma online.com/ History/ Internet accessed on 30 September, 2011.
68. www.qualitydigest.com/ Internet accessed on 8th October, 2011.
69. www.isixsigma.com/articles/Internet accessed on 15 September, 2011.
70. www.6sigma.us/articles/Internet accessed on 20 September, 2011.
71. www.wikipedia.com/Six Sigma/ Internet accessed on 25 September, 2011.
72. www.Six Sigma Academy.com/ Internet accessed on 05 October, 2011.

IMPROVEMENT IN TELECOM NETWORK QUALITY & OPERATIONAL EFFICIENCY THROUGH ON-THE-JOB TRAINING

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ABSTRACT

The liberalization of the Indian economy & new telecom policy has enabled introduction of new technologies and deployment of state-of-the-art equipments into the telecom network. In order to maintain high standards of network quality and services, telecom service providers require experienced and trained technical professionals to address the ever growing needs of the business. Evolutions of technology, network rollout, increase in subscriber base coupled with high equipment cost and attrition rates, demands highly engaged and skilled employees. In view of the above, it goes without saying that continuous skill up-gradation of employee's is the need of the hour. The conventional practices of classroom training are being rendered ineffective as network uptime and operation & maintenance challenges are accorded priority to ensure uninterrupted customer services. This calls for an on-the-job training model that is customized to address the challenges faced by the telecom organizations. Network Learning Center (NLC) of a leading integrated telecom player has been actively engaged in knowledge dissemination on technology, product and service since 2002. This paper presents and empirically validates a unique learning methodology using Intranet/Internet, Audio Visual conferencing tools, electronic writing pads, and desktop sharing tools. The effectiveness of this training methodology has been validated based on data collected from NLC and network operation over the past 2 years.

KEYWORDS
OJT, Training Effectiveness, Telecom Training, Telecom Network Quality, Telecom Operational Efficiency.

INTRODUCTION

The Indian Telecommunications network is the third largest in the world and the second largest among the emerging economies of Asia. The Indian telecom industry has witnessed tremendous growth in the last 10 years due to liberal policies of the government and the extensive need for communication. The number of telephone subscribers in India was 906.93 million at the end of September 2011. The Urban Teledensity was 157.32 and Rural Teledensity was 33.79 with overall Teledensity at 70.89 as on 31st March 2011. India's active mobile penetration rate is 48%, which in other terms means ample opportunities are still untapped and will drive Indian telecom success story further in future. The new National Telecom Policy will encourage the much-needed investments in the sector to drive the next avenues of expansion in rural areas and mobile broadband. The telecom technology has evolved significantly over the last decade as compared to the past. Telecom networks today an amalgamation of the ubiquitous time division multiplexing (TDM) techniques and the IP based packet switched networks. The next generation networks would be completely IP based and would offer inclusive service migration, network convergence and network interconnectivity while bringing about a paradigm shift in skill sets required to operate and maintain them.

Individuals learn from experience which involves action, reflecting, connecting and testing in a continuous cycle. Learning starts by taking action, then reflecting on the outcomes of the action, making connections with what we already know and understand and then testing those connections and new ideas through further action (David Kolb, 1984). Organizational knowledge sources are both internal and external. Accumulated over time, organizational knowledge enables firms to attain deeper levels of understanding, perception, and all characteristics of wisdom (Grant, 1997). Organizational learning is to increase its chances for survival and strengthen their market positions (Thomsen and Hoest, 1999). The Indian telecom industry, the third largest in the world, is facing a tumultuous time on account of falling revenues and non-availability of sufficiently trained technical manpower. This has been coupled with a high rate of attrition. Operators are putting efforts to make world class network. In such a scenario competency building through training has an important role to play in increasing organizational performance and hence its revenues

The Network Learning Center (NLC), an ISO 9001:2008 certified entity of a leading integrated telecom player, is responsible for technology training of the manpower in consonance with the business requirements. Over the past nine years NLC has trained & certified more than 32,000 employees through instructor led trainings as well as distance learning programs. In addition over 61,000 employees were certified using proprietary self learning methodologies. The NLC lead trainers (Subject Matter Experts – SME) are functionally aligned to the domain experts to ensure that learning solutions reflect the ground realities. Courses are designed & developed based on identified needs by the lead trainers and the functional experts. Its in-house integrated labs for hands on experience cover all equipment of most of the brands which are used in the network.

REVIEW OF LITERATURE

Knowledge Management is the collection of processes that govern the creation, dissemination, and utilization of knowledge. Knowledge management is the management of the organization towards the continuous renewal of the organizational knowledge base. Knowledge is the full utilization of information and data, coupled with the potential of people's skills, competencies, ideas, intuitions, commitments and motivations. In today's economy, knowledge is people, money, leverage, learning, flexibility, power, and competitive advantage. Knowledge is more relevant to sustained business than capital, labor or land. Nevertheless, it remains the most neglected asset. It is more than justified true belief and is essential for action, performance and adaption. Knowledge provides the ability to respond to novel situations. A holistic view considers knowledge to be present in ideas, judgments, talents, root causes, relationships, perspectives and concepts. Knowledge is stored in the individual brain or encoded in organizational processes, documents, products, services, facilities and systems. Knowledge is the basis for, and the driver of, our post-industrial economy. Knowledge is the result of learning which provides the only sustainable competitive advantage. Knowledge is the next paradigm shift in computing following data processing 1945-1965 and information management 1966-1995. Knowledge is

action, focused innovation, pooled expertise, special relationships and alliances. Knowledge is value-added behavior and activities. For knowledge to be of value it must be focused, current, tested and shared.

The approach to telecom network improvement research explores cause-and-effect relationships that are pertinent to the learning process and have been established through years of training research, including meta-analyses. For the purpose of training assessment, the cause-and-effect relationships of interest are those between the process, outcomes, and impacts of training (NIOSH 1999, Krikpatrick 1994). In these relationships, the training process variables are indicators of the outcomes of the effective training. The "Bloom's Taxonomy" classifies learning objectives into Cognitive, Affective, and Psychomotor and differentiates variables effecting training effectiveness (Bloom 1956). Further psychomotor objective was classified into levels.(Dave 1975). The white paper on structured on-the-job training concludes that systematically developed OJT is required for any continuous improvement initiative and add value to high performance manufacturing (Richard et al. 2007).

Bloom B S, (1956), Bloom's Taxonomy of Learning Domains, viewed on February 23 2012

Source URL <http://www.nwlink.com/~donclark/hrd/bloom.html#psychomotor>

Organizations are discovering that Structured On-the-Job Training (SOJT) provides many benefits for both the short-term and long-term success. Learning is less effective and transfer of knowledge is only temporary when trainees just learn by watching another worker or through informal instruction. With SOJT, the training that occurs at the work center becomes purposeful, intentional, and permanent. SOJT also employs standardized work practices in which the outcome of all work is highly specified.

STRUCTURED ON-THE-JOB-TRAINING

Research has shown that casual, informal OJT does not provide consistent instruction for someone that is new to their job. In addition, bad habits are quite often passed down from one worker to the next in this type of arrangement. When trainees receive a different set of work instructions from each shift or team leader, performance of the learner suffers and worker morale is adversely affected. Unstructured or informal OJT can be incomplete, including only partial elements of the job, and is many times done in a hurry, often lacking the very important feedback regarding how well the job or task has been done. Without systematic feedback regarding job performance, the ability to create lasting, permanent knowledge can be limited. SOJT on the other hand uses a formalized system that breaks the training down into manageable units or chunks and provides consistency from shift to shift and day to day. A standardized work system that consists of well-written procedures, work instruction packages and job-aids provide a road map for consistent, sustained knowledge creation and learning. A system of SOJT also provides designated OJT specialists the tools to become successful trainers and leaders on the plant floor. When properly trained and supported, an OJT specialist can reduce training times in excess of 50%.

This concept is highly relevant to the telecos especially their National Network Operations Center (NNOC) which provides 24*7 surveillance, fault management of the network. The skills sets of the engineers operating in this high technology environment are unique and SOTJ training provides an effective method for knowledge transfer.

ORGANIZATIONAL KNOWLEDGE CREATION & ON-THE-JOB-TRAINING

Information can be described as a simple flow of messages, while formal knowledge is created and organized by the flow of information and is connected to the beliefs and commitment of the holder. Knowledge creation cycle can be broken down into two categories, known as "explicit" and "tacit" knowledge. Explicit knowledge can be transferred through formal language or written documents, while tacit knowledge refers to knowledge that is harder to formalize and communicate. Tacit knowledge is usually connected to actions or involvement in a specific context or concept. Tacit knowledge is further broken down into two elements, "cognitive" and "technical". The cognitive elements of tacit knowledge involve "mental models" that allow the employee to form an opinion or viewpoint that leads to perceptions about the task or job at hand. The technical elements of tacit knowledge involve concrete know-how such as skills, crafts, and procedures that apply to specific parts of their job or machine center.

The two elements of knowledge creation (explicit and tacit) can be directly linked to a learning system that involves both formal classroom training and SOJT. Much of the explicit knowledge can be transferred in the classroom and much tacit knowledge is picked up though formal instruction on the plant floor. When a worker receives training in the actual "doing" part of the job, tacit knowledge can be transferred through realistic work experiences. After engaging in shared observations and job experience on the plant floor with the OJT specialist, the trainee can loop back after repeated practice and make better decisions. Tacit knowledge can be acquired after repeated observation, imitation and practice. This allows the trainee to reach full operating potential faster with more accuracy than in informal OJT environments. In fact, research (Jacobs, 1996) has shown that full operating potential and productivity can be reached 85% faster with an SOJT system. A system that transfers tacit knowledge on the plant floor will allow operators to make more informed decisions, react to abnormal operating or "upset conditions" faster and have a much better understanding of how their machine center operates. This can have major implications for quality and reliability initiatives such as Six Sigma, Lean Manufacturing or Total Productive Maintenance (TPM).

The continued use of SOJT over time will lead to the creation of permanent organizational knowledge. This is accomplished when the full variety of tasks at the work location are included as part of the OJT system, including a clear understanding of the criteria for success in the processes. Procedures, troubleshooting, problem solving and quality inspections should all be part of the SOJT that is performed. Show/tell checklists, pre-shift inspections, actual operation of equipment and upset condition scenarios should also be part of the SOJT system. Using a wide-variety of training methods promotes the internalization of knowledge. Internalization is the ability to take explicit knowledge and convert it to tacit knowledge. This improves the productivity of workers in manufacturing systems while at the same time enhancing creation of organizational knowledge.

When all training topics or elements are linked systematically with feedback loops to evaluate the conditions for success, the learner will have an easier time internalizing the knowledge. Regular updates to training material or job-aids and frequent coaching and mentoring sessions for workers on the plant floor will also enhance the permanence of learning. SOJT systems that promote organizational learning will have many of the following elements:

- An initial evaluation and selection process for SOJT specialists
- Accountability for SOJT implementation is clearly defined
- Coaching and mentoring for SOJT specialists for skills upgrades
- Linked directly to written performance/work standards
- Data gathering for effective performance measurement

In order to implement a successful SOJT system, standards of performance must be developed that clearly link back to the employee job location. The standards of performance must be validated with job analysis processes including the use of a detailed functional position description. Effective standards of performance and related materials for use by the SOJT specialist should include the following:

- Step by step procedures associated with each job
- Job proficiency code system
- Qualifications cards
- Includes testing for task performance and task knowledge
- Job aids and administrative tools
- OJT product and process checklists

Mark Huselid, The Impact of Human Resource Management Practices on Turnover, Productivity, and Corporate Financial Performance, April 5, 1995, Academy of Management Journal, Vol. 38, No. 3, pp. 635-672, 1995

This study comprehensively examined the linkages between systems of High Performance Work Practices and organizational performance. The results based on a national sample of nearly one thousand firms indicate that these practices have an economically and statistically significant impact on both intermediate outcomes (turnover and productivity) and short- and long-term measures of corporate financial performance. The support for the predictions that the impact of High Performance Work Practices is in part contingent on their interrelationships and links with competitive strategy was limited. The major conclusions of the study were:

1. Systems of High Performance Work Practices (HPWPs) will decrease turnover and increase productivity and performance
2. Turnover and productivity will mediate the relationship between HPWPs and performance
3. Complementarities or synergies among HPWPs
4. Alignment between HPWPs and competitive strategy will reduce turnover and improve productivity and performance

Mehrdad Alipour, Mahdi Salehi & Ali Shahnavaz, A Study of on the Job Training Effectiveness: Empirical Evidence of Iran, International Journal of Business Management, Vol 4, No. 11 , 2009, pp 1-3

Many training techniques are created almost every year by the rapid development in technology. Deciding among methods usually depends on the type of training intended, the trainees selected, the objectives of the training program and the training method. Training is a situational process that is why no single method is right for every situation. While some objectives could be easily achieved through one method, other objectives could necessitate other methods. Many training programs have learning objective in more than one area. When they do, they need to combine several training methods into an integrated whole.

Training methods could be classified as cognitive and behavioral approaches. Cognitive methods provide verbal or written information, demonstrate relationships among concepts, or provide the rules for how to do something. These types of methods can also be called as off the job training methods. On the other hand, behavioral methods allow trainee to practice behavior in real or simulated fashion. They stimulate learning through behavior which is best for skill development and attitude change. These methods can be called as on-the-job training methods. Thus; either behavioral or cognitive learning methods can effectively be used to change attitudes, though they do so through different means. Cognitive methods are best for knowledge development and behavioral methods for skills (Blanchard and Thacker, 1998:277). The decision about what approach to take to training depends on several factors that include the amount of funding available for training, specificity and complexity of the knowledge and skills needed, timeliness of training needed, and the capacity and motivation of the learner.

To be effective, training method should; motivate the trainee to improve his or her performance, clearly demonstrate desired skills, provide an opportunity for active participation by the trainee, provide an opportunity to practice, provide timely feedback on the trainee's performance, provide some means for reinforcement while the trainee learns, be structured from simple to complex tasks, be adaptable to specific problems, encourage positive transfer from training to the job (Woods, 1995:180).

The study of literature validated the research problem and the fact that effective training delivery has an impact on the overall organizational productivity, but there is no clear evidence of delivering psychomotor skills training in challenging environment of telecom organizations.

PROBLEM STATEMENT

The modern telecom network is continuously changing due to technological updates, new equipments and customers demanding customized and quality services. To satisfy this requirement telecom companies have a challenge of investing in advanced technologies & equipments, improve network and service quality, and obtain optimum operational efficiency. The Shortage of talent in telecom domain is one of the main impediments for further growth and development in this sector.

The Indian telecom sector is witnessing great competition from public sector enterprises and private sector players. With more and more players entering the industry, the competition in the industry in terms of attracting and retaining the talent is also increasing. The key problems that form the basis of this research study can be summarized as under:

1. The telecom sector has a huge demand for trained and qualified engineers.
2. The employee turnover rate in the telecom industry is the highest at around 25 – 30%
3. The rapidly changing technology environment coupled with the high turnover rate has rendered conventional learning techniques ineffective and has forced the organizations in the telecom industry to develop a alternative methodologies to ensure sustained competitive advantage through competency building/skill development of their employees.

This challenge can be met by enhancing skills and knowledge of employees during implementation of technology & equipment, followed by comprehensive on-the-job training (OJT) on operation, maintenance, planning and optimization activities. The conventional classroom & lab training is resource intensive and results in wastage of productive time in logistics. The modern telecom organization, responsible for 24 x 7 uninterrupted customer services needs effective OJT including hands-on in a controlled environment at the work place.

RESEARCH OBJECTIVES

Knowledge can be classified in to two types - tacit & explicit. Tacit knowledge resides in the minds of employees while explicit is available through the various informational repositories. For effective knowledge transfer a tacit-explicit-tacit knowledge conversion is required. Formal OJT with structured hands-on session accelerates the knowledge conversion process. This research focuses on identifying the ideal mechanisms for gaining tacit knowledge in telecom organization. The specific objectives of this study are:

1. To analyze the optimal method of delivering OJT in the modern telecom organization
2. To measure the effectiveness of OJT on network operation, maintenance, and optimization of a telecom network
3. To assess the relationship between OJT and customer satisfaction

HYPOTHESIS

Hypothesis 1: Training of employees through OJT has positive impact on network quality and operational efficiency of the telecom network.
Hypothesis 2: Sustained OJT had positive impact on customer satisfaction

RESEARCH METHODOLOGY

This section outlines the methodology adopted for this research.

RESEARCH DESIGN

This study is based on empirical design to ascertain the characteristic of the variables of interest. The design was applied in this study to understand the training delivery methodology that drives performance in the organization. Primary Data was collected for a sufficiently large period of time to ensure the reliability and the validity of the inferences.

SAMPLING DESIGN

The data was collected on drop call rate (DCR), NW RX Quality, mean time to restore (MTTR), Broadband service uptime, and GSM SLA achievement parameters from network quality department for the period Apr-2010 to Dec-2011. Along with this, data of employees trained during this period using OJT is also collected from NLC MIS. A stratified random sampling technique was employed for the purpose of this study. About 21 months usable data is available for analysis. Stratification is the process of dividing members of the population into homogeneous subgroups before sampling. The strata should be mutually exclusive: every element in the population must be assigned to only one stratum. The strata should also be collectively exhaustive: no population element can be excluded. Then random or systematic sampling is applied within each stratum. This often improves the representativeness of the sample by reducing sampling error. It can produce a weighted mean that has less variability than the arithmetic mean of a simple random sample of the population which apt for the current study.

DATA COLLECTION SOURCES

The primary source of data includes record of OJT from NLC. NLC has conducted than 28,000 man days during the research period. The quality parameters measured on a daily basis from the network equipments and operations support system constitute the second part of the data collection. This data is used to co-

relate the effectivess of the OJT on the network performance. There are three quality parameters considered for this study and data is collected across 25 administrative circles of a leading telecom player in the country.

DATA ANALYSIS & INTERPRETATION

The data analysis was done using the MS Excel 2010. The analysis included Regression and Analysis of variance (ANOVA). Regression analysis is widely used for prediction and forecasting. Regression analysis is also used to understand which among the independent variables are related to the dependent variable, and to explore the forms of these relationships. In restricted circumstances, regression analysis can be used to infer causal relationships between the independent and dependent variables. ANOVA is a collection of statistical models, and their associated procedures, in which the observed variance in a particular variable is partitioned into components attributable to different sources of variation. In its simplest form, ANOVA provides a statistical test of whether or not the means of several groups are all equal, and therefore generalizes *t*-test to more than two groups. Doing multiple two-sample t-tests would result in an increased chance of committing a type I error. For this reason, ANOVAs are useful in comparing two, three, or more means. These statistical techniques are the most suited to analyze the data pertinent to the research study.

TABLE 1 – TRAINING & NETWORK PERFORMANCE – 2010 -11

Month	Trainee Mandays	CDR	NW RX Quality	MTTR	Uptime	Customer Satisfaction
Apr-10	2228	1.516			99.999	95.539
May-10	1625	1.462			100.000	95.851
Jun-10	1498	1.551			100.000	98.015
Jul-10	1273	1.638	96.556		100.000	98.320
Aug-10	688	1.381	96.533		99.998	90.920
Sep-10	1173	1.392	97.946	4.114	100.000	96.842
Oct-10	983	1.348	97.072	4.145	99.976	97.368
Nov-10	1115	1.274	97.074	4.995	100.000	97.227
Dec-10	1178	1.273	97.192	3.884	99.995	97.205
Jan-11	1214	1.255	97.190	4.298	99.999	96.830
Feb-11	1088	1.319	97.856	4.681	100.000	97.940
Mar-11	943	1.216	97.326	5.337	99.983	97.270
Apr-11	1248	1.289	97.806	4.447	99.999	96.630
May-11	1532	1.640	97.740	3.146	100.000	97.050
Jun-11	1531	1.661	97.510	2.822	100.000	98.380
Jul-11	1706	1.754	98.710	2.549	100.000	97.670
Aug-11	1833	1.758	98.770	2.675	100.000	98.110
Sep-11	1874	1.605	97.940	2.601	100.000	98.479
Oct-11	1907	1.490	98.050	2.546	99.999	99.170
Nov-11	1219	1.360	98.080			98.710
Dec-11	783	1.239	97.110			94.460

MISSING VALUE ANALYSIS

TABLE 2 – MISSING VALUE ANALYSIS OF TABLE 1

Univariate Statistics

	N	Mean	Std. Deviation	Missing		No. of Extremes[a]	
				Count	Percent	Low	High
VAR00002	21	1363.76	398.247	0	.0	0	0
VAR00003	21	1.45	.175	0	.0	0	0
VAR00004	18	97.58	.634	3	14.3	0	0
VAR00005	14	3.73	.985	7	33.3	0	0
VAR00006	19	100.00	.006	2	9.5	3	0
VAR00007	21	97.05	1.794	0	.0	2	0
VAR00001	21			0	.0		

TABLE 3 – MVA – TABULATED PATTERNS

Tabulated Patterns

Number of Cases	Missing Patterns[a]							Complete if ...[b]	VAR00002[c]	VAR00003[c]	VAR00004[c]	VAR00005[c]	VAR00006[c]	VAR00007[c]
	VAR00002	VAR00003	VAR00007	VAR00001	VAR00006	VAR00004	VAR00005							
14								14	1380.36	1.45	97.73	3.73	100.00	97.58
2							X	16	980.50	1.51	96.54	.	100.00	94.62
3						X	X	19	1783.67	1.51	.	.	100.00	96.47
2					X		X	18	1001.00	1.30	97.60	.	.	96.59

a. Variables are sorted on missing patterns.
b. Number of complete cases if variables missing in that pattern (marked with X) are not used.
c. Means at each unique pattern

TABLE 4 – DESCRIPTIVE ANALYSIS OF TRAINING & NETWORK PERFORMANCE DATA

Descriptive Statistics						
	Count	Mean	Median	Standard Deviation	Minimum	Maximum
Trainee Mandays	21	1363.761905	1248	398.2470219	688	2228
CDR	21	1.448564476	1.391951254	0.174928352	1.21595285	1.758
NW RX Quality	18	97.58114089	97.625	0.634032504	96.5328	98.77
MTTR	14	3.731401579	3.999244546	0.985121613	2.545665744	5.336925681
Uptime	19	99.99726316	100	0.006479387	99.976	100
Customer Satisfaction	21	97.0469345	97.27	1.794187387	90.92031946	99.17

TABLE 5 – IMPACT OF TRAINING ON NETWORK PERFORMANCE
REGRESSION: X – TRAINEE MANDAYS Y- DROP CALL RATE

Regression Statistics	
Multiple R	0.691536466
R Square	0.478222684
Adjusted R Square	0.45076072
Standard Error	0.12964059
Observations	21

ANOVA					
	df	***SS***	***MS***	***F***	***Significance F***
Regression	1	0.292671597	0.292672	17.414	0.000516144
Residual	19	0.31932697	0.016807		
Total	20	0.611998568			

	Coefficients	***Standard Error***	***t Stat***	***P-value***
Intercept	1.034315628	0.103221019	10.0204	5.09E-09
Trainee Mandays	0.000303755	7.27903E-05	4.173009	0.000516

In the regression statistics table above, we can see R (0.692) the correlation of dependent variable DCR with the independent variable training man days, whereas the R Square (0.478) denotes variance. The ANOVA table shows that the F value of 17.414 is significant.
Therefore, around 48% of the variance in DCR has been significantly explained by the independent variable training man days. **Thus hypothesis 1 was substantiated.**

TABLE 6 – IMPACT OF TRAINING ON NETWORK QUALITY
REGRESSION: X – TRAINEE MANDAYS Y- NW RX QUALITY

Regression Statistics	
Multiple R	0.710528795
R Square	0.504851169
Adjusted R Square	0.473904367
Standard Error	0.45987931
Observations	18

ANOVA					
	df	***SS***	***MS***	***F***	***Significance F***
Regression	1	3.450128991	3.450129	16.31352	0.000950818
Residual	16	3.383823673	0.211489		
Total	17	6.833952663			

	Coefficients	***Standard Error***	***t Stat***	***P-value***
Intercept	95.97929633	0.411140492	233.4465	1.08E-29
Trainee Mandays	0.001238114	0.00030654	4.038999	0.000951

In the regression statistics table above, we can see R (0.711) the correlation of dependent variable NW RX Quality with the independent variable training man days, whereas the R Square (0.505) denotes variance. The ANOVA table shows that the F value of 16.314 is significant.
Therefore, around 51% of the variance in NW RX Quality has been significantly explained by the independent variable training man days. **Thus hypothesis 1 was substantiated.**

TABLE 7 – IMPACT OF TRAINING ON NETWORK OPERATIONS & MAINTAINANCE
REGRESSION: X – TRAINEE MANDAYS Y- MEAN TIME TO RESTORE

Regression Statistics	
Multiple R	0.927329555
R Square	0.859940104
Adjusted R Square	0.848268446
Standard Error	0.383731809
Observations	14

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	10.84903849	10.84904	73.67763	1.81563E-06
Residual	12	1.767001214	0.14725		
Total	13	12.6160397			

	Coefficients	***Standard Error***	***t Stat***	***P-value***
Intercept	7.429106728	0.442828294	16.7765	1.07E-09
Trainee Mandays	-0.002678803	0.000312085	-8.58357	1.82E-06

In the regression statistics table above, we can see R (0.927) the correlation of dependent variable MTTR with the independent variable training man days, whereas the R Square (0.860) denotes variance. The ANOVA table shows that the F value of 73.678 is significant.

Therefore, around 86% of the variance in MTTR has been significantly explained by the independent variable training man days. **Thus hypothesis 1 was substantiated.**

IMPROVEMENT IN CUSTOMER SERVICE

TABLE 8 – IMPACT OF TRAINING ON CUSTOMER SERVICE
ANOVA: SINGLE FACTOR - UPTIME

SUMMARY				
Groups	*Count*	*Sum*	*Average*	*Variance*
Less than 1000 trainee days a month	3	299.957	99.98567	0.000126
1001 to 1500 trainee days a month	8	799.993	99.99913	2.98E-06
1501 and above trainee days a month	8	799.998	99.99975	2.14E-07

ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.000481	2	0.00024	13.98021	0.000308	3.633723
Within Groups	0.000275	16	1.72E-05			
Total	0.000756	18				

TABLE 9 – IMPACT OF TRAINING ON CUSTOMER SATISFACTION
ANOVA: SINGLE FACTOR - CUSTOMER SATISFACTION

SUMMARY				
Groups	*Count*	*Sum*	*Average*	*Variance*
Less than 1000 trainee days a month	4	380.018	95.00449	9.232103
1001 to 1500 trainee days a month	9	877.7188	97.52431	0.548895
1501 and above trainee days a month	8	780.2489	97.53111	1.66886

ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	20.61268	2	10.30634	4.238435	0.031021	3.554557
Within Groups	43.76949	18	2.431638			
Total	64.38217	20				

The result of ANOVA test shown above has P <= 0.05, which means number of OJTs has positive effect on customer service, which means sustained OJT can lead to improvement in customer satisfaction. **Thus, hypothesis 2 stands accepted**

KEY FINDINGS & CONCLUSION

The NLC Learning Framework is a result of the practical insights gained by imparting training to over 32,000 employees over the past nine years. It has been reinforced by adopting the best features of industry standard models. From 2002, the year NLC was established, to 2008, all training programs were instructor led direct contact programs at their national headquarters and required the participants to travel to the centralized NLC facilities. This method was ideal for equipment training, where engineers could access the state-of-the-art labs for hands-on practice. The Labs are built as per the scaled down model of the functional network, simulating actual fault management, provisioning and operational scenarios. This provides the participants complete exposure to field realities and enhances their psycho-motor skills. This method has yielded desired result in the network operations.

In 2008 the global economic environment changed with most of the countries facing economic slowdown. The global meltdown also affected India with organizations looking to rationalize their expenses. NLC came out with an innovative solution to meet this challenge in the form of "On-the-job Training" coupled with hands-on using NLC lab. The NLC classrooms are equipped with latest PCs, connected to the corporate Intranet, access to integrated labs. NLC also access Vendor Labs through internet. The rooms are also equipped with Video Conferencing (VC) facilities and modern training aids like digital tablets to simulate classroom experience. Participants join the training program form their respective locations through the video conference facilities. The trainer drives the session from the centralized NLC facility using conferencing tools like Microsoft Net Meeting, WebEx etc. The table 10 below provides a summary of the NLC technology infrastructure used for on-the-job hands-on training.

TABLE 10 – NLC TRAINING INFRASTRUCTURE

Equipment Types	Nos.	Equipment Types	Nos.
SDH	25	LMDS	4
DWDM	11	UBR	2
Core Routers	6	VSAT	2
MEN Routers	7	DLC	5
MEN Switches	11	IPDSLAM	1
Microwave	12	TAG	1
BTS	3	EoPDH	2
Wi-Max	2	OSS Server	1

The following are the important findings of this study:

1. OJT for all employees across geographies enable telecom companies to improve network quality and operational efficiency.
2. The optimal method of training delivery for telecom organization is the OJT using video/audio conferencing and collaborative tools over the corporate intranet.
3. OJT method can be effectively used to deliver technology as well as hands-on equipment training for people with diverse skill sets and functions including Planning & Engineering, Network Operations & Maintenance and provisioning teams.
4. OJT is highly relevant to the telecos especially their National Network Operations Center (NNOC) which provides 24*7 surveillance, fault management of the network. The skills sets of the engineers operating in this high technology environment are unique
5. Training has high correlation with operational efficiency in the manpower intensive and technology driven telecom industry.
6. Sustained OJT has positive effect in customer service and results in improved customer satisfaction.

7. OJT provides many benefits for both the short-term and long-term success of an organization.

REFERENCES

1. Barbara Means, et. al., Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies, Revised September 2010, U.S. Department of Education, Office of Planning, Evaluation, and Policy Development Policy and Program Studies Service
2. Bloom B S, (1956). "Bloom's Taxonomy of Learning Domains", viewed on February 23 2012. http://www.nwlink.com/~donclark/hrd/bloom.html#psychomotor
3. Dave, R.H. (1975). Developing and Writing Behavioural Objectives, R J Armstrong, ed., Educational Innovators Press, Tucson, Arizona, USA.
4. Deb Sagarmay, Effective Distance Learning in Developing Countries Using Mobile and Multimedia Technology, International Journal of Multimedia and Ubiquitous Engineering, Vol. 6, No. 2, April, 2011
5. Effectiveness Training – Systems, Strategies and Practices – P Nick Blanchard & James W. Thacker C 2nd Edition Pearson Education 2004
6. Employee Training and Development by Raymond A Noe (2008),McGrawHill Publication
7. Evaluating Training Programs: The Four Levels by, James D Kirkpatrick
8. How to Measure Training Results: A Practical Guide to Tracking the Six Key Indicators by Jack Phillips, Ron Stone (2002)
9. "Huawei Telecom Industry Trend", viewed on March 31 2012. http://www.malaysianwireless.com/2012/01/huawei-telecom-industry-trends-for-2012/
10. Khandekar, A and Sharma, A (2006). Organizational learning and performance: Understanding Indian scenario in present global context
11. Kirkpatrick, D. L. (1994). "Evaluating Training Programs", Berrett-Koehler Publishers, San Francisco.
12. Kumar, R (2003). Identification of Problems Associated with Implementing Organizational Learning through A Systems-based Approach
13. Mark Huselid, The Impact of Human Resource Management Practices on Turnover, Productivity, and Corporate Financial Performance, April 5, 1995, Academy of Management Journal, Vol. 38, No. 3, pp. 635-672, 1995
14. Mehrdad Alipour, Mahdi Salehi & Ali Shahnavaz, A Study of on the Job Training Effectiveness: Empirical Evidence of Iran, International Journal of Business Management, Vol 4, No. 11 , 2009, pp 1-3
15. NAIDU SOM, E-Learning - A Guidebook of Principles, Procedures and Practices, 2nd Revised Edition, CEMCA, 2006, Commonwealth Educational Media Center for Asia (CEMCA)
16. Newell E. Chiesl, Indiana State University, DESIGNING INTERACTIVE SELF-LEARNING MODULES USING MACROMEDIA DIRECTOR, Developments in Business Simulation and Experiential Learning, Volume 28, 2001
17. NIOSH., (1999). "A Model for Research on Training Effectiveness", viewed on December 06 2011. http://www.cdc.gov/niosh/pdfs/99-142.pdf
18. Organization Development and Transformation by Wendell French, Cecil H. Bell, Robert A. Zawacki (2005)
19. Personnel Management and Industrial Relations – N.G. Nair, Latha Nair – s. chand Company Ltd., New Delhi C 1999)
20. Richard Doss, Dr. Kevin, Gary Floss, Ron McGuire (2007). "Structured On-the-Job Training and Its Value to High Performance Manufacturing", viewed on April 06 2012. http://www.rwd.com/uploadedfiles/industries/consumer_products/manufacturing/structured%20on%20the%20job%20training%20white%20paper.pdf
21. The ASTD Training and Development Handbook: A Guide to Human Resource Development by Robert Craig

PEOPLE MANAGEMENT PRACTICES AT ICHALKARANJI SPINNING MILLS: AN INVESTIGATIVE STUDY

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ABSTRACT

The beginning of the co-operative spinning mill in India is relatively a recent origin. The co-operative textile sector has played a commendable role in the upliftment of small and marginal cotton farmers and the weavers belonging to the weaker sections besides the jute growers, Seri culturists and the coir workers. The classic definition of peasant and farmer is adopted here in. Although both work on the land, the latter owns it and the former do not. These peasant-farmers of a small agricultural land are referred to in this study are "marginal workers" and these comprised the sample for the pilot study. Small peasant-farmers were included in the sample chosen. These mills/units, a majority of which are located in the rural areas, have brought about a significant socio-economic transformation in the area of its operation. This transformation took the shape of better civic infrastructure and a noticeable improvement in the quality of life. To add to this, over 5 lakh cotton growers and 6000 growers co-operatives reap benefits by marketing of cotton in valued added form. About 22500 handloom weavers co-operative are benefited by consistent supply of quality yarn. The co-operative spinning mills represent about 10% of the total (cotton) spindleage of the country with substantial yarn production and exports. The weaving co-operatives have been instrumental in providing a source of livelihood to a large number of people most of which belong to the weaker segment.

KEYWORDS
HR Practices, Men, sheer logic.

INTRODUCTION

Spinning is one of the most basic crafts. It has been discovered and improved upon over and over again, each culture adapting it to best suit their needs. Spindle whorls (the round weight, which, with the shaft, composes a spindle) have been found dating to Neolithic times. The technology for spinning did not change until the development of the spinning wheel and flyer in medieval times. For much of human history, all members of a society would have been involved on some level with the production of textiles. The two most common methods used to prepare wool for spinning are carding and combing. Wool-combing, in fact, was the last process in wool production to be mechanized; this was not possible until the mid 18th century. Wool-combing also is the older of the two processes; carders seem to come into use in northern Europe sometime in the 13th century. Preparing fleece by carding will produce a woolen yarn, that is, a yarn that is relatively low twist, with a soft or fuzzy finish, and that will felt easily. Combing, in which the fibers are prepared to be spun parallel to each other as much as possible, produces worsted, a high twist, smooth yarn that wears well and tends not to felt.

The industrial revolution took place in England and that too in textile industries. This had far reaching impact upon all the industries. Our country is prominently though, and an agrarian economy is much affected by the agricultural products. Cotton textile industry plays a very prominent role in development of our nation. The organization of cotton textile industry is nearly 175 years old, with the first mill on modern lines have been set up in 1817.from small beginning and against heavy odds it had phenomenon growths especially after the country gained independence. The Indian cotton textile industry is one of the organized sectors of Indian economy. Actually, 88% of labour is unorganized and 12% is organized. Most if not all agricultural labour is organized.

The first textile mill (Buckingham and Carnatic Mills) was started at Bombay in 1854. This was also the mill that saw the first strike led by Sorabji Shapurji Bengalee. Due to the overwhelming support given by Mother Nature to the growing of cotton, Maharashtra and Gujarat hold top position in this industry. The first co-operative spinning mill was started by Madras state handloom weavers federal co-operative societies. There are 164 registered co-operative spinning mills in Maharashtra, of which 68 are functioning 32 in preliminary stages and remaining is yet to start their beginning. There are 12 spinning mills in Kolhapur district. The city of Ichalkaranji has been a textile hub for many years so the researcher has selected cooperative spinning mills from Ichalkaranji city to conduct this pilot study. This choice was relevant and representative at the same time.

Since then the textile industry grew. There were 131 spinning mills in the co-operative sector, 538 of which were in private sector and 118 in public sector by 1997. It replaced the handloom and brought into the fast moving machinery. Naturally, the Indian textile industries begin to see the new changes. India was the whole land of cotton fabric and has influenced the whole world. But the introduction of new machinery in textile industry and the British patronage changed the whole face of India.

Once considered the hub of textile industry, cooperative spinning mills in the Ichalkaranji, in the District of Kolhapur of Western Maharashtra are not doing well since the Datta Samant era when textile mills were closed down across Western India i.e. 1980-85. Without looking at the capacity to pay, wage demands escalated and without taking the futuristic view union ideology triumphed over expediency. Working class consciousness rose but was not in consonance with reality. Consequently they were forced to shut down their operations. This has a social, economic and political cost which civil society has to bear in the absence of Unemployment Benefit Scheme.

The first co-operative spinning mill was started by Madras state handloom weavers federal co-operative societies. Another co-operative spinning was registered in the state of Madras with objectives of the providing employment mainly to Indians repatriates from Srilanka and Burma.

Ichalkaranji and other neighboring regions also fell in the line with India's textile industries and integrated textile mills saw the lights of day here. There were 164 registered co-operative spinning mills in Maharashtra, of which 68 are functioning 32 in preliminary stages and remaining is yet to start their beginning. There are 12 spinning mills in Kolhapur district.

The city of Ichalkaranji has been a textile hub for many years. The natural climate of Ichalkaranji is conductive to the textile manufacturing process. Even though the composition textile mills and spinning mills have been making a good business in the past they are not doing well for the last decade or so. These power units also are going for modernization and quality improvement. Industrial organization is a gigantic structure, which is supported by four 'Ms'. Man, Machine, Material, Money.

The co-operative movement in Kolhapur is back bone of the economic development of the district. This is the only movement which has touched every field. The stalwarts like Mr. Ratnappa Kumbhar, Mr. Tatyasaheb Kore, Late Dattajirao Kadam, Dadasaheb Patil Kaulavkar, D.C.Narake and several others have laid the foundation of this movement. The co-operative spinning mills have raised the living standard of farmers and workers working in it. The district has made progress mainly through the co-operative movement. In September 1906 the Late Chh. Shahu Maharaj laid the foundation stone of Shahu Chhatrapati Spinning mills which was a begging of industrialisation in Kolhapur.

LITERATURE REVIEW

Review of literature is concerned to the study of previous research work in the field of chosen research problem and other problems related to spinning mills.

Kamat G S (1978) "He studied the dimensions of cooperative management in his book. But it seems that he does not deal with the managerial aspect of the cooperative spinning mills. He deals widely with other general factors of the management. It does help to the researcher to understand the problem of management in proper perspective in various dimensions.

Kulkarni V B (1979) He critically presents a brief history of the textile industry in his book. He is mainly concerned with the historical aspect of the industry. He has also given the critical understanding of the government policies declared time to time. It surely gives a brief idea of the whole textile industry and the policy of the government. But from the point of view of the management has to go a step ahead.

Dubeja V S (1981) In management of textile Industry he advocates that the workers participation in the management is quite essential as it will increase the productivity of the mills. He concentrates his mind on various problems in the textile industry, but ultimately he comes to the conclusion that workers and the authorities should work together to solve the problems. He feels that unless the gap is filled with clear understanding, there will be no proper progress.

Armstrong M (2000) He explains HR policies as continuing guidelines vis-à-vis the approach which an organisation intended to adopt in managing its valued assets, i.e. the people. The HR policies dictate philosophies and values as to how people should be treated. He further added that these policies form the basis of principles which managers use in handling people**.**

Dwivedi R S (2006) According to him it is very difficult to initiate competitive strategy based on human resources. The key to competitive advantage in the modern world is the application of sophisticated HR policies and practices. This is because of the fact that competitors are unable to formulate an effective response in the short term. The human resources can help a company to accomplish competitive advantage by lowering costs, enhancing sources of product and service differentiation or by both. However, these activities must be managed from a strategic perspective to accomplish competitive advantage.

Dwivedi R S (2007) He concluded in his chapter HR policies, strategy and planning that, the survival and growth of today's organisation necessitate close linkages between HR and business policy and planning**.**

SAMPLE PROFILE OF SPINNING MILLS

Since this was a pilot study only two mills were considered for this study that lasted from to January 2010 to June 2010. It took one month to go back and with focused interviews confirm the empirical findings based on the questionnaire personally administered by this author. Based on this pilot study a detailed study is being undertaken.

Nav Maharashtra Sahakari Soot Girni Ltd: It is the first 100% EOU in spinning sector of India. This mill has started its commercial production in 1986 and has been exporting the cotton yarn to the esteemed buyers of Italy, U.K, Belgium, Spain, Turkey, Malaysia, Philippines, Hong King, China Taiwan, S Korea, Japan and Latin American countries. The yarn manufactured is known by "NAVMA" brand. Due to the changing global scenario, this EOU has been DE-bonded now and ready to cater its cotton yarn to local weavers and knitters along with its export supplies.

Datta Shetkari Vinkaril Sahakari Soot Girni: It was registered on 29th Sept.1979 but the actual production was started on 1st April 1993. At the beginning cotton yarn was produced. Since 1997 they have started producing Polister Viscose (PVR) due to the non availability of cotton (raw material). Now the mill only produces polister by purchasing the raw material (PVR) from Reliance Industries. The goods produced are sold in Malegao, Bhivandi and Solapur districts of Maharashtra. Now the mill is planning to start a new project which costs 36.69 crores which is lagging with the Government Cooperative Development Corporation.

OBJECTIVES

Based on the theoretical framework the following were the objectives of this study:

1] To study the awareness and attitude of the workers towards HR practices followed by the organization.

2] To study the workers satisfaction level as regards to HR practices.

HYPOTHESIS

Ho: The employees are not satisfied with the HR practices.

H1: The employees are satisfied with HR practices.

RESEARCH METHODOLOGY

The study conducted on HR policies and practices in cooperative spinning mills. The type of research is an empirical research used for the study undertaken by the researcher.

Sample Design:-The study will be confined to Ichalkarangi Spinning mills.

TABLE NO: 1 SAMPLE SELECTED ON THE BASIS OF MILLS

Sr.No	Name of the mill	Class of employees	Total numbers	Sample size (10%)
1	Nav Maharashtra Sahakari Soot Girni Ltd, Ichalkaranji, Kolhapur.	Workers	600	60
		Supervisors	27	3
		Managerial Staff	53	5
2	Datta Shetkari Vinkari Sahakari Soot Girni Ltd, Ichalkaranji, Kolhapur	Workers	202	20
		Supervisors	8	1
		Managerial Staff	8	1
Total			898	90

TABLE NO: 2 SAMPLE DESIGN

Classes of employees	No. of Respondents
Workers	80
Supervisors	4
Managerial Staff	6
Total	90

The researcher had selected Eight Hundred respondents (about 10%) from the entire population of spinning mill on the basis of simple random sampling method. This includes Workers, Supervisor and Managerial staff.

METHOD OF DATA COLLECTION

The three prime methods to be used are: 1) Survey Method. 2) Questionnaire/ Schedule and 3) Interview; besides published literature

Apart from this the following sources are used:-

a) Primary Source: This data which is collected is fresh and original in character. The data is collected with the help of well-structured questionnaire along with formal interview and personal discussions.

b) Secondary Source: This data is collected from published literature, company records and internal documentation. It is also collected from the following sources:

a. Companies website
b. Companies legal documents
c. Annual reports

Further the researcher had recorded his observations during the data collection. Also he had conducted the group discussions to understand the opinion and attitude of the respondents in general.

METHODS OF DATA ANALYSIS

The data collected with the help of questionnaire is given code and the code book is prepared. As the researcher is well versed with computer technology he had feed the data in excel sheets. With the help of excel sheets the tables are prepared, analyzed and interpreted.

On the basis of the findings of the tabulated information in previous chapter, and the observations during the data collection work recorded by the researcher is considered and conclusions are drawn out by the research investigator which will help him to recommend few precise suggestions.

SCOPE OF THE STUDY

The present study undertaken by the researcher is focused on certain specified functional areas within the regular limits and is restricted to HRM Policies and Practices in co-operative Spinning Mills within Ichalkarangi.

The geographical scope of the study covers two mills of Ichalkaranji.

The functional scope is confined to the HR policies and practices in two cooperative spinning mills. By HR practices we mean the practices related with employment, training and development, compensation management and Human and Industrial relations. The cooperative spinning mills are selected according to convenient, and are in sound conditions registered as co- operative units in the jurisdiction of Kolhapur district are covered for the purpose of the study.

IMPORTANCE OF THE STUDY

Taking into consideration the current evaluation where knowledge is important, preliminary studies indicate that PEOPLE is the most important factor. As human power is important factor, it also is essential that labour force is treated very carefully. Managers, economists, accountants and the HRM experts, in recent years are working on HRM evaluation and accounting. Among the questions they are jointly asking with regards to an individual organization or an institution is:

1) How much money does the organization spend on recruitment and selection of people
2) How much is spend on training and development
3) What is the return on investment in training
4) Is the value of the organization human assets are increasing or decreasing
5) Should the money spent on recruitment, selection, training and development to be treated as a current expenses or as a capital investment

In the light of the above development the present study has its significance in identifying the HRM Practices adopted by the co-operative spinning mills regarding Employment, Human Resource Development, and Compensation Management and Industrial Relations.

There is little doubt that the present study is very significant in identifying the HRM Practices adopted by the co-operative spinning mills regarding Employment, Human Resource Development, Compensation and Industrial Relations. It thus provides a base for further research.

HYPOTHESIS TESTING

Ho: The employees are not satisfied with the HR practices.

H1: The employees are satisfied with HR practices.

TABLE NO 3: ANALYSIS AND INTERPRETATION OF DATA

HR Practices		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	x^2	D.F	Table value	P value
Employment	Recruitment & Selection	42	27	12	08	01	14.1	4	13.27	P< 0.01 H.S
	Induction & Placement	38	46	03	02	01				
Performance Appraisal	Appraisal	**39**	**26**	**16**	**7**	**2**	**22.9**	**04**	13.27	**P<0.01 H.S**
	on-the-job training	**35**	**49**	**02**	**01**	**03**				
Wages & Salary	salary and allowances	**39**	**33**	**05**	**06**	**07**	**16.8**	**4**	13.27	**P<0.01 H.S**
		52	**11**	**13**	**08**	**06**				
Human Relations	working conditions	**42**	**31**	**04**	**06**	**07**	**72.2**	**28**	48.27	**P<0.01 H.S**
	provision of leave	**63**	**16**	**06**	**02**	**03**				
	Open door policy	**52**	**28**	**04**	**06**	**00**				
	Welfare facilities	**66**	**17**	**00**	**04**	**03**				
	Pride in being an employee of this org.	**54**	**21**	**04**	**06**	**05**				
	Regular department meetings	**40**	**32**	**11**	**04**	**03**				
	Job stress & tensions counselling by experts	**30**	**41**	**03**	**11**	**05**				
	Proper display of safety instructions	**45**	**31**	**07**	**04**	**03**				
Industrial Relations	Suggestion & complaint box	**52**	**17**	**13**	**03**	**05**	**71.8**	**16**	32.00	**P<0.01**
	Transparency in decision making	**47**	**22**	**09**	**04**	**06**				
	employer-employee relations	**41**	**37**	**02**	**07**	**03**				
	grievance redressel committee	**38**	**43**	**00**	**09**	**00**				
	union-employee relations	**54**	**13**	**17**	**00**	**06**				

As calculated chi-square value of each parameter is found greater than table value. Hence null hypothesis is rejected and alternative hypothesis is accepted which indicates that there is significant relation between level of employee satisfaction and HRM practices adopted by Co-operative spinning mills.

OBSERVATIONS

1] Most of the employees hold agricultural land which is a first priority for them and then the job. So, the mills face tremendous problems of workers during the time of harvesting period of the crops.

2] As the Deccan Co-operative Spinning Mills Ltd, Ichalkaranji has been closed down so the employees don't have faith on the mills and that's the reason why most of the employees leave the job after completion of 5 yrs service to enjoy the gratuity and again rejoins the mill **or** they leave the organization before completion of 10 years of service as after 10 years they will be eligible for Pension so, they withdraw from the service and again rejoin so that they can enjoy the amount of pension.

3] Female workers are available but if the number of female workers extends 30 then the mills have to take a special permission from the Factory Inspector.

4] Simply the statutory provisions are forces on the mills. E.g. if most of the females are unmarried and if they are married they have children above 10 yrs then too Crèches are made compulsory.
5] There is negligence from the Government towards the co-operative spinning mills.

CONCLUSION

The employees are satisfied with their job but they should realize the importance of their work for which the HR Managers should council the employees. The mills should implement the incentives schemes and performance based promotion for the workers to increase the productivity. Those statutory provisions which are of no use should be abolished by the law.

REFERENCES

1. Cooperative Movement at a Glance (2004), Government of Maharashtra, commissionerate for cooperation and registrar of cooperative societies, Pune.
2. Koli PA (1995) The Co-Operater
3. Jalan S P (1997): Rethinking for Survival, RBSA Publishers, Jaipur.
4. The All India Federation Of Co-Operative Spinning Mills Ltd (2005)
5. The All India Federation of co-operative spinning mills ltd (16th annual report 1979-80)
6. Jayashree S, Sadri S and Nayak N (2009): A Strategic Approach to Human Resources Management, Jaico Pub. Co. Mumbai
7. Kadvekar SV (Management of Cooperative Spinning Mills in Maharashtra 1980)
8. Mishra B, G.C.Kar and S N Misra (2004), Agro-industries and Economic development, Deep and Deep publications, New Delhi.
9. Petrofils Co-operative Ltd. (6th annual report 1979-80)
10. Schuler, R S. (1999): "Repositioning the Human Resource Function.
11. Swami H R and B P Gupta (2003) Rural development and cooperative, Ramesh book depot, New Delhi.
12. Nadler Lan (1980) Training and Development Journal-ASTD, No-34, 12th Dec
13. Foard F. Jones (Jun, 2009.) HR Magazine.

ANNEXURE 1

QUESTIONNAIRE

I will be highly obliged to you for filling up this questionairee. Please put (") mark from questions no. 1-18.

Satisfaction Level	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1.Satisfied with HR Policies					
2. Proper Employment practices					
3. Unbiased Appraisal					
4. Quality of on-the-job training					
5. Provision of salary and allowances & Incentives					
6. Good working conditions					
7. Satisfactory provision of leave					
8. Open door policy by superiors					
9. Satisfied with Welfare facilities					
10. Pride in being an employee of this organization.					
11. Regular department meetings					
12.Job stress & tensions counselling by experts					
13. Proper display of safety instructions					
14. Suggestion & complaint box					
15. Transparency in decision making					
16. Healthy employer-employee relations					
17. Proper grievance redressel committee					
18. Healthy union-employee relations					

A STUDY ON SOCIAL NETWORKS AND ONLINE COMMUNITIES CONCEPT & PRACTICES AT BHAVNAGAR CITY

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ABSTRACT

When a computer network connects people or organizations, it is a social network. Just as a computer network is a set of machines connected by a set of cables, a social network is a set of people (or organizations or other social entities) connected by a set of social relationships, such as friendship, co-working or information exchange. Online social networking sites like Orkut, Google+, Facebook, Flickr and Twitter are among the most popular sites on the Internet. Users of these sites form a social network, which provides a powerful means of sharing, organizing, and finding content and contacts. Information about social networks is gathered by questionnaires, interviews, observations and more recently through computer monitoring. In this paper, we collect the data by consider the 50 persons including students

KEYWORDS
Social Networking Sites – SNS, Social networks, Online Communities

INTRODUCTION

An online community is: Where a group of people with similar goals or interests connects and exchange information using web tools.
The "members" of the site are not really members of a community; they are merely a list of people who have a vague interest in the area.
This paper standardizes the usage of the term 'social network' in online community as a combination Of social psychological, social structural and behavioral attributes. Beyond the conceptual definition, We describe measurement and analysis strategies for identifying social roles in online community.
Since their introduction, social network sites (SNSs) such as MySpace, Facebook, Twitter, and Google+ have attracted millions of users, many of whom have integrated these sites into their daily practices. As of this writing, there are hundreds of SNSs, with various technological affordances, supporting a wide range of interests and practices.
While their key technological features are consistent, the cultures that emerge around SNSs are varied. Most sites support the maintenance of pre-existing social networks, but others help strangers connect based on shared interests, political views, or activities. Some sites cater to diverse audiences, while others attract people based on common language or shared racial, religious, or nationality-based identities.

SCOPE OF THE STUDY

In this paper, we collect the data by consider the 50 persons including students of Bhavnagar city.

REVIEW OF LITERATURE

"These social groups have a 'real' existence for their participants, and thus have consequential effects on many aspects of behavior, including consumer behavior" (Kozinets, 1998).
"One of the major purposes of marketing research is to identify and understand the tastes, desires, relevant symbol systems and decision-making influences of particular consumers and consumer groups. As the advent of networked computing is opening new opportunities for market-oriented consumer interaction, it is also opening up opportunities for marketing researchers to study the tastes, desires and other needs of consumers interacting in online communities."(Kozinets, 2002)
We define social network sites as web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system. The nature and nomenclature of these connections may vary from site to site.
While we use the term "social network" to describe this phenomenon, the term "Social Networking" also appears in public discourse, and the two terms are often used interchangeably. We chose not to employ the term "networking" for two reasons: emphasis and scope. "Networking" emphasizes relationship initiation, often between strangers. While networking is possible on these sites, it is not the primary practice on many of them, nor is it what differentiates them from other forms of computer-mediated communication (CMC).
Alem, Leila. Simon Kravis. "Design and Evaluation of an Online Learning Community: A Case Study at CSIRO. SigGroup Bulletin 25.1(2004):20-24.
The topic of this article concerns the development and evaluation of a successful online community. The purpose of this article is to investigate how the organization is impacted because of the introduction of an online community. To evaluate the community, they used a web-based questionnaire as well as data they acquired from online discussions between members. The researchers feel that moderation is a requirement in the online community for it to function. This article is helpful to the analysis of the Voluntary Gateway because it provides ideas on how to improve online discussion.
Online literacy in education systems where there is much diversity in quality of learning opportunities, which schools facilitate. (Greenhow & Robelia, 2009) "Social network sites (SNSs) available via the internet may provide promising contexts for learning to supplement school-based experiences" (Greenhow & Robelia, 2009, p. 119)
Boyd and Ellison (2008: 210-230) have summarized recent research and social network history. The authors, Berkeley and Michigan State professors, consider social Networks as increasingly attractive for researchers, fascinated for their usefulness, audience size and market research potential. They define social networks are web-based services that allow users to build a public or semi-public within a system; articulate a user list with shared relationships; and observe the list of relationships of those persons with other people within the system" (Boyd and Ellison, 2008: 211).

RESEARCH OBJECTIVES

To find the impact of interaction through these communication among Indian users (with reference to Face book, Twitter and Google+)

To study the effectiveness of brand communication through social networking sites from its users and communicators.
Find out the influence of social networking sites on the personal and professional life of the people- how it affects their relations, what are its uses for each individual and how have these sites influenced them.

RESEARCH METHODOLOGY

The present study is focusing on Social Networks and Online Communities. This is an exploratory study carried out to identify various people's reviews about the Social Networks and Online Communities. The present study is based on primary data collected from the correct we collect the data by consider the 50 peoples including students of Bhavnagar city by a close ended questionnaire. The collected data is duly edited, classified, and analyzed by using appropriate and relevant statistical techniques

DATA COLLECTION

TABLE 1: YOUR FAVORITE SOCIAL NETWORK

Item	Facebook	Twitter	Google+	Other
Which of these social networks are you a member of ?	32	5	10	3

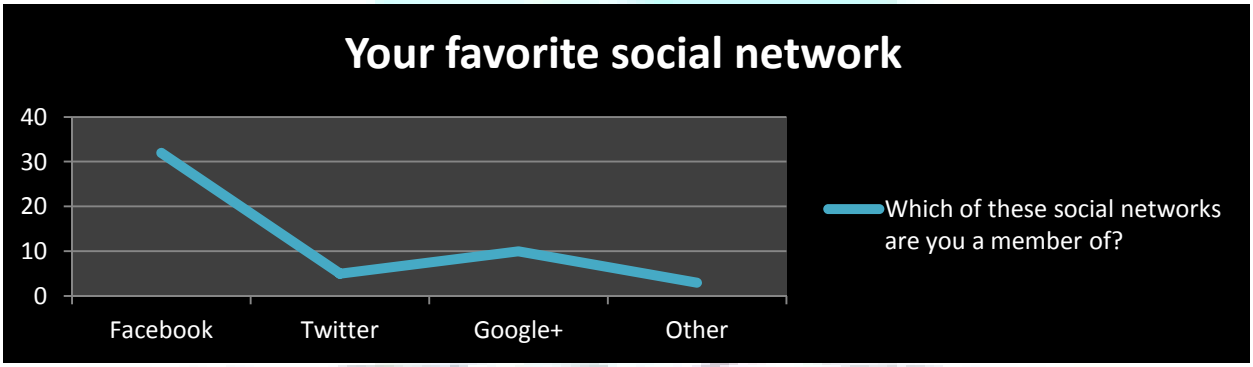
TABLE 2: USE OF SOCIAL NETWORK

Item	Daily	3 times a week	Once a week	Once a month
How many times do you use social networks?	35	10	2	3

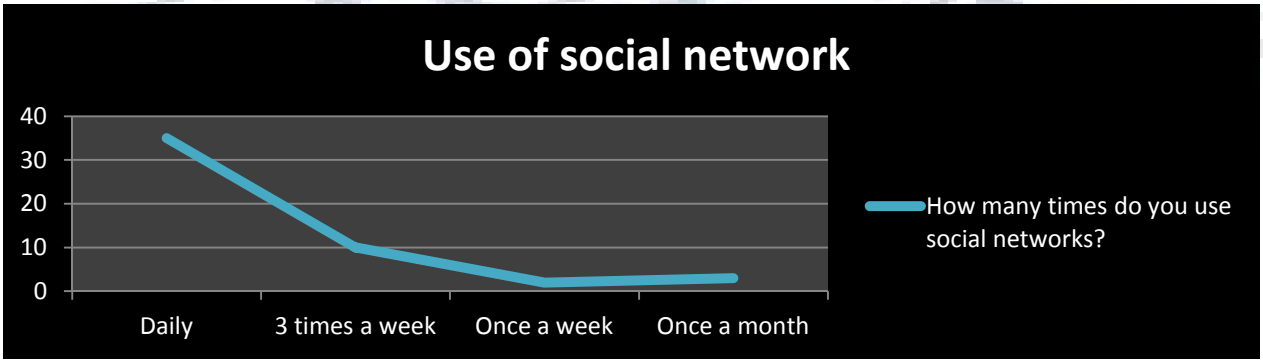
TABLE 3: DIFFERENT TYPE OF REVIEWS ON SOCIAL NETWORKS AND ONLINE COMMUNITIES

Item	Yes	No
Do you use any social networking sites?	50	00
Are you a member of multiple networking sites?	40	10
Have you ever ignored a responsibility because of social networking?	20	30
Have you ever said 'no' to a family event or activity because of social networking?	10	40
Has anyone ever commented on the amount of time you spend on social networking sites?	45	05
Do you check social networking sites through your phone when traveling?	35	15
Have you ever missed your food, medication, or sleep over social networking?	20	30
Do you have more friends on social networking site vis-à-vis in real life?	45	05
Have you ever purchased a product or service from a social network?	23	27
Have you ever met someone in person that you have come to know through asocial network site?	30	20
Do you feel these networking sites have created any negative impact on your personal life?	17	33
Do you feel that parents' discretion and monitoring is required in this case for children using these sites?	46	4
Do these networking sites influence your lifestyle in any way?	22	28
Have you ever had any negative/bad experience from these networking sites?	14	36

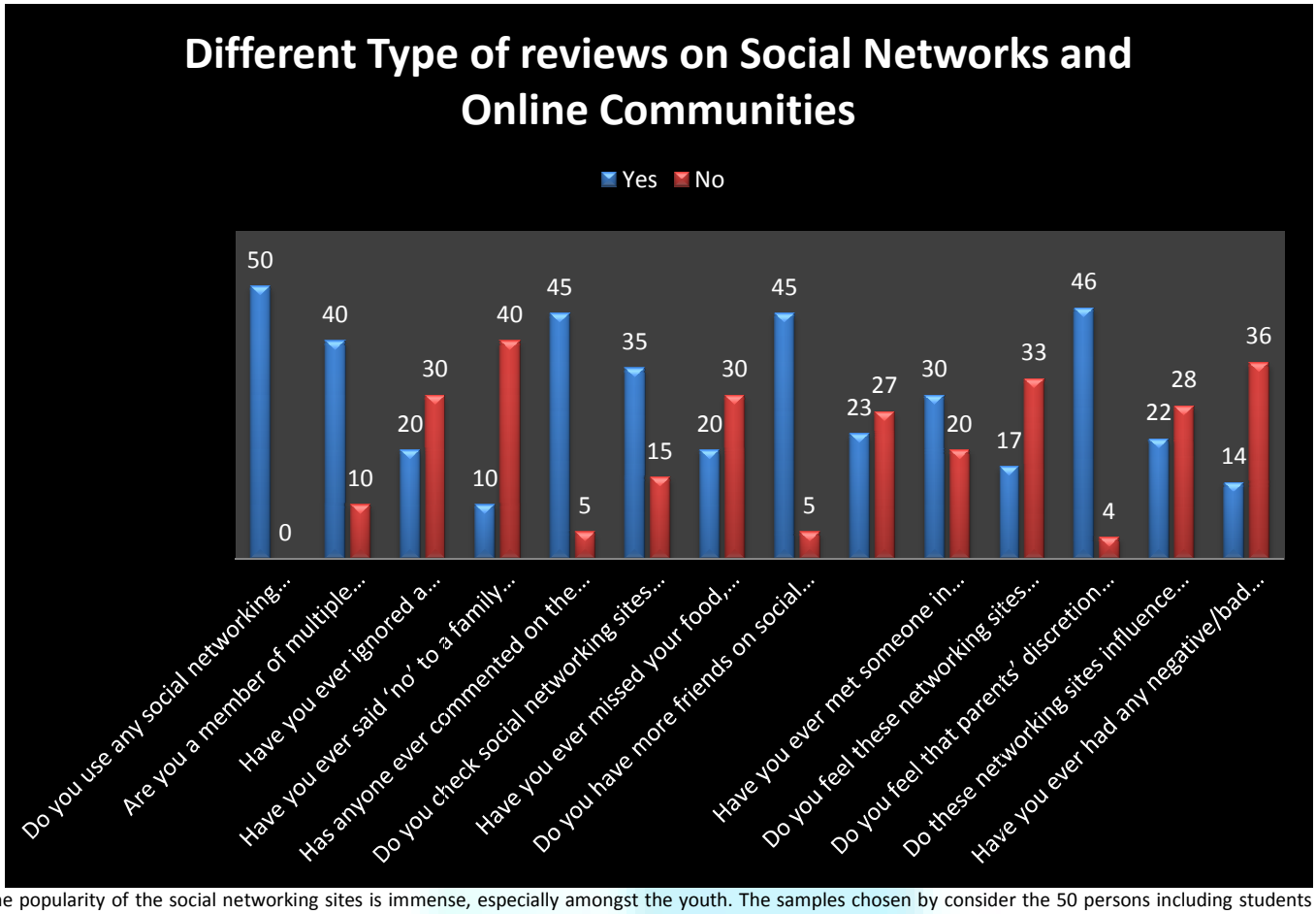
ANALYSIS AND INTERPRETATION



In above chart we have to know that Facebook is a hands down winner in this regard, One major interpretation here is that 32 users out of 50 who use Facebook.



The number of hours spent on these networking sites should be analyzed here to determine what impact it would have on the users. The more the time spent, more probability of these sites being beneficial is there.
The majority of the peoples spend on an average of about 6 to 9 hours every day surfing these networking sites. Amongst those about 35 users out of 50 users every day, 10 users out of 50 that make use of social network in 3 time a week. 2 users spent the time every week. Some people that use social network in once a month.



The popularity of the social networking sites is immense, especially amongst the youth. The samples chosen by consider the 50 persons including students of Bhavnagar city. Analysis of the data tells us that 50 users use at least one of the networking sites and mostly the users are members of multiple social network sites

As per the survey, 72% of the people find that there is no as such negative impact in their personal life. Only 28% of the sample population feels that there is a negative impact on their personal lives.

As per the analysis, 92% of people feel that parent's carefulness and monitoring is required in this case for children using these sites. Only 8% of the users discover that no any require of carefulness and monitoring for children using these sites

CONCLUSION

A social networking web site is an online community in which people can connect to others with similar interests. Since their start in 1995 with Classmates.com, social networking web sites have grown enormously to include such huge sites today as orkut.com, Facebook.com, and orkut.com.

Through these sites, businesses 'can use social networking web sites to connect to potential employees, market new products, and get feedback on their current products as well as new ideas for future products. Although there are many valuable assets to social networking website, there are also major issues that the sites must address such as the protection of private protection of private information, the protection of children, and the protection of copyrighted material. Although they have issues, social networking web sites are still one of the best inventions of the modern time because they connect so many people.

REFERENCES

1. Acquisti, A., & Gross, R. (2006). Imagined communities: Awareness, information sharing, and privacy on the Facebook. In P. Golle & G. Danezis (Eds.), Proceedings of 6th Workshop on Privacy Enhancing Technologies (pp. 36-58). Cambridge, UK: Robinson College.
2. Adamic, L.A. and Adar, E. (2003). Friends and neighbors on the web. Social Networks, 25(3), 211-230.
3. Bausch, Suzy and Leilani Han (2006), "Social Networking Sites Grow 47 Percent, Year Over Year, Reaching 45 Percent of Web Users," http://www.NielsenNetratings.Com/Pr/Pr_060511.pdf (accessed March 15, 2008).
4. Boyd, Danah M. and Nicole B. Ellison (2007), "Social Network Sites: Definition, History, and Scholarship," Journal of Computer-Mediated Communication, 13 (1), http://jcmc.indiana.edu/vol13/issue1/boydellison.html(accessed March 15, 2008).
5. Ellison, Nicole B., Charles Steinfield, and Cliff Lampe (2007), "The Benefits of Facebook Friends: Social Capital and College Students' Use of Online Social Network Sites," Journal of Computer-Mediated Communication, 12 (4), http://jcmc.indiana.edu/vol12/issue4/ellison.html (accessed January 21, 2008).
6. Mislove, M. Marcon, K. P. Gummadi, P. Druschel and B. Bhattacharjee. Measurement and Analysis of Online Social Networks. In Proc. of IMC, 2007.
7. R. Kumar, J. Novak and A. Tomkins. Structure and Evolution of Online Social Networks. In Proc. Of SIGKDD, 2006.

WEBSITES

8. http://www.samplequestionnaire.com
9. http://jcmc.indiana.edu/vol3/issue1/garton.html
10. http://www.swinburne.edu.au/hosting/ijets/journal/V7N2/pdf/Article4-HarrisonThomas.pdf
11. http://www.hicss.hawaii.edu/hicss_42/bestpapers42/digitalmedia/scoailspaces.pdf
12. http://www.web-strategist.com
13. http://www.scribd.com
14. http://www.academicjournals.org/jmcs/PDF/pdf2011/July/Jothi%20et%20al.pdf

COST REDUCTION THROUGH e-RECRUITMENT: A CASE STUDY OF INDIAN IT INDUSTRY

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ABSTRACT

E-recruitment has been an issue of interest over the past ten years. Internet is considered as the latest tool in hiring. It is a real revolution spreading over the world of job hunting and hiring. The term online-recruitment, e-recruitment, cyber-recruiting, or internet-recruiting, imply the formal sourcing of job information online. The closing of twentieth century has given rise to a vast debate concerning the response of HRM to the changing external and internal environment of the firm. Online job search and recruitment activity have vastly expanded since the year 2000. This was the period during which a truly distinct online recruitment paradigm emerged and first attained a level of critical mass. Recruitment in an IT organization is different from other traditional ones by ways of selection & training. Since IT companies recruit in large numbers, recruiters in these companies always keep looking for solutions, which can save them time and effort and thus cost reduction can be achieved; while at the same time provide them with the best talent.

KEYWORDS
Cost Reduction, Cyber-Recruiting, E-Recruitment, Internet-Recruiting, Online-Recruitment.

INTRODUCTION

"My Company's assets walk out of the door every evening,"

Narayan Murthy, Mentor of Infosys Limited.

"We are witnessing a change in the nature of jobs. Muscle jobs are disappearing, finger and brain jobs are growing or, to put it more formally, labor-based industries have been displaced by skill-based industries and these in turn will have to be replaced by knowledge-based industries."

Charles Handy (1984)

Though Charles Handy tracked these radical changes long back in 1984, these touched India very recently. During the last few years, India has witnessed an unprecedented economic growth. The service sector is the lifeline for the social economic growth of a country. It is today the largest and fastest growing sector globally contributing more to the global output and employing more people than any other sector. In alignment with the global trends, Indian service sector too is one of the major contributors to both employment and national income in recent times. It is estimated that in the near future close to a million new jobs will be created in the services sector.

The global economy is fast becoming a reality where organizations will need to find ways to become more productive, more efficient and more competitive. Firms should entail themselves to prepare for the big global game and become more efficient and competitive to deliver high performance. A high-performance business starts with a high-performance workforce. Therefore, organizations should substantially focus on increasing their productivity, market share and shareholder value by ensuring that they have the right people, with the right skills in the right roles. With this significant focus becoming an area of concern, there is a need for due diligence in recruitment practices. Recruitment provides the first contact for an organization with its potential employees. An organization must have an effective recruitment policy and process to inform candidates about the job openings and persuade them to apply for the available positions.

Research interest in the topic of employee recruitment has increased substantially over the last thirty years. Recruitment is commonly defined as the process of discovering potential candidates and of generating a pool of qualified applicants by encouraging qualified candidates to apply for actual or anticipated job vacancies within the organization. In the contemporary business environment, companies are faced with a critical challenge to recruit and retain qualified employees. As a result, the current trend demands a far more comprehensive and strategic perspective to recruit, utilize and conserve valuable human resources. There is a need for companies to have a conceptually sound framework (person: job-fit) and a cost-effective, speedy and convenient system (online testing) at their disposal to meet their personnel selection needs in a highly competitive environment. These days, one way of doing so is via online recruitment, a method of attracting job candidates via the internet**.** As a practice, it is agreed that e-HRM leads to considerable changes and therefore should be taken as an important development in the HR field.

E-recruitment has been an issue of interest over the past ten years. Internet is considered as the latest tool in hiring. It is a real revolution spreading over the world of job hunting and hiring. The term online-recruitment, e-recruitment, cyber-recruiting, or internet-recruiting, imply the formal sourcing of job information online. The first references to e-recruitment appear in articles of the mid-1980s. While systematic reference to e-recruitment in the HR journals begins almost two decades later, in the mid-1990s, when IT companies and universities began to use the internet extensively. The closing of twentieth century has given rise to a vast debate concerning the response of HRM to the changing external and internal environment of the firm. Online job search and recruitment activity have vastly expanded since the year 2000. This was the period during which a truly distinct online recruitment paradigm emerged and first attained a level of critical mass.

However, despite of its popularity, the research in the area has not as yet become as dominant as was predicted by many researchers and practitioners. E-recruitment can be divided into two types of uses: corporate web site for recruitment and commercial jobs boards (such as monster.com) for posting job advertisements. Corporate websites are a company's own website with a link for job posting/career options where candidates can log into for current openings. If the company advertises its vacant positions on other website that specialize in recruitment such as - naukri.com, timesjob.com, monster.com, etc., the companies would be adopting commercial job boards for recruitment. Firms generally adopt a recruitment method that suits their size and budget for recruitment. Further, the size and nature of the fraction that applies for an organization's vacancies will be affected by how (and to whom) the organization communicates its vacancies.

INTRODUCTION TO "IT" INDUSTRY IN INDIA

The success of Indian firms and professionals in the information technology arena during the last decade has been spectacular. Entrepreneurs, bureaucrats and politicians are now advancing views about how India can ride the IT bandwagon and leapfrog into a knowledge-based economy. The development of IT in India has by and large, focused on developing and delivering IT services to support the more advanced economies of the world (E.g.: U.S.A, Japan, England, Germany). Even if the most optimistic projections of the IT-related job creation (including job associated with IT outsourcing, call centers and design centers) in the next decade come true, this industry will employ at the most a couple of million people. Therefore, one industry, which has been most logically impacted by the "e" drive, is IT industry itself. e -Recruitment for IT organization has another facet to it: Use of software solutions for effective and efficient recruitment. Recruiters in an IT company, use software solutions for not only searching the best skilled candidates but in the hiring process also.

Recruitment in an IT organization is different from other traditional ones by ways of selection & training. Since IT companies recruit in large numbers, recruiters in these companies always keep looking for solutions, which can save them time and effort thus cost reduction can be achieved; while at the same time provide them with the best talent. The findings of the research show that online recruitment is an important part of the recruitment strategy for a number of the IT companies surveyed. A significant proportion the IT companies are using the Internet to facilitate the recruitment process in some way, but many are using e-enabled processes alongside traditional methods rather than relying solely on e-recruitment. The most significant progress has been made in using online methodologies at the front end of the recruitment process, in terms of advertising posts and receiving application forms. Increasing numbers of IT companies are also using Internet-based technology to track applications and communicate with and manage relationships with applicants. The use of online tools for screening and assessing candidates is less prevalent among some companies, but there is evidence that this practice is set to grow in the future, and that this facility will become increasingly valuable to organizations as greater use of online advertising attracts larger numbers of applications.

"India is already the fastest growing e-recruitment market in the Asia-Pacific region and as per the estimates it is growing faster than the Indian software industry," says Stuart McKelvey, group president (Asia-Pacific), TMP Worldwide. Though online recruitment sites cater to just about 3 per cent of the estimated $250 million job market in the country, their share is slated to grow with increase in Net penetration. "After sending or receiving e-mails, job search is considered to be among the most popular activities on the Net," says McKelvey. And that is one of the key reasons why the $1.3 billion-MP group has been able to build a $500 million business through online recruitment over the last seven years. Presently, the total Indian recruitment market is somewhere roughly around Rs 500- 600 crores. E-recruitment market is growing at a pace of about 100 to 150 per cent, this recruitment mode promises to increase its share from the present 2 per cent to 10 per cent in the next 3-4 years. E-recruitment is coming of age in India.

REVIEW OF LITERATURE

A number of researchers had conducted research on E-recruitment. Due to shortage of time and resources, a review of all the past researches done could not be mentioned in this research. So snapshot of some of these views had been presented.

Batram (2000) studied the current development of the internet as a medium of recruitment in general and also reviewed the use of the internet for Recruitment and Selection.

Galanaki (2002) had conducted a descriptive study on the decision to recruit online, involving 99 UK IT companies whose shares were traded in London stock exchange. The author found that of the factors that influenced a companies' decision making, cost-effectiveness and high response rate came first, followed by access to passive job seekers and the marketing purpose of online recruiting.

Anderson (2003) gave his findings of research into applicant and recruiters reaction in employee selection. He gave his findings based on surveys on internet based recruitment and testing use by the organization in USA. It has been concluded that organizations and applicants are becoming increasingly accustomed to using new technology in selection.

Chapman and Webster (2003) conducted a survey of HR managers regarding the use of technologies in the recruiting, screening and selection process for job candidates in North America. The survey revealed that use of technology is becoming more prevalent in organizations particularly for mid level staffing and most organizations rely on mix of traditional methods and technology solutions in their daily activities.

The study conducted by **Boswell, Roehling, LePine, & Moynihan, (2003)** focused on opportunities to meet people and site visit arrangements.

A conceptual paper on Managerial challenges of e-recruitment: extending the life cycle of new economy employees by **Smith and Rupp (2004),** examined the application of technology to recruiting and retaining knowledge workers in an e-commerce, information intensive environment. The authors reported that e-recruitment as a general process is job specific and offers computer-assisted screening interviews and statistical prediction to aid in reducing recruiting costs, time-to-hire and employee turnover.

Hadass (2004) in his research on the effect of internet recruiting on the matching of workers and HR Managers developed a model of recruitment in which job seekers have private information about their qualification for different jobs and firms possess imperfect screening technologies. He concluded that firms may adopt e-recruitment strategies because of the direct reduction in recruiting costs and because of competition among HR Managers for qualified hires.

Reeve, Highhouse and Brooks (2006) investigated how affective reactions of job seekers affect overall evaluation of organizational attractiveness and organizational image.

Hoye and Lievens (2007) examined the effect of web based employee testimonials and web based word of mouth on organizational attractiveness. A recruitment message about the organization as a whole was found to be more effective for word of mouth & helps in attracting more candidates.

Verbeke (2008) conducted a survey of HR managers regarding the use of technologies in the recruiting, screening and selection process for job candidates in North America. The survey revealed that use of technology is becoming more prevalent in organizations particularly for mid level staffing and most organizations rely on mix of traditional methods and technology solutions in their daily activities.

A research conducted by **Verhoeven and Williams (2008)** reports on a study into internet recruitment and selection in the United Kingdom. The study discussed the advantages and disadvantages as identified in literature and considered those against the views of HR Managers in UK. Furthermore, one out of every five UK HR Managers perceived the tool to be efficient, and only a slightly higher percentage of HR Managers indicating cost-saving and acknowledging that internet recruitment tools as relatively cheap in comparison with more traditional tools.

A survey conducted by **Williams (2009)** on E-recruitment showed dwindling recruitment spends focused on web-based recruitment at the expense of traditional methods.

The review of literature on e-recruitment brings forth the paucity of empirical studies especially in Indian context. The perusal of literature revealed that there are various methods used for recruitment in various industries but no study had been conducted regarding E-Recruitment in IT industry. So a fresh study was required to fill this gap.

RELEVANCE OF THE STUDY

Irrespective of the research path followed, the majority of researchers have focused on the manufacturing sector. For example, Arthur (1994) focused on steel mini-mills, MacDuffie (1995) focused on the auto industry, and Katou and Budhwar (2006, 2007) focused on the industrial sector as a whole. The literature also highlights that most studies have been conducted in the USA and the UK. Recently, a few investigations have been initiated in other parts of the world, especially in emerging markets such as China and transitional economies such as Slovenia. To fill this gap and to further examine the impact of e-recruitment, it is important to conduct research in non-US/European contexts and in non-manufacturing sectors.

AIM OF THE STUDY

The study undertaken looks at the issue from emerging markets perspective by focusing exclusively on Indian IT industry. The major objective of this research is to empirically examine the impact of e-recruitment on cost reduction. A study conducted by Martinez and Martineau (1998) on rethinking human resources stated that when health reforms aims at efficiency savings or overall cost reduction, they go by changing the way in which staff are employed.

NEED OF THE STUDY

The need of the study arose from the fact that earlier studies that were conducted were mainly based on recruitment practices, but none of the studies have studied about E-Recruitment practices in Indian IT industry. So it enabled to cover the gap that had been identified from review of literature.

SCOPE OF THE STUDY

Scope of the study was limited to E-Recruitment practices in Indian IT industry in Gurgaon city only.

OBJECTIVES OF THE STUDY

Objectives are guiding lighting of a project in the light of which all relevant steps are taken. Objectives of the study were as given below-

- To study the procedure of e-recruitment followed IT industry.
- To identify various attributes of a corporate websites.
- To identify the benefits of e-recruitment.
- To compare the e-recruitment and recruitment.
- To suggest other recruitment practices that can be used to make e-recruitment cost effective

RESEARCH METHODOLOGY

SAMPLING DESIGN

Research was conducted on employees working in different private companies. The sampling design was help in decision making in the following areas:-

UNIVERSE OF THE STUDY

The universe was employees working in IT companies.

SAMPLE UNIT

The sampling unit of this study was employees working in IT companies of Gurgaon.

SAMPLE SIZE

Sample size is the number of elements to be included in a study. Sample size was 100 employees.

SAMPLING TECHNIQUES

The sampling techniques used were convenience technique and simple random sampling technique.

DATA COLLECTION AND ANALYSIS

Sources of Data Collection: Research work was descriptive and conclusion oriented in nature. Information was collected from both Primary and Secondary data.

Tools of Presentation and Analysis: To analyze the data obtained with the help of questionnaire, following tools were used.

Tables: This is a tool to present the data in tabular form.

LIMITATIONS OF THE STUDY

The limitations of the study were as follows:-

- Due to shortage of time available at disposal, we were not able to collect as much information as needed for the study.
- There may be untrue information provided by the respondents for the study.
- Biasness in the responses of respondents may be there.
- The sample may not be a true representative, as due to location factor, the respondents may not be representative of the whole universe.
- As there is always a cost factor involved in every research, so it was not possible to include large universe.

FINDING OF THE STUDY

After analyzing and interpreting the data collected the help of questionnaires, following were the findings of the study:

- E-recruitment is used in most of the organizations for recruitment purposes.
- Social blogs and social networking websites are the major source of information for E-Recruitment.
- Websites contain career link that are beneficial for prospective employees.
- Interview is the main step involved in E-Recruitment.
- It is easy to access the company website.
- Websites should have the well designed feature.
- Cost reduction is the benefit of e-recruitment.
- Website was user friendly.
- Cost reduction is the benefit to go for e-recruitment.

CONCLUSION

In the face of increasing global competition, the ability to attract, hire and develop the most capable talent is the single most important determinant of organizational effectiveness. Internet is an ideal application for recruitment. E-recruitment has brought a major change in the recruitment landscape. Online recruitment applies to all organizations big or small and is growing at an astonishing rate. E-recruitment through job sites or company websites promotes employment opportunities and retrieves resumes and potential employee information and helps in achieving these staffing objectives. The increasing use of Internet-based job searches and recruitment raises the level of competition among both job-seekers and employers. There are tens of thousands of organizations and millions of people using the Internet in an effort to recruit staff or get a job. These people are “engaged in a virtual search twenty-four hours a day, seven days a week.” That means both jobseekers and recruiting employers have more options.

The analysis of the data demonstrates that the impact of e-recruitment on cost reduction is accepted. E-recruitment allows companies to reach a greater number of job seekers in less time and for lower cost than traditional methods. As a consequence, resumes are being piped into companies at a rapid rate. Already companies that aggressively use the Internet for recruiting experience a reduction in time-to-hire, which saves recruitment costs and affects productivity and operational continuity. Job seekers find it less time consuming to use the internet than other traditional job hunting avenues and find that it presents them with more information about a company and specific career opportunities. With this information, they can then decide if they wish to contact the company to be considered for a position. This reduces the number of unqualified applicants that have to be processed by HR staff.

FUTURE AREA OF THE RESEARCH

The research can be extended taking sample from public and private organizations.
Impact of e-recruitment on HRSCM could be compared with other countries' IT industry.
Further research on employer behavior and adoption patterns can be conducted
The study can be replicated with bigger sample size.
To further explore the impact of e-recruitment on the outcome, other advantages of e-recruitment can be studied empirically.

REFERENCES

1. Agarwala,T., (2007), "Strategic Human Resource Management", 1st edition Oxford Higher Education, pp. 261.
2. Ahlstrom, D., Foley, S., Young, M.N. and Chan, E.S. (2005), "Human Resource Strategies in Post-WTO China", Thunderbird International Business Review, Vol. 47, pp. 263-325.
3. Anderson, N. (2003). "Applicant and Recruiter Reactions to New Technology in Selection: A Critical Review and Agenda for Future Research", International Journal of Selection and Assessment, 11 (2/3), 121-136 retrieved from http://www.recruitactive.com/recruitactive_online_recruitment_system_summary.pdf last accessed on November 16, 2010.
4. Arthur, J.B. (1994), "Effects Of Human Resource Systems on Manufacturing Performance and Turnover", Academy of Management Journal, Vol. 37, pp. 670-87.
5. Batram, D. (2000), "Internet Recruitment and Selection", International Journal of Selection and Assessment, 8(4), 261-274 retrieved from http://www.idea.gov.uk/idk/core/page.do?pageId=4103934 last accessed on November 15, 2010.
6. Boswell,W. R., Roehling, M. V., LePine, M. A., & Moynihan, L. M. (2003), "Individual Job-Choice Decisions And The Impact Of Job Attributes And Recruitment Practices: A Longitudinal Field Study", Human Resource Management, Vol. 42, pp. 23–37.
7. Casper, R., (1985), "Online Recruitment", Personnel Journal, Vol.64, No.5, pp.4-5.
8. Chapman, D. and Webster, J. (2003), "The Use of Technologies in Recruiting, Screening, and Selection Processes for Candidates", International Journal of Selection and Assessment, Vol. 11, No. 2/3, Pp. 113-20.
9. Conard, M.A. & Ashworth, S.D., (1986), "Recruiting Source Effectiveness: A Meta Analysis and Re-Examination of Two Rival Hypotheses", Paper presented at the Society for Industrial and Organizational Psychology Meeting, Chicago.
10. Cullen, B.J. (2001), "Winning the War for Talent: E-recruiting Best Practices", Cambria Consulting, Boston, MA.
11. Deng, J., Menguc, B. and Benson, J. (2003), "The Impact of Human Resource Management on Export Performance of Chinese Manufacturing Enterprises", Thunderbird International Business Review, Vol. 45, pp. 409-34.
12. Galanaki, E. (2002), "The Decision to Recruit Online: A Descriptive Study", Career Development International, 7:4, 243-251.
13. Gentner, C., (1984), "The Computerized Job Seeker", Personnel Administrator, August, Vol. 29, No. 8.
14. Gerhart, B. (2005), "Human Resources and Business Performance: Findings, Unanswered Questions, and an Alternative Approach", Management Review, Vol. 16, pp. 174-85.
15. Gueutal, H.G. and Stone, D.L. (Eds) (2005), "The Brave New World of e-HR: Human Resources Management in the Digital Age", Jossey-Bass, San Francisco, CA.
16. Hadass, Yael S. (2004), "The Effect of Internet Recruiting on the Matching of Workers and HR Managers", Available at SSRN: http://ssrn.com/abstract=497262.
17. Hoque, K. (1999a), "Human Resource Management and Performance in the UK Hotel Industry", British Journal of Industrial Relations, Vol. 37 No. 3, pp. 419-43.
18. Hoque, K. (1999b), "New Approaches to HRM in the UK Hotel Industry", Human Resource Management Journal, Vol. 9 No. 2, pp. 64-76.
19. Hoye, G.V. and Lievens, F. (2007). Investigating Web-based Recruitment Sources: Employee testimonials vs Word of Mouse, International Journal of Selection and Assessment, 15,(4), 372-382 retrieved from http://www.cipd.co.uk/subjects/recruitment/onlnrcruit/onlrec.html last accessed on November 19,2010.
20. Jansen, B.J., Jansen, K.J. and Spink, A. (2005). Using the Web to look for work: Implications for Online Job Seeking and Recruiting, 15, (1), 49-46 retrieved from http://www.hrworks-inc.com/articles.html last accessed on November 18,2010.
21. Jattuso, M.L. and Sinar, E.F.(2003), "Source Effects in Internet based Screening procedures", International journal of Selection and Assessment, 11 (2/3), 137-140 retrieved from http://www.cipd.co.uk/subjects/recruitment/onlnrcruit/onlrec.html last accessed on November 16,2010.
22. Katou, A.A. and Budhwar, P.S. (2006), "Human Resource Management Systems and Organizational Performance: A Test of a Mediating Model in the Greek Manufacturing Context", the International Journal of Human Resource Management, Vol. 17 No. 7, pp. 1223-53.
23. Katou, A.A. and Budhwar, P.S. (2007), "The Effect of Human Resource Management Policies on Organizational Performance in Greek Manufacturing Firms", Thunderbird International Business Review, Vol. 49 No. 1, pp. 1-35.
24. Langan, S. (2000). "Finding the Needle in the Haystack: The Challenge of Recruiting and Retaining Sharp Employees", Public Personnel Management, Vol. 29, pp.461-464.
25. Lengnick-Hall, M.L. and Moritz, S. (2003), "The Impact of E-Hr on the Human Resource Management Function", Journal of Labor Research, Vol. 24 No. 3, pp. 365-79.
26. Lepak, D.P. and Snell, S.A. (1998), "Strategic Human Resource Management in the 21st Century", Human Resource Management Review, Vol. 8 No. 3, pp. 215-34.
27. Lucas, R. (1996), "Industrial relations in hotels and catering: neglect and paradox?" British Journal of Industrial Relations, Vol. 34 No. 2, pp. 267-86.
28. MacDuffie, J.P. (1995), "Human Resource Bundles and Manufacturing Performance: Flexible Production Systems in the World Auto Industry", Industrial Relations and Labour Review, Vol. 48, pp. 197-221.
29. Martinez,J. and Martineau,T. (1998), "Rethinking Human Resources: An Agenda for the Millennium", Health policy and Planning, Vol.13, No.4, pp.345-358.
30. Parry, E. and Wilson, H. (2009), "Factors Influencing the Adoption of Online Recruitment", Personnel Review, Vol.38, No.6, pp. 655-673.
31. Reeve, C.L., Highhouse, S. and Brooks, M.E. (2006). A Closer Look at Reactions to Realistic Recruitment Messages, International Journal of Selection and Assessment, 14, (1), 1-15 retrieved from http://www.itpeopleindia.com/20021202/cover.html last accessed on November 18, 2010.
32. Sisson, K. (1993), "In Search of HRM", British Journal of Industrial Relations, Vol. 31 No. 2, pp. 201-10.
33. Smith, A.D., and Rupp, W.T., (2004), "Managerial Challenges of E-Recruiting: Extending the Life Cycle of New Economy Employees", Online Information Review, Vol. 28, No. 1, pp.61-74.
34. Verbeke, P.S., and Webster, J. (2008), "The Use of Technologies in the Recruitment, Screening and Selection Processes for Job Candidates", International Journal of Selection and Assessment, 11 (2/3), 113-120 retrieved from http://www.expresscomputeronline.com/20050418/technologylife01 last accessed on November 15, 2010.
35. Verhoeven, H., and Williams, S., (2008), "Advantages and Disadvantages of Internet Recruitment: A UK Study into HR Managers' Perception", International Review of Business Research Papers, Vol.4, No. 1 pp. 364-373.
36. William, H., (2009). "E-recruitment: Rethinking recruitment", Personnel today survey, www.personneltoday.com, visited on 09 June 2009.
37. Zupan, N. and Kase, R. (2005), "Strategic Human Resource Management in European Transition Economies: Building A Conceptual Model on the Case of Slovenia", International Journal of Human Resource Management, Vol. 16, pp. 882-906.

APPENDIX

TABLE 1: DEMOGRAPHIC PROFILE OF RESPONDENTS

Demographics	No. of Respondents	%age of Respondents
Age		
18-25 years	60	60
26-35 years	20	20
36-45 years	20	20
45 above	0	0
Total	**100**	**100**
Gender		
Male	78	78
Female	22	22
Total	**100**	**100**
Education		
Higher secondary	30	30
Graduate	45	45
Post- graduate	25	25
Total	**100**	**100**

(Source: Questionnaire)

Analysis and interpretation: From the above table it had been concluded that majority of the respondents were from age group 18-25, majority of respondents were male that is 78% and 45% are graduates.

TABLE 2: MODES OF RECRUITMENT

Modes of Recruitment	No. of Respondents	%age of Respondents
E- Recruitment	61	61
Job portals	04	04
Campus recruitment	16	16
Employees referrals	19	19
Any other	0	0
Total	**100**	**100**

(Source: Questionnaire)

Analysis and interpretation: It had been analyzed from the above figure that 61% respondents think that e-recruitment most commonly used mode of recruitment in the organization. So it can interpreted that e-recruitment is used in the most of organizations for recruitment purposes.

TABLE 3: SOURCES OF INFORMATION REGARDING E-RECRUITMENT

Sources of Information Regarding E-Recruitment	No. of Respondents	%age of Respondents
Friends	22	22
Social blog	46	46
Search engine	12	12
Employee working in organization	20	20
Total	**100**	**100**

(Source: Questionnaire)

Analysis and Interpretation: Most of the employees i.e. 46% think that the employees working in organization are the main source of information regarding e-recruitment and least preferred with the search engines. So it could be interpreted that various sources of information are friends and employees.

TABLE 4: WEBSITES CONTAINING CAREER LINKS

Website Career Links	No. of Respondents	%age of Respondents
Yes	90	90
No	10	10
Total	**100**	**100**

(Source: Questionnaire)

Analysis and Interpretation: It had been analyzed from the above figure that 90% respondents agreed that web sites contain career link and rest of them disagreed with the statement. Thus it can be interpreted that majority of respondents felt that there were career links in the website.

TABLE 5: STEPS INVOLVED IN E-RECRUITMENT

Steps Involved in E-Recruitment	Number of Respondents	%age of Respondents
Vacancy	10	10
Advertisement	22	22
Interview	58	58
Resume	10	10
Others	00	00
Total	**100**	**100**

(Source: Questionnaire)

Analysis and interpretation: It had been analyzed from the above figure that 58% of respondent agreed that interview is the main step involved in e-recruitment. Thus it can be interpreted that most of the respondents felt that interviews were the major step in recruitment.

TABLE 6: ACCESSIBILITY OF THE COMPANY WEBSITE

Accessibility of the Company Website	Number of Respondents	%age of Respondents
Yes	95	95
No	05	05
Total	**100**	**100**

(Source: Questionnaire)

Analysis and interpretation: It had been analyzed from the above figure that 95% of the respondent agreed that company website is easy to access. Thus it can be interpreted that most of the respondents felt that the company website was easily accessible.

TABLE 7: INTERACTIVE FEATURES IN THE WEBSITE

Interactive Features in the Website	Number of Respondents	%age of Respondents
User friendly	21	21
Easy to navigate	15	15
Well designed	58	58
Others	06	06
Total	**100**	**100**

(Source: Questionnaire)

Analysis and interpretation: It had been analyzed from the above figure that 58% of the respondent agreed that websites should have the well designed feature. Thus it can be interpreted that majority of the respondents felt that the website should be well designed.

TABLE 8: BENEFITS OF E-RECRUITMENT

Benefits of E-Recruitment	Number of Respondents	%age of Respondents
Cost Reducing	35	35
Time saving	15	15
Wide area coverage	20	20
Speedy process	30	30
Total	**100**	**100**

(Source: Questionnaire)

Analysis and interpretation: It had been analyzed from the above figure that 35% of the respondents agreed that cost reduction process is the benefit of e-recruitment. Thus it can be interpreted that most of the respondents felt that e-recruitment is cost reducing.

TABLE 9: USER FRIENDLINESS OF COMPANY WEBSITE

User Friendliness of Company Website	Number of Respondents	%age of Respondents
Yes	78	78
No	22	22
Total	**100**	**100**

(Source: Questionnaire)

Analysis and interpretation: It had been analyzed from the above figure that 78% of respondent agreed that website was user friendly. Thus it can be interpreted that majority of the respondents felt that the company website is user friendly.

TABLE 10: REASONS FOR E-RECRUITMENT

Reasons for E-Recruitment	Number of Respondents	%age of Respondents
Easy to Access	25	25
Multiple opportunities	25	25
Fast solutions	20	20
Cost reducing	30	30
Total	**100**	**100**

(Source: Questionnaire)

Analysis and interpretation: It had been analyzed from the above figure that 30% of the respondents agreed that cost reduction is the benefit to go for e-recruitment. Thus it can be interpreted that most of the respondents felt that cost reduction was the major reason for e-recruitment.

12 DIGIT AADHAR FOR REVENUE ADMINISTRATION

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ABSTRACT

The Property tax or 'House tax' is a local tax on buildings, along with appurtenant land, and imposed on owners. The local governments use this money for local development and civic services to the citizens. The collection of these taxes is very critical task. We bring the benefits of Information and Communication Technology at the last mile to ensure transparent, timely and hassle free citizen services. The new model is developed and used for uplifting the collection of Property tax which will helpful to all Municipalities and even for Nagarpanchyat and Grampanchayat. In this model 12 digit AADHAAR Card Number (UIDAI Number) of tax Property owner is utilized with Application Software. This model contributes sufficient Revenue to local government for local development and for other programs of civic services to the citizens with transparency in administration. This paper outlines the integration of Information Technology with Aadhar card for contribution to the achievement of good governance goals, improving government Revenue administration.

KEYWORDS

Aadhar card, Information Technology, Local government, Property Tax.

INTRODUCTION

The Property tax is an important local Revenue source in many countries, but it is often under used as a source for financing local expenditures. Property tax or 'House tax' is a local tax on buildings, with appurtenant land, imposed on owners. Local governments use this money for local development and civic services to the citizens. Collection of Property tax is a tedious task. We develop and suggest the new model for uplifting the collection of Property tax. In this model, 12 digits AADHAAR Card Number (UIDAI No.) of tax Payer (Property owner) is utilized with Application Software. The Application Software already includes Name of the tax payer, Address, Tax details, Tax amount, Property number etc.

Aadhaar is a 12-digit unique number which the Unique Identification Authority of India (UIDAI) will issue for all residents in India. The UID will link a person's Passport Number, Driving License, PAN card, Bank Accounts, Address, Voter ID, etc. and all this information will be checked through a database. Here we insert the 12 digit AADHAAR Card Number (UIDAI number.) of Property owner in Application Software. Application Software is process throughout the financial year (from 1st April to 31st March). During this financial year the tax amount paid by the different Property tax owners are processed. After the end of financial year Application Software generate the specific Data Base file (Due Data Base) with name of Property owner, due tax amount, AADHAAR Card number and financial year etc. This Due Data Base file is kept on website of respective Municipality, Nagarparishad or Grampanchayat and is also send to RTO office, SETU office, Passport office, Gas Distribution office, Ration Card office etc. to acknowledge them about the status of tax for respective local government. The short listed citizens who did not pay the tax mentioned in Due Data Base should be banned for all government services till they pay the Due taxes. Due tax amount is attached with Aadhar card so it's quite easy to find out the due member's/thakbakidars. Here Information Technology and its tools provide the administrative efficiency and effectiveness.

Every citizen regularly wants the services from RTO office, Passport office, Gas Distribution office, SETU office, Ration Card office etc. When his/her services are banned from above said offices till he/she pays the due Property tax, then he/she would realize the importance of the Property tax payment. Then, they step forward to pay the local government taxes. This model is helpful for Municipality, Nagarparishad and Grampanchayat.

REVIEW OF LITERATURE

Many local governments have initiated administrative and valuation reforms to increase the yield from Property taxes. Government of Maharashtra has initiated E-Governance program. The main aim is to provide public with easier and faster access to government services. The state has reorganized the benefits of E-Governance to increase the standard of public-centric service delivery. Government of India has initiated E-Governance program in country in the late 1990s. After that, Union government has approved the National E-Governance Plan comprising of 27 Mission Mode Projects and 8 components on May 18, 2006 to give a boost to E-Governance initiatives in India. Department of Information Technology (DIT) and Department of Administrative Reforms and Public Grievances have formulated the National E-Governance Plan. Projects which have been identified for such online computerized services on a priority basis also known as E-services include birth and death registration, tax filing, land records, driver's licenses and vehicle registration, passports and visas, agricultural extension services, and a wide range of municipal and panchayat (local government) level services.

Weak administration and strong political interests limit the extent to which local government can tap on an expanding tax base and enforce compliance with taxes. For example, in a recent study of Property taxes, Rao and Ravindra (2002) find low rates of tax collections across a sample of municipal corporations 55 percent of taxable properties in Bangalore, 50 percent in Kolkata and 57 percent in Mumbai (data pertain to 1998-99)1. Problems with weak tax administration are exacerbated by regulatory and legal constraints.

With institutional and regulatory reforms emanating from the *74th Constitutional Amendment Act* (CAA 1992), additional administrative and fiscal functions have been devolved to local authorities. Cities are now responsible for designing strategies to maintain and improve public services, and finding instruments to finance these activities in a sustainable manner. In response to growing Revenue needs for financing infrastructure, public services, and other local amenities, many ULBs have initiated reforms to improve the performance of their local fiscal handles in particular, the Property tax.

The Property tax is a prime candidate as the major local government Revenue source. Property tax is a major financial consideration for homeowners, drawing hundreds of even thousands of Rupees into the local government. Understanding Property taxes can help you prepare and budget for them accordingly.

Different types of Application Software are available in market for tax collection but they have limitation. Current Application Software's are unable to collect optimum Property tax, though they provide only automation in tax administration.

Local governments are looking forward for that Application Software which will not only provide automation in taxes but also pull the tax defaulter to pay the taxes in a stipulated period of time.

IMPORTANCE OF THE STUDY

Growth in Property tax Revenues has been slow, and unless structural issues are resolved, improved administration will do little to make the Property tax a viable Revenue source for local governments. These have provided significant benefits in terms of increasing Revenues from the Property tax.

The ability to finance growing local government expenditures via Property taxes is severely constrained by administrative, regulatory, and technical shortfalls. Property tax is really the most vital resources of all type of Municipality, Nagarpanchayat and Grampanchayat. Collection of Property tax is very complicated task. All Municipalities face number of problems to collect the Property tax in each financial year. Thakbaki (Due) amount of different taxes is huge in each Municipality and even in each Nagarpanchayat and Grampanchayat. Serious efforts had been taken by Chief Officer, President, Sarpanch, Talathi, & Administration authority from respective department to uplift the collection of the Property tax within a stipulated period of time. But they are unable to collect the tax more than 60 -70 % of total tax. The local governments are waiting for the machinery which will not only provide automation in taxes but also uplift the collection of taxes.

The new model is very useful for uplifting the collection of Property tax which will helpful to all Municipalities and even for Nagarpanchyat and Grampanchayat. This is a good tax system that produces adequate public Revenue in an equitable and efficient manner. In addition to its capacity in terms of Revenue generation, the Property tax system can also be evaluated according to various other criteria. These include equity or fairness to the taxpayers, ease and simplicity of administration, neutrality with regard to resource allocation, harmony with the rest of the tax system, compliance and legitimacy, and accountability of tax officials. Make all public services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realize the basic needs of the common man.

STATEMENT OF THE PROBLEM

The collection of Property tax is very tedious task, current Application Software's are unable to collect optimum Property tax, though they provide only automation in tax administration.

AIM AND OBJECTIVES

We aim to bring the benefits of Information and Communication Technology at the last mile to ensure transparent, timely and hassle free citizen services by integrating Information and Communication Technology with Aadhaar card.

Revenue Administration is our prime objectives. Other objectives are as follows,

- To improving Governance Transparency and Accountability.
- To provide Efficiency, Effectiveness and Productivity in Revenue Administration.

HYPOTHESIS

H_1:-Integration of Aadhar card with Application Software increases the collection of Property tax.

H_2:- Application Software & Aadhar card provides efficiency, effectiveness in tax Administration.

RESEEARCH METHODOLOGY

To have an accurate data, this study has to rely on two different sources of data. These sources of data are Primary Data Collection & Secondary Data Collection.

PRIMARY DATA

Questionnaire

Observations

Informal Communication

SECONDARY DATA

Books, Manuals

Research Journals

Different websites

and Members (Corporator) from three local governments were selected randomly in sample selection. 100 Property owners from different zone and from different local government were communicated for data collection.

ANALYSIS OF DATA

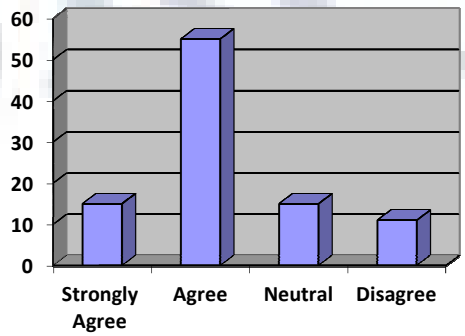
The collected data was analyzed.100 Property owner, 6 Tax Collector officers, 20 Members (Carporator) from three local government and 6 Administration officers were grouped on the basis of local government. The questionnaire was analyzed and percentage of answer was noted. This project mainly focused on the utilization of Aadhar card for Revenue Administration for local government.

Here is an analysis of the Data,

TABLE NO. 1

- Aadhaar Card no. is integrated in Application Software for Revenue Administration.
- This question is asked to determine the psychology of the respondent to integrate the Aadhaar Card with Application Software for Revenue Administration.

Sr. No.	No. of respondent	Strongly Agree	Agree	Neutral	Disagree
1.	100 (Property owner)	15	55	15	11

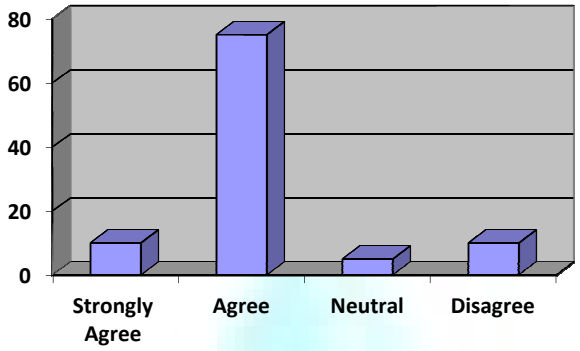


Interpretation:- Among 100 Property owner 55% Property owner agreed to use Aadhar card for Revenue Administration because they knew that this new model is essential to collect the tax in stipulated period of time. 15% Property owner strongly agreed to use Aadhaar card for Revenue Administration. Among 100 Property owner 15% remain Neutral. 11% Property owner disagreed to use Aadhaar card for Revenue Administration

TABLE NO. 2

- Aadhaar Card is the best option for Revenue Administration.
- The question is asked to check the response of the citizen regarding the best option for Revenue Administrations.

Sr. No.	No. of respondent	Strongly Agree	Agree	Neutral	Disagree
1.	100 (Property owner)	10	75	5	10

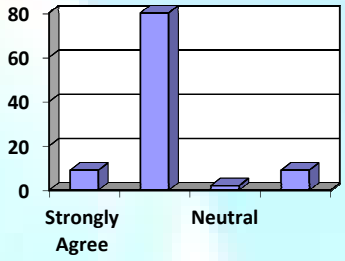


Interpretation: - Among 100 Property owner 75% Property owner agreed that Aadhar card is the best option for Revenue Administration as per their opinion this model definitely uplift the collection of Due tax.10% Property owner strongly agreed that Aadhaar card is the best option for Revenue Administration. Among 100 Property owner 5% remain Neutral. 10% Property owner not agree for the Aadhar card as a best option for Revenue Administration.

TABLE NO. 3

- Agree to hold on other facility of defaulter for Revenue Administration.
- Question is asked to Property owner to Acknowledge them for penalty they expected on Tax due holder.

Sr. No.	No. of respondent	Strongly Agree	Agree	Neutral	Disagree
1.	100 (Property owner)	09	80	2	09

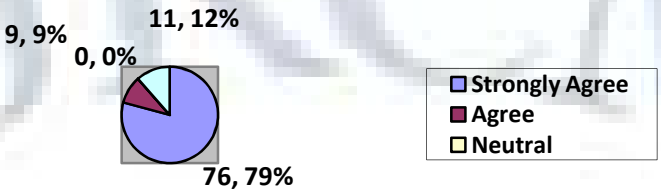


Interpretation: - Among 100 Property owner 80% Property owner agreed that payment of due tax is prime duty of every citizen otherwise through Aadhar card the government services should be banned till the due holder pays the taxes..9% Property owner strongly agreed that the government services should be banned for the due holders. Among 100 Property owner 2% remain Neutral. 10% Property owner not agree for the hold on the government services for due holders.

TABLE NO. 4

- Information Technology and Aadhar Card for tax collection.
- Question is asked to Carporators, Tax collectors and Administration officers for the need of Information Technology and its tools to minimize the Administrative burden and to uplift the Revenue Administration.

Sr. No.	No. of respondent	Strongly Agree	Agree	Neutral	Disagree
1.	96 (60 Members / Carporators, 18 Tax Collectors, 18 Administration officers from 3 Local Governments)	76	09	00	11



Interpretation: - Among the 96 respondent, 80 % Carporator, Tax Collector and Administrative officer from different local government strongly agreed to Integrate Information Technology and Aadhar card for tax collection because they acknowledge that Information and Communication Technology (ICT) is the best machinery and has a potential to pull the defaulter to pay the due tax. 11 respondents' are disagreeing to use ICT and its tools for revenue Administrations.

SCOPE FOR FURTHER RESEARCH

This package provides Efficiency, Effectiveness and Productivity in Revenue Administration for local government such as Municipality and even for Nagarpanchayat and Grampanchayat. Such type of Application Software is also implacable for other type of tax collection such as Income tax, VAT, Sale tax, Water tax and other government taxes. This model is also integrated to Intranet, Extranet and Internet as per requirement of the local government.

RESULT AND DISCUSSION

The Property tax is an important source of local government Revenues. There is considerable need to enhance its performance, particularly in the context of the directions laid down by the 74th CAA on decentralized governance and finance. Many ULBs have started reforming the Property tax, focusing on fundamental issues of updating Property tax rolls, computerizing billing and collection systems, and strengthening enforcement. These have provided significant benefits in terms of increasing Revenues from the Property tax. The new model provides best practices for the collection of Property tax with AADHAAR Card number. It is utilized with Application Software and offer strong platform to all Municipalities and even for Nagarpanchayat and Grampanchayat. This model also contributes sufficient Revenue to local government for local development and civic services to the citizens with transparency in administration.

FINDING

This new model for tax collection makes governance more efficient and more effective, and brings other benefits too; it reduces the costs and increases the speed of processes and decision making and helps to create more flexible and responsive processes. It decreases the paperwork substantially and allows easy access to voluminous data. The use of Information and Communication Technology (ICT) with Aadhar card will enable government to reach citizens thereby improving governance. This will also enable improvement in monitoring and implementing of various government schemes thereby increasing the accountability and transparency in government. Information Technology contributes to the achievement of good governance goals, improving government Revenue growth.

RECOMMENDATION / SUGGESTIONS

The use of current Hardware and Software should be implemented to make the tax collection online and more citizens centric. The use of Information and Communication Technology (ICT) with Aadhar card and proper Application Software in regional language will enable government to reach citizens thereby improving governance. Local governments must understand that the system will be difficult and costly to implement. However, once carefully implemented, a capital value based assessment system would lead to sustained Revenue growth.

CONCLUSION

Information Technology today is recognized as an effective tool for catalyzing the economic activity in efficient governance. This model offer strong platform for local government for collection of Property tax and also contributes sufficient Revenue for local development. The new model provides best practices for the collection of Property tax with Information Technology, its tools and AADHAAR Card.

This model plays a redistributive role by reducing the tax burden in areas with poor services and amenities, supporting the theoretical arguments of the Property tax being a benefit tax. This paper outlines the integration of Information Technology with Aadhar card for contribution to the achievement of good governance goals, improving government Revenue administration.

REFERENCES

1. Catalyzing good governance in developing countries through use of Information and Communication Technology (ICT), available at http://www.cddc.vt.edu/digitalgov.
2. E-Governance in India – Too many goals, Very little reality, available http://www.zdnetindia.com/news/features/stories/28670.html%20. Accessed June 29, 2001.
3. E-Governance in India accelerating, says NASSCOM January 17, 2003, Available at http://www.indiainfoline.com/cyva/feat/egov.html, Accessed March 19, 2003.
4. Kenneth Keniston, (2002), IT for the common man: Lessons from India. M. N. Srinivas Memorial Lecture, Indian Institute of Science, Bangalore: NIAS Special Publication SP7-02.
5. T. P. Rama Rao, (2003), Electronic Governance: Lessons from Experiences, Newsletter of IFIP Working group 9.4 and Centre for Electronic Governance, Ahmedabad, India Institute of management, 13 (1).
6. Wray, Lyle D. (2001): e-government: From Inline to Online Public Services, Cal_Tax Digest.

WEBSITES

7. www.aadhaar.ap.gov.in Viewed on November 10, 2011
8. www.aadhaar.com Viewed on November 15, 2011
9. www.aadhaarmaharashtra.gov.in Viewed on November 17, 2011

RESEARCH PAPER ON PERCEPTION OF MANAGEMENT FACULTY ON INSTITUTIONAL CULTURE AND VALUES AFFECTING FACULTY RETENTION IN PUNE CITY

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ABSTRACT

The aim of this paper is to find out how organization culture and values will have impact on faculty retention. The factors of organization culture such as academic freedom, resource availability, awareness of organization vision and objective were covered and collected data from 145 faculties of management institutes of pune city. For hypothesis testing chi-square used and the finding of the study is that organization culture and values have impact on faculty retention.

KEYWORDS
Organization Culture, Academic Freedom, Retention.

INTRODUCTION

Poor relationships with administrators and/or colleagues often have been cited by faculty members as reasons to leave an academic organization or to leave academia altogether the culture and climate of an organization also has implications for its faculty's demonstration of good organizational citizenship behaviours, general outlook, role strain, stress, creativity, vitality, and commitment. Froh described how a college climate can help maximize faculty effectiveness, making use of intrinsic rewards of academic work to improve its quality and reach new levels of understanding. This would appear in sync with contemporary views of faculty members as "knowledge workers." As knowledge workers, faculty members often choose a career in academia based at least in part on the desire to become engaged in challenging, yet rewarding aspects of the job which intersects their need to make important contributions and see the value in their work. Drucker explained that workers in the 1950s were told what to contribute to an organization. Creating an environment wherein faculty members feel safe to question the interface of their values with those of the organization will result in more engagement and will help to align their activities so they are more consistent with the organization's core mission and values.

LITERATURE REVIEW

Every organization has its unique characteristics that are inherent and omnipresent. They come forth from the core values and norms of the organization and are formed over time. These values and norms are part of the organizational culture. The culture thus influences the way of working, the standards and the ethics of the business (Hofstede, 2001).

Management scholars have proposed a number of definitions for the organizational culture concept (Ravasi& Schultz, 2006). Unsurprisingly there is little agreement over a precise definition of organizational culture. Schein (2004) states that the concept refers to "the climate and practices the organizations develop around their handling of people, or to the espoused values and credo of an organization" (p. 7). Hofstede (1998) refers to organizational culture as, "the collective programming of the mind which distinguishes the members of one organization from another" (p. 478).

A small number of studies have been conducted exploring the relationship between certain best practices and organizational culture. In her study of 170 individuals views on compensation systems, Kuhn (2009) found that a bonus being rewarded on the basis of individual outcomes, compared to team or organizational performance led to the organizational culture being regarded as relatively more individualistic. Sheridan's (1992) longitudinal study of 904 college graduates hired in six public accounting firms found that the firm's organizational culture had a significant effect of the retention rates of these employees. Those firms that had a culture fostering the interpersonal relationship values of teams and respect for people stayed 14months longer than those hired in firms whose culture emphasized the work task values of detail and stability. These two examples, in which both show the implementation of HCM or best practice, illustrate that organizational culture is contingent upon the HRM practices implemented. Practices will elicit different behaviours from employees. In addition claims are made that these behaviours will facilitate or hinder performance and efficiency within accompany.

Employee retention strategies should be inherent to every company's Human Resource policy. Apart from this, also the culture of an organization can be and should be 'managed' in order to stimulate retention (Deery and Shaw, 1999). Green (2006) and Kaye and Jordan-Evans (2005: 9) argue that people in the first place remain with an organization that has an inclusive culture and is open to offer choice, balance, and development opportunities. These issues are intertwined with cultural aspects such as values (Schein, 1990).

The stronger an organizational culture, the less need there is for e.g. policy manuals, organization charts, procedures and rules. Although thereis no consensus about its definition, many scholars agree that the concept is holistic, historically influenced, socially constructed, soft and relatively stable (Hofstede, Neuijen, Ohayv and Sanders, 1990; Hofstede 2001: 391-393). Neuijen (1992: 17) found that company success depends much more on the organizational culture than on structures or blueprints. Cultures that focus on employees and on the adherence to a firm's values by all employees are proven successful. Culture then is defined as a' set of shared values' which find expression in day-to-day routines. Neuijen calls it the software of an organization, existing in the minds of the people, as a complement to the hardware which is the expression of the culture and consists of the buildings, company cars, etc. He concluded that consultants often agree with this vision. Finally he adds that those values are hard to change and spell success or failure (Neuijen, 1992: 18).

Many factors form an organizational culture. The most important are working groups and the relationships within them in particular since peers form their attitudes together. Other factors are leadership, the characteristics (like the size of the company), and finally the environment. New members undergo a cultural socialization or organizational socialization process in which they become familiar with the values and other cultural aspects. This is a continuous process of which the members are not always conscious (Doina, Mirela and Constantin, 2008).

Bernthal and Richard (2001) are precarious with regard to focusing on retention issues, because there are so many factors that affect it, of which organizations are often not able to change them. It is possible though to set out some guiding principles. The article of Green (2006) sets out guidelines for important elements that help to shape a retention culture. He acknowledges that in order to retain employees in general -not specifically professionals- an organization should

provide ample choice to employees during their entire career within the company, and in a way that they can manage their work/life balance themselves. Moreover, there should be opportunities for development, and learning. This too should be inherent to the culture. Finally, Green stresses that employees should feel that an organization *cares* about them. Employees want to feel listened to and respected. In practice however, companies in the UK tend to focus mainly on (1) increasing pay, (2) increasing learning and development opportunities, (3) improve selection techniques. Only one third of the companies also recognize the need for arranging a proper work-life balance in order to retain its professionals (Recruitment, Retention and Turnover, Annual Survey 2008; Smallwood, 2007). He summarizes points like connection, appreciation, purpose and fun as being key retention elements (or values) whereas Mitchell *et al.* (2001) propose to retain people by setting realistic job previews for new employees, preparing them for shocks and ensuring a good person-job fit.

OBJECTIVES OF THE RESEARCH

The objective of this research paper is to clarify the influence of an organizational culture on the retention faculty of management institutes. Put differently, to discover what elements of a culture appeal to consultants in a way that motivates them in their work, provides job satisfaction with the job and loyalty to the institutes. Furthermore this research paper tries to detect specific guidelines and strategies that help to increase retention.

HYPOTHESIS

Two hypothesis were developed for the study:

HO: There is No impact of organizational culture and values on employee retention

Ha: There is positive impact of organizational culture and values on employee retention

In the first hypothesis an attempt to prove this would result in a conclusion that there is No impact of organizational culture and values on employee retention and thus an alignment exists suggesting a strong corporate culture. If this is not supported by the results then the alternate hypothesis is supported that there is positive impact of organizational culture and values on employee retention. A ranking of the five factors by the degree of agreement with statements describing them is an indication of alignment. The implication is that if they are similar in ranking then there is demonstrated an alignment and thus a strong culture for the entire management institutes is suggested. This would be a predictor of a superior performance by the institutes in reaching its objectives.

METHODOLOGY

Four factual questions to ascertain details of respondent such as sex, education, designation and length of service were given to 145 faculties from 10 Management Institutes among 6 are top among 100 business management institutes in India by business India in 2011, out of which 83 were male 62 were female with less then 2 years to above 5 years of work experience in the same institute. A survey was done with the help of globally accepted structured questionnaire on organization culture and values given to 145 faculties of 10 business management institutes of Pune city. Close ended questions were given to respondents from which the respondents had to select the suitable choice (ranging from Good, Satisfactory and poor).

FINDING & DISCUSSION

Table 1 indicates the percentage of the sample drawn based on gender. In terms of age, 57.24% of respondents were male and, 42.76 % were female. It was found that in terms of qualification, 10.34% respondents were PhD, 6.21% were professional qualification like CA/ICWA/LLB, and 83.45 % of the respondents were 16.53% were MBA and other post-graduates. It was found that in terms of marital status 55.17%of respondents were married and 44.83% were unmarried. It was found that in terms of designation6.90% respondents were Professor, 17.24% were Asst. Professor and 75.86% were Lectures. It was found that in terms work experience 64.14% of the respondents had experience of less than 2 years, % 20.69% were between 2 to 5 years and 15.17% were more than 5 years. These indicate the length of service of the faculties in the current organization they were employed in.

TABLE 1: DEMOGRAPHIC VARIABLE (SAMPLE Number =145)

Gender	**Respondents numbers**	**Percentage**
Male	83	57.24%
Female	62	42.76%
Qualification		
PhD	15	10.34%
Professional qualification like CA/ICWA/LLB	9	6.21%
MBA/ other Master Degrees	121	83.45%
Marital status		
Married	80	55.17%
Unmarried	65	44.83%
Designation		
Professor	10	6.90%
Asst. Professor	25	17.24%
Lecturer	110	75.86%
Experience in the same Institute		
less than 2years	93	64.14%
2 to5 years	30	20.69%
more than 5 years	22	15.17%
Total	145	100.00%

TABLE 2: INSTITUTE CULTURE AND VALUES

actors	**Good**	**Satisfactory**	**Poor**	**Total**
Academic freedom	6 4.14%	7 17.07%	8 11.43%	21
Participation in decision making processes	7 4.83%	6 14.63%	7 10 %	20
Identification with institute's mission and strategy	8 5.52%	10 24.39%	39 55.71%	57
Availability of resources for new initiatives	7 4.83%	9 21.95%	8 11.43%	24
Innovativeness and progressiveness in the institute's	6 4.14%	9 21.95%	8 11.43%	23
Total	34 23.45%	41 28.28%	70 48.28%	145

The Table 2 shows that 4.14%, respondents expressed their opinion good satisfactory 17.7% and poor 11.43% regarding one of the factors of institute culture and values i.e. Academic freedom. 4.83% respondent felt good, 14.63% satisfactory and 10 % poor regarding Scope for the faculty to participation in academic and institutional processes. Regarding factors like Academic and non-academic practices in the institute matching with Institutions mission and strategy 5.52% respondents perceived good, 24.39% satisfactory and 55.71% said poor. Regarding availability of resources for new initiatives 4.83% respondents expressed their opinion good, 21.95% satisfactory and 11.43% poor and regarding one of the factor Innovativeness and progressiveness in the institute's 4.14% opined good, 21.95% satisfactory and 11.43% poor by the respondents.

HYPOTHESIS TESTING

HO: There is No impact of organizational culture and values on employee retention
Ha: There is positive impact of organizational culture and values on employee retention

TABEL 3: HYPOTHESIS TESTING

1	2	3	4	5
o	e	(o-e)	(o-e)*(o-e)	4/2
6	4.924137931	1.075862069	1.15747919	0.235062301
7	4.689655172	2.310344828	5.33769322	1.138184584
8	13.36551724	-5.365517241	28.7887753	2.153958934
7	5.627586207	1.372413793	1.88351962	0.33469405
6	5.393103448	0.606896552	0.36832342	0.068295264
7	5.937931034	1.062068966	1.12799049	0.189963555
6	5.655172414	0.344827586	0.11890606	0.021026072
10	16.11724138	-6.117241379	37.4206421	2.321777109
9	6.786206897	2.213793103	4.9008799	0.722182506
9	6.503448276	2.496551724	6.23277051	0.958379347
8	10.13793103	-2.137931034	4.57074911	0.450856205
7	9.655172414	-2.655172414	7.04994055	0.730172414
39	27.51724138	11.48275862	131.853746	4.79167747
8	11.5862069	-3.586206897	12.8608799	1.11001642
8	11.10344828	-3.103448276	9.6313912	0.867423431
				16.09366966

X2 = 16.09366966
Degrees of freedom = (c-1) (r-1) = (3-1) (5-1) = (2) (4) =8
The table value of X2 for 8 degree of freedom at 0.05 percent level of significance is 15.57 comparing calculated and table values of X2; the calculated value is less than the table value confirming the association as a factor institute's culture and values for faculty retention. Thus, the null hypothesis is rejected and the alternate hypothesis is accepted.

LIMITATIONS of the STUDY & FURTHER RESEARCH

This research has several limitations. Its main limitation deals with the fact that organizational culture is too complex a concept to be tested. Although the questions about culture contain many of the relevant aspects found in the literature, it does not include them all, and does not make a difference in weight between items on the scale for quantitatively. For further research Demographic factors were among the most common predictors in the turnover literature.(Jinnett andAlexander 1999; Miller and Wheeler 1992). Further studies may need to classify the sample by faculty position, income, gender and age.

CONCLUSION

The purpose of this study was how institutional culture and values have impact on faculty retention. The study found high efforts provided by management institutes in pune to attain and attract existed faculties. This study can help the top-management decision makers of management institutes to enhance the major factors that may better develop their faculties' retention and thus meeting organizational goals and objectives.

REFERENCES

1. Austin AE. Institutional and departmental cultures: the relationship between teaching and research. New Directions Inst Res. 1996;90:57–66
2. Bame, S.I. (1993). 'Organizational characteristics and administrative strategies associated with staff turnover.' In Health Care Management Review, v18, n4, pp. 70-86
3. Conklin MH, Desselle SP. Job turnover intentions among pharmacy faculty. Am J Pharm Educ. 2007;71(4):Article 62
4. Davies JL. The emergence of entrepreneurial cultures in European universities. High Educ Manage. 2001;13(2):25–44.
5. Drucker PF. New York: Harper Collins; 1999. Management Challenges for the 21st Century
6. Froh RC. Revitalizing faculty work through intrinsic rewards. New Directions High Educ. 1993;81:87–95
7. Gibson S. Mentoring of women faculty: the role of organizational politics and culture. Innov High Educ. 2006;31(1):63–79.
8. Haskel D.Harrison, Ed.D., Mathew J. Hargrove-Fall-Winter 2006-AgingFaculty: Workforce Challenges andIssues Facing Higher Education.PP 20-25
9. Johnsrud LK, Rosser VJ. Faculty members' morale and their intention to leave: a multilevel explanation. J High Educ. 2002;73(4):518–542
10. Sporn B. Managing university culture: an analysis of the relationship between institutional culture and management approaches. High Educ. 1996; 32(1):41–61.
11. Withers, P. (2001). 'Retention Strategies that respond to worker values' Workforce, July,

TESTING THE EFFECTIVENESS OF PERFORMANCE APPRAISAL SYSTEM IN FACILITY SERVICES SECTOR AT COIMBATORE CITY

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ABSTRACT

Dynamic people can build dynamic organizations and effective employees can contribute effectively. Competent and motivated people can make things happen to achieve Goals. Hence, the Organisation should continuously ensure that dynamism, necessary competence, motivation and effectiveness of employees remain at high levels at all times there is a need to find the effectiveness of performance appraisal system. This purpose of the study is to find the employees opinion towards the effectiveness of their performance appraisal system in Private Services Sector in Coimbatore. For the purpose 120 respondents were selected using simple random sampling including managers and executives. A structured questionnaire was administered to the respondents and the primary data is collected. The secondary data is collected through various sources like magazines, journals, company records etc. These data are collected and based on the analysis made and the suggestions are given.

KEYWORDS
performance appraisal system, service sector.

INTRODUCTION

India is an emerging as one of the great force in the sub-continent. The technological development taking place in the country, point towards substantial improvement in the country's preparedness in all areas to meet global requirements and challenges. Services Sector in India today accounts for more than half of India's GDP. The fact that the service sector now accounts for more than half the GDP, marks a watershed in the evolution of the Indian economy and takes it closer to the fundamentals of a developed economy. In these days each and every organisation are devising to have the Performance appraisal in their concern for the goodwill of the employees and the organizational growth to stand-by in the competitive environment. Many organization's found that there was a great degree of unhappiness in employees about the Performance Appraisal Systems. This situation still exists in some organizations because of lack of understanding of the potential uses of Performance Appraisal System by everyone and improper designing of Performance Appraisals. Performance Appraisal System is no more linked only to salary revisions or promotions, but also concentrates more on identifying needs for employee development. Organisations today believe that every individual has potential and strength and those human capabilities could be sharpened, developed and utilized better for achieving Organisational Goals. Employees have the right to know how they are performing. They also have the right to conduct a self-appraisal and discuss the same with their superiors. Performance Appraisals can serve a very useful purpose towards sharpening, developing and utilizing the potential and capabilities of the employees. Management assumes the responsibility of employee Development and Performance Appraisal is a concrete step towards the same.

STATEMENT OF THE PROBLEM

At present days many services sector are facing the attrition problem increases in each year and the management was in the position to know whether the employees are satisfied with the existing performance appraisal system or not. And they want their employees opinion to suggest in some of the ways and means to improve the individual performance level for the organization growth and development, to identify the areas of improvement, to find out the factors that motivates employee performance well, finally to know whether the existing performance appraisal system is effective or not .

OBJECTIVES OF THE STUDY

To determine the effectiveness of the performance appraisal system in services sector through the following objectives.

1. To study the opinion of the staff in services sector on their existing PAS.
2. To study the opinion about characteristics of present PAS of employees.
3. To find the relation between the factors that measures the employee performance.

SCOPE OF THE STUDY

It helps each employee understand more about their role and become clear about their functions and must be instrumental in helping employees to better understand their strengths and weaknesses with respect to their role and functions in the organization; It increases mutuality between employees and their supervisors so that every employee feels happy to work with their supervisor and thereby contributes their maximum to the organization and acts as a mechanism for increasing communication between employees and their supervisors. The study is confined to Coimbatore city. The sample respondents are the customers of various selected private service sectors, namely.

HYPOTHESIS

The major null hypotheses tested and analysed in the study is:

H_0: There is no significant difference of opinion about existing PAS (of each question in table 1) and opinion about overall of present PAS.

METHODOLOGY

This study was based on primary data obtained through a structured questionnaire containing 26 questions. The first part of the questionnaire relating to the opinion of the employees about their existing PAS consisted of 10 statements and the second part carries 10 statements relating to opinion about the characteristics which influences the present PAS and the third part consisted of 6 statements relating to the factors assessed to measure employee performance.

The sample size was 120 and the respondents were selected through the convenient random sampling method. The primary data obtained from the questionnaire was analysed by using the weighted average method and statistical data analysis of one-way anova method.

LIMITATIONS OF THE STUDY

This is an empirical study on the effectiveness of performance appraisal system in services sector at Coimbatore city. PAS is the vital one that each organisation should have. Undoubtedly the results and findings of the study can be applied directly to any other areas. Due to limitations of time and money consideration, the sample size has been restricted to 120 respondents. Many respondents have been unable to provide proper answer with insight due to the lack of time.

DATA ANALYSIS AND INTERPRETATION

ONE-WAY ANOVA (Parametric Test)

It tests the null hypothesis that the means of several independent populations are equal. Here the factor is "Characteristics of overall opinion of present PAS" and the dependent variables are each of the variable (in part2) of opinion about existing PAS.

To use ANOVA, certain conditions have been met. The samples are randomly selected from normal populations and the populations had equal variances. In Addition, the distance from one value to its group mean to be independent of the distances of other mean (independence of error). Each group has its own mean and values that deviate from that mean. Similarly all the data points from all groups produce an overall grand mean. The total deviation is the sum of the squared differences between each data point and the overall grand mean. The test for ANOVA is the F-ratio. It compares the variance from last two sources.

F = (Between- groups Variance) ÷ (Within- group variance) = (Mean Square) $_{between}$ **÷ (Mean Square)** $_{within}$

Where, **Mean Square** $_{between}$ **= (Sum of Squares)** $_{between}$ **÷ (Degrees of freedom)** $_{between}$

Mean Square $_{within}$ **= (Sum of Squares)** $_{within}$ **÷ (Degrees of freedom)** $_{within}$

TABLE 8.1: OPINION ABOUT EXISTING PAS AND OPINION ABOUT THE EFFECTIVENESS OF OVERALL OF PRESENT PAS

VARIABLES		SUM OF SQUARES	DF	MEAN SQUARE	F-value	**P-value**	S/NS
Reviewing officer has a clear knowledge / experience in the current role(i)	Between Groups	1.034	4	.258	.519	**.722**	NS
	Within Groups	57.291	115	.498			
	Total	58.325	119				
Reviewing officer does the appraisal based on with a particular/few incident of overall review of your performance(ii)	Between Groups	4.560	4	1.140	1.872	**.120**	NS
	Within Groups	70.032	115	.609			
	Total	74.592	119				
You believe that external conditions (i.e delayness, climatic changes etc..) affect an individual's performance(iii)	Between Groups	1.980	4	.495	.829	**.510**	NS
	Within Groups	68.687	115	.597			
	Total	70.667	119				
Performance review discussions are of high quality and are conducted with care.(iv)	Between Groups	10.844	4	2.711	5.346	**.001***	S
	Within Groups	58.323	115	.507			
	Total	69.167	119				
The key performance indicator allotted to each individual is achievable & practicable(v)	Between Groups	12.444	4	3.111	7.166	**.000***	S
	Within Groups	49.923	115	.434			
	Total	62.367	119				
The appraisal system helps you to plan your performance for the next year(vi)	Between Groups	20.644	4	5.161	13.124	**.000***	S
	Within Groups	45.223	115	.393			
	Total	65.867	119				
The appraisal system contains a development plan would be identified for the top performers to groom them for future roles.(vii)	Between Groups	19.248	4	4.812	12.366	**.000***	S
	Within Groups	44.752	115	.389			
	Total	64.000	119				
The learning and training needs are supporting to your current role(viii)	Between Groups	17.724	4	4.431	12.207	**.000***	S
	Within Groups	41.743	115	.363			
	Total	59.467	119				
Always the top performers are recognized & rewarded(ix)	Between Groups	19.494	4	4.873	12.336	**.000***	S
	Within Groups	45.431	115	.395			
	Total	64.925	119				
Always the poor performers have the support / handholding(x)	Between Groups	29.406	4	7.351	27.306	**.000***	S
	Within Groups	30.961	115	.269			
	Total	60.367	119				

* P<0.05 S-Significant NS- Not Significant

1. It is clear that the p-value is greater than 0.05, the null hypothesis is accepted, the null hypothesis of "there is no difference of opinion about existing PAS like "Reviewing officer has a clear knowledge / experience in the current role" and opinion about overall of present PAS. And hence the null hypothesis is accepted.
2. It has found that the p-value is greater than 0.05, the null hypothesis is accepted, the null hypothesis of "there is no difference of opinion about existing PAS like "Reviewing officer does the appraisal based on with a particular/few incident of overall review of your performance" and opinion about overall of present PAS. And hence the null hypothesis is accepted.
3. It reveals that the p-value is greater than 0.05, the null hypothesis is accepted, the null hypothesis of "there is no difference of opinion about existing PAS like "You believe that external conditions (i.e delayness, climatic changes etc..) affect an individual's performance" and opinion about overall of present PAS. And hence the null hypothesis is accepted.
4. It has stated that the p-value is lesser than 0.05, the null hypothesis is rejected, and hence the alternative hypothesis of "there is difference of opinion about existing PAS like "Performance review discussions are of high quality and are conducted with care" and opinion about overall of present PAS is accepted.
5. It is clear that the p-value is lesser than 0.05, the null hypothesis is rejected, the hence the alternative hypothesis of "there is difference of opinion about existing PAS like "The key performance indicator allotted to each individual is achievable & practicable" and opinion about overall of present PAS is accepted.
6. It reveals that the p-value is lesser than 0.05, the null hypothesis is rejected, hence the alternative hypothesis of "there is difference of opinion about existing PAS like "The appraisal system helps you to plan your performance for the next year" and opinion about overall of present PAS is accepted.

7. It is identified that the p-value is lesser than 0.05, the null hypothesis is rejected, hence the alternative hypothesis of "there is difference of opinion about existing PAS like "The appraisal system contains a development plan would be identified for the top performers to groom them for future roles" and opinion about overall of present PAS is accepted.
8. It has found that the p-value is lesser than 0.05, the null hypothesis is rejected, hence the alternative hypothesis of "there is difference of opinion about existing PAS like "The learning and training needs are supporting to your current role" and opinion about overall of present PAS is accepted.
9. It is stated that the p-value is lesser than 0.05, the null hypothesis is rejected, hence the alternative hypothesis of "there is difference of opinion about existing PAS like "Always the top performers are recognized & rewarded" and opinion about overall of present PAS is accepted.
10. It reveals that the p-value is lesser than 0.05, the null hypothesis is rejected, hence the alternative hypothesis of "there is difference of opinion about existing PAS like "Always the poor performers have the support / handholding" and opinion about overall of present PAS is accepted.

WEIGHTED AVERAGE SCORE TECHNIQUES

TABLE 8.2: WEIGHTED AVERAGE SCORE TECHEQUIES –RANK FOR FINDING THE RELATION BETWEEN THE FACTORS MEASURE EMPLOYEE PERFORMANCE

S.NO.	FACTORS	TOTAL SCORE	MEAN SCORE	RANK
1	Always I give my best of Customer focus to the organization.	489	4.08	I
2	Always I give my best of Customer service to the organization.	353	2.94	VI
3	Always I give my best of Communication effectiveness to my customers.	460	3.83	V
4	Always I give my best of Quality of work to my customers & organization	470	3.92	III
5	Always I give my best of Quantity of work to my customers & organization	466	3.88	IV
6	Always I satisfy the customer's needs & wants in timely.	476	3.97	II

SOURCE: PRIMARY DATA

The above table reveals that the ranking of reason for finding which factor measures more of employee performance among all. "Always I give my best of Customer focus to the organization" was ranked first by the selected sample respondents with the total score of 489 and mean score of 4.08. "Always I satisfy the customer's needs & wants in timely" was ranked second with the total score of 476 and mean score of 3.97. "Always I give my best of Quality of work to my customers & organization" occupied third with the score of 470 and mean score of 3.92 and fourth position "Always I give my best of Quantity of work to my customers & organization" with the total score of 466 and the mean score of 3.88. "Always I give my best of Communication effectiveness to my customers" was ranked fifth with the total score of 460 and mean score of 3.83. "Always I give my best of Customer service to the organization" occupied last position with the total score of 353and mean score of 2.94. It is evident that most of the respondents gave top priority to "Always I give the best of Customer focus to the organisation" as the first rank.

SUGGESTIONS

Based upon the results of the research it is clear that the PAS would be improved for both of the organisation and the employees. The problems seem to be caused by respondent characteristics. Most survey methods send a single questionnaire to be completed by a single person within the organization. It is questionable whether a single person knows enough about the process to adequately convey the nuances of this type of complex human resource system. It is also legitimate to question whether the views expressed by a single respondent are representative of the organizational members for which he/she speaks. As the PAS continues to develop even further, evaluation of the appraisal and its components is necessary and vital. It is incumbent upon the organisation to allow for these necessary changes as they evolve. Constant evaluation and a commitment by all to complete an appraisal on each individual quarterly at a minimum will be necessary. Further, make the employees of all grades need to understand the importance of the evaluation and understand its importance relative to the steps necessary to perform productively and reach outlined goals. Additionally, An obvious characteristic to consider is the degree to which performance ratings drive pay decisions. Specifically, stronger pay for performance contingencies might be more important under conditions of intense competition than in regulated or cost-plus environments. Research has tended to focus on the outcomes of these decisions. However, it seems to know very little about the factors that cause decisions makers to implement certain approaches. Research directed at these types of issues would seem particularly useful for informing future practice.

CONCLUSION

In concluding, the research suggests that performance appraisal research and practice seem to Converge on many issues and diverge on others. Difference on some issues is not necessarily a problem since relevancy for decision makers is not the purpose for all research efforts. Yet performance evaluation is an applied subject, and as such research should eventually lead to improvements in practice. On the other hand, organizations continue to do things that undermine the effectiveness of the appraisal process. Little time is spent on the appraisal process; raters are not systematically trained and are not held accountable. The employee's role in the performance process is overlooked as are many potentially valuable sources of performance information (self, peers, subordinates). While research has done much to suggest improvements regarding many of the practices noted above, it may ultimately be the changing nature of work that leads managers to implement practices that research has legitimized. For example, the trend toward self-managed work teams is diminishing the traditional supervisor-subordinate relationship. -While on the one hand this may ultimately lead to greater acceptance of peer appraisals, on the other hand it is likely to force research into new directions as well.

Therefore, it appears that current performance appraisal research could be expanded to include these concerns. While the current focus is productive and necessary, an expanded research agenda that included the issues discussed above would further allow performance appraisal research to influence human behavior in organizations.

REFERENCES

1. "Geometry of HR", Chapter 11, Page No. 348.
2. Murphy, K. R., Balzer, W. K., Lockhart, M. C., & Eisenman, E. J. 1985. Effects of previous performance on evaluations of present performance. Journal of Applied Psychology, 70: 72-84.
3. Padgett, M. Y., & ligen, D. R. 1989. The impact of ratee performance characteristics on rater cognitive processes and alternative measures of rater accuracy. Organizational Behavior and Human Decision Processes, 44: 232-260.
4. Patterson, 1987, Singh & Singh, 1990, Muralidhar, 1993, Gani, 1998, Jabeen, 1997. 17
5. Solomon, R. J. 1990. Developing job specific appraisal factors in large organizations. Public Personnel Management, 19: 11-24.

TWO DIMENSIONAL DAY TRADING TECHNICAL STRATEGY FOR EQUITY, COMMODITY AND CURRENCY TRADING

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ABSTRACT

Intraday Trading has fascinated market participants all over the world. Successful traders consistently earn their living from day trading but masses continue to lose. This research paper attempts to provide a simple yet effective day trading strategy that could serve the novice as well professionals. The strategy is based on the basics of Technical Analysis without incorporating any intricacies.

KEYWORDS

Intra Day Trading, Resistances, Stop Loss, Supports, Trailing Stop.

INTRODUCTION

Extensive use of computers, internet and technical softwares have developed a new profession of market traders. Most of the educated people, particularly in the urban and semi urban areas are getting attracted towards the fascinating field of intraday trading[1] of financial securities viz. equity, commodity & currency. The purpose of this paper is to device and test an effective trading system[2] by using simple technical with higher success rate.

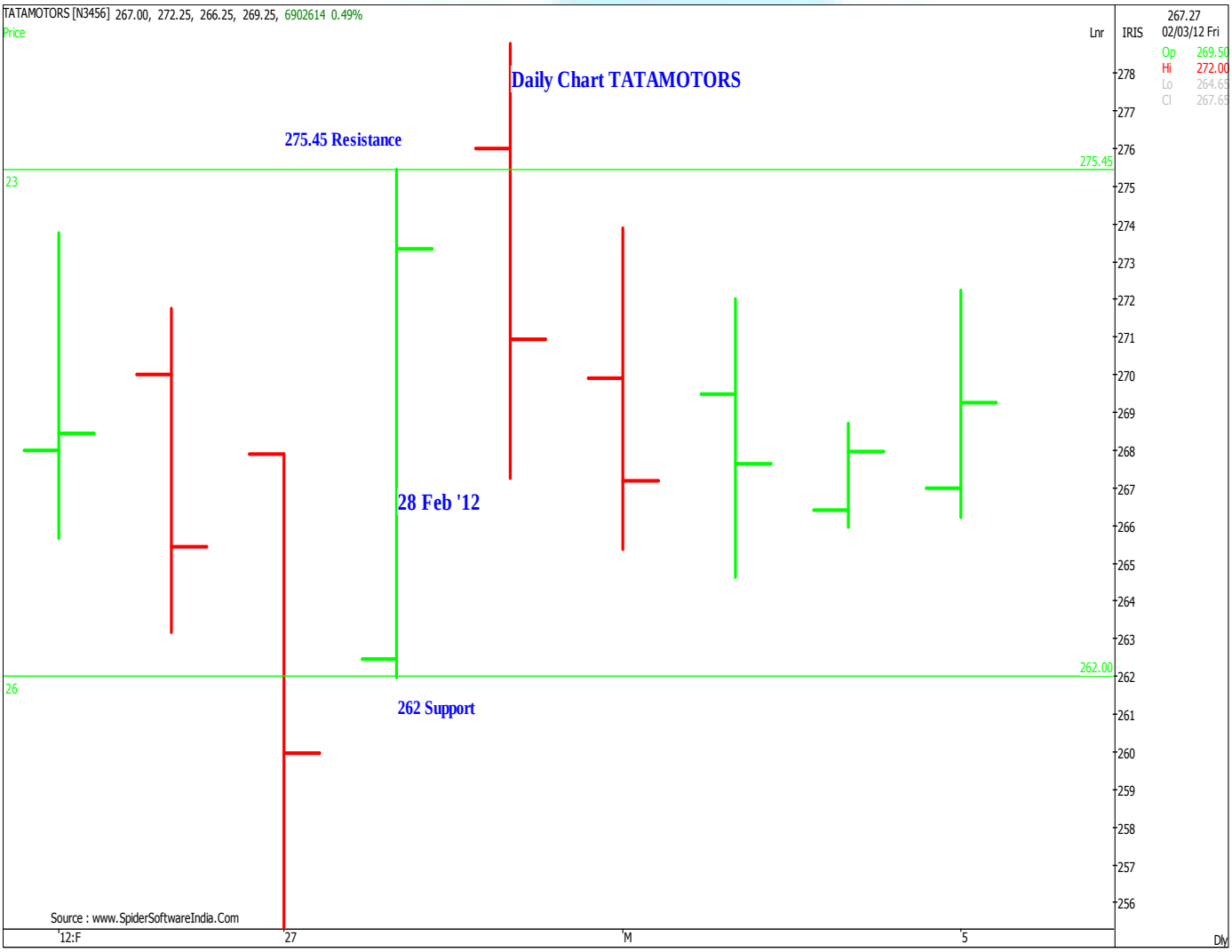
In this technical strategy, the financial security to be traded is analyzed on two different time frames[3] viz. daily charts[4] & 30 minutes. On the daily chart price range is identified to mark the major support and resistance[5] levels & 30 minutes chart is used for actual trading.

On the opening of the market, no trade is executed for the first 30 minutes. After the first 30 minutes, the high and low of the 30 minutes bar is marked as the intraday support and resistance levels.

OBJECTIVES

The objective of this article is to provide a ready to use trading strategy to the active traders of financial securities and to demonstrate the two dimensional trading approach with real time cases.

FIG. 1



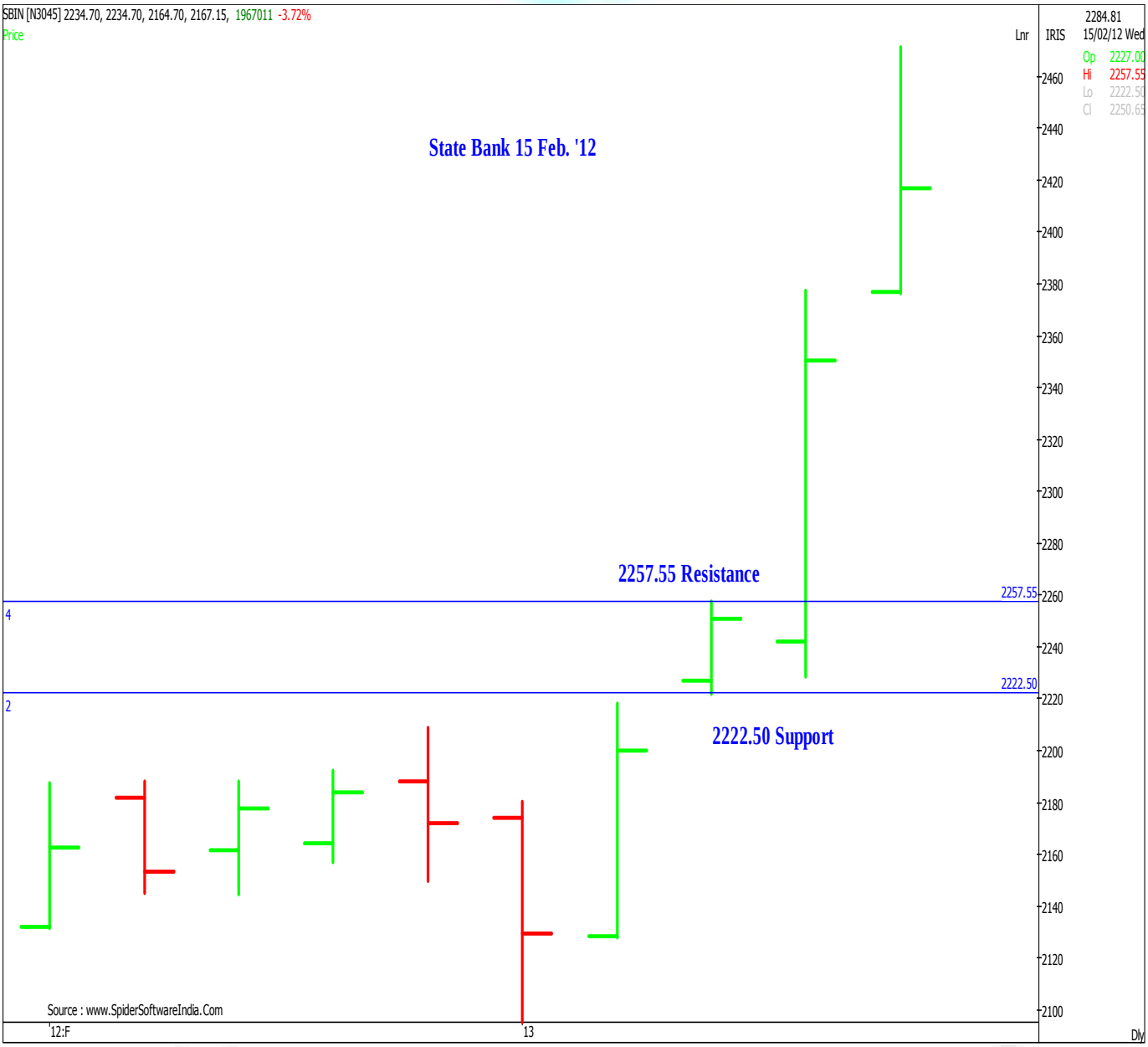
Trade is executed when the closing price on the 30 minutes chart is seen above the first 30 minutes high or low. If price closes above the first 30 minutes high, long trade is executed with a stop loss[6] below the first 30 minutes low. If price closes below the first 30 minutes low, the short sell is executed with a stop loss above the first 30 minutes high. Trailing stop[7] is required to be placed after every 30 minutes. The supports and resistances marked on the previous days charts are used as the target levels. If the targets are hit but the profitable trend continues, the position may be held till the close of the day. A day trader should not carry his position overnight in any case.

In this technical strategy neither volume[8] nor oscillators[9] or other indicators are used for analyzing the financial securities. Simplicity & performance of this strategy is so astonishing that even the beginners find it easy to understand and execute it enjoyably.

Fig. 1 Chart[10] indicates this day trading strategy with a real market case. This NSE[11] daily chart of TATAMOTORS on 28th February 2012 indicates a bullish session with the high of 275.60 & low of 262 which are the respective Resistance & Support levels. These levels define the range for the next day i.e. 29th Feb. 2012. Breakout above 275.60, if confirmed by the first 30 minutes chart on 29th Feb. 2012, would trigger long signal whereas breakdown below 262 would trigger short sell signal, if confirmed by the first 30 minutes chart. The trade potential would be limited on 29th Feb. 2012, if prices continue to remain within the high & low of 28th Feb. 2012.

Fig. 2 is NSE intraday chart[12] of TATAMOTORS on 29th Feb. 2012. The first price bar of the chart is 30 minute intraday bar with the high of 278.80 & low of 274.60. We have seen in Fig.1 above that on the daily that 275.60 & 262 are the resistance & support levels respectively. Therefore it is advisable to go short below 274.60 & place a firm stop loss above 276. On 29th Feb. 2012, TATAMOTORS has given the low of 267.30. On trailing stop, the trade cold has stopped out at around 270, giving profit of around Rs.4 /- per share.

FIG. 2



We need to remember that this was a trade within the range (high & low) of the daily price bar & therefore, bigger profit was not expected. But when intraday prices break out of the previous daily chart supports or resistances, bigger moves & therefore profits are possible.

In Fig. 3 & 4, a long trade is explained.

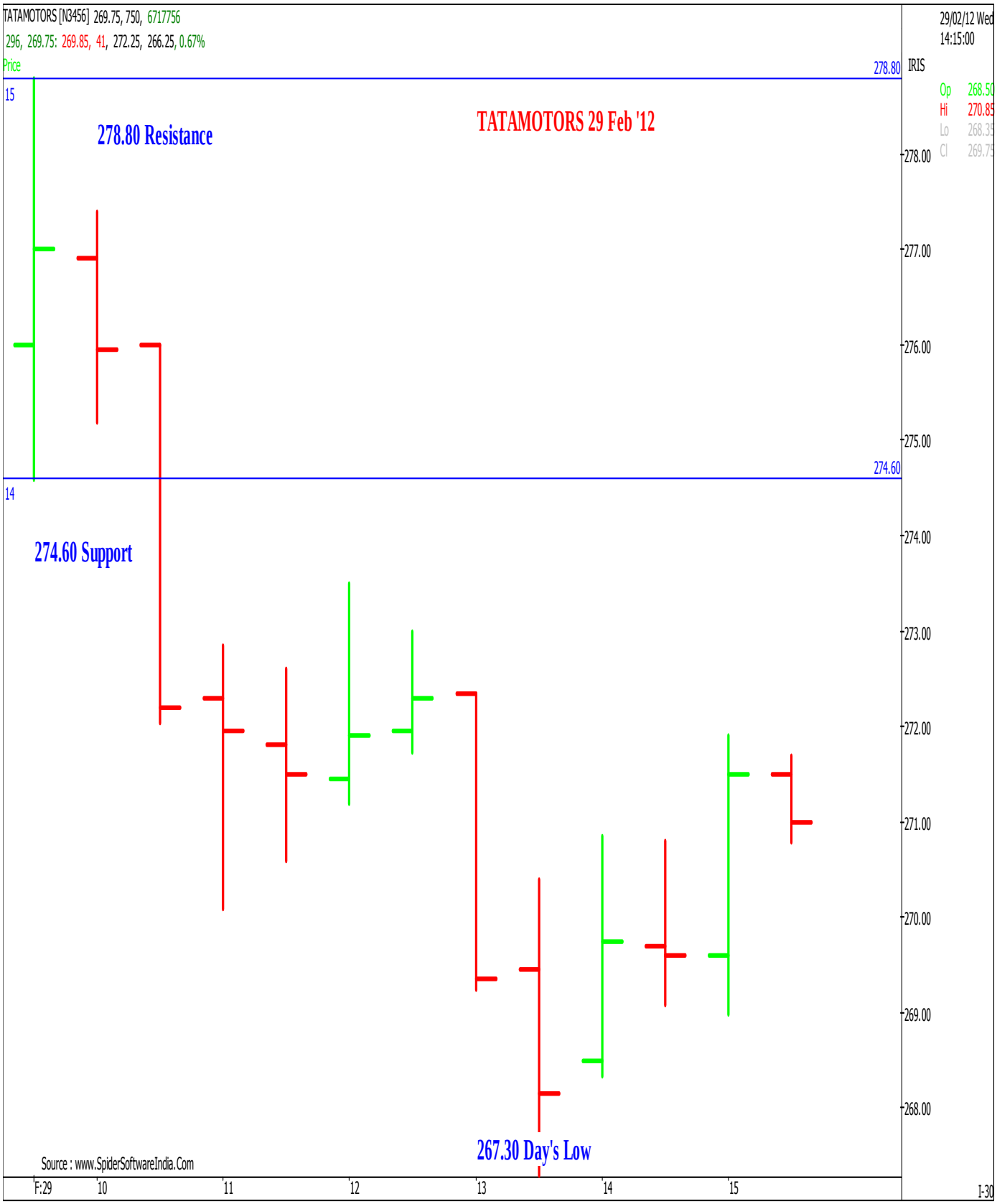
In Fig. 3 the NSE daily chart[13] of State Bank of India is shown. On 15th Feb. 2012, a bullish session is seen with the high of 2257.55 & low of 2222.50 which are the resistance & support levels for 16th Feb. 2012. This chart indicates that if on the next day, prices continue to range between these two levels, the profit potential will be limited but bigger profits are possible only if breakouts are observed on 16th Feb. 2012.

It can be seen in Fig. 4 chart[14] that on 16th Feb. 2012, the first bar of 30 minutes has the resistance & support at 2248 & 2222.50 respectively. Important fact is that the support level on 15th Feb. 2012 was the same, this confirms the strong support. As the price breaks above 2248, a long trade can be initiated but it is advisable to wait for the previous day's resistance to be violated at 2257.55 & place stop loss below 2222.50.

It can be seen in Fig. 4 that after the breakout State Bank of India has reached 2377.45. Even if the trade was closed at the closing price, profit of around Rs. 80 / - per share would have been earned.

This is an amazing technique of day trading & the beauty is that anybody, with workable knowledge of technical analysis can start day trading.

FIG. 3



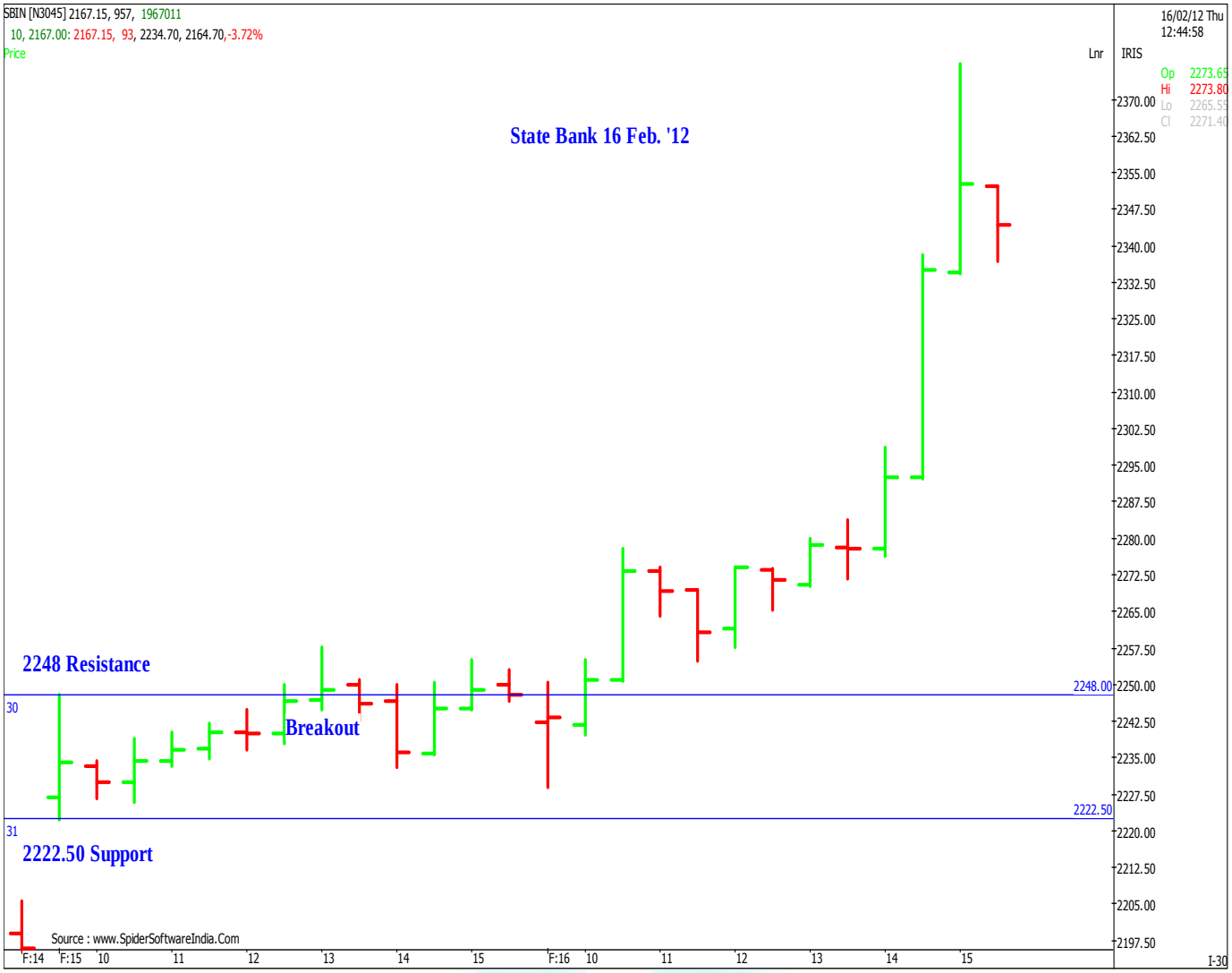
FUNCTIONAL RULES FOR THE STRATEGY

1. Never ever over trade. Day Trading is inherently risky. Deciding the risk appetite before risking the amount of corpus is a must.
2. Trade selection should be based on 1: 2 risk – return basis.
3. Day Trading without stop loss is fatal.
4. Never carry a trade for the next day.
5. Stick to the basics of the strategy. When in doubt, get out & stay out of the markets.

RESEARCH METHODOLOGY USED FOR TESTING THIS DAY TRADING STRATEGY

Two dimensional day trading technical strategy is designed for Equity, Commodity and Currency trading. It was imperative to test this strategy on all the 3 markets of financial securities in trending as well ranging markets. In the markets trades are either profitable or losses are suffered, therefore, there is no need to use any statistical technique to analyze the findings. Simple outcome tells the whole story.

FIG. 4



Out of the randomly selected 300 trades, (100 each of Equity, Commodity & currency) 246 (82 %) trades were profitable (85 equity, 79 commodity & 82 currency). In the remaining 54 trades losses were suffered. 163 trades were highly profitable (earning more than Rs. 25 / - per unit of security) whereas remaining 83 trades generated smaller amount of profit (earning between Re. 1 / - & Rs. 25 / - per unit of security). The transaction cost of trades is not taken into account while testing this strategy as it is insignificant (5 paisa to 10 paisa per Rs. 100 / - in day trading).

FINDINGS & CONCLUSION

This trading strategy is practically so effective that, if executed strictly as per the instructions, could easily make the traders earn consistently in any market conditions. The research findings are sufficient for the traders to trade with conviction and therefore with enhanced confidence and emotional stability. In absence of the use of indicators, studies and tools provided by various technical softwares, the methodology is simple yet more effective than many of the complex strategies. This strategy exemplifies the natural progressions of markets by using which traders can easily earn their living and affluence.

REFERENCES

1. Crisafulli Patricia, Borsellino Lewis J., (2001), The day trader's course: low-risk, high profit strategies for trading stocks, John Wiley, USA, p.1
2. Stridsman Thomas, (2000) Trading systems that work: building and evaluating effective trading systems, Mc Graw Hill, USA, p.5
3. Jankovsky Jason Alan, (2010) Time Compression Trading: Exploiting Multiple Time Frames in Zero Sum Markets, John Wiley, USA, p.viii
4. Alexander Colin, (2006) Street-smart guide to timing the stock market: when to buy, sell, and sell short, Tata McGraw-Hill Education, New Delhi, p.24
5. Chen James, (2010), Essentials of Technical Analysis for Financial Markets, John Wiley, USA, p.72
6. Jaekle Urban, Tomasini Emilio, (2010), Trading systems: a new approach to system development and portfolio optimization, Harriman House Limited, USA, p.70
7. Ibid, p.74
8. Leibovit Mark, (2011),The Trader's Book of Volume: The Definitive Guide to Volume Trading, Mc Graw Hill, USA, p.1
9. Etzkorn Mark, (1997),Trading with oscillators: pinpointing market extremes--theory and practice, John Wiley, USA, p.81
10. The chart is provided by IRIS SOFTWARE provided by Spider Software Pvt. Ltd.
11. National Stock Exchange of India
12. The chart is provided by IRIS SOFTWARE provided by Spider Software Pvt. Ltd.
13. ibid
14. Ibid

A STRATEGIC FRAMEWORK FOR E-TOURISM DEVELOPMENT IN JAMMU AND KASHMIR STATE

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ABSTRACT

etourism is one of the best applications of ecommerce. Tourism is considered as the most sensitive sector and is greatly responsible for enhancing development of a nation. The concept of etourism has brought greater efficiency and competitiveness in tourism industry. Etourism provides modern tools which help in analyzing customer potential, developing effective procedures for capacity utilization thus providing better service at lower rates. It has also developed a transparent plate form for information dissemination between tourism suppliers, intermediaries as well as end consumers. Present study seeks to develop various goals and their respective physical measures for implementation of competitive strategies and plans in strengthening etourism in Jammu and Kashmir. The paper further highlights some of the most capability factors in the areas of finance, internal business management, customer management and growth by using balanced scorecard for achieving strategic advantage in etourism in Jammu and Kashmir. The study also documents a survey of two hundred and eighty six people who are directly or indirectly linked with tourism industry in Jammu and Kashmir.

KEYWORDS
etourism, ecommerce, capacity utilization, strategic advantage, customer potential, critical success factors.

INTRODUCTION

Business has always been changing its traits due to abundant changes in task as well as global environment. Form the internal setup of a firm to the final consumer level all need and support a positive change in business events. Tourism is one among all those sectors which are offering their products and services from ages. There are some sectors which are more sensitive from others and tourism sector is one of the most sensitive sector. The most important characteristics that make it more sensitive is its tangibility. Innovation has successfully made tourism industry capable of identifying its competitive factors which will finally help industry to reach at customer potential. Most previous research suggested that people consider great applications of e-tourism. They consider that e-tourism implementation will help integration of activities which will finally improve the relationship among service providers and customers.

To develop and implement various strategies and plans for proper e-tourism setup it is necessary to identify various goals and their respective measures which will upgrade and promote quality standards in tourism.

NEED FOR BALANCED SCORECARD

World economy is today dominated by products as well as services mix. It is very difficult to access that whether the consumer is buying a product or for pure service attached to it. To properly analyze the consumer psychology the industry needs identification of certain core parameters so that it can reach at customer potential. Kaplan and Norton developed a method popularly known as balanced scorecard. This tool can help an industry as well as individual firm in evaluation and control of performance in four different dimensions. The first dimension is learning and growth perspective in which an organization can identify new tools which will help in business growth. The second dimension is internal business perspective which can be used by an organization to manage customer demands and also identify favorable locations for customers. Third dimension of balanced scorecard is regarding customer perspective which identifies customer potential and spreads awareness among customers about new products. However the fourth dimension includes financial perspective which could develop a framework for effective management of funds.

PERFORMANCE MANAGEMENT APPROACHES SIMILAR TO BALANCED SCORECARD

Balanced scorecard technique was devised by Kaplan and Norton. This technique acts as an effective tool in determining success factors for organizational development. Balanced scorecard helps in developing modern procedures in the areas of finance, internal business, customer perspective and also as a course of learning. It also helps in the proper integration of knowledge, skills and abilities for better productivity. There are many other approaches which could be used for enhancing performance of an industry. These approaches include benchmarking, organizational capability profile, key factor rating, strategic advantage profile etc. Benchmarking sets various standards for integrating procedures, techniques and also helps in developing alternative strategies. Organizational capability profile helps in identifying capability factors in the areas of marketing, production, Research and development etc. Moreover strategic advantage profile and organizational capability profile helps in determining competitive strategies while key factor rating technique determines most critical success factors for enhancing organizational effectiveness.

OBJECTIVES

1. To develop a model for upgrading performance management in e-tourism.
2. To identify various goals and measures which could make effective strategies for e-tourism development?
3. To present an innovative approach for e-tourism up gradation.
4. To develop an analytical framework for achieving competitive advantage in e-tourism.
5. To identify strategic success factors for e-tourism development.

MATERIAL AND METHODS

Present study has been worked out with the help of both primary as well as secondary data. The primary data has been collected with the help of a pretested questionnaire from two hundred and eighty six respondents linked to tourism sector. The secondary data has been collected from different sources. The sources

for secondary data includes various registered NGOs linked to tourism development, offices of various directors and deputy directors' tourism and other government information agencies.

The data and information so collected has been analyzed and certain cartographic has been applied to develop a model which can act as a tool for better achievement of etourism goals and objectives.

RESULT AND DISCUSSION

Productivity of a sector is the result of value integration of goals and their respective measures. In order to improve productivity in tourism sector various goals and measures have been identified and a framework has been devised for creating value integration.

GOALS

Balanced scorecard helps in the evaluation of performance of a business sector in four different dimensions. These dimensions include learning and growth perspective, internal business perspective, customer perspective and financial perspective. In order to qualitatively evaluate performance of tourism sector it is necessary to develop various goals and objectives for each perspective which must be accomplished in a particular period of time. The proper achievement of various goals and objectives directly depends on formulation and implementation of various strategies and respective plans. The various goals for different balanced scorecard perspectives have been tabulated in table 5.1. The goals identified for learning and growth perspective of balanced scorecard in tourism sector are curriculum up gradation, quality enhancement, opportunity identification and integration of knowledge and experience of strategic as well as lower level positions. In strengthening internal business perspective for tourism sector the various goals have been devised as capacity management, identification of favorable locations for tourists and various other positioning strategies.

Goals which will greatly help in increasing the ratio of customers in tourism industry has been identified as analysis of customer potential, checking customer satisfaction level and customer awareness about tourism products. Moreover finance is considered to be backbone of every industry. So management of financial issues is most necessary aspect. The goals devised for financial perspective include identification of various sources of funds, cost control procedures and efficient capital budgeting system.

MEASURES

LEARNING AND GROWTH PERSPECTIVE

Measures represent various tools that determine the overall performance of a particular business. They also determine how much effectively the goals and objectives are accomplished.

A set of different measures have been determined in the study which helps in achieving various goals and objectives in respect of four balanced scorecard perspectives in tourism industry. The measures identified for achieving upgradation in curriculum have been identified as implementation of various training programs, development of various strategies and plans for different functional areas and implementation of various problem solving and decision making techniques at both strategic as well as at conventional level. For quality management the measures have been identified as development of value chain activities and regular audits in quality management both internally as well as with the help of any external agency. Future opportunities in tourism sector can be known by predicting future demand and by the analysis of competitiveness strengths that the industry could hold in future. However interdependencies between functional areas and use of other tools which resolve knowledge conflict between departments will help in achieving the objective of knowledge and experience integration.

INTERNAL BUSINESS PERSPECTIVE

The identification of various infrastructural resources and capacity management of both products as well as services will be effective measures of how tourism industry has qualitatively managed and implemented its capacity management goals. Moreover for locating favorable locations for customers in future, identification of location preferences and analysis of availability of all basic facilities could be better measures. However positioning strategy is one of the most important goals for tourism industry which could be analyzed by the analysis of how industry is able to create point of parity and point of difference for its products and services. Creation of customer focused value proposition system is also a good measure of examining applicability of positioning goals.

CUSTOMER PERSPECTIVE

The potential of customer can be measured by three feasible ways which include proper assessment of customer life time value, relationship analysis of customer and industry and the degree of customization provided by the tourism industry. The identification of value equity attached with customers, loyalty of a customer towards a product or brand and continuous reductions in customer defections could be better measures for determining customer satisfaction level. Moreover customer awareness is one of the most important objectives of tourism industry. The communication system of tourism industry, frequency of communication programs and identification of level of satisfaction drawn by customer out of these programs are effective tools for achieving the objective of high customer awareness in tourism industry.

FINANCIAL PERSPECTIVE

The determination of various schemes of funding from govt. and non-govt. agencies, maintenance of high level of credit worthiness and identification of seeking tax concessions from govt. are some effective measures of identification of sources of funds. Moreover implementation of tools which could check obsolesance, tools that control operational costs and strategies which will help minimize logistics costs could be helpful in achieving cost control objective in tourism sector. However an effective capital budgeting system can be developed by identifying low level cost of capital payment, better risk return measurement and use of feasible and sound capital structures.

GOALS AND MEASURES FOR E-TOURISM USING BALANCED SCORECARD

Perspective	Goals	Measures
Learning and growth perspective	1. Curriculum upgradation	a) Training programs b) Strategies and plan development procedures in all functional areas c) Problem solving and decision making practices
	2. Quality enhancement	a) Value chain practices b) Quality audits
	3. Opportunity identification	a) Forecast techniques for predicting future demand b) Analysis of competitive strength for future
	4. Knowledge and experience integration	a) Analysis of interdependencies between functional areas b) Tools for solving knowledge conflict between departments
Internal business perspective	1. Capacity management	a) Identifying infrastructural resources b) Product and services capacity management
	2. Favorable location identification	a) Identification of location preferences practices b) Availability of basic facilities
	3. Positioning strategy	a) Analyzing points of parity and points of differences b) Creating customer focused value proposition
Customer perspective	1. Customer potential	a) Customer life time value analysis b) Relationship analysis c) Degree of customization
	2. Customer satisfaction	a) Value equity b) Product loyalty c) Reductions in customer defections
	3. Customer awareness	a) Communication of product information b) Frequency of awareness programs c) Utility drawn by consumer from promotional programs
Financial perspective	1. Identification of various sources of funds	a) Funds from various govt. and non-govt. agencies b) Tax concessions from govt. c) Credit worthiness
	2. Control on costs	a) Obsolescence management tools b) Effective control on operational costs c) Minimizing logistics costs
	3. Efficient capital budgeting system	a) Low level cost of capital identification b) Return and risk management system c) Feasible capital structure implementation

CONCLUSION

Balanced scorecard can be used as an effective instrument in tourism industry for better management of business practices and increasing efficiency in different areas in tourism sector. It could be one of the best applications which will properly help in implementing e-tourism strategy in tourism sector in Jammu and Kashmir State. A framework has been devised in this paper which effectively increases the performance of various aspects directly by identification of goals and then measures which will finally set roadmaps for achievement of those goals. It has also been determined that balanced scorecard can integrate the identified goals with their respective measures to create an effective value chain system. The proposed model can also boost organizational capabilities and finally enhance the competencies of tourism industry in its core areas of finance, operations and customer segment in this complex business environment.

REFERENCES

1. Briggs, S. (2001). Successful Web Marketing for the Tourism and Leisure Sectors, Kogan Page.
2. Buhalis, D. & Schertler, W. (1999). Information Communication Technologies in Tourism 1999, Springer Wien. NewYork.
3. Buhalis, D. (2003) eTourism: information technology for strategic tourism management. England: Prentice Hall.
4. Ghaderi Z (2004). Sustainable tourism development planning principles in rural areas, organization municipalities and rural district country.
5. Ghara NH (2008). Introduction to tourism development and hospitality, Azad Islamic university branch Najaf Abad
6. Khan, H. (2002). Best Practices on E-Commerce Strategies for SMTEs in Singapore, APEC International Tourism Symposium, Seoul.
7. Maurer, E. (2003) Internet for the Retail Travel Industry. New York: Delmar Learning.
8. Rezvani A (2004). Geography and industrial tourism, Payam Nour University
9. Saarinen J, kask T (2008). Transforming tourism spaces in changing socio-political contexts: the case of parnu, Estonia, as a tourist destination. Tourism Geogr. 10(4).
10. Sheldon, P. (1997) Tourism Information Technology. New York: CAB International.
11. Vincent J.A., (1980), "The political economy of alpine development", Sociological Ruralis 20 (3-4)
12. World Tourism Organization (WTO) (2001). E-business For Tourism, Practical Guideline For Tourism Destination and Business.
13. World Tourism Organization (WTO) (2001). E-business For Tourism, Practical Guideline For Tourism Destination and Business
14. Zhou, Z. (2004) E-Commerce and Information Technology in Hospitality and Tourism. Canada: Thomson.

IMPACT OF EMPLOYEES MOTIVATION ON BANKING EFFECTIVENESS - A STUDY OF SELECTED BANKS IN SHIMOGA CITY INDIA

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ABSTRACT

One of the fastest growing industry is the Banking sector with thousands of employees from all over the world are in demand. Banking sector is characterized by high competition and in order to survive in market place, employees must be motivated and satisfied. In recent years, they have been paid increasing attention to "factors" in job satisfaction.This paper provides an impact of employee's performance and employee's motivation towards banking effectiveness and the relationship between employees motivation and banking effectiveness. The study focuses on the practice of two central factors, empowerment and employee recognition for enhancing employee motivation which lead to banking effectiveness. The banks should design their rules, policies and banking structures which give employee to work well and appreciate them on their task fulfillment and achievement.

KEYWORDS
Empowerment, Recognition, Motivation, Banking effectiveness.

INTRODUCTION

In any organization employee motivation is a driver to achieve objectives. It creates a psychological environment in the organization to exert better performance. Employee's motivation is a very useful and handy tool to firms for condition the human resources efforts. Motivation in services organizations like banks has gained more importance in recent years. Every bank wants to besuccessful and have desire to get continuous progress. In the process of motivation, firms give some incentives and facilities to their employees to get their maximum possible satisfaction level so that eventually they perform their tasks, duties and responsibilities with 100% intention and interest. Nowadays, the banking services are highly competitive and banks regardless of size, technology and market focus are facing employee retention challenges.To overcome these challenges a positive and strong relationship should be build between employees and their employer i.e. bank . Human resource or employees of any bank are most central part so they need to be influenced toward task fulfillments. For competitive advantage, banks have to design new strategies to compete with competitors and increasing the performance of the employees. A very few banks believe that the human resource is the main assets which can lead them to the success. Banks must focus more on employees' satisfaction and motivate them for task fulfillment and goals achievement and encourage, without that, the banks can't progress or achieve success scantily.

This study focus on how banks through its employees can achieve the success and effectiveness. The purpose of the study is to analyze the impact of employees' motivation on banking effectiveness. This study has two objectives; firstly the factors that increase motivation of the employees are to be determined. Secondly the relationship of employee motivation and banking effectiveness is to be examined.

REVIEW OF LITERATURE

Motivation is the process that account for an individual's intensity, direction, and persistence of effort toward attaining a goal. According to Webster's New Collegiate Dictionary, a motive is "something a need or desire that causes a person to act". "Motivate, in turn, means "to provide with a motive," and motivation is defined as "the act or process of motivating".

Bartol and Martin (1998) describe motivation as a power that strengthens behavior, givesroute to behavior, and triggers the tendency to continue **(Farhad et al, 2011).** This explanation identifies that in order to attain assured targets; individuals must be satisfactorily energetic and be clear about their destinations. In view of **Bedeian, (1993)** it is an internal drives to satisfy an unsatisfied need and the will to accomplish. Motivation is a procedure that initiate through a physiological or psychological want that stimulates a performance that is intended at an objective. Motivation is a progression of moving and supporting goal-directed behavior **(Chowdhury.M.S, 2007).** It is an internal strength that drives individuals to pull off personal and organizational goals **(Reena et al, 2009).** oriented **(Farhad et al, 2011**). Also motivation is a progression of moving and supporting goal-directed behavior **(Chowdhury.M.S, 2007).**

JOB MOTIVATION

Several theories offer an explanation of factors that motivate employees, including Maslow's hierarchy of needs theory, job characteristics theory, and equity theory. **Maslow's (1987)** theory bases motivation on five levels of needs including physiological, safety, social, ego, and self-actualization. Maslow proposes that lower order needs must be satisfied before higher level needs. The job characteristics theory is based on the historical work of **Hackman and Oldham (1976).** These researchers found that high motivation is based on experiencing three psychological states while working: meaningfulness of work, responsibility, and knowledge of job outcomes. Lastly, equity theory is based on the principle of social comparison; this theory suggests that an individual is motivated based on a perception of how well their work is compensated in comparison to others **(Muchinsky, 2006).**

The social cognitive view of motivation is based on a reciprocal relationship between one's goals and one's environment. One social cognitive perspective, attribution theory, explains how an individual's perceived reasons for past success and failure contribute to current and future motivation and success **(Weiner, 2000).** This theory is based on four causal attributions: ability, effort, task difficulty, and luck. Each element is characterized as stable or unstable, internal or external, and controllable or uncontrollable **(Weiner, 2000).** Researchers offer novel definitions of motivation including the will to achieve, a predisposition to behave in a purposive manner to achieve specific, unmet needs **(Buford, Bedeian, Lindner, 1995),** and the psychological process that gives behavior purpose and direction **(Kreitner, 1995).Ray (1980)** defines job motivation as the desire to reach job-related goals that are difficult and socially approved.

JOB MOTIVATION AND PERFORMANCE

Several authors explore the relationship between job motivation and job performance including **Latham and Pinder (2005), Tyagi (1985),** and **Van Knippenberg (2000),** analyzed job motivation and job performance from the perspective of social identity theory, which helps establish the importance of anemployee's social identity in the context of how that identity affects job motivation and job performance. He concluded that "an employee's social identity is positively related to

work motivation, task performance, and contextual performance to the extent that (a) social identity is salient and (b) high performance is perceived to be in the group's or organization's interest**.**

Latham & Pinder (2005) examined issues related to work motivation in the last thirty years. They reexamine progress made in theory and research on needs, traits, values, and cognitions related to motivation theory. These authors suggest that the ability to predict, understand, andinfluence motivation in the workplace is a result of looking at the multitude of aspects that influence motivation as a whole, rather than just a few characteristics. They propose that the effects of national culture, characteristics of the job itself, and the fit between the person and the organization specifically influence motivation and ultimately job performance.

Tyagi (1985) examined characteristics that act as effective work motivators in sales jobs. He hypothesized that key job dimensions and manager ship behavior influence work motivation and performance. Some of the aspects that discussed include performance standards, manager trust and support, goal emphasis, group interaction, psychological influence, and hierarchical influence.

THE CONCEPT OF EFFECTIVENESS AND ORGANIZATIONAL EFFECTIVENESS

The concept of effectiveness is great importance to understanding the organizational behavior **(Cheldadurai and Haggerty,1999).** Effectiveness has been defined in the Webster's dictionary as "producing, decided, decision or desired effect" (According to **Pemings Goodman (1977),** effectiveness refers to an absolute level of either input acquisition or outcome attainment. Organizational effectiveness has been one of the most extensively researched issues since the early development of organizational theory **(Rajas, 2000).**Despite some consensus, there is still significant look to agreement on the definition of oprerationalization of this concept**(Cameron,1986),** OE has been defined in a variety of ways but no single definition has been accepted universally **(Cameron and Whetten, 1993).** This is perhaps due to the fact that the concept of effectiveness is linked to the concept of organization. The conceptualization of effectiveness changes with way organization is visualized. The obvious approach to both defining evaluating OE is to ask, to what extent does an organization reach goal? **(Herman and Renz, 1997)** the underlying assumption being that all organization have measurable goals, which may not always be true **(Elmore, 1978, Mohr 1982, and Pfeffer 1982).**

RECOGNITION AND EMPLOYEE MOTIVATION

According to **Maurer (2001)** rewards and recognition are essential factors in enhancing employee job satisfaction and work motivation which is directly associated to organizational achievement **(Jun et al., 2006).**The motivation programmes are ineffective and may even erode employees' ability to engage with their work. More important is the adverse impact on the ability to understand and learn about human motivation. Only when recognition and reward are treated as two distinct phenomena will the effectiveness of employee motivation initiatives be improved. The banks should increase employee motivation by recognizing excellence in the workplace. Ring a bell every time an individual or team hits the production target. Put up posters with the photographs of team members who have had the most days without accidents. Give out awards for attendance records. Just do something. It is so inexpensive, yet highly effective in your efforts of employee motivation. Appropriate recognition for good performance should include the awarding of more responsibility and advancement within the company. Using responsibility and advancement as recognition is good for the employee, the manager and the whole organization.

EMPOWERMENT AND EMPLOYEE MOTIVATION

Employee empowerment and participation consists of contribution of employees in administration and decision making associated to policies, objectives and strategies of the organization. According to **Chao et al. (1994),** employees' perceptive of the goals, standards and political principles of their firms were positively and significantly related to employee motivation and gratification towards work (**Reena et al, 2009).** Empowerment results in motivating employees that leads to constant expansion and organizational growth **(Smith, B, 1997).** Increased autonomy enhances work productivity, amplifies employees' wisdom of self-efficacy and their motivation to get upon and complete certain tasks **(Mani, V, 2010).** According to **Brewer et al. (2000),** managers should regard employees in decision-making procedures. **Bhatti and Qureshi (2007**) propose that employee participation in organization measures develop motivation and job-satisfaction level **(Reena et al, 2009).**

SIGNIFICANCE OF THE STUDY

One of the fastest growing industry is the Banking sector with thousands of employees from all over are in demand. This gives rise to the need for the study to measure the levels of motivation of its employees. The main concern of the study how banks can through its employees can achieve the success and effectiveness. The purpose of the study is to analyze the impact of employees' motivation on banking effectiveness. Less studies conducted in this field so this study will help banks to focus on motivation factors that increase employees motivation as empowerment and recognizing at workplace.

OBJECTIVES OF THE STUDY

The main objective of the study is to analyze the impact of employees' motivation on banking effectiveness. The sub-objectives of the study are:

- To determine the factors which increase employees motivation
- To examine the relationship between employees motivation and organizational effectiveness.
- To assess the employees opinion on motivational practices in the chosen banks.

HYPOTHESES

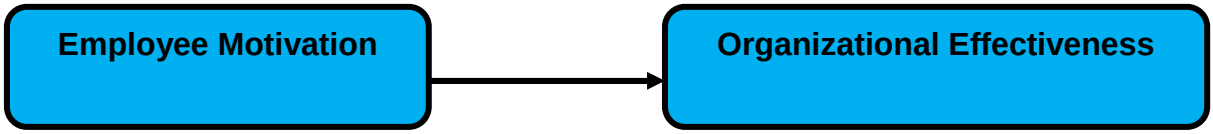
Based on the literature and model the study is designed to test the following hypothesis:

Ho_1: There is a positive and significant relationship between employee's motivation and satisfaction.

Ho_2: There is a positive and significant relationship between employee empowerment and motivation at work

H_3: There is a relationship between employee's recognition and level of motivation at work.

The conceptual framework of the study is:



Model of the Study

CONCEPTUAL FRAMEWORK

Employee Motivation is the independent variable and will be examined through two of its factors, recognition and empowerment. The dependent variable is banking effectiveness.

RESEARCH METHODOLOGY

SOURCES OF DATA

The study is based on both primary and secondary data- the primary data is collected from sample of Public and Private Banks in Shimoga city. The secondary data is collected books, journals and websites.

SAMPLE DESIGN

The size of banking industry in Karnataka is wide, since detailed study of opinions of all different banks is very difficult and time consuming about impact of motivation on employee effectiveness in banking sector in Shimoga. In view of this the study selected 8 banks in Shimoga city with a total of 43 respondents by adopting a convenient sampling method through pre-tested questionnaire.

TOOLS AND TECHNIQUES OF THE STUDY

The study used tools like percentage, tabular method and chi-square was applied to draw a meaningful conclusion and suggestions.

SCOPE AND LIMITATIONS OF THE STUDY

The scope of the study is limited to banking in Shimoga and does not involve other cities. The public sector banks are: Canara bank, Corporation bank, State bank of India and its affiliate i.e. State Bank of Mysore, Allahabad bank, Private sector banks are: ICICI bank, HDFC bank and AXIS bank.

ANALYSIS AND INTERPRETATION OF DATA

The data collected from the respondents are edited, classified and presented in the form of tables. Interpretations of the data are given below the table.

TABLE 1.1: GENDER AND OPINIONS OF EMPLOYEES TOWARDS IMPACT OF EFFECTIVENESS OF MOTIVATION

		Frequency	Present	Valid present	Cumulative present
Valid	Male	31	72.1	72.1	72.1
	Female	12	27.9	27.9	100.0
	Total	43	100.0	100.0	

Source: Field survey

Table 1.1 reveals the sex and opinions of employees towards impact of effectiveness of motivation. . It's observed that on the whole 72.1 per cent of the total employees were male and 27.9 per cent were female indicating that male employees are dominant work force in the banking industry.

TABLE: 1.2. AGE AND OPINIONS OF EMPLOYEES TOWARDSIMPACT OFEFFECTIVENESS OF MOTIVATION

	Frequency	Present	Valid present	Cumulative present
Valid 20 -30	14	32.6	32.6	32.6
30 – 40	16	37.2	37.2	69.8
40 – 50	6	14.0	14.0	83.7
Above 50	7	16.3	16.3	100.0
Total	43	100.0	100.0	

Source: field survey

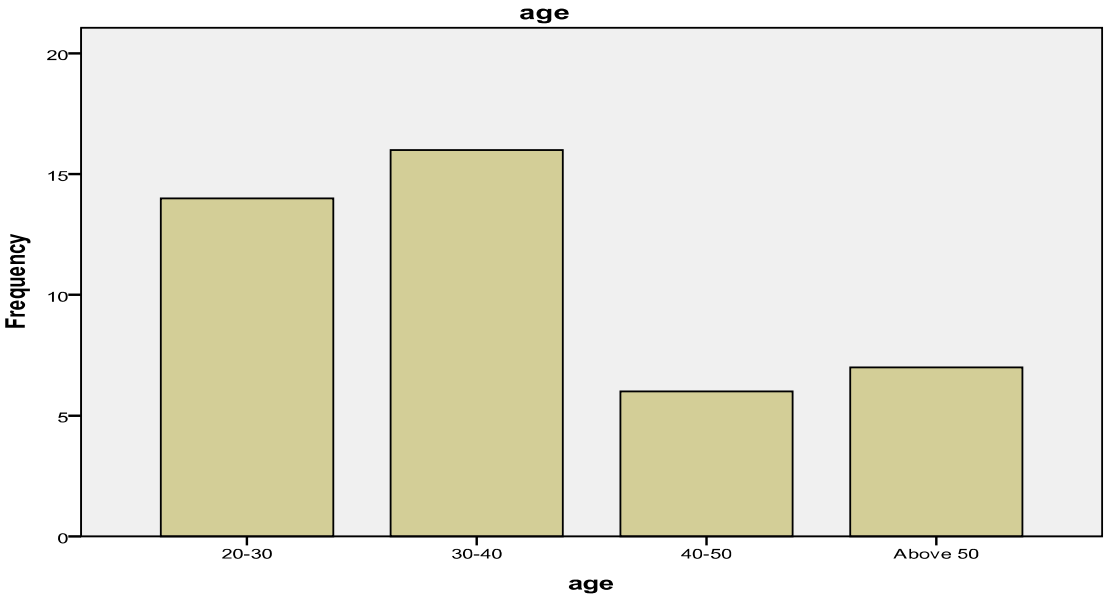


Table: 1.2 provides information about the age and opinions of employees about impact of effectiveness of motivation. It's observed that on the whole 37.2 per cent of the total employees were 30 - 40 the majority followed by those who belong to the age group of 20 - 30 representing 32.6 per cent above 50were representing 16.3% and age group of 40 – 50representing 14 per cent. It can be concluded from the above table indicating that maximum respondents of all banks fall in the category of age group of 30- 40.

TABLE: 1.3: SALARY PER MONTH AND OPINIONS OF EMPLOYEES TOWARDS IMPACT OFEFFECTIVENESS OF MOTIVATION

		Frequency	present	Valid present	Cumulative present
Valid	Below 25000 pm	15	34.9	34.9	34.9
	25,000 – 50,000	23	53.5	53.5	88.4
	50,000 – 75,000	1	2.3	2.3	90.7
	Above 75,000	3	7.0	7.0	97.7
	5.00	1	2.3	2.3	100.0
	Total	43	100.0	100.0	

Source: field survey

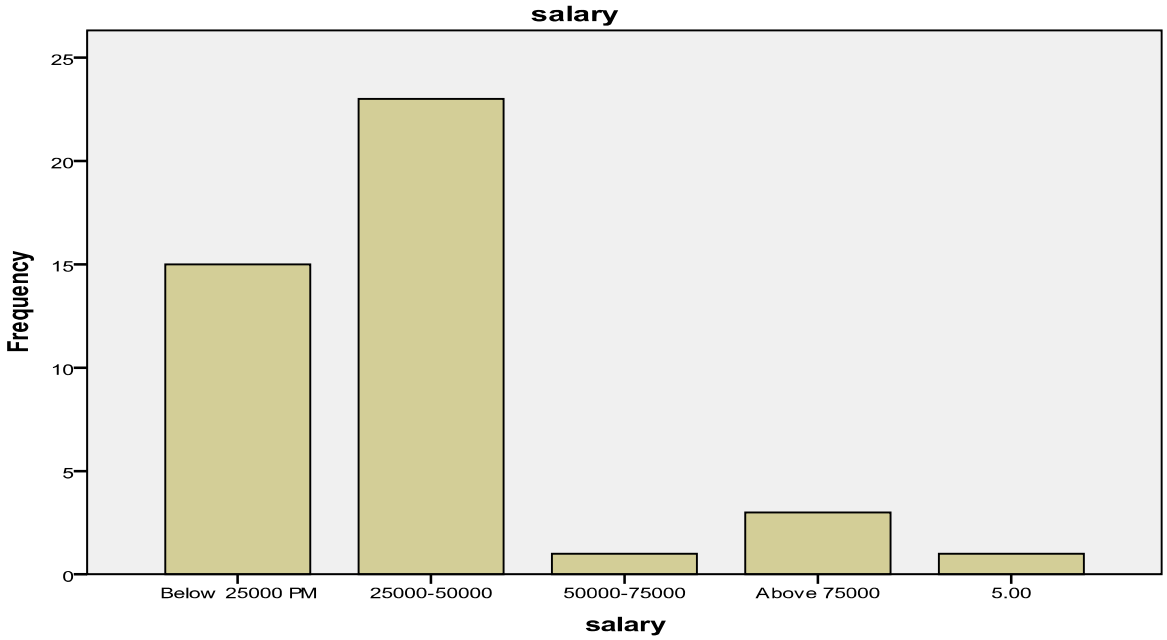


Table: 1.3 provides information about the salary per month and opinions of employees impact of effectiveness of motivation. It's observed that on the whole 53.5 per cent of the total employees were Rs.25,000 - 50,000 the majority followed by those who belong to the salary per month below Rs 25,000 representing 34.9 per cent , above Rs. 75,000 were representing 7 per cent and from 50,000 – 75,000 representing 2.3 per cent. It can be concluded from the above table indicating that maximum respondents of all banks fall in the category of salary per month Rs.25,000 - 50,000

TABLE: 1.4: JOB SATISFACTION AND OPINIONS OF EMPLOYEE TOWARDS IMPACT OF EFFECTIVENESS OF MOTIVATION

		Frequency	Present	Valid present	Cumulative present
Valid	Highly satisfied	14	32.6	32.6	32.6
	Satisfied	24	55.8	55.8	88.4
	Average	5	11.6	11.6	100.0
	Total	43	100.0	100.0	

Source: field survey

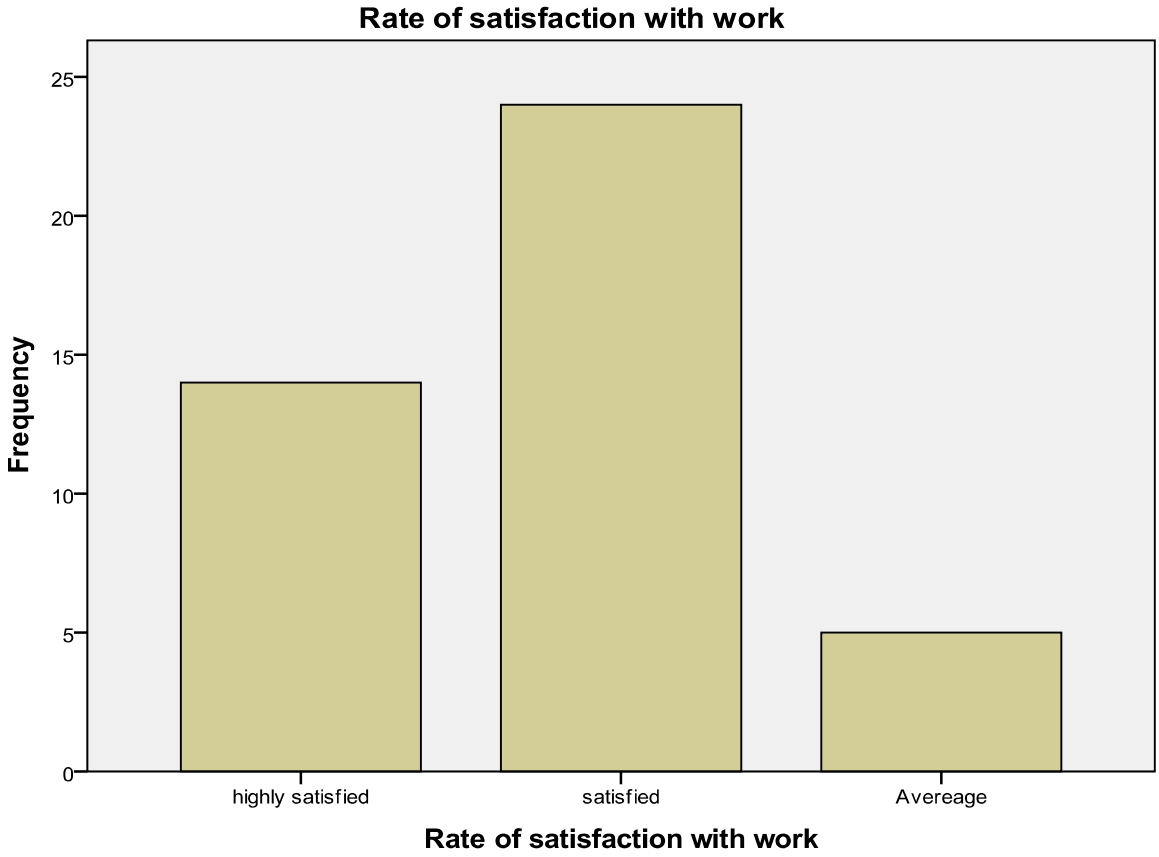


Table 1.4 indicates opinions of Employee towards job satisfaction. It observed that 24 respondents representing 55.8 % of the total banking industry employee were satisfied, while 14 respondents representing 32.6 % were highly satisfied and 5 respondents representing 11.6% were average. It can be concluded from the above table indicating that maximum respondents of all banks fall in the category of satisfied.

TABLE: 1.5: OPINIONS OF EMPLOYEES TOWARDS MANAGEMENT EMPOWERMENT IT'S EMPLOYEES IN THE WORK

		Frequency	Present	Valid present	Cumulative present
Valid	Strongly Agree	2	4.7	4.7	4.7
	Agree	38	88.4	88.4	93.0
	Disagree	3	7.0	7.0	100.0
	Total	43	100.0	100.0	

Source: field survey

From Table1.5, it's clear from above employees were asked to give their opinions towards the management empowerment its employees in the work.It's observed that 38 respondents representing 88.4% of the total banks were agree that management empowerment its employee in the work ,while 3 respondents representing 7% were disagree and 2 respondents representing 4% were strongly agree. It can be concluded from the above table indicating that maximum respondents of all banks fall in the category agree that management empowerment its employee in the work

TABLE 1.6: OPINIONS OF EMPLOYEES TOWARDS ORGANIZATION RECOGNIZE AND ACKNOWLEDGE EMPLOYEES WORK

		Frequency	Present	Valid present	Cumulative present
Valid	Strongly Agree	8	18.6	18.6	18.6
	Agree	32	74.4	74.4	93.0
	Disagree	3	7.0	7.0	100.0
	Total	43	100.0	100.0	

Source: field survey

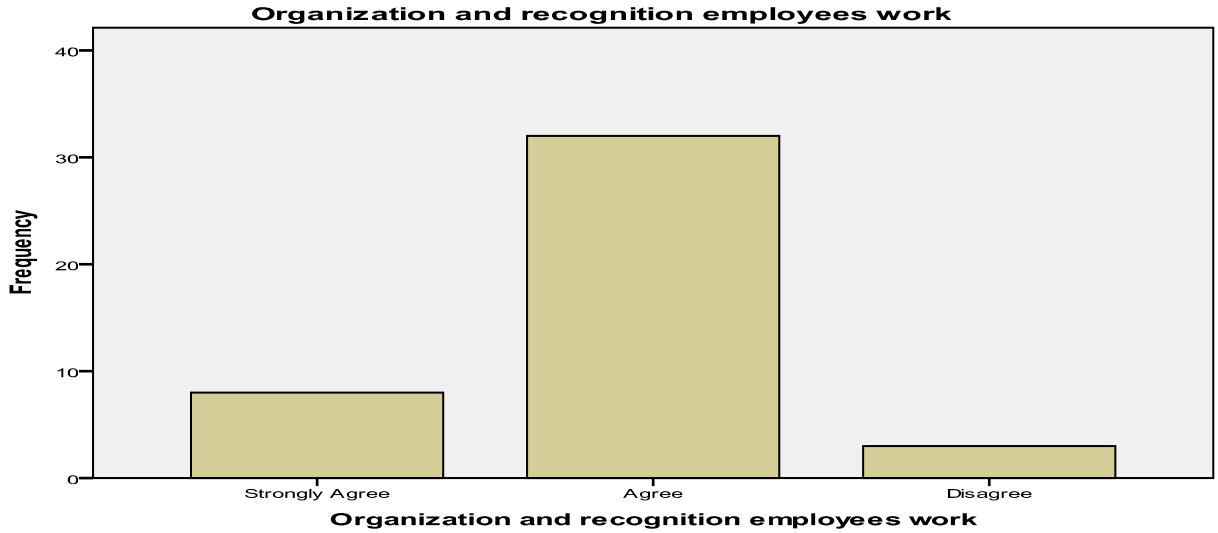


Table1.6 indicates32 of the total respondents representing 72% were agree that organization recognizes employees work, while 8 respondents representing 18.6 % were strongly agree and 3 of the total respondents representing 7%observed were disagree. It can be concluded from the above table indicating that maximum respondents of all banks fall in the category agree that organization recognizes its employee in the work.

TABLE1.7: OPINIONS OF EMPLOYEES TOWARDS MANAGEMENT INTEREST IN MOTIVATING IT EMPLOYEES

		Frequency	Present	Valid present	Cumulative present
Valid	Strongly Agree	15	34.9	34.9	34.9
	Agree	27	62.8	62.8	97.7
	Disagree	1	2.3	2.3	100.0
	Total	43	100.0	100.0	

Source: field survey

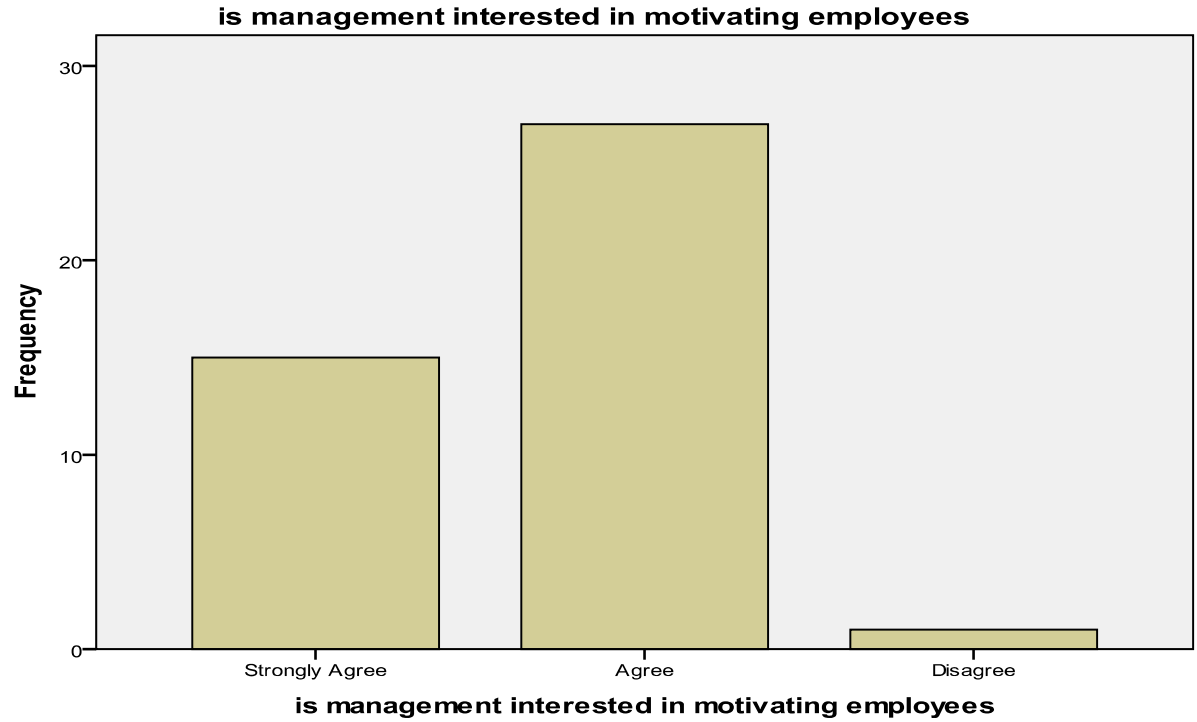
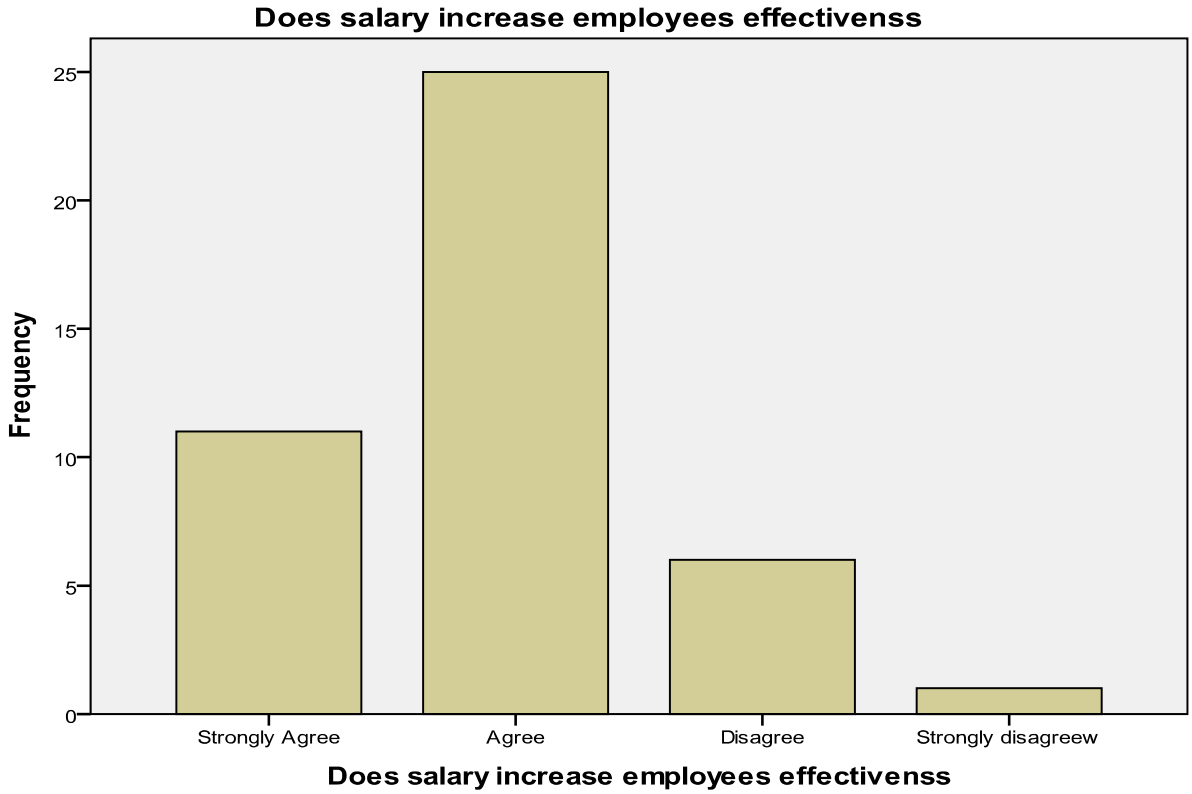


Table:1.7 shows opinions of employees towards management interested in motivating itsemployees, it indicate that 27 of total respondents representing 62.8% were agree that management interested in motivation its employees in work. While 15respondents representing 34.9% were strongly agree and 1 respondent representing 2.3% was disagree. It can be concluded from the above table indicating that maximum respondents of all banksfall in the category agree that management interested in motivating itsemployees.

TABLE 1.8: OPINIONS OF EMPLOYEES TOWARDS SALARY INCREASE EMPLOYEES EFFECTIVENESS

		Frequency	Present	Valid present	Cumulative present
Valid	Strongly Agree	11	25.6	25.6	25.6
	Agee	25	58.1	58.1	83.7
	Disagree	6	14.0	14.0	97.7
	Strongly disagree	1	2.3	2.3	100.0
	Total	43	100.0	100.0	

Source: field survey



From the above table indicates the responses of the employees towards salary increase employees effectiveness.It's observed that of total 25 respondents representing 58.1% were agree that salary increase employees effectiveness ,11 respondents representing 25.6% were strongly agree ,while 6 respondents representing 14% were disagree that salary increase employee effectiveness in work and 1 respondent representing 2.3% was strongly disagree. .It can be concluded from the above table indicating that maximum respondents of all banksfall in the category agree thatsalary increase employee's effectiveness.

FINDINGS

1. Majority of the workforce of both banking sector is dominated by male representing 72.1%were male and female were 27.9%t.
2. It's observed that the age group of employees belong to group of (30 – 40) years were majority representing 37.2% followed by those who belong to the age group of (20 – 30) representing 32.6%above 50 were representing 16.3% and age group of (40 – 50) representing 14 %.
3. It's observed that the group of employees having salary per month Rs.25,000 - 50,000 were the majority representing 53.5 % followed by those who belong to the salary per month below Rs 25,000 representing 34.9% , above Rs. 75,000 were representing 7% and from 50,000–75,000 representing 2.3%.
4. Majority of the respondents of all banks fall in the category agree with 24 respondents representing 55.8% of the total banking industry employee were satisfied with work, while 14 respondents representing 32.6 % were highly satisfied and 5 respondents representing 11.6 % were average
5. It's observed that 38 respondents representing 88.4% of the total banks were agree that management empowerment its employee in the work ,while 3 respondents representing 7% were disagree and 2 respondents representing 4% were strongly agree.
6. Majority of the respondents of all banks fall in the category agree that organization recognizes employees workwith 32 respondents representing 72% , while 8 respondents representing 18.6 % were strongly agree and 3 of the total respondents representing 7% were disagree.
7. It's observed that 27 of respondents representing 62.8% were agree that management interested in motivation its employees in work. While 15 respondents representing 34.9% were strongly agree and 1 respondent representing 2.3%was disagree.
8. It's observed that 25 of respondents representing 58.1% were agree that salary increase employees effectiveness, 11 respondents representing 25.6% were strongly agree, while 6 respondents representing 14% were disagree that salary increase employee effectiveness in work and 1 respondent representing 2.3% was strongly disagree.

RECOMMENDATIONS

This paper examined how is the impact of employee's performance and employee's motivation toward banking effectiveness and the relationship between employees motivation and banking effectiveness. In line with the assertion made by the literature and the evidences gathered in the process of the study, the following recommendations are made:

1. Banks should increase numbers of female in the work, recruit new young qualified employees whom they are skillful than old generation employees.
2. Public banks should look to employees as assets so the banks should work out and make such policies and organizational structures that support employee recognition and empowerment.

3. Public banks should increase salaries equally to private banks to control employees' turnover.
4. For Banks effectiveness there is need to create newprogrammes monthly or half yearly which will be motivated employees to work effectively by selecting the best employee's performance among all and award him/her.

CONCLUSION

Banking sector is characterized by high competition and in order to survive in market place, employees have to be motivated and satisfied.In any organization employee motivation is a driver to achieve objectives.This study focus on how banks can through its employees achieve the success and effectiveness. Motivation is most essential component of an Employee overall performance and it has to open a new strategic window for the banks. An empowerment and recognizing employee's work increases their motivation to accomplish tasks and execute responsibilities towards them by the banks.Organization should look to employee motivation as an essential to improve productivity and effectiveness of workplace.Thus the employee motivation and organizational effectiveness are directly related.The banks should work out and make such policies and organizational structures that support employee recognition and empowerment.

REFERENCES

1. Beugré, Constant, D., &Offodile, O. F., (2001). Managing for organizational effectiveness insub-Saharan Africa: a culture-fit model. *The International Journal of Human Resource Management*, 12 (4), 535-550.
2. Brenda L. Maka, HySockelb, (1999), "A confirmatory factor analysis of IS employee Motivation and retention", Information & Management vol.38 (2001)pg# 265-276 Barton L. Weathington1, 3 and Lois E. Tetrick2, (2000), "Compensation or Right: An Analysis of Employee vol.12 pg#142-145.
3. Burke, FitzRoy and Nolan, (2001) "Self-employment Wealth and Job Creation: The Roles of Gender, Nonpecuniary Motivation and Entrepreneurial Ability", Small Business Economics, Vol: 19, pp: 255–270.
4. Chidabarampand Haggerty TR(1991),Measures of organizational Effectiveness of Canadian National sport organization, Canadian Journal of sport science.
5. Connolly, T., Conlon, E. J., & Deutsch, S. J., (1980). Organizational effectiveness: a multiple constituency approach. *Academy of Management Review*, 5, 211-17.
6. Eric A. Finkelstein and Katherine M. Kosa, (2003),"Use of incentives to Motivate Healthy pg# 54-56
7. Honold, L., (1997). A Review of the Literature on Employee Empowerment. *Empowerment in Organizations*, 5 (4), 202-212.
8. IRCO, International Research Center on Organizations, Cross-cultural Management Network.[Online] Available: http://www.iese.edu/IRCO
9. Jacques Igalens and Patrice Roussel, (1999), "A Study of the Relationships between Compensation Package, Work Motivation and Job Satisfaction", Journal of Organizational Behavior, Vol. 20, No. 7, pp. 1003-1025.
10. Latt, K. A., (2008). Motivating People on the way towards Organizational Performance.Victoria University (Australia), intern analyst, Covalence SA, Geneva.
11. Rachel S. Shinnar, Cheri A. Young, Marta Meana, (2004)," The Motivations for and Outcomes of Employee Referrals", Journal of Business and Psychology, Vol. 19, No. 2, pp. 271-283
12. Zammuto, R. F., (1982). *Assessing Organizational Effectiveness*, State University of New York Press, Albany, NY.

CLOUD COMPUTING: DESCRIBING THE CONCEPT, FEATURES AND CONCERNS FROM A BUSINESS PERSPECTIVE

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ABSTRACT

Cloud computing is rapidly emerging as a legitimate alternative model for sourcing and provision of a host of computing capabilities and digitized platforms for business organizations. It offers valuable and useful benefits for businesses of any size or type. Various forms of cloud computing like 'Software as a Service' (SaaS), 'Platform as a Service' (PaaS) and 'Infrastructure as a Service' (IaaS) promise huge reduction in IT costs and complexities combined with improved accessibility, flexibility and scalability. With less upfront cost than the traditional way, no software and hardware to buy, and very few things to be managed, enterprises whether small or large could achieve increased level of robustness, and latest technologies with improved availability with this new form of technology. Its uptake in enterprise environment however, is not without challenges. There are some concerns and fears associated with the adoption of cloud computing amongst organizations. The major concerns that may hamper the adoption of cloud computing by the organizations include security, privacy, reliability, loss of control and data lock-in. This paper attempts to describe the concept of cloud computing from a business perspective and highlights business benefits provided by this model along with important concerns. The paper is concluded by outlining a migration strategy to be followed by enterprises and noting future research directions.

KEYWORDS

Cloud computing, Software as a Service, Platform as a Service, Infrastructure as a Service, Information Technology.

INTRODUCTION

Enterprises decide to invest in information systems for many reasons which include pressure to cut cost, pressure to produce more without increasing costs and simply to improve quality of services or products in order to stay in business (Legris et al., 2003). Information and Communication Technologies (ICT) provide large variety of benefits to firms in the form of reduced business costs, enhanced productivity, improved business cooperation and relationships and improved quality and diffusion of knowledge (Barbra-Sanchez et al., 2007).

Traditionally companies are required to acquire necessary hardware, software to computerize and improve their business processes. Expert IT personnel are required to manage information system infrastructure. Rapid growth and advancements in IT further pose additional challenges to companies to keep up with these changes thereby compelling companies to continuously spend more time and resources in IT to remain competitive (Wang et al., 2011). According to Truong (2010) cloud computing provides businesses altogether a different model of operation in which providers are responsible for hard parts of using software such as installation, up-gradation, maintenance, backups, failover operations and security thus resulting in huge cost savings and increased reliability on the part of users. Cloud computing has the potential to transform IT industry at large, making software more attractive as a service and shaping the way IT hardware is designed and purchased (Armbrust et al., 2010). . Rose (2011) points out that cloud computing is not a new invention as such and it is actually a merging of existing technologies such as networking, virtualization, service oriented architecture which are all wrapped within an internet based delivery model where customers pay only for what they use. Sultan (2011) observed that cloud computing has received much publicity and praise from all the corners of computing landscape and his study justifies this excitement and hype. He further emphasized that flexible cost structure and scalability make cloud computing an attractive option for many SMEs especially in the current global economic crisis. Marston, et al., (2011) conclude in their study that cloud computing is to stay even though the specific roadmap for it is not clear at the moment and this is because of the general-purpose nature of many computing applications thereby offering huge economy of scale if their supply is consolidated.

Organizations that are evaluating the benefits of cloud based services must also identify the associated operational and security risks in order to develop compensating controls or to define use cases that contain an acceptable level of risk (Gartner 2008). Organizations that are planning to move to cloud are required to be fully aware about the issues concerning privacy, loss of control, security of data, and availability of services. For cloud computing to be a success, providing a simplified, convenient, centralized platform that can be used as and when required irrespective of the location, calls for sufficient attention to be paid to the problems and concerns of the various stake holders associated with it (Rose, 2011).

DEFINING CLOUD COMPUTING

There are a number of definitions of cloud computing and some of these are discussed here. Table 1 shows various definitions of cloud computing taken from various sources. As mentioned by Armbrust et al. (2010) cloud computing refers to both applications delivered as services through internet and the hardware and system software in the data centers that provide those services and cloud has been referred to as the data center hardware and software. As per Wyld (2010) cloud computing encompasses a whole range of services and can be hosted in a variety of manners, depending on the nature of services involved and the data/security needs of the contacting organizations. Gartner (2009) defined cloud computing as a style of computing where massively scalable IT related capabilities are provided as a service across the internet to multiple external customers.

According to Ryan and Loeffler (2010) the basic point of cloud computing is to avoid acquiring and maintaining computer equipment and software, increase the ease of use and flexibility of the benefit offered by the technology. Cloud allows a start-up organization to access the same technology infrastructure and support as a Fortune 500 company (Goodburn and Hill, 2010). Smith (2009) believes that cloud computing is a means of renting computers, storage and network capacity on an hourly basis from some company that already has these resources in its own data centre and can make them available to a company and company's customers via the internet. Hayes (2008) points out that whether it is called cloud computing or on demand computing, software as a service, or internet as platform, the common element is a shift in the geography of computation. According to DeFelice (2010), the easiest way to think about cloud computing is as doing business on the web, therefore eliminating the need for in-house technology infrastructure-servers and software to purchase, run and maintain. Buyya et al., (2008) defined cloud computing as a type of parallel and distributed system consisting of a collection of interconnected and virtualized computers that are dynamically provisioned and presented as one or more unified computing resources based on service level agreements established through negotiations between the service providers and consumers.

Definition of cloud computing by Marston et al., (2010) emphasized on aspects such as resource utilization, virtualization, architecture abstraction, dynamic resource scalability elasticity, ubiquity and operational expenses. Truong (2010) highlighted three major characteristics of cloud computing definition which are- on demand provisioning of scalable resources, virtualization, and maintenance & management free. Sultan (2010), observed that there is no any common standard definition of cloud computing, however the definition that described cloud computing as a cluster of distributed computers capable of providing on demand resources and service over some kind of network, has found to be commonly accepted. Some of the definitions are summarized in Table 1.

TABLE 1: DEFINITIONS OF CLOUD COMPUTING

DEFINITION	Reference
refers to both applications delivered as services through internet and the hardware and system software in the data centers that provide those services and cloud has been referred to as the data center hardware and software	Armbrust et al. 2010
encompasses a whole range of services and can be hosted in a variety of manners, depending on the nature of services involved and the data/security needs of the contacting organizations.	Wyld, 2010
a style of computing where massively scalable IT related capabilities are provided as a service across the internet to multiple external customers.	Gartner, 2008
a pool of abstracted, highly scalable, and managed infrastructure capable of hosting end-customer applications and billed by consumption.	Forrester, 2009
a means of renting computers, storage and network capacity on an hourly basis from some company that already has these resources in its own data centre and can make them available to a company and company's customers via the internet.	Smith, 2009
a type of parallel and distributed system consisting of a collection of interconnected and virtualized computers that are dynamically provisioned and presented as one or more unified computing resources based on service level agreements established through negotiations between the service providers and consumers.	Buyya et al., 2008
an information technology service model where computing services (both hardware and software) are delivered on-demand to customers over a network in a self-service fashion, independent of device and location.	Marston et al., 2010

It is clear from the above definitions that cloud computing is an on-demand delivery of IT capabilities and functionalities as service over internet to the business organizations with various benefits such as cost advantage, scalability, flexibility and improved availability.

CLOUD COMPUTING MODELS

There are three types of cloud computing service delivery models-SaaS, PaaS and IaaS. Along with these delivery models there are four deployment models which are described in the following section.

CLOUD SERVICE DELIVERY MODELS

As held by Rimal et al., (2011) based on the type of service offered; there are three service delivery models which are Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS).

Software as a service (SaaS): It is an multi-tenant platform which uses common resources and a single instance of both the object code of an application and underlying databases which can support various customers simultaneously (Rimal et al., 2011). In this model applications are delivered as a service through internet thereby freeing the user from complex hardware and software management (Sultan, 2011).

Platform as a service (PaaS): In this model operating systems, databases, middleware, web servers and other software are provided remotely as a service by cloud providers (Sultan, 2011). The main objective is to provide developers a platform including all the systems and environment comprising the end-to-end life cycle of developing, testing, deploying and hosting of sophisticated web applications as a service delivered by a cloud based platform (Rimal et al., 2011).

Infrastructure as a Service (IaaS): Services offered in this model include remote delivery of full computer infrastructure (Sultan, 2011). The main advantage of this model is that the users are not required to invest in building and managing the IT system hardware (Rimal et al., 2011).

CLOUD SERVICE DEPLOYMENT MODELS

According to Dillon et al.,(2010) four cloud deployment models have been defined in the cloud community:

Private cloud: Cloud infrastructure is operated solely within one particular organization and managed by the organization or a third party regardless whether it is located on premise or off premise.

Community cloud: The cloud infrastructure supports a specific community and is shared by several organizations of that community (Wyld, 2010). In this model several organizations jointly construct and share the same cloud infrastructure and the same could be hosted by a **third party vendor or within one of the organization in the community (Dillon et al., 2010).**

Public cloud: Cloud infrastructure is made available to the general public or a large industry group and is own by an organization selling cloud services (Wyld, 2010).

Hybrid cloud: The cloud infrastructure is a composition of two or more clouds as mentioned above, that remain unique entities but are bound together by standardized or proprietary technology that enable data and application portability (Wyld, 2010).

CLOUD COMPUTING BENEFITS

According to Smith (2009) main business benefits of cloud computing include scalability, cost advantage and automatic updates and upgrades. The ability to plug in to IT services via the cloud opens up many, often transformational opportunities, well beyond technology efficiencies and cost savings. These include easy deployment; increased speed to market; leveraging collective mind-share and development efforts of the extended cloud computing; shifting IT spending from a capital expense to an operating expense (Goodburn and Hill 2010). Ryan and Loeffler (2010) believe that flexible pricing on a pay-for-use basis is a big piece of value proposition, along with the rapid increase and decrease of usage with minimal involvement by the service provider. According to Wyld (2010), there are eight fundamental elements that are vital in enabling the cloud computing concept which include universal connectivity, open access, reliability, interoperability, security, privacy, economic value and sustainability. According to DeFlice (2010) major benefits of cloud computing as pointed out by vendors and analysts include quick implementation process, lower up-front costs, easier and more regular updates, disaster recovery and back up capabilities etc. The key advantages identified by Marston et al., (2010) include lower cost of entry for smaller firms trying to benefit from the latest information technologies; faster time to market; lower IT barriers to innovation and scalability. Bajenaru (2010) observes that both client and provider are benefited by cloud computing where client gets on demand access to computing resources with no upfront expenses and provider gets benefited by efficient utilization of physical resources through efficient distribution. He further states that society as a whole too gets benefited by cloud computing in terms of less physical hardware equipments, better efficiencies, less power consumption leading to green computing. Major benefits of cloud computing are summarized in Table 2.

TABLE 2: CLOUD COMPUTING BENEFITS

Sr. No.	Benefit	Description
1.	Cost	Lower cost is the core benefit of Cloud Computing because in cloud computing customers pay only for what they use, customers avoid capital expenditure in IT infrastructure and they avoid costs for maintaining the IT infrastructure, the support staff to maintain the resources and the software licensing costs.
2.	Scalability	Scalability means greater flexibility; customers can easily add as much capacity as they need allowing for improved business performance.
3.	Speed to implement	In can take only a few days or in some cases hours to implement an application in a Cloud.
4.	Accessible over internet	Clouds are accessed over the Internet making business applications accessible from any location using standard clients.
5.	Diversification/Innovation	Clouds provides organizations the ability to diversify the use of IT systems, which they would otherwise not consider, this can bring about the potential for new business opportunities and new markets.
6.	Improved business continuity	Cloud Computing makes it easier for organizations to introduce business continuity and disaster recovery capabilities, by using Cloud resources for redundancy.
7.	Green IT	Cloud Computing is environmentally friendly, since organizations share computing resources, and thus should lead to the reduction of electric power consumption by virtue of some very power-hungry data centers closing down.

CLOUD COMPUTING CONCERNS

Cloud computing is an emerging computing service paradigm and like other services of this type, there are certain concerns, fears and uncertainties associated with it and major among these are control, vendor lock-in, performance, latency, security, privacy and reliability (Sultan, 2011). Dillon et al., (2010) mentioned that based on a survey conducted by IDC in 2008, the major challenges that prevent cloud computing from being adopted by the organization include security, performance, availability, hard to integrate with in-house IT, and not enough ability to customize. Armbrust et al., (2010) highlighted three critical obstacles to the growth of cloud computing which might affect its adoption which include availability/business continuity, data lock-in, data confidentiality and auditability. Privacy of business and personal information has been mentioned as one of the major downside of cloud computing by Katzan (2010) which includes a set of complex and comprehensive issues and a cautious approach is recommended to be adopted by users and providers while moving to the cloud. Thus security, privacy, loss of control and availability emerge out to be the major concerns associated with cloud computing adoption. Major concerns are highlighted in table3.

TABLE 3: CLOUD COMPUTING CONCERNS

Sr. No.	Concern	Description
1.	Security	due to the nature of Cloud Computing with its multi-tenancy and shared resources characteristics, there is risk of failure in the infrastructure potentially exposing important information.
2.	Loss of control	Cloud Computing means that an organization gives up control of aspects of their IT infrastructure which execute their business applications. This makes the organization dependent on service provider.
3.	Vendor Lock-in	Vendor lock-in refers to a situation in which a cloud customer is stuck to current cloud vendor due to the complexity in switching to another cloud vendor
4.	Interoperability	Interoperability refers to the ability to move among different cloud platforms.
5.	Compliance	For organizations that are required to provide audit compliance, Cloud Computing providers may not provide the auditing features required by law for compliance. Another concern is the inconsistency between national and international laws, making it difficult for service providers to offer compliant services.

MIGRATION STRATEGY

Cloud computing is made up of a number of new and existing technologies, combined in a way that is capable of delivering broad benefits to the enterprise. Because of its 'newness', the capabilities of cloud computing must be fully understood – especially critical aspects such as security and interoperability – before business value can be gained from their implementation.

User organizations that are evaluating when, where, how and why they should consider cloud computing services must first understand that cloud computing spans a wide range of IT enabled capabilities, from low-level infrastructure to high-level business processes. While cloud computing is delivering significant technical and business benefits to early adopters, it is still a developing market. When considering the use of cloud services or technologies, it is important to not move too quickly before first determining whether available services deliver measurable benefits for your project (IDC, 2010). As per Gartner (2008) since "cloud-computing environments are externally provided and shared, organizations need to evaluate risk in areas such as data integrity and privacy and need to understand issues in areas such as e-discovery, compliance and audit reporting". Goodburn and Hill(2010) held that cloud implementation requires a strategic business approach so as to manage cloud implementation project properly and also to improve the risk profile of the project. They further argue that companies that are planning to move into cloud need a governance model and strategy for evaluating, selecting and deploying cloud technologies. According to Varia(2011) the cloud brings scalability, elasticity, agility and reliability to the enterprise and take full advantage of the benefits of the cloud, enterprises should adopt a phase driven migration strategy and try to take advantage as early as possible. He has suggested a six phased migration strategy to move application into the cloud comprising cloud assessment phase, proof of concept phase data migration phase, application migration phase, leverage the cloud phase and optimization phase. Infosys (2009) suggested a four phased cloud adoption strategy which need to be followed to identify the relevant business scenario for leveraging cloud consisting of assess, validate, prepare and execute. Based on various studies and literature the following adoption strategy is proposed for organizations to get maximum benefits from cloud computing and to minimize the risk associated with its implementation:-

PHASE 1: CLOUD APPRAISAL

The first thing required on the part of SMEs is to identify core and non core applications and then identify the applications which can be migrated onto the cloud. A technical assessment is required to understand which applications are more suited to the cloud architecturally and strategically. Reliable cloud vendors are to be identified and evaluated.

PHASE 2: VALIDATION

Once the right applications and right candidate identified for the cloud and efforts required to migrate estimated, it is a time to test. Pilot studies and proof of concept should be performed to identify functional gaps and to review user experience.

PHASE 3: COMPLETING THE GROUNDWORK

For migrating applications into the cloud or to use resources available on the cloud, many changes are first required to be made in the existing policies and procedures. The necessary hardware and communication infrastructure should be in place, the employees are to be trained and educated and data security, privacy, payment, availability issues to be properly clarified with the providers and are to be put into SLA.

PHASE 4: MIGRATION AND INTEGRATION

This step determines whether organizations should move only a part of an IT infrastructure to the cloud without disturbing or interrupting current business or to move the whole application at one go. After migrating the applications to the cloud, run the necessary tests and confirm that everything is working as expected. Additional benefits of the cloud should also be exploited like automatic updates and upgrades, auto recovery and auto provisioning.

PHASE 5: OPTIMIZING CLOUD

The focus in this step is on how organizations can optimize their cloud based applications in order to increase cost savings. Since payments are based on pay as you go basis, so companies should strive to optimize their systems when-ever possible. A small optimization might result in the saving of large amount in the bill.

CONCLUSION

Cloud computing is around for quite some time. It is rapidly emerging as a new and promising IT strategy having cost advantage, scalability and more flexibility and access to the most advanced & latest technologies to even small companies. As cloud computing is still evolving so there are a number of challenges and issues causing disagreement and debate in professional and academic circles. The major concerns which the companies need to consider and analyze before moving into the cloud include security, privacy, reliability, loss of control, availability, data lock in etc. So a cautious approach is recommended on the part of organizations which are planning to use cloud computing in some form. The five phased cloud adoption strategy proposed in this paper might help organization to analyze their suitability to move into the cloud and to manage cloud computing adoption project efficiently. Further research is recommended in the areas like cloud computing adoption and diffusion at organizational level, impact of cloud computing on IT development practices, pricing models and security issues involved in cloud computing.

REFERENCES

1. Armbrust, M., Fox, A., Griffith, R., Joseph, A.D., Katz, R., Konwinski, A., Lee, G., Patterson, D., Rabkin, A., Stoica, I. and Zaharia, M. (2010), "A view of cloud computing", Communications of the ACM, Vol. 53, pp. 50-58.

2. Bajenaru, A. (2010), "Software-as-a-Service and cloud computing, a solution for small and medium-sized companies", Bulletin of the Transilvania University of Braşov, Vol. 3 (52), pp. 173-184.
3. Barbra-Sanchez, V., Martinez-Ruiz, M. and Jimenez-Zarco, A. (2007), " Drivers, challenges and benefits of ICT adoption by Small and Medium-sized Enterprises(SMEs): A literature review", Problems and Perspective in Management, Vol. 5, Issue1, pp. 103-113.
4. Blandford, R.(2011), "Information security in the cloud", Network Security, April 2011, pp. 15-17.
5. Buyya, R., Yeo, C.S., Venugopa, S., Broberg, J. and Brandic, I. (2009), "Cloud computing and emerging it platforms: vision, hype, and reality for delivering computing as the 5th utility", Future Generation Computer Systems, Vol. 25, pp. 599-616.
6. Coppola, G. (2009), "Cloud computing for social economy SMEs-Deploying open source social and solidarity financial services applications" UQAM, December 2009
7. DeFlice, A. (2020), "Cloud Computing: What accountants need to know", Journal of Accountancy, October 2010, pp. 50-55.
8. Dillon, T., Wu, C. and Chang, E. (2010) "Cloud computing: issues and challenges", 24th IEEE International Conference on Advanced Information Networking and Applications, pp. 27-33. DOI:10.1109/AINA.2010.187
9. Ernst and Young (2010), "Cloud adoption in India- Infrastructure as a Service: trends and perception in the Indian Market", May 2011, pp. 6-41.
10. Forrester Research (2009). Is cloud computing ready for the enterprise? Forrester Research Report, May. URL: http://forrester.com
11. Gartner Research (2008), " Cloud Computing: Defining and describing an emerging phenomenon", Publication date: 17 June 2008, ID Number:G00156220.
12. Goodburn, M. and Hill, S., (2010),"The cloud transforms business", Financial Executive, December 2010, pp. 35-39.
13. Hayes, B. (2008), "Cloud computing", Communications of the ACM, Vol. 51, pp. 9-11.
14. Ivan (2011), " How to avoid cloud vendor lock-in?", Posted on May 3rd, 2011, Source: www.cloudbusinessreview.com/2011/05/03/how-to-avoid-cloud-vendor-lock-n.html
15. Katzan, H. (2010), "On the privacy of cloud computing", International Journal of Management and Information Systems, Vol 14, No.2, pp. 1-12.
16. Legris, P., Ingham, J. and Collerette, P. (2003), "Why do people use information technology? A critical review of the technology acceptance model", Information and Management, Vol. 40, pp. 191-204.
17. Marston, S., Li, Z., Bandyopadhyay, S., Zhang, j. and Ghalsasi, A.(2011), "Cloud computing- the business perspective", Decision Support Systems, Vol. 51, pp. 176-189.
18. Misra, S.C. and Mondal, A. (2010), "Identification of a company's suitability for the adoption of cloud computing and modelling its corresponding return on investment", Mathematical and Computer Modelling, Vol. 53, pp. 504-21.
19. Plummer, D., Bittman, T., Austin, T., Cearley, D. and Smith, D. (2008), "Cloud Computing: defining and describing an emerging phenomenon", Gartner Research, ID No. G00156220, pp. 2-9.
20. Rimal, B.P., Jukam, A., Katsaros, D. and Goeleven, Y. (2011) "Architectural requirements for cloud computing systems: an enterprise cloud approach", J Grid Computing, Vol. 9, pp. 3-26. DOI:10.1007/s10723-010-9171-y.
21. Rogers, E.M. (1983), Diffusion of Innovation, The Free Press, New York, NY.
22. Rose, C. (2011), "A break in the cloud? The reality of the cloud computing", International Journal of Management and Information Systems, Vol. 15, No.4, pp. 59-63.
23. Ryan, M. (2011), "Cloud computing privacy concerns on our doorstep", Communication of the ACM, January 2011, Vol. 54, No.1, pp. 36-38.
24. Ryan, W.M. and Loeffler, C.M. (2010), " Insights into cloud computing", Intellectual Property & Technology Law Journal, Vol. 22, Number 11, pp. 22-27.
25. Smith, R. (2009), "Computing in the Cloud", Research Technology Management, September-October, pp. 65-68
26. Sultan, N.(2011), "Reaching for the cloud: How SMEs can manage", International Journal of Information Management, Vol. 31, pp. 272-278.
27. Truong, D. (2010), "How cloud computing enhances competitive advantages: A research model for small businesses", The Business Review, Cambridge, Vol. 15, No.1, pp. 59-65.
28. Tucker, L. (2009),"Introduction to cloud computing for Start-ups and Developers", Sun Microsystems, Inc.
29. Wang, W.Y.C., Rashid, A. and Chuang, H.M. (2011), " Towards the trend of cloud computing", Journal of Electronic Commerce Research, Vol. 12, Number 4, pp. 238-242.
30. Wyld, D.(2010), "Cloud computing around the world", Multilingual January/February 2010, pp. 44-48.
31. Zinnov CIO Survey (2010), "Cloud opportunities in India- CIOs perspective", Executive Summary, November 2010, pp. 1-24.

FII INVESTMENT FORECASTING: AN INSIGHT INTO FUTURE TREND USING ARIMA MODEL

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ABSTRACT

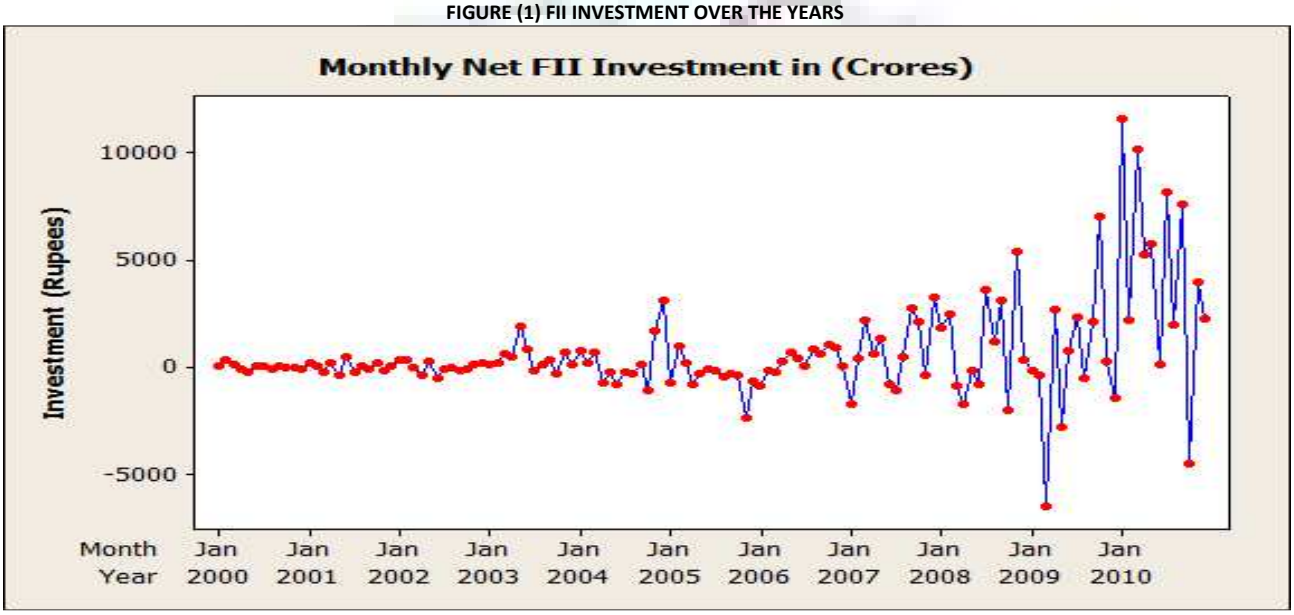
This study mainly focuses on forecasting net investment by foreign institutional investor in Indian Debt and Securities markets. Past studies have concluded that FII investment depends upon recent past investment trend and follows herd behavior in context of Indian markets. Autoregressive and Moving Average Processes have been proven suitable for modeling time series exhibiting such characteristics. ARIMA specification parameters are identified by analysis of ACF and PACF of the time series. Net monthly FII data used to train the model is from jan-2000 till dec-10, while FII flow forecast is done for the year 2011 to check the accuracy of the model specific parameters obtained earlier. Comparison of actual and forecasted results showed that forecast are lying within 95% confidence limits which proves efficiency of these models. Long term forecast depicted continuous downtrend which is the indicator of FII's negative sentiments and calls for policy changes to boost their confidence.

KEYWORDS
ARIMA, FII, ACF, PACF, Ljung-Box Test.

INTRODUCTION

Stock markets in the India and other developing countries are becoming attractive place of investment for Foreign Institutional Investors (FII). Investment by FII to the markets has its pros and cons. It helps in increasing the valuations of the domestic firms and brings foreign currency to the country although sudden withdrawal of huge funds from the market adversely affects the environment of the domestic country. Foreign Institutional Investment (FII) generally done by individuals and institutional investors from foreign nations to diversify their international portfolios. In an economy like India FII investment was not an attractive option until pace of liberalization and globalization increased. In the last decade of 19th century FII investment has drastically increased and has made Indian markets highly volatile. Fig(1) clearly depicts the changes in FII investment.

FIGURE (1) FII INVESTMENT OVER THE YEARS



FII investment has been an area of concern for the policy makers in the emerging markets like India. There have been various studies on effect of FII investment on volatility of the market. Wang (2000) concluded that FII and domestic investor trade has more impact on market volatility as compared to inter FII trade on Jakarta Stock Exchange. Government of India is allowing foreign individuals to directly invest in stock markets which earlier they used to do through indirect routes like mutual funds etc. Clark and Berko (1997) emphasize the beneficial effects of allowing foreigners to trade in stock markets as increasing investors would lead to more risk sharing and lesser risk premium. The impact study of FIIs flows on domestic stock market is important from government as well as investor point of view, for example, does the opening up of the market for FII increase speculation in the market and thus make the market more volatile and more vulnerable to foreign shocks Li(2002). Richards (2004) analyze data of six Asian emerging equity markets and found two interesting findings. The trading behavior of foreign investors was largely influenced by the return in global market that is positive feedback trading. The price impact associated with foreign investors trading was much large than estimated earlier. Choe (1999) emphasized on negative effect of FII in the form of herd behavior and destabilization of emerging stock market. Batra (2003) found positive relation between purchase and net flows with returns and the negative relation between sales and returns, signals that the FIIs do not indulge in heavy purchases and sales in the same month. Using both daily and monthly data, she found that FIIs exhibit herding as far as Indian markets are concerned. Herding basically means FII's follow each other and take decision based upon common trend. She further found that herding measure being high for the monthly horizon. Studies have concluded that herd introduces moving average structure yielding and ARIMA model.

ARIMA stands for Autoregressive Integrated Moving Average with each term representing steps taken in the model construction until only random noise remains. These models use co relational techniques and are used to model patters not visible in the plotted data. Box and Jenkins (1976) developed a practical procedure for an entire family of models, the autoregressive integrated moving-average (ARIMA) models. Cleary and Levenbach (1982), Andersen (1980), and Pankratz (1983) point out that the Box-Jenkins approach is a powerful and flexible method for short term forecasting because ARIMA models place more emphasis on the recent past and where structural shifts occur gradually, rather than suddenly.

This study analyzes monthly net FII investment from 2000 till 2010 for presence of ARIMA process in the time series thus obtained. Study analyzes various ARIMA (p,r,q) for different values of p and q to obtain the process which best resembles FII investment time series. FII investment is also forecasted till 2015 to get an estimate of the investment in future. ARIMA models are difficult to identify hence various identification rules are also studied.

FII INVESTMENT FACTS

Foreign Institutional Investors (FIIs) were permitted to invest in all the listed securities traded in Indian capital market for the first time in September, 1992. As per the RBI, Report on Currency & Finance (2003-04), since 1991 there has been continuous move towards the integration of the Indian economy with world economy. From September 14, 1992, with suitable controls, foreign institutional investors (FIIs), nonresident Indians (NRIs), and people of Indian origin (PIOs) can invest in the primary and secondary capital markets in India through the portfolio investment scheme (PIS). Under this scheme, FIIs and NRIs can buy shares and debentures of Indian companies through Indian stock exchanges. Before investment, foreign investors need to register themselves in the country. The Government stipulates certain guidelines and eligibility conditions for registration. The Securities and Exchange Board of India announced the guidelines for registration. Investment through FIIs started flowing from January 1993. To increase and diversify the FII base, the government extended eligible categories of FIIs in the year 1996. They also gradually increased overall investment limits by FIIs, as also the types of instruments in which the FIIs can invest. Initially, FIIs could invest only in stocks, but from 1997 onwards, FIIs can invest in debt instruments having an upper limit of 30% of their investment. FIIs can also declare itself as a 100% debt FII. In March 1998, the Government accepted the L C Gupta Committee Report on Derivatives trading and allowed FIIs to buy and sell derivatives traded on stock exchanges. At the same time, the government simplified registration procedures and took steps to promote better exchange of information. It also allowed FIIs to invest in Commercial Paper from 2001. The FIIs investing in Indian stock need to follow certain quantitative limits. The ceiling for overall investment for FIIs is 24 percent of the paid up capital of the Indian company and 10 percent for NRIs and PIOs. The limit is 20 percent of the paid up capital in public sector banks, including the State Bank of India. Figure below shows the plots of BSE Sensex and FII net investment in India. So as to encourage long term investments in the Indian market, Budget 2003 proposed that investors who buy stocks of listed companies from March 1, 2003 be exempt from paying tax on the gains they make on their investments, provided they hold them for more than one year. This indicates that Indian government is encouraging FII investors. Clearly the movement is in the same direction and both Index and Investment influence each other. After economic down trend of 2008 FII investment reached Rs. 11564 Crore in January 2010 and same year marked positive trend in net FII investment in India while in recent times the maximum selling of funds was observed in March – 2010 and Oct -2010. By the end of 2010 the interest of investors in the markets started decreasing mainly due to corruptions in various government tenders and deals like 2G spectrum sale and rigid polices of the government.

FII INVESTMENT NATURE AND IMPORTANCE

Now days, a significant portion of Indian corporate sector's securities are held by Foreign Institutional Investors, such as pension funds, mutual funds and insurance companies. Using a monthly data set for the period May 1993 to December 1999, Chakrabarti (2001) found that FII flows to India have steadily grown in importance since the beginning of liberalization. He analyzed these flows and their relations with other macroeconomic features and arrived at the following major conclusions. While there may exist correlation between fund flows and stock returns in India, they are more likely to be the result than the cause of these returns. (2) FIIs are no at an informational disadvantage in India relative to local investors. (3) The Asian crisis marked a regime shift in the determinants of FII flows to India with the domestic stock returns becoming the sole driver of these flows since the crisis. Mukherjee, Bose and Coondoo (2002) studied Indian stock markets and FII flow from January 1999 to May 2002 and concluded that FII net investment influences Indian stock market but FII buying is unaffected by the market performance. Gordon and Gupta (2003) found that both global and domestic reasons are important in deciding FII flows. They analyzed monthly data and found that among external factors LIBOR and stock market returns and lagged stock returns and credit ratings are domestic factors which influence funds flow.

Han and Wang (2004) concluded that these investors are sophisticated investors as these institutional investors are better informed and better equipped to process information than individual investors. Tesar and Werner (1995) explained the policymakers increasing concern about the factors determining international investment, the performance of foreign capital investments, and the impact of foreign investment on local turnover and on the volatility of stock prices. The investment pattern of FII is undeterminable by using a single factor. However, FII investment patter exhibit herding Choe (1999). In this case herding refers to dependence in the strategies used by agents based on conditional public information. Such type of herding is called concurrent herding. For examples in case of FII if a renowned FII decides to invest in India due to positive outlook it may encourage other FII to follow it. Such herd introduces moving average structure yielding an ARIMA model. This study models monthly FII investment using ARIMA models and checks their efficiency in forecasting the flow of FII.

TIME SERIES MODELING USING ARIMA MODELS

These are special type of regression model where dependent variable is considered to be stationary and independent variable is lags of dependent variable and lags of errors. An ARIMA process is a combination of an Auto regressive and a Moving Average Process. Box and Jenkins (1976) first introduced ARIMA models. A time series can follow an ARIMA process only when it is stationary. A time series is said to be stationary only when it exhibits mean reversion around a constant long run mean, has a finite variance and decreasing correlogram as lag length increases. Stationarity is important because if the series is non-stationary then all the typical results of the classical regression analysis are not valid.

AUTOREGRESSIVE MODEL

An autoregressive model of order p is represented as :

$$Y_t = \phi_1 Y_{t-1} + \phi_2 Y_{t-2} + ...\phi_p Y_{t-p} + u_t \quad \text{---------- (1)}$$

Where, $|\phi| < 1$ and u_t is a gaussian (white noise) error term. For the AR (p) model to be stationary is that the summation of the p autoregressive coefficients should be less than 1:

$$\sum_{i=1}^{p} \phi_i < 1$$ ---------- (2)

If the observations are generated by an AR(p) process then the theoretical partial autocorrelations will be high and significant for up to p lags and zero for lags beyond p. This rule is generally utilized to define which process the series is following and is incorporated in the ARIMA model.

MOVING AVERAGE MODEL

A moving average model of order q can be written as

$$Y_t = u_t + \theta_1 u_{t-1} + \theta_2 u_{t-2} + \ldots + \theta_q u_{t-q}$$ ---------- (3)

Moving Average MA (q) process is an average of q stationary white noise process, hence it is always stationary as long as q has a finite value. A time series is said to be invertible if it can be represented bya finite order MA or convergent autoregressive process. Invertiblity is an important property for identifying the order of MA process using Autocorrelation and Partial Auto Correlation Function as in this case it is assumed that Y_t sequence is well approximated by auto regressive model. An MA (1) process can be inverted to an infinite order AR process with geometrically declining weights if the necessary condition $|\theta| < 1$ is met. The mean of the MA process will be clearly equal to zero as it is the mean of white noise terms. For a MA (q) model correlogram (ACF) is expected to have q spikes for k = 0 and then go down immediately. Auto covariance of a MA process is equal to zero.

ARMA MODELS

These models are combinations to two processes and usually represented by ARMA (p, q). The general form of ARMA (p, q) models is represented by :

$$Y_t = \phi_1 Y_{t-1} + \phi_2 Y_{t-2} + \ldots + \phi_p Y_{t-p} + u_t + \theta_1 u_{t-1} + \theta_2 u_{t-2} + \ldots + \theta_q u_{t-q}$$ ---------- (4)

The equation can be rewritten as :

$$Y_t = \sum_{i=1}^{p} \phi_i Y_{t-i} + u_t + \sum_{i=1}^{q} \theta_j u_{t-j}$$ ---------- (5)

For stationarity of ARMA process only AR part of the model need to be stationary as MA part by default is stationary.

INTEGRATED PROCESSES AND THE ARIMA MODELS

ARMA models can only be applied on a stationary time serie. If a series is not stationary then stationarity need to be induced into it by differencing it such that differenced time series ΔY_t is represented by:

$$\Delta Y_t = Y_t - Y_{t-1}$$ ---------- (6)

Generally time series need to be difference atleast once to make them stationary. After differencing once the series hence obtained is said to integrated to order one and denoted by I(1). Hence a series which needs to be differenced d times to make it stationary and then follows ARMA(p,q) model then the series is said to be following ARIMA(p,d,q) process.

METHODOLOGY

As discussed earlier FII have shown herding behavior in context of Indian markets and herd induces Moving Average structure as explained by ARIMA models. FII net monthly investment in the Indian Markets will be modeled as ARIMA process. Identification of the values of parameters p,d and q is done on basis of ACF and PACF analysis. Data analyzed in the study is monthly net FII investment in Crore Rupees from Jan-2000 till Nov-2011. Data from Jan 2000 till Dec 2010 is used to train the structural models while next twelve months data is used to test the accuracy of the model forecast. Table (1) describes the data used in the analysis. Total numbers of observations are 132, i.e net monthly investment of 132 months from Jan-2000 till Dec-2010 is taken into account.

First and foremost step before fitting the model is making the time series stationary. If time series is not stationary then it has to be transformed to make it stationary. Generally time series is differenced to make it stationary. Plots of ACF and LBQ test statistics will be used to check the stationarity of the model

Steps involved in ARIMA estimation includes identifying the model, estimating the parameters, checking model adequacy, and forecasting, if desired. Stationarity of the time series data is determined by observing the plots of ACF and using LBQ test statistics. A stationary series exhibits insignificant ACF over all lags LBQ test statistics is generally less than the critical value of 37.65 at 95% confidence interval. If times series is not stationary then it has to be differenced to make it stationary. Number of times the series has to be differentiated determines the value of parameter d in ARIMA (p,d,q). An auto regressive process with an order p will have its PACF zero at lag p + 1 while an moving average process with order q will have ACF value equal to zero at lag q + 1. Hence through the analysis of various charts and plots, the order of AR and MA process for the series would be determined. Finally after fitting the appropriate order ARIMA model the residuals will be analyzed for any serial correlation in them. Ideally the residuals should not be correlated with each other if the ARIMA (p,d,q) model has been successfully fitted on the give time series data.

OBSERVATION ANALYSIS

From Fig. (2) it can be seen that except for ACF of lags 2, 4 and 6 rest ACF values are within standard limits and series doesn't show any significant autocorrelation. However on differentiating the series the ACF goes negative on lag 2 which is an indication of over differencing. Table (2) shows the comparison of ACF and LBQ test statistics of FII and FII' (series obtained by taking first difference). LBQ test statistics should be lower than critical value of 37.65 at 95 percent confidence level for autocorrelation to not exist but as evident from table (2) LBQ test statistic for FII' are highly significant and are indicating over differencing of the time series. Hence the series is assumed to be stationary and exhibits autoregressive nature without differencing and the value of parameter d in the analysis is equal to 0.

From the figure (2) below its evident that there is no significant correlation in the time series and as far as order of moving average component q is considered, the ACF becomes 0 at the lag 6 which indicates the series might follow MA (5) process but due to computational constraints this consideration is ignored hence the value of parameter q is taken as 0. From figure (3) the plot of PACF it can be seen that its value becomes zero at lag 5 which means that series might be following AR(4) process. Hence initially the suitable model diagnosed according to time series data under consideration is ARIMA (4, 0, 0). To confirm the goodness of fit residuals will be analyzed and after this forecast for the year 2011 will be made. Table(3) and Table(4) represents fit related characteristics and contains parameters values. Parameter values obtained after fitting ARIMA (4,0,0) model over the data are stored in table (3). LBQ test statistics from table (4) indicates no significant auto correlation in the residuals for lag 48. Figure(4) shows the ACF of residuals obtained after fitting ARIMA(4,0,0) model to the monthly net FII investment data and depicts that ACF is not significant and residuals are mostly uncorrelated and random which shows the success of ARIMA (4,0,0) model in explaining variations in time series data. Table (5) below further depicts the comparison of forecast using ARIMA (4,0,0) model and actual observed flow along with 95% confidence interval upper and lower limits and it can be seen than actual results lie within the stipulated limits.

TABLE (1) DESCRIPTIVE STATISTICS OF FII INVESTMENT

Mean	SE Mean	StDev	Variance	Minimum	Q1	Median	Q3	Maximum
818	209	2529	6398311	-6482	-248	135	1189	11565

TABLE (2) ACF ANALYSIS OF FII AND FII'(FIRST DIFFERENCE OF FII)

	FII			FII'		
Lags	ACF	T-Statistic	LBQ	ACF	T-Statistic	LBQ
1	0.081461	0.93591	0.8960	-0.692540	-7.92649	64.279
2	0.428088	4.88604	25.8305	0.321145	2.62600	78.209
3	0.206672	2.02145	31.6873	-0.178859	-1.39113	82.563
4	0.283311	2.68905	42.7789	0.123189	0.94429	84.645
5	0.147627	1.33023	45.8142	-0.150502	-1.14589	87.777
6	0.272933	2.42701	56.2715	0.218293	1.64561	94.419
7	0.017598	0.14994	56.3154	-0.179417	-1.32543	98.942
8	0.077251	0.65808	57.1666	0.014377	0.10481	98.971
9	0.111752	0.94888	58.9625	0.060981	0.44453	99.502
10	0.022333	0.18835	59.0348	-0.118449	-0.86215	101.523
11	0.169008	1.42497	63.2104	0.241407	1.74724	109.984
12	-0.149657	-1.24284	66.5117	-0.216813	-1.53389	116.866

FIGURE (2) ACF OF NET FII INVESTMENT

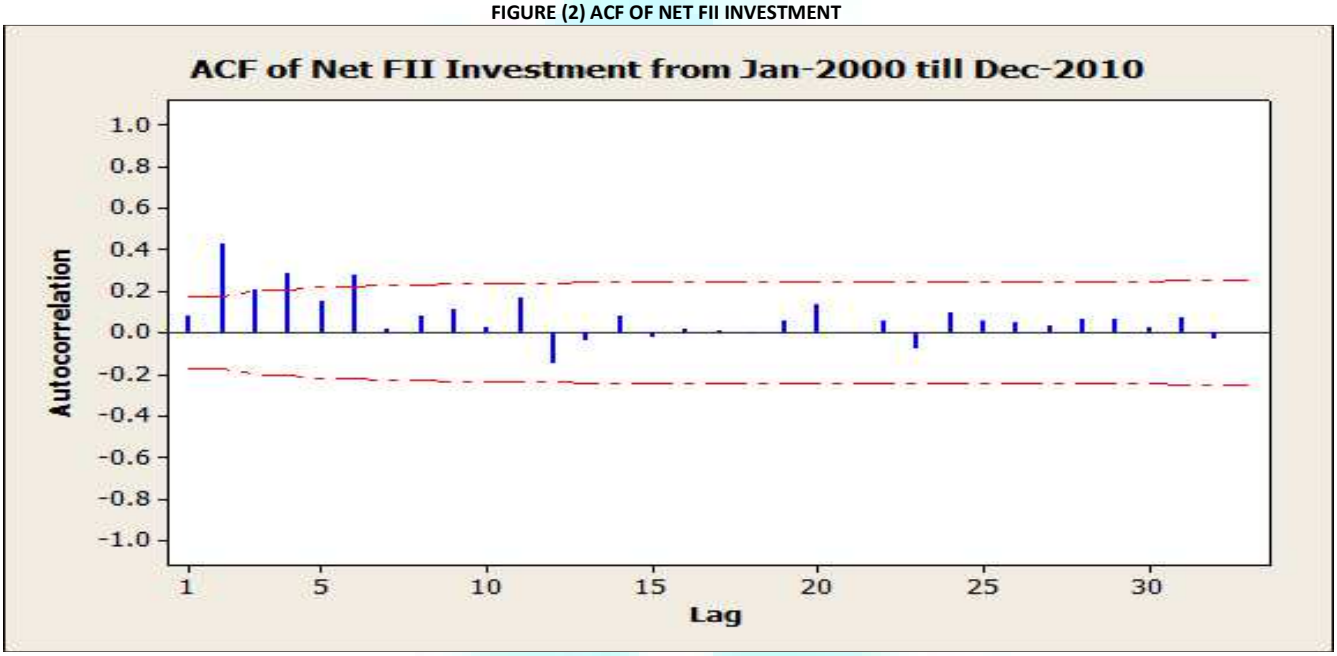


FIGURE (3) PACF OF NET FII INVESTMENT

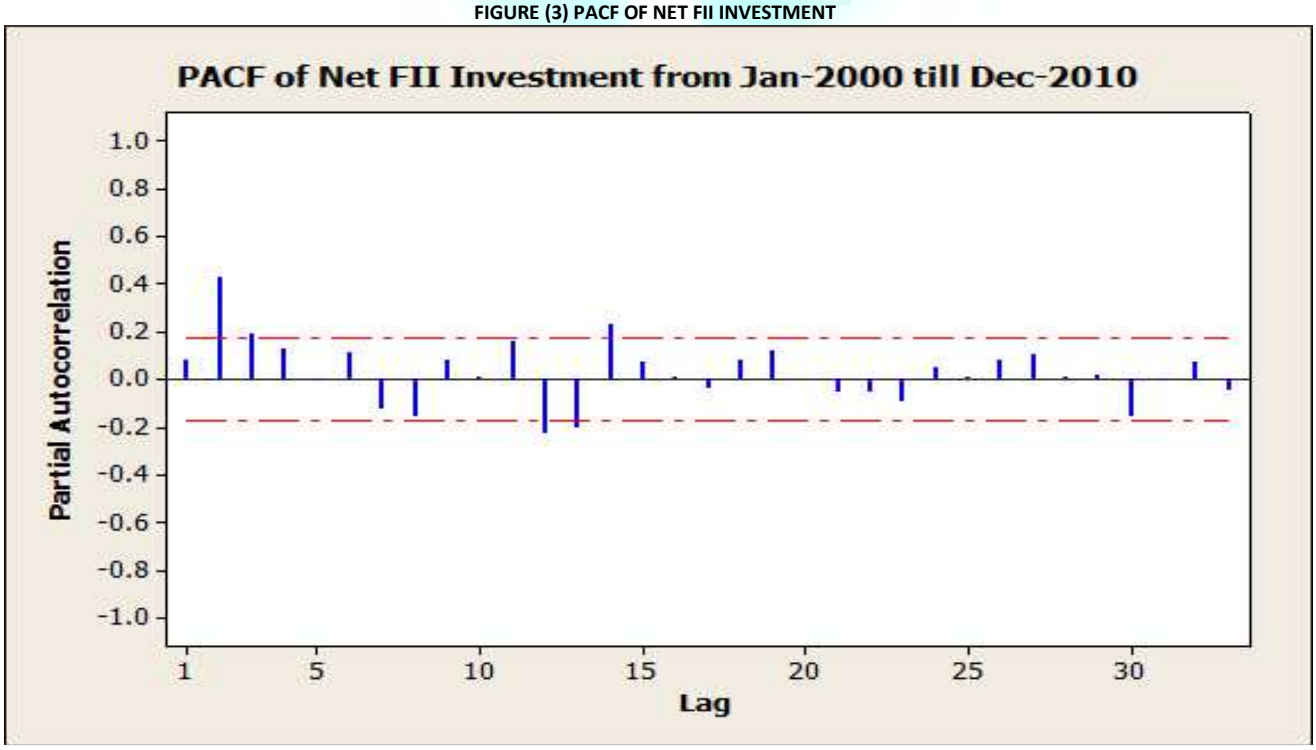


TABLE (3) FINAL ESTIMATES OF PARAMETERS

Type	Coefficient	SE Coef.	t-statistics	p-value
AR 1	-0.0523	0.0887	-0.59	0.557
AR 2	0.3670	0.0878	4.18	0.000
AR 3	0.1845	0.0907	2.04	0.044
AR 4	0.1346	0.0951	1.42	0.159
Constant	251.1	176.8	1.42	0.158

TABLE (4) MODIFIED BOX-PIERCE (LJUNG-BOX) CHI-SQUARE STATISTIC OF RESIDUALS

Lag	12	24	36	48
Chi-Square	24.9	47.5	55.6	58.5
DF	7	19	31	43
P-Value	0.001	0.000	0.004	0.057

FIGURE (4) ACF OF RESIDUALS

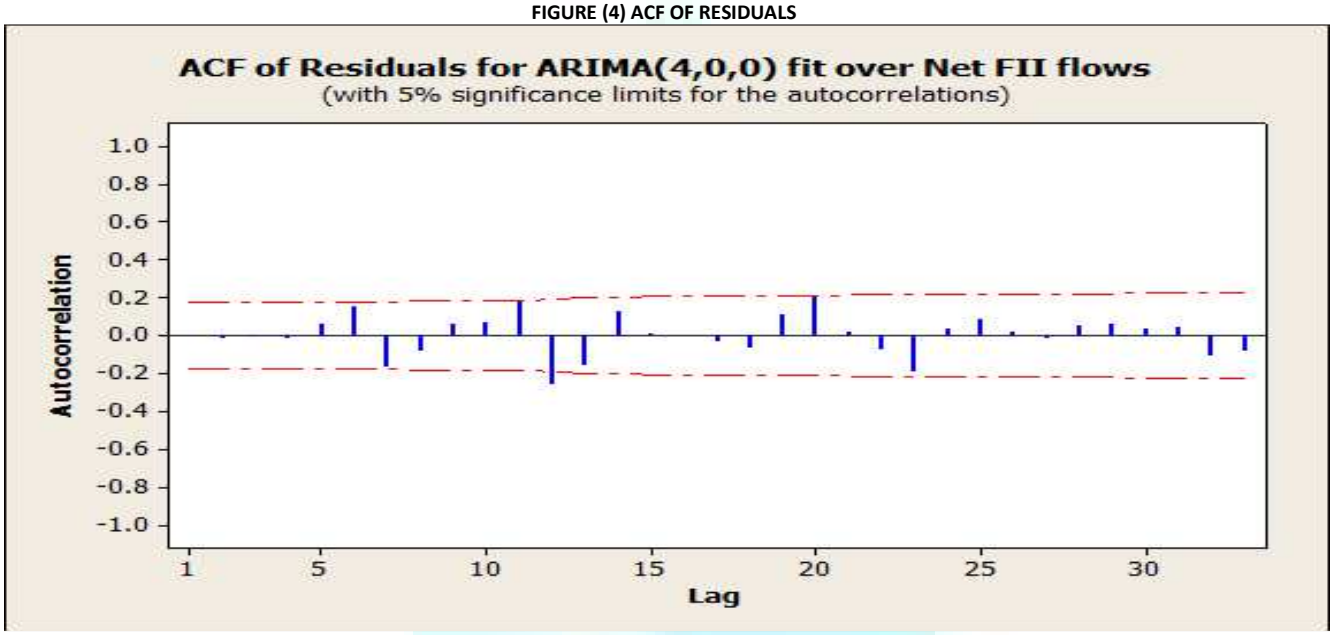


TABLE (5) COMPARISON OF ACTUAL AND FORECASTED NET FLOWS FOR YEAR 2011

Month	Actual	Lower Limit (95% CI)	Forecast	Upper Limit (95% CI)
Jan-11	11086.4	-2194.05	1782.43	5758.90
Feb-11	-1775.2	-2858.83	1123.07	5104.98
Mar-11	2302.1	-2440.79	1803.84	6048.46
Apr-11	-458.3	-3078.31	1205.85	5490.01
May-11	2648.1	-3103.50	1297.16	5697.82
Jun-11	1308.3	-3309.32	1109.83	5528.99
Jul-11	2664.7	-3332.74	1134.39	5601.53
Aug-11	2888.8	-3482.34	1000.75	5483.83
Sep-11	-1251.8	-3509.17	994.47	5498.11
Oct-11	1189.4	-3587.96	925.08	5438.11
Nov-11	971.5	-3617.96	905.04	5428.04

FIGURE (5) COMPARISON OF FORECAST AND OBSERVED RESULTS FOR 2011 AND 95% UPPER AND LOWER CONFIDENCE LIMITS

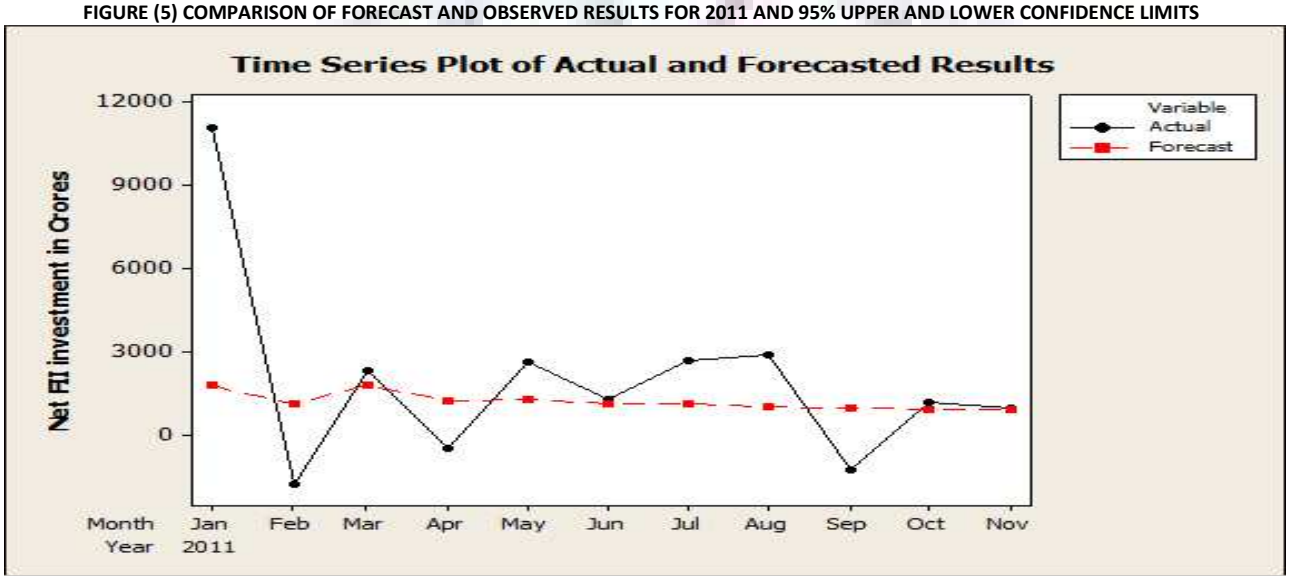
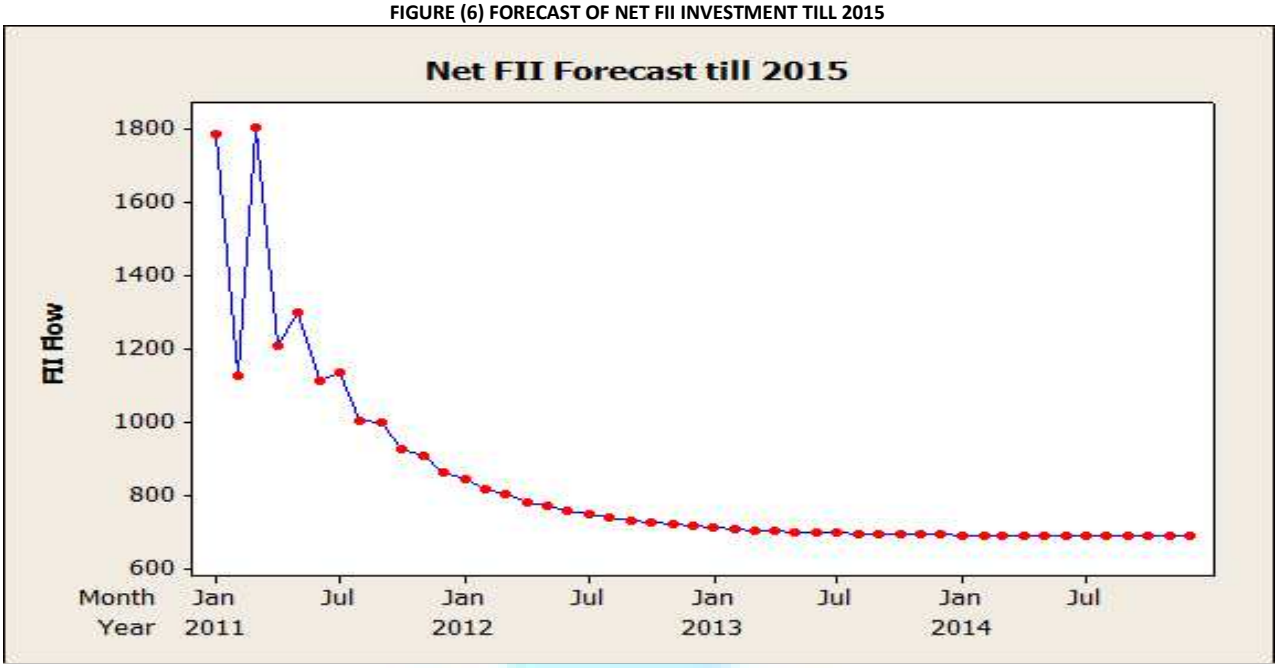


FIGURE (6) FORECAST OF NET FII INVESTMENT TILL 2015



CONCLUSION

After analyzing time series of monthly net flow of fii funds in Indian Market, it's observed that time series is stationary without differencing as evident from LBQ test statistics and first differencing leads to over differencing of series. ACF and PACF analysis shows ARIMA (4, 0, 0) process is followed by the time series. Residuals of the model fit showed no correlation which confirmed efficiency of these models in explaining the variability in time series. All month forecast for year 2011 strictly lies in the 95 % confidence interval upper and lower and model was successful in prediction. If forecast is extended then it's observed that FII investment is going through a decreasing phase and is indicative of the negative sentiments prevailing in the FII flow

REFERENCE

1. Anderson, O.D. (1980), *Analyzing Time Series*, Amsterdam: North-Holland
2. Batra, A., (2003). The Dynamics of Foreign Portfolio Inflows and Equity Returns in India. Working Paper No. 109. ICRIER, New Delhi, India.
3. Chakrabarti, Rajesh (2001), FII Flows to India: Nature and Causes, *Money & Finance*, 2, 61-81.
4. Choe, H., Kho, B., and Stulz, R., (1999). Do Foreign Investors Destabilize Stock Markets? The Korean experience in 1997. *Journal of Financial Economics*, 54(2), 227-264.
5. Clark. J, and Berko E., (1997). Foreign Investment Fluctuations and Emerging Market Stock Returns: The Case of Mexico. Federal Reserve Bank of New York Working Paper, Issue 24.
6. G.E.P. Box and G.M. Jenkins (1994). *Time Series Analysis: Forecasting and Control*, 3rd Edition. Prentice Hall.
7. Gordon, James and Gupta, Poonam (2003), Portfolio Flows in to India: Do Domestic Fundamentals Matter?, *IMF Working Paper 03/20*, January 2003, International Monetary Fund, Washington DC.
8. Han, B. and Wang, Q. (2004). Institutional investment constraints and stock prices. Dice Center for Research in Financial Economics 2004, Working Paper No, 2004-24
9. Li, Q. (2002). Market opening and stock market behaviour: Taiwan's experience. *International Journal of Business and Economics*,1(1), 9-15.
10. Mukherjee, P., Bose, S., and Coondoo, D. (2002), Foreign Institutional Investment in the Indian Equity Market: An Analysis of Daily Flows during January 1999-May 2002, *Money & Finance*, 2, 54-83.
11. Pankratz, A. (1983), *Forecasting with Univariate Box-Jenkins Model*. New York: John Wiley and Sons.
12. Tesar, L.L. and Werner, I.M. (1995). U.S. equity investment in emerging stock markets. *World Bank Economic Review*, Oxford University Press, 9(1), 109-29.

A STUDY ON CONSUMER'S PURCHASING BEHAVIOUR WITH SPECIAL REFERENCE TO NON-DURABLE GOODS IN COIMBATORE CITY

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ABSTRACT

All the purchases made by a consumer follow a certain decision making process. The Character, Behaviour and attitude of consumer are the important dimensions in the decision making process. No sale can be effective, unless a favourable decision is made by a buyer towards a particular product of a company. Non-Durable goods like grocery, vegetables, fruits, cosmetics, toiletry, clothes, etc are the basic products used by the consumers frequently. In the competitive market, the prospective buyer is prepared to choose the right brand based on their needs. An understanding of purchase behaviour is essential as it reflects the influence of brands, buyer & customer type on the purchase of a particular brand, etc. The success of the market or its failure depends on the purchase behaviour of consumers. Hence the present has been undertaken to find out the answers for the factors influencing Consumer's Purchase Behaviour. A total of 125 respondents residing in Coimbatore city form the sample. Convenience sampling method is used for data collection. The study is based on both primary and secondary data. The statistical tools used are simple percentage, Weighted scaling and Factor ranking techniques. Based on the analysis, findings and necessary suggestions were given. To conclude, the modern market is highly competitive and transitional. Thus, the role played by consumer is very prominent and the marketer should consider the behaviour and attitude of the consumers before introducing the product into the market.

KEYWORDS

Consumer, Decision, Market, Non durable goods and purchase behaviour.

INTRODUCTION

Consumer is a pivot, around which the whole marketing system revolves. Consumer behaviour & decision making process determines the fate of the producers. Thus market success depends on the consumer behaviour & thus it is necessary for every marketer to study the factors determining consumer behaviour.

The process whereby individuals decide whether what, when, how, & from whom to purchase goods & services can be termed as consumer behaviour. Consumer behaviour provides a sound basis for identifying & understanding consumer needs. Therefore, the study of consumer behaviour for consumer non - durables is of vital importance in shaping the fortunes of the decision process.

A study of consumer behaviour is significant for regulating consumption of goods & thereby maintaining economic stability. Analysis of & empirical studies on consumer behaviour reveals the extent to which consumer behaves & their role in purchase decision. When the buyer decides to make purchase, then there are many problems as what to purchase, because the needs are numerous, which leads to ranking the needs in terms of priority.

There are many underlying influences, both internal and external, from the environment. The combination of these inputs and internal factors can never be a complex indeed. Yet, the tools of market research can assess the behaviour with considerable accuracy.

All the purchases made by a consumer follow a certain decision making process. The character, Behaviour and attitude of consumer are the important dimensions in the decision making process. No sale can be effective, unless a favourable decision is made by a buyer towards a particular product of a company.

STATEMENT OF THE PROBLEM

Non-Durable goods like grocery, vegetables, fruits, cosmetics, toiletry, clothes, etc are the basic products used by the consumers frequently. They need these goods to satisfy their Physiological needs. The companies are trying to make their products more popular and thereby, try to be successful. In the competitive market, the prospective buyer is prepared to choose the right brand based on their needs. An understanding of purchase behaviour is essential as it reflects the influence of brands, buyer & customer type on the purchase of a particular brand, etc. The success of the market or the failure depends on the purchase behaviour of the consumers.

Hence the present has been undertaken to find out the answers for the following questions

1. What are the socio-economic characteristics of the respondent's family?
2. What are the factors influencing Consumer's Purchase Behaviour?
3. What is the mode of payment & the mode of carrying goods?

This study is an attempt to find out answers to the above & related questions.

SCOPE OF THE STUDY

Though the main objective of the study is to analyse the consumer's purchase behaviour, the scope of the study extends to the following related aspects viz, socio – economic characteristics of the respondents, factors influencing purchase behaviour, mod of payment and mode of carrying goods.

OBJECTIVES OF THE STUDY

The objectives of the study are:

1. To study the purchasing behaviour of the consumers & their purchase tendency.
2. To find out the purchase frequency.
3. To analyse the factors influencing consumers purchase behaviour.
4. To examine consumers awareness towards various quality marks.
5. To analyse the mode of purchase & the mode of carrying goods preferred by the consumers.

6. To find out the consumers reaction towards dissatisfied products.

RESEARCH METHODOLOGY

AREA OF THE STUDY

The study covers only Coimbatore city. The area selected by taking in to account the time & cost factor.

SAMPLE SIZE

A total of 125 respondents residing in Coimbatore city were selected for the study. Convenience sampling method has been followed for collecting response from the respondents. The data has been collected from the customers who have visited the departmental stores, grocery shops, super markets, hyper markets, etc.

SOURCES OF DATA

The study is based on both primary and secondary data. The primary data has been collected by using Questionnaires and the secondary data has been collected from books, magazines, manuals and internet.

TOOLS FOR COLLECTION OF DATA

Questionnaire is the major tool administered for collecting primary data from the respondents.

TOOLS FOR ANALYSIS

The statistical tool used for the analysis of this study is simple percentage technique. Weighted scaling technique, Chi-square and Factor ranking technique were also used to analyse the factors determining the level of satisfaction and the factors influencing the purchase behaviour of the consumers.

ANALYSIS & INTERPRETATION

Analysis & Interpretation of the statements refers to the process of determining the significant operation & characteristics from the collective data with a view to get an insight into the activities of an enterprise.

The objective of analysis is to study the relationship among the various terms of collective detail & the interpretation will be given for the explanation of real fact in the study.

SIMPLE PERCENTAGE ANALYSIS

TABLE 1: FREQUENCY LEVEL OF PURCHASE

Sl No	Purchase Frequency Level	No. of Respondents	Percentage
1	Everyday	17	14
2	Weekly	50	40
3	As & when I feel	55	44
4	Monthly	3	2
	Total	**125**	**100**

Source: Primary Data

The above table shows that, 14% of the respondents prefer to purchase everyday, 40% of the respondents prefer once in a week, 44% of the respondents do their purchase as and when they like and 2% of the respondents do purchase once in a month. Observation reveals that most of the respondents do purchase as and when they like.

TABLE 2: SHOP PREFERENCE

Sl No	Shop Preference	No. of Respondents	Percentage
1	Department Store	83	66
2	Grocery Shop	7	6
3	Vendors	8	7
4	Super Market	23	18
5	Others Specify	4	3
	Total	**125**	**100**

Source: Primary Data

It is clear from the above table that 66 % of the respondents prefer to purchase from departmental stores, 6% of the respondents preferred grocery shops, 7% of the respondents prefer street vendors for purchasing, 18% of the respondents prefer super market for the purchasing and 3% of the respondents prefer other type of shops.

TABLE 3: FACTORS INFLUENCING PURCHASE BEHAVIOUR

Sl No	Influencing Factors	No of Respondents	Percentage
1	Convenience	13	10
2	Quality	89	71
3	Quantity	3	2
4	Cost	5	4
5	Service	7	6
6	Customer relation	1	1
7	Brand	7	6
	Total	**125**	**100**

Source: Primary Data

The above table indicates that the factor which influenced 10% of the respondents purchase behavior was convenience, 71% of the respondents were influenced by quality, 2% of the respondents were influence by the quantity, 4% of the respondents were influenced by the cost, 6% of the respondents were influenced by the service, 1% of the respondents were influenced the shopkeepers customer care ship and 6% of the respondents were influenced by the loyalty to the brand. Thus, majority of the respondents purchase behavior influenced by the quality of the product and only very little were influenced by the factor shopkeepers customer relation.

TABLE 4: AWARENESS TOWARDS QUALITY MARKS

SL.No	Awareness	No. of Respondents	Percentage
1	Always	69	56
2	Sometimes	51	42
3	Rare	2	2
	Total	**122**	**100**

Source: Primary Data

The above table reveals that, 122 respondents give importance to date of manufacture, expiry date, ISI etc. While purchasing and 3 respondents do not give any consideration for quality marks while purchase. Out of 122 respondents, 56% of the respondents always lookout such quality marks, 42% of them look for the quality marks sometimes and 2% of the respondents do rarely give importance to the quality marks.

TABLE 5: MODE OF CARRYING GOODS

Sl.No	Mode of Carrying Goods	No of Respondents	Percentage
1	Own vehicle	55	44
2	Rented vehicle	6	5
3	Door delivery	30	24
4	Bus	34	27
	Total	**125**	**100**

Source: Primary Data

It is clearly understood that, 44% of the respondents carry their goods in their own vehicle, 5% of the respondents carry the goods in their rented vehicles, 24% of respondents avail the benefit of door delivery and 27% of the respondents carry the goods by bus. Majority of the respondents are carrying the products to their home with the help of their two-wheelers.

TABLE 6: MODE OF PAYMENT

Sl.No	Mode of Payment	No of Respondents	Percentage
1	Cash payment	123	98
2	Credit payment	2	2
	TOTAL	**125**	**100**

Source: Primary Data

It was found that, 99% of the respondents prefer to pay ready case for their purchase and only 2% of the respondents expect credit facility for thief purchase. It is observed that majority of the respondent prefer ready cash payment to credit payment for the purchase.

TABLE 7: TYPES OF PROBLEMS FACED BY CONSUMER DURING PURCHASE

SL No	Types of Patterns During Purchase	No. of Respondents	Percentage
1	Unavailability	15	12
2	Poor quality	33	27
3	Harassment	39	31
4	Mal practice in quantity	12	10
5	Adulteration	23	18
6	Others_ Specify	3	2
	TOTAL	**125**	**100**

Source: Primary Data

The table reveals that during purchase, 12% of the respondents face problem of unavailability of products, 27% of the respondents feel that some products are of poor quality, 31% face the problem of harassment, 105 of the respondents suspect malpractice in quantity, 18% face the problem of product adulteration and only 2% of the respondents face the problem of lack of customer care.

TABLE 8: REACTION TOWARDS DISSATISFIED PRODUCTS

Sl No	Reaction	No of Respondents	Percentage
1	Will return the goods	49	34
2	Not to buy it again	68	54
3	Dispose the product	5	4
4	Remake it	3	3
	Total	**125**	**100**

Source: Primary Data

It is observed that, 39% of the respondents return the products if they are not satisfied with the product purchased, 54% of the respondents will not buy it again in future, 4% of the respondents dispose the product and only 3% of the respondents are interested to remake the product and use it for other purpose. Majority of the respondents feel not to buy faulty product again in future.

WEIGHTED AVERAGE SCORE ANALYSIS

Weighted Average technique was used to find out the weighted average for each category of respondents, over several study factors to know their level of satisfaction towards the quality, Price, Availability, Service, Size & Design of the products. For this purpose the quantitative information was converted into numerical term using five point scaling technique.

In using five point scales, score 5 was given to highly satisfied, 4 was given to satisfied, 3 was given to moderate, 2 was given to dissatisfied & a was given to highly dissatisfied.

TABLE 9: AGE & FACTORS CONSIDERD FOR PRODUCT SATISFACTION

Sl. No	Age	18–30 Years	31-40 Years	41-50 years	Above 50 Years
1	Quality	4.45	4.37	3.94	5.00
2	Price	3.90	3.79	3.61	4.00
3	Availability	3.87	4.00	3.78	4.00
4	Service rendered	3.91	3.84	3.83	4.00
5	Size	3.73	3.21	3.28	4.00
6	Design	3.97	3.95	3.94	4.00

Source: Primary Data

From the above table, it is clear that irrespective of age most the respondents are highly satisfied with Quality and satisfied with other factors.

TABLE 10: EDUCATIONAL QUALIFICATION & FACTORS CONSIDERD FOR PRODUCT SATISFACTION

Sl. No	Qualification	School level	Graduate	Post Graduate	Diploma	Others
1	Quality	4.19	4.46	4.18	4.75	4.00
2	Price	3.57	3.92	3.45	3.75	4.17
3	Availability	3.90	3.92	3.55	4.00	3.83
4	Service rendered	3.57	3.93	3.73	4.75	4.17
5	Size	3.43	3.69	4.27	3.75	3.17
6	Design	3.86	4.00	4.00	3.75	4.17

Source: Primary Data

From the above table, it is clear that irrespective of educational qualification most of the respondents are highly satisfied with Quality and satisfied with other factors.

TABLE 11: OCCUPATION & FACTORS CONSIDERED FOR PRODUCT SATISFACTION

Sl No	Occupation	Professional	Business	Employed	Agriculturist	Others
1	Quality	3.83	4.42	4.33	4.42	4.43
2	Price	3.83	4.04	3.74	3.83	3.80
3	Availability	3.67	3.75	4.00	3.75	3.93
4	Service rendered	3.50	3.88	3.70	3.75	4.05
5	Size	3.67	3.54	3.67	3.42	3.75
6	Design	3.33	4.13	4.00	3.67	4.04

Source: Primary Data

It is clear that all the respondents are highly satisfied with Product quality and majority of the students are highly satisfied & satisfied with service, design, availability, price & size.

TABLE 12: MARITAL STATUS & FACTORS CONSIDERED FOR PRODUCT SATISFACTION

Sl. No	Marital Status	Married	Single
1	Quality	4.31	4.42
2	Price	3.79	3.87
3	Availability	3.83	3.91
4	Service rendered	3.88	3.90
5	Size	3.63	4.48
6	Design	3.92	4.01

Source: Primary Data

Majority of the respondents are highly satisfied with product quality irrespective of their marital status.

TABLE 13: FAMILY INCOME & FACTORS CONSIDERED FOR PRODUCT SATISFACTION

Sl. No	Quality	Below Rs. 5000	Rs. 5001-Rs. 10,000	Rs. 10,001-Rs. 15,000	Above Rs. 15000
1	Quality	4.38	4.38	4.17	4.71
2	Price	3.90	3.87	3.50	3.71
3	Availability	3.90	3.80	3.92	4.14
4	Service rendered	3.69	4.38	3.83	4.43
5	Size	3.61	3.64	3.92	4.00
6	Design	3.92	3.84	3.83	4.43

Source: Primary Data

Most of the respondents belonging to various income level are highly satisfied with the product quality.

TABLE 14: NATURE OF FAMILY & FACTORS CONSIDERED FOR PRODUCT SATISFACTION

Sl. No	Nature of Family	Nuclear	Joint
1	Quality	4.40	4.32
2	Price	3.79	3.95
3	Availability	3.88	3.88
4	Service rendered	4.08	3.49
5	Size	3.61	3.80
6	Design	3.98	3.98

Source: Primary Data

Irrespective of the nature of family, most of the respondents are highly satisfied with product quality.

FACTOR RANKING ANALYSIS

Factors considered by the respondents were analysed by ranking method. For this purpose, respondents were asked to assign the rank to the factors. **As per this technique, the number of respondents multiples the rank assigned by the respondents.** The preference is taken as total score assigned to a factor. The factor scoring the least value is the most important rank and was determined with ascending order. By using this technique, it was decided to analyse the factors by ranking for some preference.

TABLE 15: RANKING ANALYSIS FOR AGE GROUP WITH ORDER OF PREFERENCE FOR PURCHASE

Particulars	18-30 Years		31-40 Years		41-50 Years		Above 50 years	
Age	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Quality	3.51	1	4.21	1	4.22	1	4.50	1
Quantity	3.31	11	3.00	11	2.39	V	1.50	V
Cost	2.91	111	2.89	1V	2.50	111	4.00	11
Service rendered	2.63	V	2.00	V	2.44	1V	2.00	1V
Brand	2.78	1V	2.95	111	2.83	11	3.00	111

Source: Primary Data

It is inferred from the table that the first rank is given to the product quality under age groups-18-30 years, 31-40 years, 41-50 years and above 50 years. Last rank is given to the service rendered under the age groups-18-30 years and 31-40 years. Respondent's belongings to the age group of 41-50 years and above 50 years had given the last rank to quantity of the product.

TABLE 16: RANKING ANALYSIS FOR EDUCATIONAL QUALIFICATION WITH ORDER OF PREFERENCE FOR PURCHASE

Particulars	School level		Graduates		Post Graduates		Diploma		Others	
Educational Qualification	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Quality	4.38	1	3.59	1	3.54	1	4.00	1	3.67	1
Quantity	2.90	111	3.05	11	3.18	111	3.75	11	3.33	11
Cost	2.43	1V	3.00	111	2.73	1V	3.00	111	2.67	1V
Service Rendered	2.28	V	2.60	V	2.18	V	2.25	1V	2.17	V
Brand	2.95	11	2.76	11	3.27	11	2.00	V	2.8	111

Source: Primary Data

It is clear from the above table that the first rank is given to the product quality by all age groups. Last rank is given to service rendered by graduates, post graduated, professionals and school level respondents; diploma holders have given the last rank to product brand

TABLE 17: RANKING ANALYSIS FOR OCCUPATION WITH ORDER OF PREFERENCE FOR PURCHASE

Particulars	Professionals		Business		Employed		Agriculturist		Others	
Occupation	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Quality	3.67	1	3.83	1	3.89	1	4.00	1	3.57	1
Quantity	2.67	1V	3.17	11	3.15	111	2.58	1V	3.22	11
Cost	2.50	V	2.58	1V	3.37	11	2.42	V	2.88	1V
Service rendered	2.83	111	2.42	V	2.52	1V	3.17	11	2.31	V
Brand	3.00	11	3.04	111	2.33	V	2.83	111	2.93	111

Source: Primary Data

It is inferred from the table that first rank is given to the product quality under various occupational status and last rank is given to the product cost by professionals and agriculturists; last rank was given to the brand by employed respondents and last rank was given to the service by the businessmen, students and home makers.

TABLE 18: RANKING ANALYSIS FOR FAMILY INCOME WITH ORDER OF PREFERENCE FOR PURCHASE

Particulars	Below Rs.5000		Rs.5001-Rs.10,000		Rs.10,001-Rs.15,000		Above Rs.15,000	
Family Income	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Quality	3.90	1	3.40	11	4.08	1	3.86	1
Quantity	3.02	11	3.42	1	2.75	111	2.43	V
Cost	2.83	111	2.76	1V	3.17	11	3.57	11
Service rendered	2.56	V	2.40	V	2.25	V	2.71	111
Brand	2.72	1V	3.02	111	2.67	1V	2.57	1V

Source: Primary Data

It is inferred from the above table that the first rank is given by the respondents (whose income level is below Rs.15,000, Rs. 10,001-Rs.15,000 and above 15,000) to the product quality and respondents under Rs. 5,001- Rs. 10,000 income group have given the first rank to product quantity. Last rank is given to the service rendered by the respondents under the income is above Rs. 15,000 have given the last rank to quantity.

TABLE 19: RANKING ANALYSIS FOR TYPE OF FAMILY WITH ORDER OF PREFERENCE FOR PURCHASE

Particulars	Nuclear		Joint	
Family Type	Score	Rank	Score	Rank
Quality	3.80	1	3.61	1
Quantity	3.17	11	2.97	111
Cost	2.88	111	2.83	1V
Service rendered	2.37	V	2.71	V
Brand	2.78	1V	3.05	11

Source: Primary Data

It is clear from the above table that the first rank is given to the product quality and last rank is given to the service rendered by both nuclear and joint family respondents.

TABLE 20: RANKING ANALYSIS FOR FAMILY SIZE WITH ORDER OF PREFERENCE FOR PURCHASE

Particulars	Two		Three		Four		Above Four	
Family Size	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Quality	3.00	111	3.93	1	3.76	1	3.67	1
Quantity	5.00	1	2.79	1V	3.08	11	3.18	11
Cost	4.00	11	2.29	V	2.88	1V	2.98	111
Service rendered	1.00	V	3.07	11	2.29	V	2.57	V
Brand	2.00	1V	2.86	111	3.00	111	2.61	1V

Source: Primary Data

It is inferred from the table that the first rank is given to the product quantity by the respondents whose family size is two and first rank is given to the product quality by the respondents whose family size is three, four, and above four. Respondents, whose family size is three have given the last rank to the product cost and whose family size is two, four and above four have five the last rank tot eh service rendered.

FINDINGS

The distinctive feature of the higher income group respondents is that, they shop as & when they like. Similarly, the consumers shop almost weekly but the career going consumers does shop only when the need arrives.

Education also plays a key role in shopping behaviour, in the sense that, compared to the respondents with no formal education, respondents having a good educational background shop more often.

Through the study it is understood that, consumers prepare item list before going to shop for purchasing. The involvement each one has on the family matters influences their behaviour to a greater extent. The main aim of the study is to understand the behaviour of individuals in the process of decision making, information gathering and need identification.

In the selected sample, respondents gather information from both internal & external sources. Majority of the respondents prefer to purchase products from departmental stores rather than other types of shops, as they feel that it is economical & products are of good quality.

Most of the respondents are aware of the quality marks and they carry the products in their own vehicle or by bus and some avail the benefit of door delivery.

The sample respondents prefer cash payment rather than credit payment. The respondents says that most of them face problems like adulteration, no follow up service, poor quality, etc during & after purchase.

This clearly indicates that in family purchase decisions, inspite of an individual's age, income, level of education, status, family size, etc., the interaction they have with each other leads the way for best "buy". Ultimately greater the interaction, better the involvement & may be a satisfactory purchase.

The study elucidates the fact that, there is a significant relationship between family size, income, education and frequency of shopping on one hand while there is no relationship between age and frequency of shopping on the other.

SUGGESTIONS

Purchase decision process which is characterised as more complex in its nature, has been subject to research often, only recently. This study is an attempt to explore the purchase decision process within a family with special reference to consumer's purchase behaviour.

TO THE MARKETERS

'Family' influence in the purchase decision process is to be considered more seriously than the influence of any other factor, for the simple & the most important reason, that it is the family that decides the consumption pattern, choice of products, brands, stores and other product related aspects.

The marketing strategy to be adopted to influence the consumer's to make positive purchase decision. In order to reach the prospective buyer without any complications, the marketers prime responsibility is to identify the person dominating the decision making process and he/she is to be influenced further

towards the desired action. It is believed that, such an approach will serve the purpose more effectively than the generalized approach often practiced by Indian marketers towards the family purchase activity.

TO THE PUBLIC

Women should be aware of the new products introduced in the market and of its special features, price, quality, etc. They should be capable of identifying duplicate products & should avoid purchasing unwanted items.

Purchase is to be made on the basis of the quality, income & according to the budget. Consumer must know the standard shop which sells products at reasonable prices with excellent service. They should give importance to the package date, manufacturing date, ISI marks, expiry date, brand, etc while purchasing. They should clarify their doubts regarding the product they buy.

CONCLUSION

The modern market is highly competitive and transitional. The prominence gained by individual consumer in marketing decision making compels the marketer to look at & organize the component of marketing mix through the customer's eyes. Hence the consumer behaviour research has come into existence.

Successful companies now – a –days take an inside –out view of their business. They recognize the importance of continuous monitoring & adapting to the environment. They also spend more time with customers & with watching the competitors because changes in environment pose good opportunities for the marketers to still flourish.

REFERENCES

1. David L. Loudan &Albert J. Della Bitta (2002), "Consumer Behaviour", Tata Mc Graw Hill Publishing Co., Ltd., New Delhi.
2. Del. I Hawkins, Roger J. Best, Kenneth A Coney (2002), "Consumer Behaviour", Tata Mc Graw Hill Publishing Co., Ltd., New Delhi.
3. John Desmond (2007), "Consuming Behaviour", Palgrave Machmillan, Newyork.
4. Krishnamoorthy .K, Sai Baba.P.(1982), "Savings Behaviour in India", Hindustan publishing Corporation (India) Delhi.
5. Leon G. Schiffman, Havard Hansen, Leslie Lazar Kanuk (2003), "Consumer Behaviour", Pearson Education (Singapore) Pte Ltd., Indian Branch, Delhi
6. Nargundkar (2005), " Marketing Research", Chand publishers

e-RECRUITMENT - WEB 2.0

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ABSTRACT

The traditional methods of recruitment have been revolutionized by the emergence of the Internet. The Internet has dramatically changed the face of HR recruitment and the ways organizations think about the recruiting function. In the coming years, digital recruiting and hiring are expected to continue their explosive growth. Presently, e- recruitment has been adopted in many organizations from small scale companies to large multinational organizations. Most organizations are already using e-recruitment to post jobs and accept resumes on the Internet and correspond with the applicants by e-mail. Now-a-days Social Networking Sites (SNS) is one of the important sources of e-recruitment. Professional social networking websites are commonly used for e-recruitment. Most of the recruiter are building their online network and finding the potential candidates for recruitment. SNS is also helpful to get back the ex-employees. Employers are recruiting candidates looking at the credibility of the candidates profile on SNS. Web 2.0 is a collection of technologies that allows users to interact with online content. This means Web surfers are no longer bound by the static experience of Web 1.0. These tools engage users by letting them participate in, control and guide their online visit. Some of the most popular Web 2.0 applications for e-recruitment include: social networks, blogs, podcasts and online video. This research paper highlights the concept of e-recruitment & Web 2.0. This paper mentions the use of Web 2.0 for e-recruitment. This paper focuses primarily on the Pros and cons of e-recruitment Web 2.0 and its benefits to the organizations and the employees. The author attempts to explain the paradigm shift from e-recruitment Web 1.0 to e-recruitment Web 2.0. The author surveys the HR managers to understand their viewpoint towards using e-recruitment web 2.0 and suggests the innovative strategies for effective e-recruitment Web 2.0.

KEYWORDS
e-Recruitment, Web 2.0, Social Networking Sites, Pros and Cons, Challenges & benefits, innovative strategies

INTRODUCTION

The economy is growing and hiring demands are increasing for most companies, however budgets are not increasing at the same rate. Traditional methods of posting jobs and contacting candidates are losing effectiveness, so recruiters are taking innovative approaches to finding talent. Even with the high volume of candidates in the marketplace, recruiters are most concerned with their ability to find qualified candidates quickly. Technology advancements and social media platforms are providing many opportunities for recruiters, which are seen as one of the most important topics today. Recruiters and hiring managers are applying technology and social media to bypass traditional methods of posting jobs so that they can connect with passive candidates directly. The use of social media communication tools in business is new so best practices are still emerging.

E-Recruitment utilizes the power of online resume search technology to parse resume databases and help recruiters and human resource personnel actively search for candidates on a global scale. Though E-Recruitment initially began as a simple method for finding talent online, it has evolved to incorporate all aspects of candidate management. Now organizations are using it to manage job postings, candidate applications and even conduct online interviews.

The buzzword and the latest trends in recruitment is the "E-Recruitment". Also known as "Online recruitment", it is the use of technology or the web based tools to assist the recruitment process. The tool can be either a job website like naukri.com, the organization's corporate web site or its own intranet. Many big and small organizations are using Internet as a source of recruitment. They advertise job vacancies through worldwide web. The job seekers send their applications or curriculum vitae (CV) through an e-mail using the Internet. Alternatively job seekers place their CV's in worldwide web, which can be drawn by prospective employees depending upon their requirements.

E-Recruitment: also referred to as Internet recruiting, online recruitment, and e-recruitment, is the use of the internet for attracting, hiring and retaining job seekers. This involves matching candidates and validating their skills and qualifications. As the number of people searching online for jobs increases, companies are taking advantage of e-Recruiting software to manage the entire recruitment process and reduce recruiting-related costs.

Observing the advantages of utilizing Web 2.0, the industry has seen a great shift in the nature of where human resource management was involved with the start of the trend in re-calibrating HR and recruitment technology to integrate Web 2.0 within company processes. This change was widely embraced as it not only implied an easier workload within a multitude of core functions that HR personnel were responsible for, not only will it save so much time but business executives also realized its true value as it was the turning point for every establishment to cut overhead costs and unnecessary expenses in these turbulent times..

OBJECTIVE OF THE STUDY

This research attempts:

1. To study the concept of Web 2.0.
2. To study the paradigm shift from Web 10 to Web 2.0.
3. To study the difference between e- Recruitment Web 1.0 and e -Recruitment Web 2.0.
4. To study the Pros and Cons of e- Recruitment Web 2.0.
5. To understand the benefits of e- Recruitment Web 2.0.
6. To understand the viewpoint of HR managers for e-Recruitment Web 2.0.
7. To suggest the innovative strategies for e-Recruitment Web 2.0.

CONCEPT OF WEB 2.0

A. WHAT IS WEB 2.0?

Interaction is the next phase in the evolution of the World Wide Web. According to Wikipedia, Web 2.0 allows for greater creativity, information sharing and collaboration by users. Web 2.0 applications include: social networks, podcasts, blogs and online video, among others. Widespread adoption of Web 2.0 technologies suggests that Web users have become more sophisticated and desire a personalized experience. As Web 2.0 is centered on user experiences, it allows for more inventive and functional communication avenues on career sites. These organizations know that to attract top talent, they must meet job

seekers' expectations. Web 2.0 technology can be adapted into your online recruitment campaign to grab and maintain the attention of active and passive job seekers by making candidates less likely to move on to another career site or posting.

Web 2.0 technologies can be adapted into an online recruitment campaign to grab and maintain the attention of active and passive candidates. As Web 2.0 is centered on user experiences, it allows for a variety of inventive and functional recruiting and branding avenues.

Table 1 below mentions some of the web 2.0 websites along with web 2.0 technology.

TABLE 1: THE CONCEPT WEB 2.0

Web 2.0 Web Sites	Web 2.0 Technology	Explanation of Service
Podcast Maker, ProfCast, Odeo	Podcasting	Multimedia authoring and syndication
MediaWiki	Collaborative Authoring	Open editing and tagging
Flickr, Slide, Zoto	Photo and Image Management	Open image access and tagging
Delicious, Blinklist, Stumbleupon	Social Tagging	Democratic website ranking
Digg, Newsvine, Gabbr	Peer Production News	Users decide what is news
YouTube, Google Video, MetaCafe	Video Collections	Video uploads
Blogger, WordPress	Blogging	Personal authoring and publishing
Joomla, Drupal	Content Management Systems (CMS)	Web design & management
MySpace, FaceBook, Xanga	Social Networking	Connect single user with hub of friends
GoogleDocs, Rallypoint	Collaborative Writing	Online word processing
Google, Yahoo Answers, IMDB	Customized Search Engines	Targeted searches
Wayfaring, Frappr, HousingMaps	Mapping	Sharing personal maps

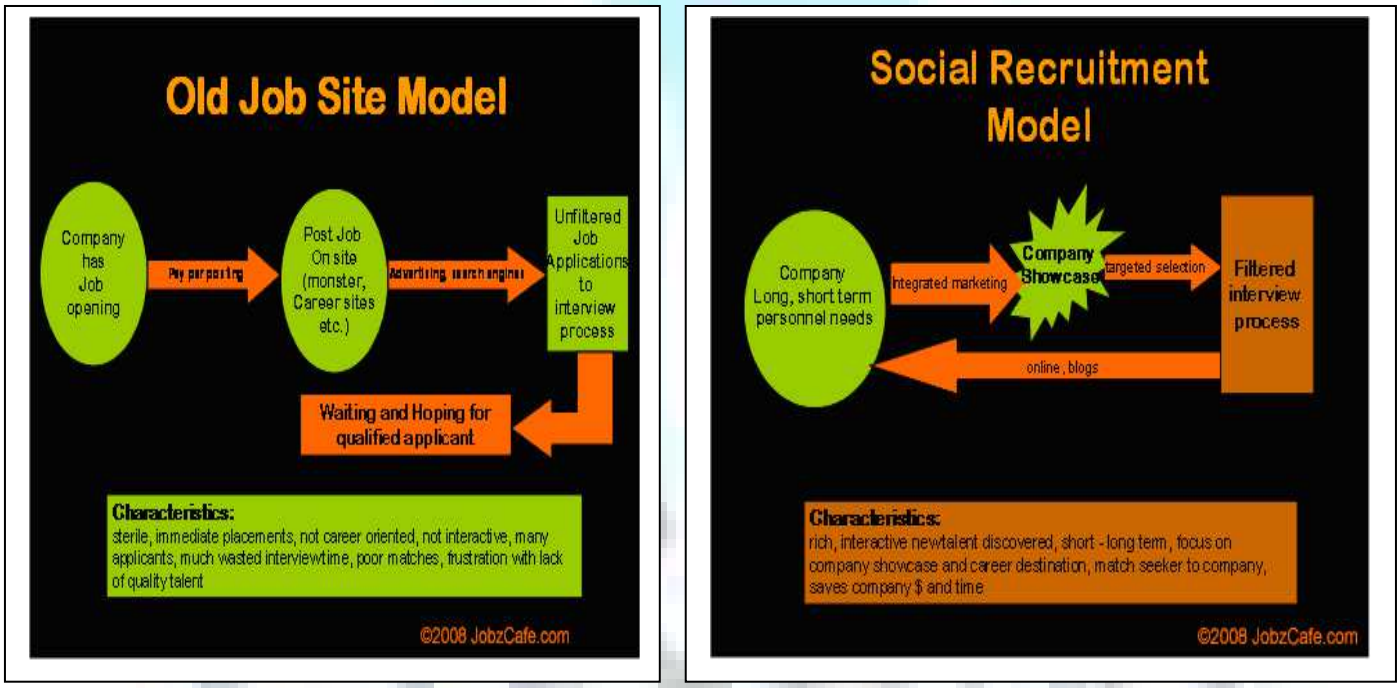
Source: http://wik.ed.uiuc.edu/index.php/Web_2.0_Group_2_SU_09

REVIEW OF LITERATURE

Now a day's Web 2.0 is one of the important sources of recruitment. Professional social networking websites are commonly used for recruitment. Most of the recruiter are building their online network and finding the potential candidates for recruitment. SNS is also helpful to get back the ex-employee. Mostly recruitments are happening by Facebook, Twitter, MySpace and Linkedin. Employers are recruiting candidates looking at the credibility of candidates profile on SNS.

PARADIGM SHIFT FROM WEB 1.0 TO WEB 2.0 e-RECRUITMENT

FIG 1: PARADIGM SHIFT FROM WEB 1.0 TO WEB 2.0 e-RECRUITMENT



The Fig 1 mention the paradigm shift from Web 1.0 to Web 2.0 e-Recruitment

A. RESOURCE-BASED VIEW AND E-RECRUITMENT WEB 1.0:

The recruitment process is in harmony with a comprehensive approach to competence management (Defélix C. (2003) acquire, promote and regulate individual and collective skills. Today, competence management is considered to be strategic and a source of competitive advantage (Pigeyre, F. (2005).

Thus, according to the Resource-Based View (Barney, J. B. (1991) companies should not be seen only in terms of their business portfolio, but should be defined as a unique set of tangible and intangible resources, a portfolio of core competencies and distinct resources (Putnam, R (1995). Employees also play a real role in the success of organizations. The nature of work in the 21st century presents many challenges for recruitment (Prahalad, C. K., and Hamel, G. (1990). knowledge-based work places greater demands on employee competencies; demographic, societal, and cultural changes are widespread and are creating an increasing global shortfall in the number of qualified applicants. Recruitment is thus the first stage in a comprehensive approach to competence and talent management (Peretti (2004) divides the recruitment activity into four stages: preparation, research, selection and integration. With the Internet, recruitment methods are evolving and diversifying. E-recruitment can be defined as "the use of any technology to attract, select or manage the recruitment process" (Peretti, J-M. (2004). This perspective can be distinguish in three main aspects of web 1.0:

- **Career websites** to improve the visitor's knowledge of a company; promote an attractive image of an employer and of course generating applications (Cober, R.T., Brown, D.J. and Levy, P.E. (2004).

- **Job boards** to give companies the possibility of communicating their job offers to a large public. Job boards can be generalist, like Monster, or specialized to provide more targeted information and more qualified CVs (Fondeur, Y. (2006).
- **Recruitment systems** have several benefits: cost reduction, efficiency gains, improved service to clients and improved strategic orientation Lee (2005) developed a five-stage evolution model for the e-recruiting system. The development of these different tools gives companies the possibility to access to important data bases of competencies. With Web 1.0 applications they can communicate on a large scale, target and manage the future core competencies of the company to obtain a competitive advantage in line with the RBV.

B. SOCIAL NETWORK THEORY AND E-RECRUITMENT 2.0

Social Network and Social Capital are two closely linked notions that can be assessed in terms of three dimensions: the strength of the ties, the network's structure and the nature of the contact attributes. Bourdieu (1986) defined social capital as "the aggregate of actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of more or mutual acquaintance and recognition". From an applicant's point of view, mobilizing a social network makes it possible to obtain more information about the company and the job. This method may also enable applicants to acquire better wages. From an employer's perspective, according to Rees (1966), making use of one's own network or that of the staff should limit the number of applications whilst simultaneously ensuring their quality and also reduce absenteeism and turnover. Social network has been widely associated with the term Web 2.0. This term is still much criticized; however, it represents real evolution in the Web. Web 1.0 fitted into a scheme of "author to readers" while the Web 2.0 tends to reduce hierarchies by allowing readers to become real actors. It is user-centered and it enhances information sharing. In the recruitment framework, the most representative Web 2.0 tools are:

- **Recruitment Blogs:** Recruitment blogs are a great way to interact with candidates and provide them with a sense of a company's culture and work. Different companies can use recruitment blogs to fit their specific needs; whether to promote their brand or provide candidates with in-depth look into the jobs they may be applying for.
- **Podcasts:** Another great tool that recruiters can utilize to engage candidates. By incorporating podcasts into your Career Center, candidates can easily and quickly gain a vast amount of information about your company, culture, and work. Whether it's an audio or video clip of an interview, company facilities, people, or daily work tasks, offering information in this way allows candidates to experience your company, brand, and culture in a very real way.
- **Online Social Networks:** Facebook or professional (LinkedIn or Video) to find customers, partners and future employees, to hunt and contact "passive" Using these networks as a sourcing tool to reach passive candidates and for hard to fill positions. These networks also allow recruiters to build a large and more diverse talent pool. In order to be effective, however, recruiters need to devote enough time to maintain their social networks.

➢ **LinkedIn:** Largest networking site for professionals. Offers a great way to find candidates for niche and hard-to fill positions. Can search for candidates, research their past experience and education and even view recommendations.

➢ **Facebook: S**earching for recent graduates and young professionals, chances are more to find them on Facebook.

➢ **Ning:** Largest number of social networks on the internet, featuring pages that are completely customizable and on a programmable platform. Sites like Ning offer recruiters the opportunity to create or become part of a large online community. Recruiters can not only search for passive candidates via these communities but should also join them to network and share best practices with fellow HR professionals.

- **Virtual worlds:** This is one of interesting tool of Web 2.0. eg. Second life.
- **Cooptation websites** where people are motivated (financially speaking) to find potential applicants within their entourage and to attract to new talents (Jobseekers).
- **Identity management websites**, such as Ziki, improve the visibility on the internet by, for example, centralizing and synchronizing on one page: Organization blog, organization social profile and by promoting organization page through a Google commercial link.
- **RSS feeds (Real Simple Syndication)**, where updated information can be automatically posted on a search engine of job offers (Movement for example), or RSS aggregators (like Netvibes and iGoogle). RSS allows users to keep up with their favorite website, receiving updates in a constant, automated and organized manner.
- **Search Engine Optimization:** In today's Web 2.0 world, jobseekers look to the internet to search for jobs. Because of the increase in the use of search engines, recruiters can use best practices to improve search engine rankings, increase traffic to their Career Center site, build their company's brand, and expand their pool of talent. Include words such as Jobs, Careers, Career Opportunities, etc. on organization's page. Consider utilizing Meta description, title, and incorporating career opportunities on your webpage in order to improve search engine rankings.
- **Video platforms:** such as Youtube or Youjob, give companies the opportunity to present their job offers and applicants the possibility of introducing their CV.
- **Search Engines:** Many search engines offer "suggestions" that allow organization to see what terms jobseekers are searching for the most. Use this information to research terms associated with your brand and to identify new opportunities in job searches.

Web 2.0 gives companies the possibility to put forward and increase their social capital. Employees and applicants can have access to a wider network, maintain and develop new relationships. Recruiters can directly contact people with interesting profiles which did not apply before.
The below table 2 shows the difference between e-recruitment Web 1.0 and e-recruitment Web 2.0.

TABLE 2: DIFFERENCE BETWEEN E-RECRUITMENT 1.0 TO e-RECRUITMENT 2.0

e-Recruitment 1.0	e-Recruitment 2.0
Large job boards	Development of new services, social networks
Subscription to CV databases	Almost free CV and profiles (especially on blogs)
E-mail alerts ("push mail" service)	RSS feeds, real-time information
Basic job advertisement (text)	Rich media advertisement (audio, video, animation)
Active recruiters (job advertising) or even passive recruiters (CV selection)	Proactive recruiters (social networks, blogs…)
Active applicants (CV posting, reply to advertisement)	"Passive" or "Proactive" applicants (open to market opportunities)
Jobs forum	Virtual jobs forum, online events
Classic communication (advertisement)	Development of employer's reputation and branding
Centralization of recruitment Management	Decentralization of recruitment responsibilities (easy cooptation through social networks) and/or Externalization toward recruitment agencies.
From Transactional recruitment (oneshot, short term)…	… to Relational recruitment (applicant relationship management, long term) or even transformational recruitment (strategic role)

PROS AND CONS OF E-RECRUITMENT WEB 2.0

The web 2.0 is highly interactive and lot of gen X and Y are getting well versed with it and using. Web 2.0 has many advantages as well as many disadvantages too.

SOME PROS ARE

- It helps for faster and interactive communication.
- Thousands of Gen Y are getting attracted towards SNS so now a day it becomes need to stay fresh in corporate interaction.
- Individual's identity and credibility is checked on SNS.

- Employers are getting potential talent from SNS with very small investment.
- Individual can create his or her own brand via social networking.
- Sharing of information is very easy due to Web 2.0.

SOME CONS ARE

- Safety of the data on web is biggest problem as hackers are reaching to the Social networking websites.
- Credibility of information on the websites is still questionable, people have casual approach to SNS for keeping contact with friends, peers and people end up with sharing photos, writing on walls, commenting on blogs and discussion.
- Privacy of individual's data is questionable.

BENEFITS OF E-RECRUITMENT WEB 2.0

Anyone familiar with the internet knows that it is constantly evolving. While futurists are progressing towards web 3.0 concepts, many businesses are just beginning to grasp the value of web 2.0. By allowing more channels for a brand to connect to their audience, businesses can experience a number of recruitment benefits by utilizing social media. Below are highlights of several benefits associated with e-recruitment Web 2.0:

- Reduce investment in recruitment agencies and advertising.
- Manage temporary and contractor workforces efficiently and effectively and decrease time to hire.
- Increase candidate quality & has broader reach.
- Build a powerful employer brand & ensure legal compliance.
- Job candidates can be searched geographically and found with higher accuracy than before, narrowing the number of candidates and adding to recruiting effectiveness.
- Available jobs can get filled quicker, lowering vacancy rates because of social media's high usage rate and immediate response time.
- E-Recruitment Web 2.0 has a low cost with high ROI.
- High number social media users are college students, creating a great way to attract fresh talent for entry level positions.
- Access to the top job candidates will be faster, helping your company's ability to attract talent versus competitors.
- Increases the employer's brand visibility online and establishes a leading-edge image for the brand.
- Open positions can be easily seen and read by a larger number of qualified candidates.

WHAT HR SAYS?

- "Business-oriented social networking sites provide instant credibility to a professional's profile, with the referrals and recommendations of the person, thus aiding recruiters in captivating mindshare," says TCS global HR VP & head Ajoy Mukherjee. TCS, India's largest IT Company, has almost 3% of all hiring coming from such media, specifically LinkedIn and Facebook.
- Bangalore-based MindTree Consulting has already hired 30-40 consultants through social networking sites. Industry players reckon that almost 15-20% of lateral hires could come from social network sites in the next couple of years. Companies are also tapping Twitter, the micro-blogging site, to look for talent. MindTree plans to have its recruitment URL on Twitter, encouraging people interested in joining the company to follow it. Sanjay Shelvankar, talent acquisition head for MindTree says social networking sites help to connect with passive candidates. "A typical CV is usually embellished with key achievements while on social networks, since the candidate's friends, bosses and peers are watching, employees don't claim something they haven't done," he says.
- Aricent HR head Indrajit Sen says in the next fiscal, the company may end up using these sites for up to 20% of all its hiring. "It is non-intrusive. We have access to the entire profile without asking for a CV," he says. So, just how much of a threat does social networks pose to online recruitment sites?
- Infosys HR head Mohandas Pai is of the opinion that virtual networking helps particularly in identifying the right candidates for specialist jobs, like experienced professionals in technology infrastructure management space. For companies like Infosys, which employs about 1 lakh, it's easier to tap via employee referrals, but for small firms like the 1,200-strong knowledge process outsourcing company CPA Global, social networks help expand the recruitment net. "For instance, when hiring legal risk analysts in a due diligence process with over 10 years experience, we have found social networks more useful than other avenues," says CPA Global's VP for HR Rakesh Kher.

RESEARCH METHODOLOGY

1. The research was conducted in **Pune** city during the period of Nov 2011 to Jan. 2012.
2. **Random sampling** method was adopted **30 HR managers** responded to survey.

DATA COLLECTION

Besides secondary data, the **primary data** was collected using a structured questionnaire and the questions were close ended which were coded and cross-tabulated, keeping in view the context and objectives of the study.

ANALYSIS AND FINDINGS

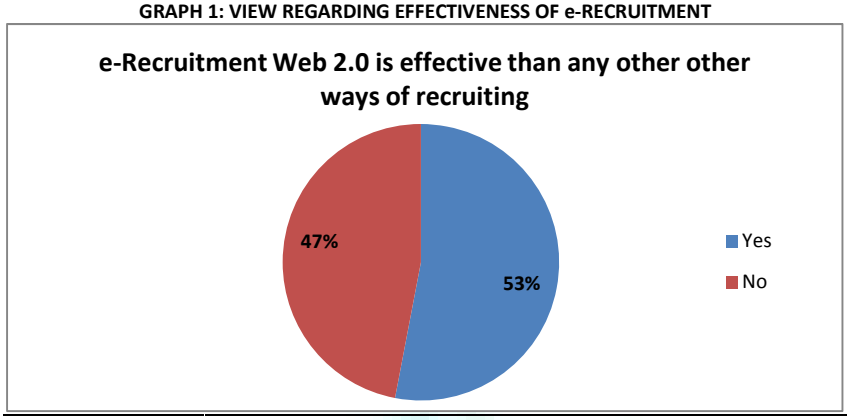
- This research is of a continuous nature. The respondents were surveyed to gather information about their views and opinion towards e-recruitment Web 2.0.
- In this research, the author has attempted to suggest some important factors which will keep the HR managers focused towards strategies for effective e-recruitment Web 2.0.

A. HR MANAGERS SURVEY

TABLE 3: VIEW REGARDING EFFECTIVENESS OF e-RECRUITMENT

Sl. No.	Question 1	Yes	No
1	e-Recruitment Web 2.0 is effective than any other ways of recruiting	53%	47%

GRAPH 1: VIEW REGARDING EFFECTIVENESS OF e-RECRUITMENT

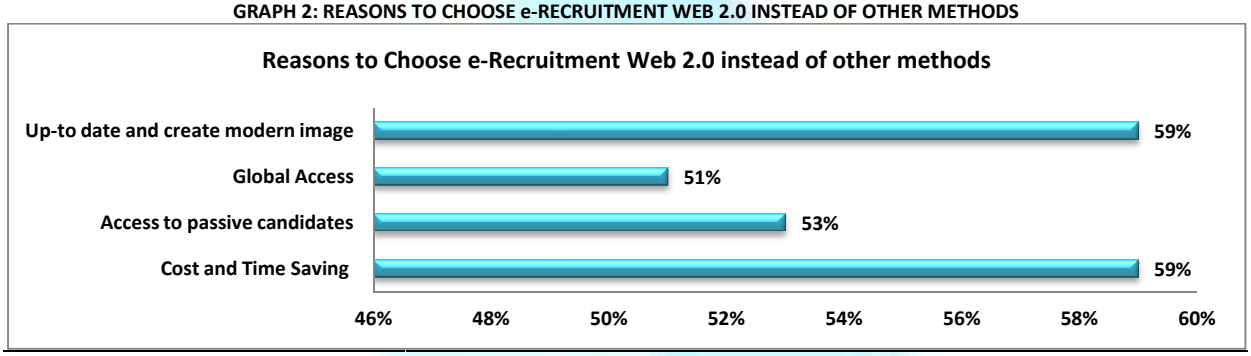


As per table No. 3 and Graph 1, 47% of HR managers mention that e-recruitment Web 2.0 is effective than any other ways of recruiting.

TABLE 4: REASONS TO CHOOSE e-RECRUITMENT WEB 2.0 INSTEAD OF OTHER METHODS

Sl. No.	Question No. 2		
	Reasons to Choose e-Recruitment Web 2.0 instead of other methods	Yes	No
1	Cost and Time Saving	59%	41%
2	Access to passive candidates	53%	47%
3	Global Access	51%	49%
4	Up-to date and create modern image	59%	41%

GRAPH 2: REASONS TO CHOOSE e-RECRUITMENT WEB 2.0 INSTEAD OF OTHER METHODS



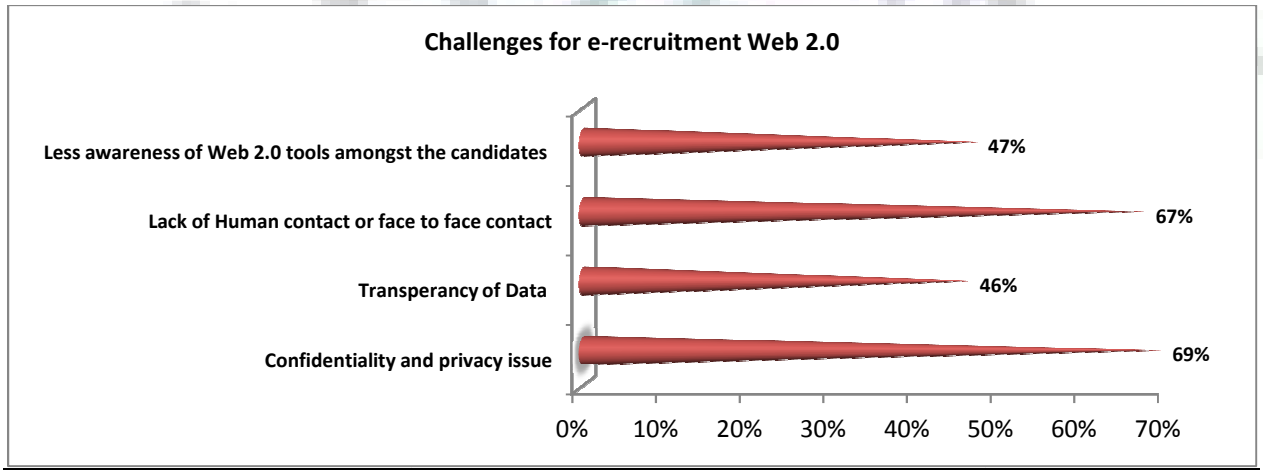
As per Table no 4 and Graph 2, HR managers mention that following are the reasons to choose e-recruitment web 2.0 instead of other methods:

- 59% of HR managers mention that to be up-to date and create modern image,
- 51% of HR managers mention that Global access is the reason,
- 53% of HR managers mention that access to passive candidate is the reason,
- & 59% of HR managers mention that cost and time saving is the reason to choose e-recruitment web 2.0 instead of other methods.

TABLE 5: CHALLENGES FOR e-RECRUITMENT WEB 2.0

Sl. No.	Question No. 3		
	Challenges for e-recruitment Web 2.0	Yes	No
1	Confidentiality and privacy issue	69%	31%
2	Transparency of Data	46%	54%
3	Lack of Human contact or face to face contact	67%	33%
4	Less awareness of Web 2.0 tools amongst the candidates	47%	53%

GRAPH 3: CHALLENGES FOR e-RECRUITMENT WEB 2.0



As per Table no. 5 and Graph 3, HR Managers feel that following are the challenges for e-recruitment web 2.0:

- 47% of HR managers mention that less awareness of Web 2.0 tools amongst the candidates,

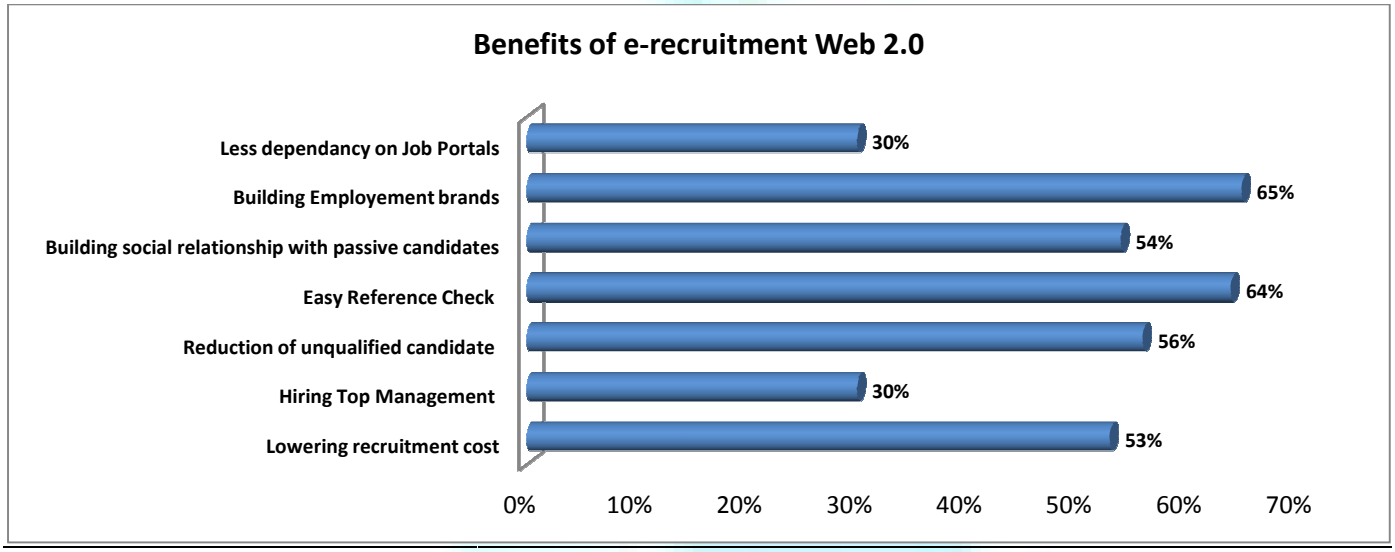
- 67% of HR managers mention lack of human contact,
- 46% of HR managers mention that transparency of data on web 2.0, and
- 69 % of HR managers mention that confidentiality and privacy issue are challenges for e-recruitment Web 2.0.

TABLE 6: BENEFITS OF e-RECRUITMENT WEB 2.0

Question No. 4

Benefits of E-recruitment Web 2.0	Yes	No.
Lowering recruitment cost	53%	47%
Hiring Top Management	30%	70%
Reduction of unqualified candidate	56%	44%
Easy Reference Check	64%	36%
Building social relationship with passive candidates	54%	46%
Building Employment brands	65%	35%
Less dependency on Job Portals	30%	70%

GRAPH 4: BENEFITS OF e-RECRUITMENT WEB 2.0



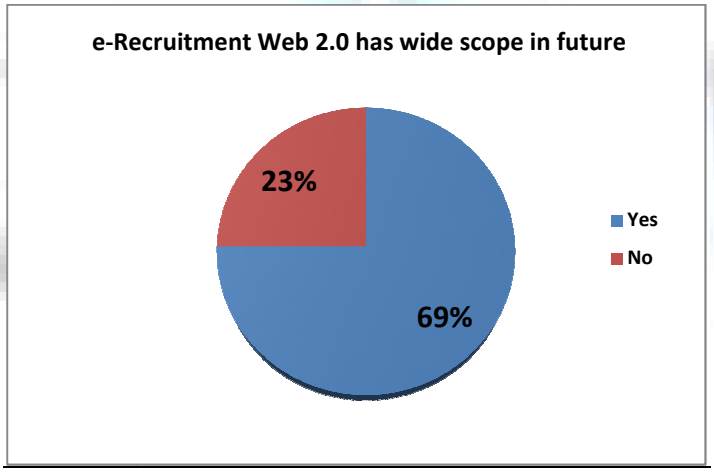
As per table no. 6 and Graph 4, HR managers feel that following are the benefits of e-recruitment web 2.0.

- 30 % of HR managers mention that less dependency on Job Portals,
- 65% of HR managers mention that building employment brands,
- 54% of HR managers mention that building social relationship with passive candidates,
- 64% of HR managers mention that easy reference check,
- 56% of HR managers mention reduction of unqualified candidate,
- 30% of HR managers mention that Hiring top management and
- 53% of HR manager mention that lowering recruitment cost are the benefits of e-recruitment Web 2.0.

TABLE 7: e-RECRUITMENT WEB 2.0 HAS WIDE SCOPE IN FUTURE

Question No. 5	Yes	No
e-recruitment Web 2.0 has wide scope in future	69%	23%

GRAPH 5: e-RECRUITMENT WEB 2.0 HAS WIDE SCOPE IN FUTURE



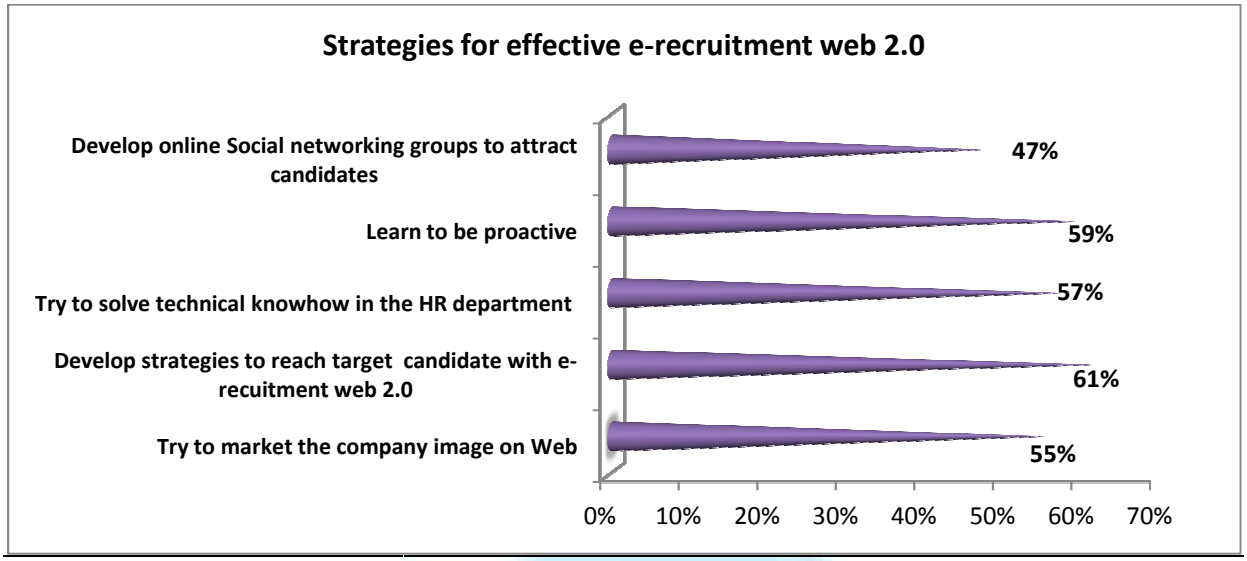
As per table No. 7 and Graph No. 5, 69% of HR managers mention that e-Recruitment Web 2.0 has wide scope in future.

TABLE 8: STRATEGIES FOR EFFECTIVE e-RECRUITMENT WEB 2.0

Question 6:

Strategies for effective e-recruitment web 2.0	Yes	No
Try to market the company image on Web	55%	45%
Develop strategies to reach target candidate with e-recruitment web 2.0	61%	39%
Try to solve technical knowhow in the HR department	57%	43%
Learn to be proactive	59%	41%
Develop online Social networking groups to attract candidates	47%	53%

GRAPH 6: STRATEGIES FOR EFFECTIVE e-RECRUITMENT WEB 2.0



As per Table No. 8 and Graph No. 6, HR managers mention that following strategies should be adopted for effective e-recruitment web 2.0.

- 47% of HR manager mention that developing online social networking group to attract candidates,
- 59% of HR managers mention that learning to be proactive,
- 57% of HR managers mention that try to solve technical knowhow in the HR department,
- 61% of HR managers mention that develop strategies to reach target candidates with e-recruitment web 2.0,
- 55% of HR managers mention that trying to marketing company image on web are the strategies should be adopted for effective e-recruitment.

RESULTS AND DISCUSSION

- HR managers started understanding the importance of e-recruitment Web 2.0 and it has many benefits too. One of the important benefits is e-recruitment Web 2.0 improves brand image of organizations.
- HR managers are facing challenges like confidentiality of data, lack of face to face contact with the candidate and sometimes lack of awareness of web 2.0 tools amongst the candidates.

The researcher would like to suggest following innovative strategies for effective e-Recruitment Web 2.0:

- Training should be provided to recruiter for the technical know-how of Web 2.0 tools.
- Online brand and image of the company should be improved on continuous basis.
- Special social networking groups on Social networking sites should be developed and updated on time.
- Strategies should be developed to reach the target candidates through different social networking sites like linkedin, facbook and apna circle etc.
- Organizations should be proactive while interacting with candidates and should communicate on time.
- Recruiters should try different tools of Web 2.0 instead of relying on one tool like video-conferencing.
- Online advertising for jobs should be considered on Web 2.0 tools.
- Recruiters should join and complete a full profile.
- Encourage high performers to create profiles—drive those referrals.
- Drive people to your career site.
- Drive people to fan pages.
- Join lots of groups (expands communication).
- Job posting—LinkedIn has free postings in Groups and sub-groups.
- Organizations should not judge success by the number of applications received. It's hard to quantify the success of most marketing campaigns in the short term because the goal is to build long-term brand equity. Think of recruitment strategies the same way.

CONCLUSION

The study concludes that though there are challenges for HR managers for e-recruitment Web 2.0, HR managers are becoming cautious about the challenges. E-Recruitment Web 2.0 is modern method of recruitment and many befits are associated with it including improving brand image of the organization.

Organizations have already understood the importance of e-recruitment Web 2.0. E-recruitment Web 2.0 has wide scope in future and it is emerging into Web 3.0.

REFERENCES

1. Article Source: http://EzineArticles.com/4367080.
2. Barney, J. B. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17, 99-120.
3. Beer, M., Spector, B., Lawrence, P., Mills, Q., Walton, R. (1984). Managing Human Assets. New York: The Free Press.
4. Beyssere des Horts, C-H. (1988): Vers une gestion stratégique des ressources humaines, Paris, Editions d'Organisation.
5. Bourdieu, P. (1986): The forms of capital. In: Handbook of theory and research for the sociology of education. J. G. Richardson (éd.), New York, Greenwood: 241-258.

6. Breaugh, J. A., and Starke, M. (2000). Research on Employee Recruitment: So Many Studies, So Many Remaining Questions. Journal of Management, 26, 405-434.
7. Burt R. (1992). Structural Holes, The Social Structure of Competition. Harvard University Press.
8. Chambers, E. G., Foulton, M., Handfield-Jones, H., Hankin, S. M., and Michaels Ill, E. G. (1998). The War for Talent. The McKinsey Quarterly, 44-57.
9. Cober, R.T., Brown, D.J. and Levy, P.E. (2004). Form, content and function: an evaluative methodology for corporate employment websites. Human Resource Management, 43, 201-218.
10. Coleman, J. S. (1988). Social Capital in the creation of Human Capital. The American Journal of Sociology, 94, 95-120.
11. Defélix C. (2003). Ce que gérer les compétences veut dire, 121-128, In: Compétences et connaissances dans les organisations, A.-M. Guénette, M. Rossi et J.-C. Sardas (dir), SEES.
12. Dietrich, A. and Pigeyre, F. (2005). La gestion des ressources humaines, Paris, La Découverte, collection Repères.
13. "Early 10% lateral hires occur via social networking sites" - 10 Oct 2009, 0026 hrs IST, Shelley Singh, ET Bureau
14. Fondeur, Y. (2006). Internet, recrutement et recherche d'emploi: une introduction. La Revue de l'IRES, 3, 3-10.
15. Foster, L. (2005). Confronting the global brain drain.Knowledge Management Review, 8, 28
16. Garner H., and Lutinier B. (2006). Les procédures de recrutement: canaux et modes de sélection. Premières synthèses, Dares, 48, 1-8.
17. Granovetter M. (1995). Getting a Job, The University of Chicago Press.
18. Holzer, H. J. (1988). Search Method Use by Unemployed Youth. Journal of Labor Economics, 6, 1..Kalika, M. (2000). Le management est mort, vive le e-management! Revue Française de Gestion, 68-74.
19. http://www.mgma.com/blog/6-essentials-for-Web-20-healthcare-recruitment/
20. Lee, I. (2005). The Evolution of E-Recruiting: A Content Analysis of Fortune 100 Career Web Sites. Journal of Electronic Commerce in Organizations, 3(3), 57-68.
21. Lengnick-Hall, M., Moritz, S., and Mark, L. (2003). The Impact of e-HR on the Human Resource Management Function. Journal of Labor Research, 24, 365-379
22. Lepak, D., and Snell, S. (1998). Virtual HR: strategic human resource management in the 21st century. Human Resource Management Review, 8, 215-234.
23. Lievens, F., van Dam, K. and Anderson, N. (2002). Recent trends and challenges in personnel selection. Personnel Review, 31, 580-6011
24. Lin N., Ensel W., and Vaughn J. (1981). Social Resources and Strength of Ties: Structural Factors in Occupational Status Attainment. American Sociological Review, 46, 393-405.
25. Martin G., Reddington M., Kneafsey M. B. and Sloman M. (2008). Web 2.0 and HRM: A Discussion Document. CIPD.
26. Maurer, S. D., and Liu, Y. (2007). Developing effective e-recruiting websites: Insights for managers from marketers. Business Horizons, 50, 305-314.
27. O'Reilly, T. (2005). What Is Web 2.0: Design Patterns and Business Models for the Next Generation of Software. O'reillynet.com.
28. Parbudyal, S., and Dale, F. (2003). The Effects of Information Technology on Recruitment. Journal of Labor Research, 24, 395-408.
29. Parry, E, and Tyson, S. (2008). Can technology transform HR processes? The case of UK recruitment. In: The Second European Academic Workshop on Electronic Human Resource Management, Carry le Rouet, 2008.
30. Peretti, J-M. (2004). Ressources Humaines, Paris, Vuibert
31. Ployhart, R. E. (2006). Staffing in the 21st Century: New Challenges and Strategic Opportunities. Journal of Management, 32, 868.
32. Prahalad, C. K., and Hamel, G. (1990). The core competence of the corporation. Harvard Business Review, 68, 79-93
33. Putnam, R (1995). Bowling Alone: America's Declining Social Capital. Journal of Democracy, 6, 65-78.
34. Rees, A. (1966). Information Networks in Labor Markets. American Economic Review, 56, 559-566
35. Rosita Bt. Mohamed Othman And Nadianatra Bt. Mu, E- Recruitment Practice: Pros Vs. Cons, October 2006 - March 2007 Vol. 1 No 1, Public Sector Ict Management Review
36. www.nasinteractive.com

SMART CAMERA FOR GESTURE RECOGNITION AND GESTURE CONTROL WEB NAVIGATION

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ABSTRACT

A Gesture Recognition system in designing Multi Model User Interface (MMUI) is proposed. Unlike all previous User Interface (UI) technologies which are computer centered, an MMUI is user centered and allows a user to interact with computer by using his/her natural communication modalities such as speech, touch, gesture, gaze, spatial expression just as in human to human communication. Web Browser User Interface has gone through some exciting evaluation in recent years. New types of user interaction mechanism such as using speech and mouse gesture as user interface have been developed. The natural next step in enhancing Web Browser User Interface is to act free body gesture as a way to control Web Browser. The General purpose Web Camera can perform simple hand gesture recognition. A Gesture Browser which uses the Web Camera as a user input service allows the user to control Web Navigation by making hand gesture. The Gesture Browser can bring significant benefit over traditional mouse and keyboard browser in situation such as when the user is away from keyboard and mouse or when the user is interacting with a large screen at a distance.

KEYWORDS
Gesture, Human Computer Interaction, Smart Browser.

INTRODUCTION

Human gestures constitute a space of motion expressed by the body, face, and/or hands. Among a variety of gestures, hand gesture is the most expressive and the most frequently used. Gestures have been used as an alternative form to communicate with computers in an easy way. Vision-based automatic hand gesture recognition has been a very active research topic in recent years with motivating applications such as human computer interaction (HCI), robot control, and sign language interpretation. This kind of human-machine interfaces would allow a user to control a wide variety of devices through hand gestures. Most work in this research field tries to elude the problem by using markers, marked gloves or requiring a simple background. Glove-based gesture interfaces require the user to wear a cumbersome device, and generally carry a load of cables that connect the device to a computer. The general problem is quite challenging due a number of issues including the complicated nature of static and dynamic hand gestures, complex backgrounds, and occlusions. Attacking the problem in its generality requires elaborate algorithms requiring intensive computer resources.

Early approaches to the hand gesture recognition problem in a robot control context involved the use of markers on the finger tips. An associated algorithm is used to detect the presence and color of the markers, through which one can identify which fingers are active in the gesture. The inconvenience of placing markers on the user's hand makes this an infeasible approach in practice. Recent methods use more advanced computer vision techniques and do not require markers. Hand gesture recognition is also performed through a curvature space method, which involves finding the boundary contours of the hand. This is a robust approach that is scale, translation and rotation invariant on the hand pose, yet it is computationally demanding. In a vision-based hand pose recognition, technique using skeleton images is proposed, in which a multi-system camera is used to pick the center of gravity of the hand and points with farthest distances from the center, providing the locations of the finger tips, which are then used to obtain a skeleton image, and finally for gesture recognition. A technique for gesture recognition for sign language interpretation has also been proposed. Other computer vision tools used for 2D and 3D hand gesture recognition include specialized mappings architecture, principal component analysis, Fourier descriptors, neural networks, orientation histograms, and particle filters.

Our focus is the recognition of a fixed set of manual commands by a browser, in a reasonably structured environment in real time. Therefore the speed, hence simplicity of the algorithm is important. This approach involves segmenting the hand based on skin color statistics, as well as size constraints. We then find the center of gravity (COG) of the hand region as well the farthest point from the COG. Based on these preprocessing steps, we identify the black and white transition that carries information on the number of fingers raised. Our algorithm is invariant to rotations, translations and scale of the hand. Furthermore, the technique does not require the storage of a hand gesture database in the memory. We demonstrate the effectiveness of our approach on real images of hand gestures.

A fast and simple algorithm for automatically recognizing gestures from hand images of a complex background is proposed. Unlike previous gesture recognition systems, this system neither uses instrumented glove nor any markers. A low cost computer vision system that can be executed in a common laptop associated with a webcam [4] is one of the main objectives of the project. Furthermore, this technique does not require the storage of a hand gesture in a database which requires lot of memory [3]. The effectiveness of the project on real images of hand gestures is demonstrated.

HAND GESTURE RECOGNITION

Consider a Web Browser application, in which a browser responds to the hand pose signs given by a human, visually observed through a camera. We are interested in an algorithm that enables the browser to identify a hand pose sign in the input image, as one of five possible commands (or counts). The identified command will then be used as a control input for the browser to perform a certain action or execute a certain task.

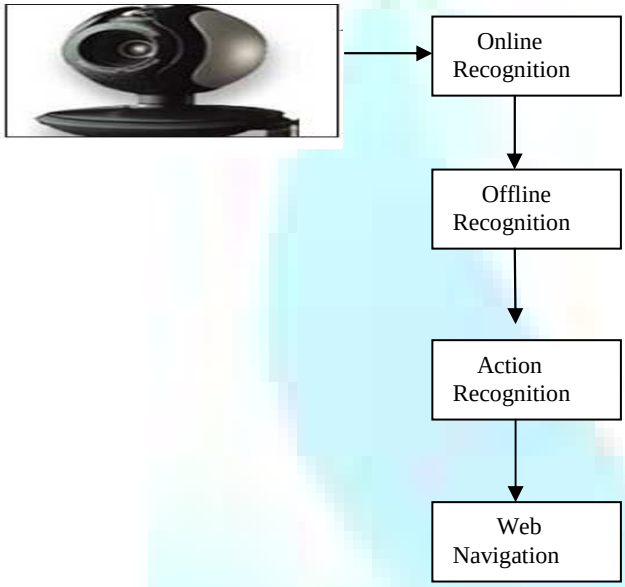
Our proposed method consists of the following stages:

• Localizing hand-like regions based on learned skin color statistics [9], producing a BW image output.
• Performing region-based segmentation of the hand, eliminating small false-alarm regions that were declared as "hand-like," based on their color statistics.
• Calculating the center of gravity (COG) of the hand region as well as the farthest distance in the hand region from the COG.
• Constructing a circle centered at the COG that intersects all the fingers that are active in the count.
• Identifying the number of black and white transitions by following the circle and classifying the hand gesture by number of active regions (fingers) in the transition.
• Perform the action in the browser for the recognized gesture.

PROPOSED SYSTEM ARCHITECTURE

Figure 1 shows the block diagram of the proposed system that describes about web browser control based on hand gesture recognition. At first, a general purpose web camera is used to capture images of the hand. Then online recognition is carried out for the recognized image from a camera. From the output of online recognition phase, the offline recognition module identifies the number of active fingers detected from the hand image. Finally based on the number of fingers identified, the browser opens the corresponding web page.

FIG. 1: ARCHITECTURE OF THE PROPOSED SYSTEM



ONLINE RECOGNITION

The system begins by detecting a webcam and capturing image of hand. Then hand like region is localized based on learned skin color statistics, producing a BW image output. Finally region-based segmentation of the hand is performed, eliminating small false-alarm regions that were declared as "hand-like," based on their color statistics.

Once the web camera is detected and gesture button is on , the camera starts capturing images every 5 seconds and store image every time period. The captured image is stored in a folder for further classification [2]. Figure2 shows the Captured hand image.It is assumed that the face and hand will not be seen in the same captured image. Then our first task is to segment out the hand-like region from the background. We find the pixels in the frame that are likely to belong to the hand region by identifying the skin pixels. It has been observed that the red/green (R/G) ratio [7] is a discriminative within a narrow band of values for skin pixels, whereas it is much more variable for non-skin pixels. Therefore, this ratio is used to decide whether a pixel is likely to belong to the hand region or not. In particular, we empirically observe that the following two thresholds successfully capture hand-like intensities:

$$1.05 < R / G < 4.00 \quad (1)$$

Using equation 1, we set all the pixels with color intensities within the thresholds to one and all the rest to zero; resulting in a black and white image output. Of course, this simple scheme could produce many erroneous decisions,In figure 3, many background pixels having skin-like colors could be classified as "hand-like".

FIG. 2: HAND CAPTURED BY THE WEB CAMERA

FIG. 3: LOCALIZING HAND-LIKE REGIONS

The scheme described in the previous section could produce many disconnected regions in the image classified as hand-like. So ideas from region based segmentation [5] are used to alleviate this problem. Our assumption is that the largest connected white region corresponds to the hand. So a relative region size threshold is used to eliminate the undesired regions. In particular, the regions that contains smaller number of pixels than a threshold value is removed. The threshold value is chosen as 20% of total number of pixels in the white parts. Note that this is an image-size invariant scheme. The ideal outcome is the segmented hand regionis shown in figure 4.

FIG. 4: REGION SEGMENTATION AND FALSE REGION ELIMINATION

OFFLINE RECOGNITION

The image extracted from the previous module is given as input to the offline recognition. In this module, the center of gravity (COG) of the hand image is identified. With COG as center a circle is drawn over the active fingers. The number of occurrence of black and white transition is identified when the circle is drawn by extracting 1D signal. The result of this module is the identification of human hand action [8] or the number of active fingers shown by the user.

Given the segmented hand region, its centroid, or center of gravity (COG) is calculated, $(\bar{x},\bar{y})$, as follows:

$$\bar{x} = \frac{\sum_{i=0}^{k} x_i}{k} \quad \text{and} \quad \bar{y} = \frac{\sum_{i=0}^{k} y_i}{k} \qquad (2)$$

Where x_i and y_i are x and y coordinates of the i^{th} pixel in the hand region, and k denotes the number of pixels in the region.

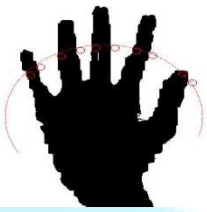
After obtaining the COG using equation 5.1, calculate the distance from the most extreme point in the hand to the center as follows:

$$\text{FarthestDistance}=\text{Max}\left(\sqrt{(\bar{x} - x_i)^2 + (\bar{y} - y_i)^2}\right) \qquad (3)$$

Normally this farthest distance is the distance from the centroid to tip of the longest active finger in the particular gesture. **Dr**aw a circle whose radius is more than half of the farthest distance from the COG. Such a circle is likely to intersect all the fingers active in a particular gesture or "count."

FIG. 5: HAND WITH COG POINT

FIG. 6: COUNTING THE NO. OF FINGERS

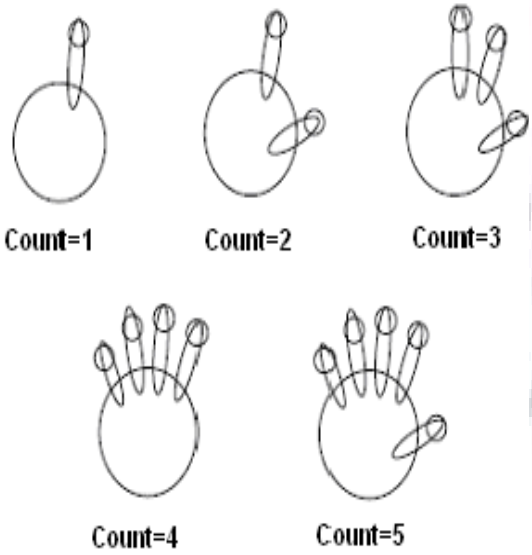


Finally extract a 1D binary signal by tracking the circle constructed in the previous step. Ideally the uninterrupted "white" portions of this signal correspond to the fingers or the wrist. Counting the number of zero-to-one (black-to-white) transitions in this 1D signal leads to the estimated number of fingers active in the gesture. Estimating the number of fingers leads to the recognition of the gesture [6].

ACTION RECOGNITION AND WEB NAVIGATION

The number of active fingers identified in the previous module results in the opening of corresponding web pages in the Action Recognition module [1]. The identified count of fingers will then be used as a control input for the browser to open a web page. For examples of the signs to be used in our algorithm, see Figure 8. The signs could be associated with various meanings depending on the function of the browser.

FIG 8: SET OF HAND GESTURES, OR "COUNTS" CONSIDERED IN OUR WORK



For example, a "one" count could mean "open a Yahoo page", a "two" count could mean "open a Gmail page". Furthermore, "two", "three", and "four" counts could be interpreted as opening "Anna University", "SVCE" and "Face Book" web pages. "Zero" count could also be used to open a "Google" page with all the fingers closed.

ERROR AND PERFORMANCE EVALUATION

The data that is considered should be error free in order to give accurate results conducted by various tests. Out of 200 samples taken from 20 persons, approximately 86% of correct classifications are obtained of all images used in our experiments. Also it is noted that the images taken under insufficient light (especially using the webcam) have led to incorrect results. In these cases the failure mainly stems from the erroneous segmentation of some background

portions as the hand region. The proposed algorithm appears to perform well with somewhat complicated backgrounds, as long as there are not too many pixels in the background with skin-like colors. Overall, it is found that the performance of this simple algorithm quite satisfactory in the context of our web browsing application.The performance analysis for individual finger count is shown in table 1.

Also Note that our algorithm just counts the number of active fingers without regard to which particular fingers are active. For example, there are many different ways in which our algorithm would recognize a three count; rotation, orientation, or any other combination of three fingers would also give the same result.

TABLE 1: PERFORMANCE ANALYSIS OF PROPOSED SYSTEM

GESTURES	ACCURACY
Count 1	90%
Count 2	92%
Count 3	92%
Count 4	91%
Count 5	86%
Count 0	70%

CONCLUSION AND FUTURE ENHANCEMENT

A fast and simple algorithm for a hand gesture recognition problem has been proposed. Given observed images of the hand, the algorithm segments the hand region, and then makes an inference on the activity of the fingers involved in the gesture. Also demonstrated the effectiveness of this computationally efficient algorithm on real images we have acquired. The computation time needed to obtain these results is very small, since the algorithm is quite simple.

Based on the motivating web browsing application, only a limited number of gestures are considered. The proposed algorithm can be extended in a number of ways to recognize a broader set of gestures. The segmentation portion of this algorithm is too simple, and would need to be improved if this technique would need to be used in challenging browser functions. However it is noted that the segmentation problem in a general setting is an open research problem itself. Reliable performance of hand gesture recognition techniques in a general setting require dealing with occlusions, temporal tracking for recognizing dynamic gestures, as well as 3D modeling of the hand, which are still mostly beyond the current state of the art.

So an operator does not have to remember which three fingers he/she needs to use to express the “three count.” While this feature may be preferable in some tasks, in other tasks one might be interested in associating different meanings to different finger combinations. We could modify and adapt our algorithm to such a setting by a number of modifications. For example, the analysis of the 1D signal described in the algorithm need to pay attention to the distances between the active fingers, as well as between the fingers and the wrist.

REFERENCES

1. Hae Jong Seo and Peyman Milanfar (2009), “Detection of Human Actions from a Single Example,” IEEE 12th International Conference on Computer Vision (ICCV), Sept. 29 2009-Oct. 2 2009, Vol. 3, pp. 1965 - 1970.
2. Jianjie Zhang, Hao Lin and Mingguo Zhao (2009), “A Fast Algorithm for Hand Gesture Recognition Using Relief,” Fuzzy Systems and Knowledge Discovery, FSKD '09 Sixth International Conference, Dept. of Autom., Tsinghua Univ., Beijing, China, 14-16 Aug. 2009,Vol. 1, pp. 8 – 12.
3. Marten Pijl, Steven van de Par, Caifeng Shan (2009), “An event-based approach to multi-modal activity modeling and recognition,” Pervasive Computing and Communications (PerCom), 2010 IEEE International Conference, March 29 2010-April 2 2010, pp. 98 – 106.
4. Muhammad Hameed Siddiqi, Muhammad Fahim, Sungyoung Lee, Young-Koo Lee(2010), “Human Activity Recognition Based on Morphological Dilation followed by Watershed Transformation Method,” 2010 International Conference on Electronics and Information Engineering, Vol. 2, ICEIE 2010, pp. 433-437.
5. Nikolaos Gkalelis, Anastasios Tefas, Ioannis Pitas (2009), “Human Identification from Human Movements,” ICIP'09 Proceedings of the 16th IEEE international conference on Image processing, 03-September-2009, pp. 2585-2588.
6. Pavan Turaga, Rama Chellappa, V. S. Subrahmanian, and Octavian Udrea (2008), “Machine Recognition of Human Activities: A Survey,” IEEE Transactions on circuits and systems for Video Technology, Vol. 18, No. 11, Nov. 2008, pp. 1473-1488.
7. Sylvia M.Dominguez, Ali H.Sayed, Trish Keaton (2010), “SNAP&TELL: A Multi-Modal Wearable Computer Interface for Browsing the Environment, Proceedings of the 6th International Symposium on Wearable Computers (ISWC.02), 07-October 10, ISBN: 0-7695-1816-8.
8. Tianzhu Zhang, Jing Liu, Si Liu, Changsheng Xu and Hanqing Lu(2011) “Boosted Exemplar Learning for Action Recognition and Annotation,” IEEE Transactions on circuits and systems for Video Technology, Vol. 21, No. 7, July 2011, pp. 853- 866.
9. Wanqing Li, Zhengyou Zhang, Zicheng Liu (2010), “Action Recognition Based on A Bag of 3D Points,” Computer Vision and Pattern Recognition Workshops (CVPRW), 2010 IEEE Computer Society Conference, 13-18 June 2010, Vol. 6, pp. 9-14.
10. Yu Shi, Ronnie Taib and Serge Lichman (2006), “Gesture Cam: A Smart Camera for Gesture Recognition and Gesture-Controlled Web Navigation” National ICT, Sydney, Australia, 11 Jun 2006, pp. 718-727.

AN EMPIRICAL STUDY ON BREAST CANCER USING DATA MINING TECHNIQUES

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ABSTRACT

Data mining is taking out of hidden patterns from huge database. It is commonly used in marketing, surveillance, fraurd detection and scientific discovery. In data mining, machine learning is mainly focused as research which is automatically learnt to recognize complex patterns and make intelligent decisions based on data. Nowadays, Breast cancer occurs when a malignant (cancerous) tumor originates in the breast. As breast cancer tumors mature, they may metastasize (spread) to other parts of the body. This deals with the some of classification models to predict the causes of breast cancer using Naive bayes, Ada BoostM1 Meta Classifier, PART Rule Classifier, J48 Decision Tree Classifier and Random Forest Classifier.

KEYWORDS

Breast cancer, Decision Tree, Naive Bayes, PART Rule Classifier, Random Forest Tree Classifier.

INTRODUCTION

Cancer is a group of diseases that cause cells in the body to change and grow out of control. Most types of cancer cells eventually form a lump or mass called a tumor, and are named after the part of the body where the tumor originates.

Breast cancer begins in breast tissue, which is made up of glands for milk production, called lobules, and the ducts that connect the lobules to the nipple. The remainder of the breast is made up of fatty, connective, and lymphatic tissue.

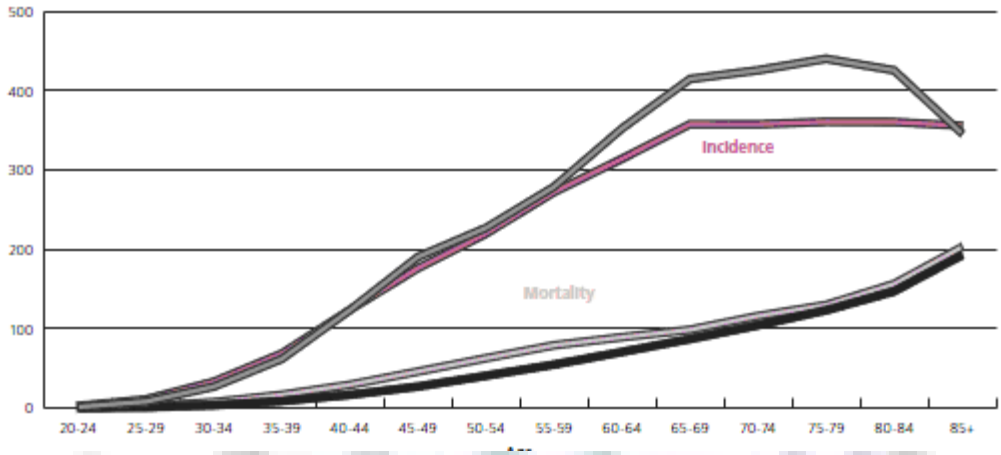
- Most masses are benign; that is, they are not cancerous, do not grow uncontrollably or spread, and are not life-threatening.
- Some breast cancers are called in situ because they are confined within the ducts (ductal carcinoma in situ or DCIS) or lobules (lobular carcinoma in situ or LCIS) where they originated. Many oncologists believe that LCIS (also known as lobular neoplasia) is not a true cancer, but an indicator of increased risk for developing invasive cancer in either breast.

The majority of in situ breast cancers are DCIS, which accounted for about 83% of in situ cases diagnosed during 2004-2008.

LCIS is much less common than DCIS, accounting for about 11% of female in situ breast cancers diagnosed during 2004-2008. · Other in situ breast cancers have characteristics of both ductal and lobular carcinomas or have unspecified origins. Most breast cancers are invasive, or infiltrating. These cancers started in the lobules or ducts of the breast but have broken through the duct or glandular walls to invade the surrounding tissue of the breast.

BREAST CANCER STATISTICS

FIGURE 1: FEMALE BRESAT CANCER INCIDENCE (2004-2008) AND MORTALITY (2003-2007) RATES



Breast cancer cases have doubled in India in the last two decades. The number of women estimated to be dying of breast cancer every year has also been steadily rising.

As against an estimated 48,170 women who died of breast cancer in 2007, the number breached the 50,000 mark in 2010. The figure for the year was put at 50,821.

Uttar Pradesh recorded the highest number of breast cancer deaths among states in 2010 - 8,882 followed by Maharashtra (5,064), Bihar (4,518), West Bengal (4,095), Andhra Pradesh (3,863), Madhya Pradesh (3,179) and Rajasthan (3,097).

Gujarat recorded 2,632 deaths, Kerala 1,618, Haryana 1,118 and Orissa 1,885. Delhi recorded an estimated 810 deaths due to breast cancer in 2010 compared to 779 in 2009 and 749 in 2008.

When it comes to states recording low breast cancer mortality rate, Lakshwadeep recorded the lowest with three deaths followed by Andaman and Nicobar Islands with 19 deaths. The north-eastern states also showed low levels of breast cancer deaths. Sikkim recorded 30 deaths, Mizoram 49 and Arunachal an estimated 63 deaths.

MoS health S Gandhiselvan said, "According to Indian Council of Medical Research, there is a significant increase in the incidence of breast cancers in various urban population based cancer registries between 1982 and 2005."

Globally, breast cancer is the most common female cancer accounting for an estimated 1.4 million cases each year, with more than half of the 400,000 breast cancer deaths occurring in low and middle income countries.

A landmark analysis of cancer cases in Delhi, Mumbai, Chennai and Bangalore between 1982 and 2005 (24 years) by ICMR had found that while cervical cancer cases -- earlier the most common -- dipped, in some cases by almost 50%, the incidence of breast cancer doubled.

While Bangalore saw breast cancer cases more than double since 1982 -- 15.8 in a population of one lakh in 1982 to 32.2 in 2005 -- Chennai recorded 33.5 new cases of breast cancer per one lakh women in 2005 against 18.4 in 1982.

Delhi recorded 24.8 new cases of breast cancer a year per 100,000 women which rose to 32.2 in 2005. Mumbai recorded 20.8 new cases of breast cancer per 100,000 population in 1982 which increased by almost 10% in 2005.

TABLE 1: AFTER THE 10 YEARS AGO

Age	InSitu Cases	Invasive Cases	Deaths
Under 40	1780	11330	1160
Under 50	14240	50430	5240
50-64	23360	81970	11620
65+	20050	98080	22660
Allages	**57650**	**230480**	**39520**

FIGURE2: ACCORDING TO THE 2011

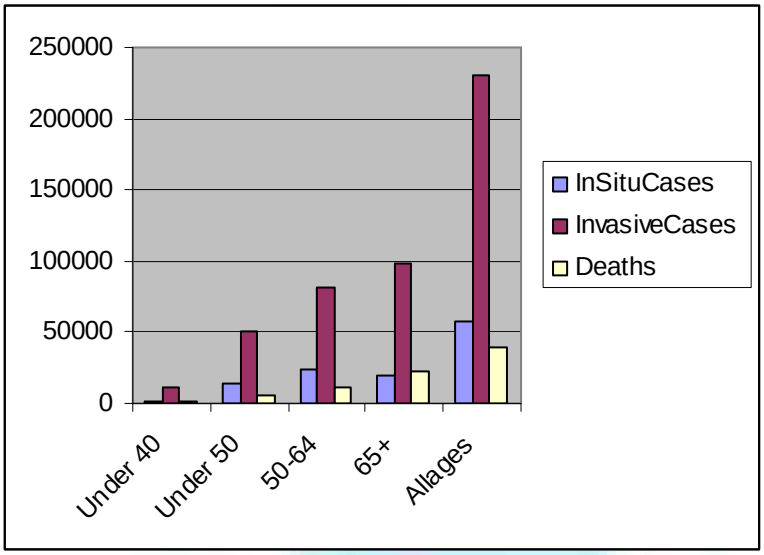


TABLE 2: ACCORDING TO FEMALE AGE

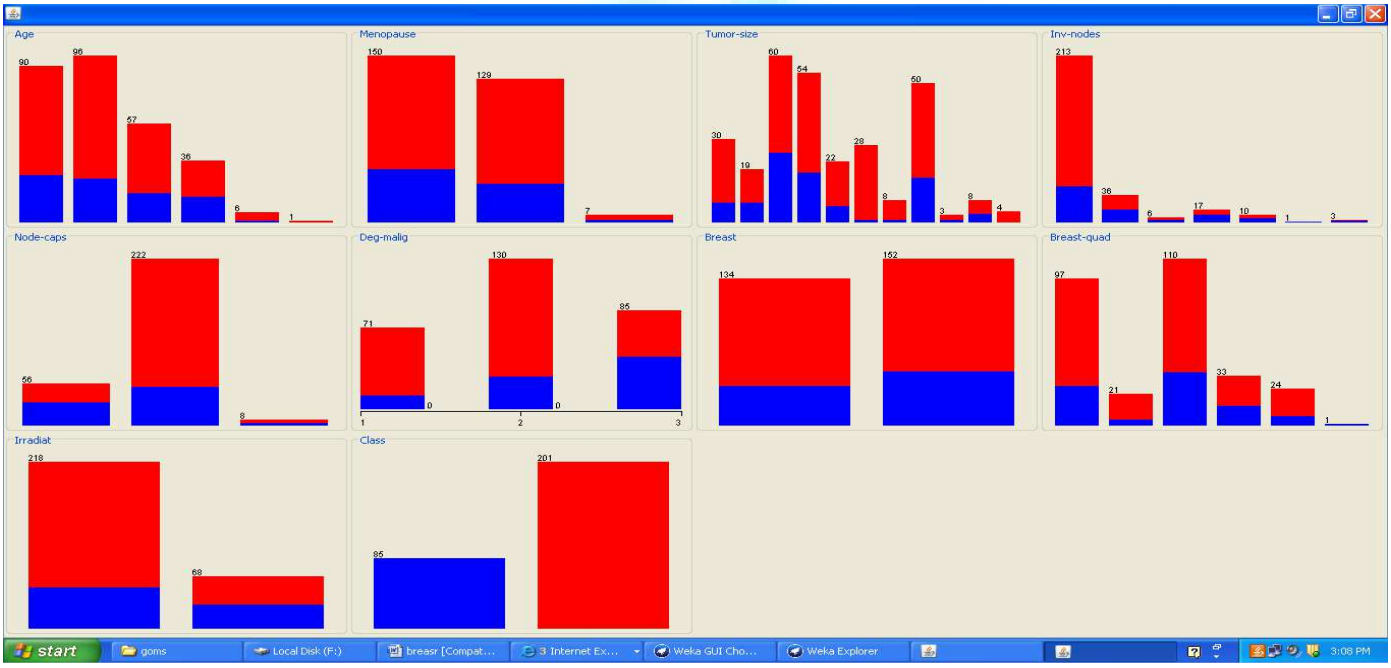
If Current Age is	Developing breastcancer in the next 10 years is:	Or 1 in
20	0.06%	1681
30	0.43%	232
40	1.45%	69
50	2.38%	42
60	3.45%	29
70	3.74%	27

Lifetime risk 12.15% 8

EXPERIMENTAL RESULTS

A major focus of machine learning [3, 8] research is to automatically learn to recognize complex patterns and make intelligent decisions based on data. Hence, machine learning is closely related to fields such as artificial intelligence, adaptive control, statistics, data mining, pattern recognition, probability theory and theoretical computer.

FIGURE 3: CLUSTERING OF BREST CANCER DATA



NAIVE BAYESIAN CLASSIFIER

A Naive Bayesian classifier [21] is a simple probabilistic classifier based on applying Bayesian theorem (from Bayesian statistics) with strong (naive) independence assumptions. By the use of Bayesian theorem we can write

$$p(C \mid F1....Fn) = \frac{p(C)p(F1.....Fn \mid C)}{p(F1.....Fn)}$$

ADVANTAGES

- It is fast, highly scalable model building and scoring
- Scales linearly with the number of predictors and rows
- Build process for Naive Bayes is parallelized
- Induced classifiers are easy to interpret and robust to irrelevant attributes
- Uses evidence from many attributes, the Naive Bayes can be used for both binary and multiclass classification problems

TABLE 3: EVALUATION ON TRAINING SET

Correctly Classified Instances	73.7762 %
Incorrectly Classified Instances	26.2238 %
Kappa statistic	0.3338
Mean absolute error	0.3077
Root mean squared error	0.4315
Relative absolute error	73.5638 %
Root relative squared error	94.4037 %
Total Number of Instances	286

ACCURACY BY CLASS

TP Rate	FP Rate	Precision	Recall	F-Measure	ROCArea	Class
0.459	**0.144**	**0.574**	**0.459**	**0.51**	**0.759**	**recurrence-events**
0.856	**0.541**	**0.789**	**0.856**	**0.821**	**0.759**	**no-recurrence-events**
Weighted Avg. 0.738	**0.423**	**0.725**	**0.738**	**0.729**	**0.759**	

=== Confusion Matrix ===

a b <-- classified as

39 46 | a = recurrence-events

29 172 | b = no-recurrence-events

J48 DECISION TREE CLASSIFIER

J48 is a simple C4.5 decision tree, it creates a binary tree. C4.5 builds decision trees from a set of training data which is like an ID3, using the concept of information entropy [20].

ALGORITHM

- Check for base cases
- For each attribute „a" find the normalized information gain from splitting on „a"
- Let a_best be the attribute with the highest normalized information gain
- Create a decision node that splits on a_best
- Recourse on the sub lists obtained by splitting on a_best, and add those nodes as children of node

ADVANTAGES

- Gains a balance of flexibility and accuracy
- Limits the number of possible decision points
- It had a higher accuracy

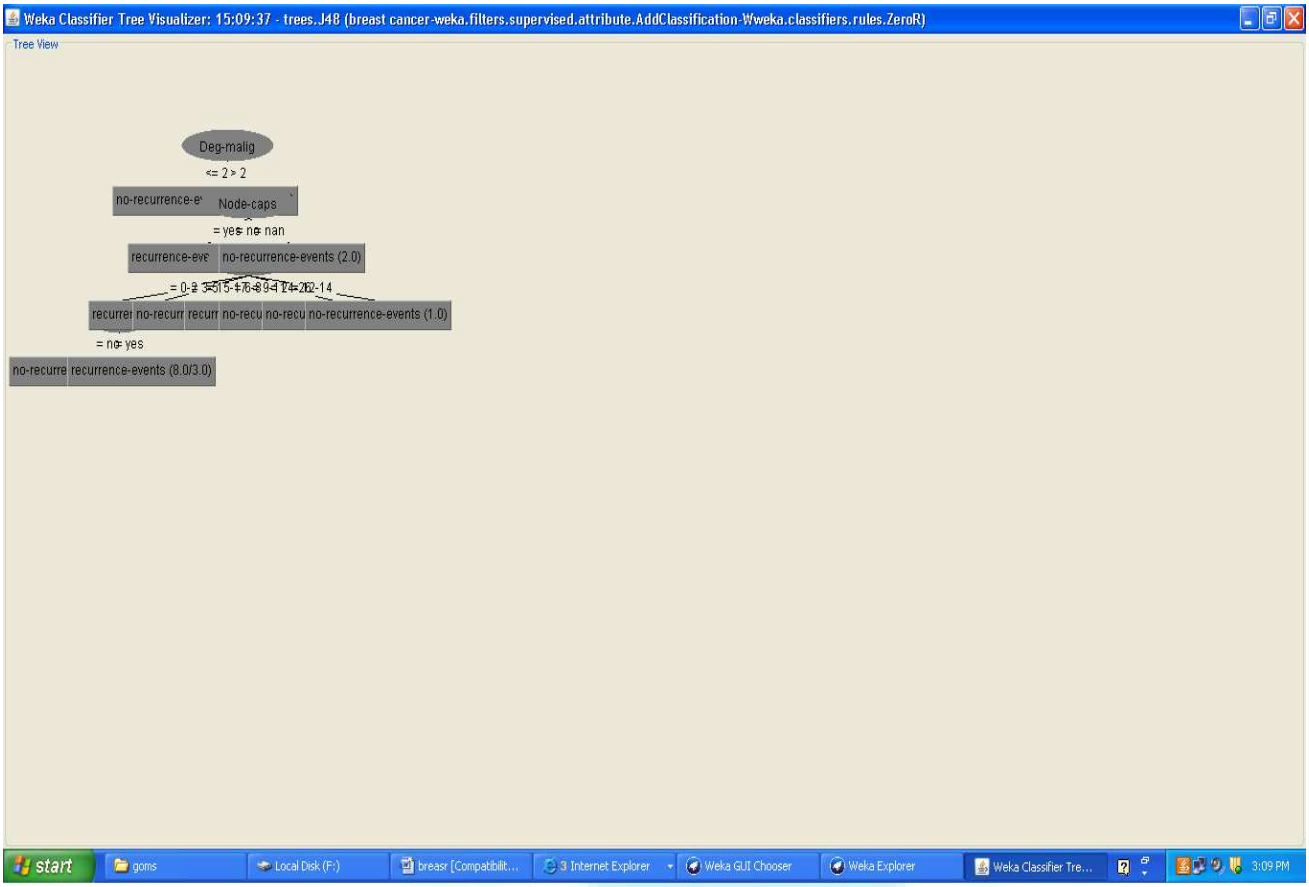
TABLE 4: EVALUATION ON TRAINING SET

Correctly Classified Instances	75.5245 %
Incorrectly Classified Instances	24.4755 %
Kappa statistic	0.3057
Mean absolute error	0.3528
Root mean squared error	0.4295
Relative absolute error	84.3212 %
Root relative squared error	93.9673 %
Total Number of Instances	286

ACCURACY BY CLASS

TP Rate	FP Rate	Precision	Recall	F-Measure	ROCArea	Class
0.318	0.06	0.692	0.318	0.435	0.64	recurrence-events
0.94	0.682	0.765	0.94	0.844	0.64	no-recurrence-events
Weighted Avg. 0.755	0.497	0.744	0.755	0.722	0.64	

FIGURE 4: J48 TREE CLASSIFIER



=== Confusion Matrix ===

a b <-- classified as

27 58 | a = recurrence-events

12 189 | b = no-recurrence-events

AdaBoostM1 Classifier

Adaptive Boosting [13] is a meta-algorithm in the sense that it improves or boosts an existing weak classifier. Given a weak classifier (error close to 0.5), AdaBoostM1 algorithm improves the performance of the classifier so that there are fewer classification errors.

ALGORITHM

- All instances are equally weighted
- A learning algorithm is applied
- The weight of incorrectly classified example is increased and correctly decreased
- The algorithm concentrates on incorrectly classified "hard" instances
- Some "had" instances become "harder" some "softer"
- A series of diverse experts are generated based on the reweighed data.

ADVANTAGES

- Simple and trained on whole (weighted) training data
- Over-fitting (small subsets of training data) protection
- Claim that boosting "never over-fits" could not be maintained.
- Complex resulting classifier can be determined reliably from limited amount of data

TABLE 5: EVALUATION ON TRAINING SET

Correctly Classified Instances	75.5245 %
Incorrectly Classified Instances	24.4755 %
Kappa statistic	0.3574
Mean absolute error	0.341
Root mean squared error	0.4188
Relative absolute error	81.5216 %
Root relative squared error	91.6302 %
Total Number of Instances	286

ACCURACY BY CLASS

TP Rate	FP Rate	Precision	Recall	F-Measure	ROC Area	Class
0.435	0.109	0.627	0.435	0.514	0.751	recurrence-events
0.891	0.565	0.789	0.891	0.836	0.751	no-recurrence-events
Weighted Avg. 0.755	0.429	0.741	0.755	0.741	0.751	

=== Confusion Matrix ===

a b <-- classified as

37 48 | a = recurrence-events

22 179 | b = no-recurrence-events

PART (PARTIAL DECISION TREES)

Classifier PART is a rule based algorithm [12] and produces a set of if-then rules that can be used to classify data. It is a modification of C4.5 and RIPPER algorithms and draws strategies from both. PART adopts the divide-and-conquer strategy of RIPPER and combines it with the decision tree approach of C4.5.

PART generates a set of rules according to the divide-and conquer strategy, removes all instances from the training collection that are covered by this rule and proceeds recursively until no instance remains [5].

To generate a single rule, PART builds a partial decision tree for the current set of instances and chooses the leaf with the largest coverage as the new rule. It is different from C4.5 because the trees built for each rules are partial, based on the remaining set of examples and not complete as in case of C4.5.

ADVANTAGES

It is simpler and has been found to give sufficiently strong rules.

TABLE 6: EVALUATION ON TRAINING SET

Correctly Classified Instances	80.7692 %
Incorrectly Classified Instances	19.2308 %
Kappa statistic	0.4694
Mean absolute error	0.2967
Root mean squared error	0.3851
Relative absolute error	70.919 %
Root relative squared error	84.2706 %
Total Number of Instances	286

ACCURACY BY CLASS

TP Rate	FP Rate	Precision	Recall	F-Measure	ROC Area	Class
0.447	0.04	0.826	0.447	0.58	0.77	recurrence-events
0.96	0.553	0.804	0.96	0.875	0.77	no-recurrence-events
Weighted Avg. 0.808	0.4	0.811	0.808	0.788	0.77	

=== Confusion Matrix ===

a b <-- classified as

38 47 | a = recurrence-events

8 193 | b = no-recurrence-events

RANDOM FOREST TREE CLASSIFIER

A random forest [14] consisting of a collection of tree structured classifiers (h(x,_k), k = 1, . .) where the _k are independent identically distributed random vectors and each tree casts a unit vote for the most popular class at input x.

ALGORITHM

- Choose T number of trees to grow
- Choose m number of variables used to split each node. m<<M, where M is the number of input variables, m is hold constant while growing the forest
- Grow T trees. When growing each tree do
- Construct a bootstrap sample of size n sampled from Sn with the replacement and grow a tree from this bootstrap sample
- When growing a tree at each node select m variables at random and use them to find the best split
- Grow the tree to a maximal extent and there is no pruning
- To classify point X collect votes from every tree in the forest and then use majority voting to decide on the class label

ADVANTAGES

- It is unexcelled in accuracy among current algorithms and it runs well on large data bases.
- It can handle thousands of input variables without variable deletion and also the learning is so fast.
- It has an effective method for estimating missing data and maintains accuracy.
- The new generated forests can be saved for future use on other data.
- It computes proximities between pairs of cases that can be used in clustering, locating outliers or give interesting views of the data.

TABLE 7: EVALUATION ON TRAINING SET

Correctly Classified Instances	97.9021 %
Incorrectly Classified Instances	2.0979 %
Kappa statistic	0.9508
Mean absolute error	0.0221
Root mean squared error	0.1052
Relative absolute error	5.2937 %
Root relative squared error	23.0237 %
Total Number of Instances	286

ACCURACY BY CLASS

TP Rate	FP Rate	Precision	Recall	F-Measure	ROC Area	Class
1	0.03	0.934	1	0.966	0.999	recurrence-events
0.97	0	1	0.97	0.985	0.999	no-recurrence-events
Weighted Avg. 0.979	0.009	0.98	0.979	0.979	0.999	

OUTLIER PREDICTION

Time taken to build model: 0.06 seconds

=== Predictions on test data ===

inst#,actual,predicted,error,prediction

1,1:recurrence-events,2:no-recurrence-events,+,0.808

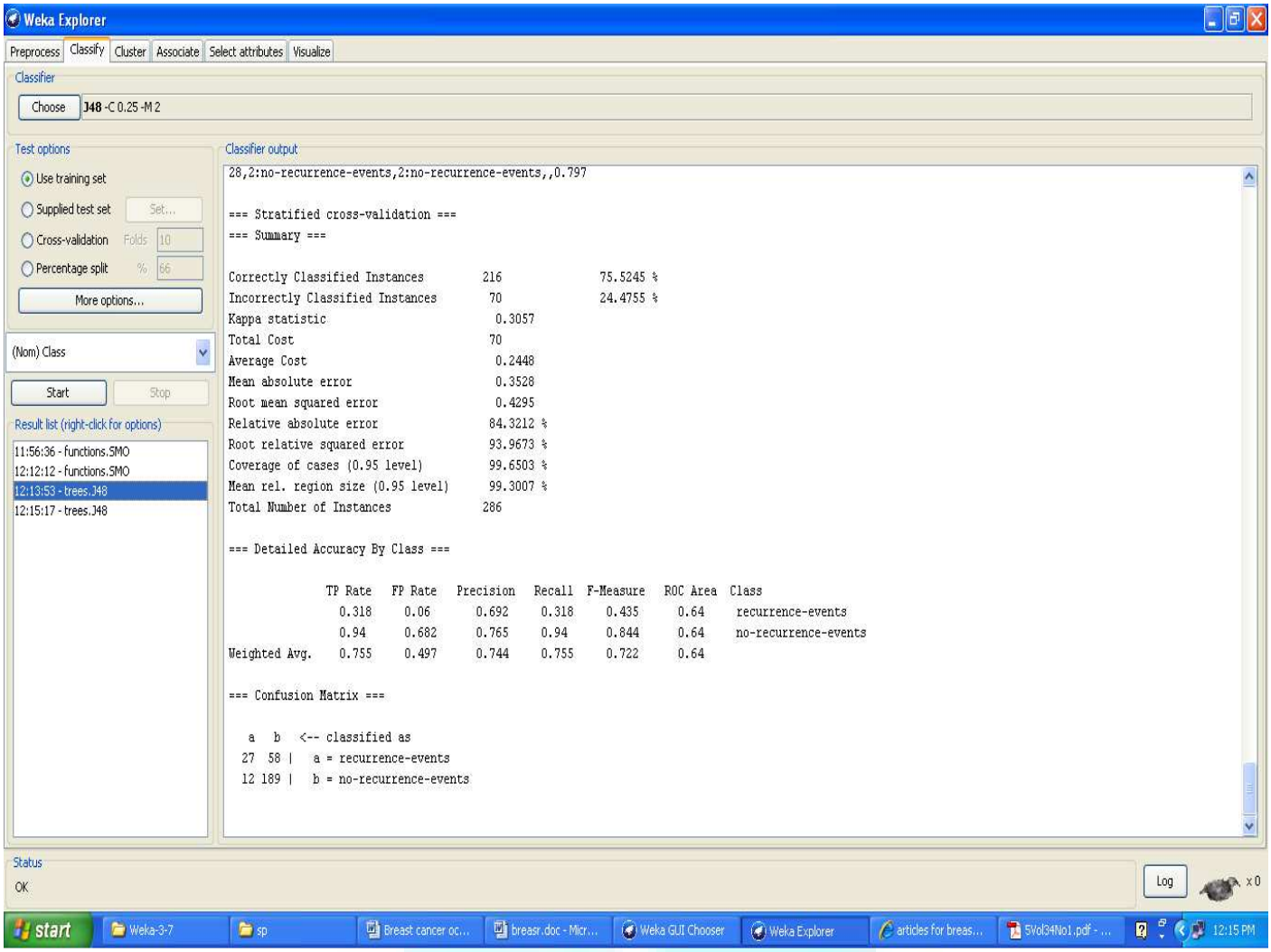
2,1:recurrence-events,1:recurrence-events,,0.759

3,1:recurrence-events,2:no-recurrence-events,+,0.808

4,1:recurrence-events,2:no-recurrence-events,+,0.808

5,1:recurrence-events,2:no-recurrence-events,+,0.727

FIGURE 5: EVALUATION ON TEST SPLIT



CONCLUSION

This paper provides causes of breast cancer diagnosis and statistical analysis of breast cancer. Problems and explores that data mining techniques using breast cancer data set. For this purpose the Experimenter in Weka-3.6.6 will be used.

REFERENCES

1. American Cancer Society. Breast Cancer Facts & Figures 2005-2006. Atlanta: American Cancer Society, Inc. (http://www.cancer.org/).
2. Benjamin F. Hankey, et. al. The Surveillance, Epidemiology, and End Results Program: A National Resource. Cancer Epidemiology Biomarkers & Prevention 1999; 8:1117-1121.
3. Cios KJ, Moore GW. Uniqueness of medical data mining. Artificial Intelligence in Medicine 2002; 26:1-24.
4. Cox DR. Analysis of survival data. London: Chapman & Hall; 1984.
5. Delen D, Walker G, Kadam A. Predicting breast cancer survivability: a comparison of three data mining methods. Artificial Intelligence in Medicine. 2005 Jun; 34(2):113-27.
6. Houston, Andrea L. and Chen, et. al.. Medical Data Mining on the Internet: Research on a Cancer Information System. Artificial Intelligence Review 1999; 13:437-466.
7. Ian H. Witten and Eibe Frank. Data Mining: Practical machine learning tools and techniques, 2nd Edition. San Fransisco:Morgan Kaufmann; 2005.
8. Lundin M, Lundin J, Burke HB, Toikkanen S, Pylkkanen L, Joensuu H. Artificial neural networks applied to survival prediction in breast cancer. Oncology 1999; 57:281-6.
9. Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) Public-Use Data (1973-2002), National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2005, based on the November 2004 submission.
10. Weka: Data Mining Software in Java, http://www.cs.waikato.ac.nz/ml/weka/
11. Zhou ZH, Jiang Y. Medical diagnosis with C4.5 Rule preceded by artificial neural network ensemble. IEEE Trans Inf Technol Biomed. 2003 Mar; 7(1):37-42.

A STUDY ON STRESS: SOURCES, EFFECTS AND RELIEVING TECHNIQUES USED BY MALE AND FEMALE TO COMBAT STRESS AT WORKPLACE IN AHMEDABAD CITY

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ABSTRACT

The purpose of this paper is to find the stress: sources, effects and the relieving techniques used by male and female of the Ahmedabad city at workplace. Data were collected with the questionnaire distributed amongst the 92 respondents which include 48 female and 44 male who were facing stress at their work place. The descriptive & inferential statistical analysis i.e. chi-square test revealed significant differences in terms of sources, effects and relieving techniques used by male and female as coping instruments for stress. The current study contributes to the body of research by investigating the combined effects of stress: sources, effects and its coping techniques, using one instrument, in one area setting for both male and female in the Ahmedabad city.

KEYWORDS
Stress, Stressors, Stress Management.

INTRODUCTION

Hans Selye (1936)[1] first introduced the term stress into life science. The term stress is derived from the Latin word 'Stringere' which means to be drawn tight. Stress is a complex, dynamic process of interaction between a person and his or her life. Arnold (1960)[2] defined it "Stress is any condition that disturbs normal functioning". Selye (1974)[3] defined stress as a non specific response of the body to any demand. Caplan (1964)[4], Marshal and Cooper (1979)[5] defined it as "stress is a stimulus or situation to which man reacts with learned coping mechanism activated by homeostasis principle and fuelled by energies which are in finite supply." Eminent behavioral scientist Stephen P Robbins (2006)[6] define it as: "stress arises from an opportunity, demand, constraint, threat or challenge, when the outcomes of the event are important and uncertain.

Organizations do not have any formal process for handling techniques or grievances relating to stress. We also hear too often that we should learn to "deal" or "cope" with stress at work. The events produce distress-the degree of physiological, psychological, and behavioral deviation from healthy functioning. There is also positive side of stress, called eustress, which refers to the healthy, positive, constructive outcome of stressful events and the stress response. (Sauter et al., 1999)[7]. Hence we can say that stress is a silent killer and prolonged exposure to stress may exert harmful effect on physical Stressors, Psychological Stressors and behavioral stressors for the well being of an individual. So, it is very important from the organizations perspectives to understand the stress causes, effects, symptoms so that it would be easy for them to plan out a stress relieving techniques to combat the stress and also understand the stress alarms through the behavior in time and increase the productivity of the organization. Basic purpose of the study is to find out the factors which lead to stress in male & female and how it affects on their personal and professional life and to know various stress reliving technique adopted by them in Ahmedabad city.

REVIEW OF LITERATURE

Stress can refer to experiencing events perceived as endangering one's physiological, physical or psychological wellbeing or a combination of these and when there is excessive pressure its intensity and chronic nature can lead to mental and physical ill health including depression, nervous breakdown and heart disease (Quick, Nelson and Hurrel, 1997)[8]. Because of globalization people are facing more stress compare to earlier years. It also leads to imbalance in work.

Stress in the workplace had emerged as a major issue for businesses and it has reached alarming proportions. The stress response is a complex emotion that produces physiological changes to prepare us for "fight or flight."– to defend ourselves from the threat or flee from it was quoted by Walter Cannon (1932)[9]. Definition proposed by McGrath (1976)[10] that seems to be broad enough to incorporate most of the current assumptions about what stress is and is not, yet focused enough to be meaningful. McGrath conceptualized stress as the interaction between three elements: perceived demand, perceived ability to cope, and the perception of the importance of being able to cope with the demand.

Keeley and Harcourt (2001)[11] in their study on "Occupational Stress: A Study of the New Zealand and Reserve Bank" Revealed that stress is caused by heavy work demands in the job itself, which the unskilled employee with little control over how the work is done, cannot adapt to or modify. Kulkarni GK (2006)[12] in an article Burnout published in Indian Journal of Occupational and Environmental Medicine 2006 said that rapid change of the modern working life is associated with increasing demands of learning new skills, need to adopt to new types of work, pressure of higher productivity and quality of work, time pressure and hectic jobs are increasing stress among the workforce."Stress that an employee encounters affects the productivity of organization (Bhattacharjee, 2009) [13].

IMPORTANCE OF THE STUDY

The study is very important as today people are stressed from overwork, job insecurity, information overload and the increasing pace of life. Yerkes and Dodson (1908)[14] were the first to "stumble" upon the inverted-U relationship between stress and performance their work focused on the effects of stress on the learning response of rats. Using three trials with low, moderate, and high levels of stimulus, the authors found a weak but curvilinear relationship, with performance on the task improving as the stressor stimulus reached a moderate level and decreasing as stimulus strength increased beyond this point. Selye (1975)[15] and McGrath (1976)[16] also suggest an inverted-U relationship between stress and performance. Hence in order to meet the pace of the life it is very important to understand stress and overcoming ways from it.

STATEMENT OF THE PROBLEM

By doing the rigorous literature review we could find that there are many studies which are been done in the area of stress, but in India and specifically in Gujarat, there are very few studies done where there was a comparison of stress among the male and Female and their reacting ways as result of stress. Our study focus on the different criteria in men and women regarding causes, effects and symptoms in them in Ahmedabad city.

AIM AND OBJECTIVE

The main aim of the study is to know the Sources, Effects and relieving techniques used by male and female to combat stress at workplace in Ahmedabad City. Also to find out the causes, symptoms of stress at their work place and how the stress affects on social life of male & female and relieving techniques used by them.

RESEARCH METHODOLOGY

Cross sectional study was conducted to examine the relationships of independent and dependent variable by applying the self administered survey questionnaire. And with the help of literature review the various hypotheses to examine the relation between dependent and independent variable are also used. In the following Research the procedure which is adopted is quantitative approach

a. **Sample size:** The sample included 58 male and 58 female respondents by convenience sampling method.
b. **Procedure:** The survey instruments were administered to the participants by personal visit and through emails.
c. **Demographics:** Demographics include gender, present employment status, years on their present job and years with present employer.
d. **Statistical Analysis**: Chi Square.
e. **Tools used for statistical Analysis**: Excel and SPSS

RESULTS & DISCUSSION

Ch- Square Tests (Refer Tables: 1 to 4)

Ho.1 There is no dependency between facing stress at work and personal and professional life balanced.

Interpretation: Ho Accepted. The observed p-value is 0.705 >0.5 and so researcher's decision is not to reject the null hypothesis. In other words researcher's fails to reject the hypothesis that there is no dependency between facing stress at work and personal and professional life balanced.

H0.2 There is no dependency between facing stress at work and age

Interpretation: - Ho rejected. The observed p-value is 0.026 < 0.5 and researcher's decision is to reject the null hypothesis. In other words researchers reject the hypothesis that there is no dependency between facing stress at work and age.

H0.3 There is no dependency between Timing duration on job and facing stress at workplace

Interpretation: -Ho accepted. The observed p-value is 0.447> alpha 0.05 and so researcher's decision is not to reject the null hypothesis. In other words researcher's fails to reject the hypothesis that there is no dependency between Timing duration on job and facing stress at workplace.

FINDINGS

a. To find the gender differences in stress response.

It was found from the study that there were 58 male and 58 female respondents. 80% of the respondent facing stress at their work place. And from the 92 respondents 48 are female and 44 are male who are facing stress at their work place. Women are facing more stress compare to male. Out of those 80% respondents who were feeling stress, 59% of them are facing stress in their life because of their work.

b. To find whether number of years of work affect the stress at work gender wise.

It was found in the study that When it was asked that from how many years they are working with the company, most respondent had experience of < 15 years, and then <1 year and 1-5 year. And in case of time duration on the job, it was found most of them have 6-8 & 8-10 working hours. And when satisfaction with the structure and impact of stress at workplace was asked, it was concluded that male are more satisfied compared to female. And female have more negative impact of stress at workplace.

c. To find the different factors which effect stress in male and female.

Female gave the first three ranks for the factors affecting stress at workplace are family problem, Health problem, workload pressure, working condition and conflict with co-workers is the least affected for women. Whereas conflict with co-workers is first which effect more to male employer followed by internal competition, health problem and for them workload pressure is the factor which affect them the least.

d. To find the different symptoms of stress like physiological, psychological and behavioural symptoms for stress among male and female.

Respondent's correlation of gender against different physiological, psychological and behavioral symptoms for stress in them, it was found that the physiological symptoms like ulcers, Headache, increased illness are more in male and other symptoms like blood pressure sleep. The psychological symptoms like low commitment, exhaustion and moodiness are seen more in female whereas the symptoms like job dissatisfaction, depression are seen more in male. All the behavioral symptoms like low job performance, more accident, faulty decisions, higher absenteeism, workplace aggression, and turnover are reflected more in female compared to male. In male the most affected symptoms can be workplace aggression and faulty decisions.

e. Gender and the balance they have of their life and work.

Correlation of gender and personal and professional balance was done and found that Male are able to maintain a balance. Respondent's correlation of gender and people facing problem in their social life was done and was found that nearly 50% of both male and female were not ready to respond and out of which responded getting angry quickly and inability to attend the social functions were shown more by female.

f. The intervention technique used by male and female to combat stress.

The intervention techniques used by female are talking to friends, listening to music, take rest and meditation and yoga and not a single female taking up smoking and talking to friends, listening to music, exercise, take rest and smoking and only few doing yoga or meditation by males. Wellness program were preferred more by both male and female want the organization to take initiative more for the then for the Employee assistant Programme.

CONCLUSIONS

Female are having more negative impact of stress compared to male at their workplace. The reasons/causes of stress are different for both genders. Female cannot make much between professional and personal life because of stress at their work place. And also the stress relieving techniques are different. It has to be understood properly by the organization and provide good EAP and wellness programmes.

SCOPE FOR FURTHER RESEARCH

In future we can conduct the research study on the effects of various intervention techniques on any one gender and study the before and after affects of the techniques on them. This will result in more accurate intervention methods and which will be more beneficial for the organization to do the stress management at workplace and increase the efficiency of the employee and at the end productivity of the organizations.

REFERENCES

1. Arnold, M.B. (1960), Emotion and Personality, Vol.2, New York: Columbia University Press.
2. Bhattacharjee, M(2009), A Study on Stress Management in NEEPCO, Shillong , Project Submitted to the department of Business Administration, Assam University, Silchar
3. Cannon, W.B. (1935), 'Stresses and Strains of Homeostasis', American Journal of Medical Science, 189, 1.
4. Caplan, R.D., and Killilea, M. (1976) Social Systems and Mutual help: Multidisciplinary Exploration, New York: Grun and Stratton.
5. Keeley,K and Harcourt, M(2001),"Occupational Stress: A Study of the New Zealand and Reserve Bank" Research and Practice in Human Resource Management, 9(2),pp 109-118.
6. Kulkarni GK (2006) in an article Burnout published in Indian Journal of Occupational and Environmental Medicine 2006 [cited 2008 Feb 28];10:3-4 K. Chandraiah, S.C. Agrawal, P. Marimuthu And N. Manoharan - Occupational Stress and Job Satisfaction Among Managers published in Indian Journal of Occupational and Environmental Medicine Vol. 7, No. 2, May-August 2003
7. Marshall, J. and Cooper, C.L. (1979), Executive Under Pressure A Psychological Study, London: McMillan.
8. McGrath, J. E. (1976). *Stress and behavior in organizations.* Chicago

9. McGrath J.E., (1976): Stress and Behaviour in organizations. A Handbook of Industrial and Organisational Psychology.
10. Quick JC, Q. J. (1997). "Organizational Consequences of Stress". In Preventive stress Management in Organizations Washington, 89-109.
11. Robbins, SP (2006), Organisational Behaviour, Pearson Education Pvt. Ltd. Delhi, 11th Edition, pp.569
12. Selye, H. (1974), Stress without Distress, New York: J.B. Lippincott.
13. Selye, H. (1975): Stress without Distress, JP Lippicott Company, New York.
14. Selys, H(1936), Quoted by Pestonjee, DM(1999), Stress and Coping: the Indian Experience, Sage Publication, 2nd Edition, pp.15
15. Steven L. Sauter PhD, Occupational stress and work-related upper extremity disorders: Concepts and models, Journal of Occupational Health Psychology.
16. Yerkes, R. M., and Dodson, J. D. (1908). The relation of strength of stimulus to rapidity of habit-formation. Journal of Comparative Neurology and Psychology, 18, 459-48

ANNEXURE

TABLE 1: FREQUENCY DISTRIBUTION ON THE BASIS OF FACING STRESS AT WORK

Stress Response	Frequency	Percent
Yes	92	79.3
No	24	20.7
Total	116	100.0

TABLE 2: FREQUENCY DISTRIBUTION ON THE BASIS OF PERSONAL AND PROFESSIONAL BALANCE

Personal and Professional balance	Frequency	Percent
Yes	54	46.6
No	62	53.4
Total	116	100.0

TABLE 3: FREQUENCY DISTRIBUTION ON THE BASIS OF AGE

Age	Frequency	Percent
20-30	25	21.6
31-40	27	23.3
41-50	27	23.3
>50	37	31.9
Total	116	100.0

TABLE 4: FREQUENCY DISTRIBUTION ON THE BASIS OF TIMING DURATION ON JOB

Timing duration on job	Frequency	Percent
< 6 hours	6	5.2
6-8 hrs	59	50.9
8-10 hrs	41	35.3
more than 10 hrs	10	8.6
Total	116	100.0

PERFORMANCE EVALUATION OF PUBLIC SECTOR BANKS IN INDIA – A CAMEL APPROACH

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ABSTRACT

To facilitate the transition and uplift the Indian banking system to an international standard, various measures have been introduced by the Reserve bank of India. One of such measures to assess the financial viability is the CAMEL (Capital adequacy, Asset quality, Management, Earnings and Liquidity) model. For the purpose of the study each constituent is considered as a module and an attempt has been made evaluate and rank the public sector banks on each module and subsequently on the aggregate of all the modules. A minimum of three and a maximum of six parameters were used within each module. The results reveal that Indian Overseas Bank occupied the top rank in Capital Adequacy Module, Andhra Bank occupied first rank in the Asset Quality Module, Corporation Bank stood at first position in the Management Efficiency Module. Punjab National Bank occupied the top rank in Earning Efficiency Module while State Bank of Bikaner and Jaipur occupied the top rank in the Liquidity Assessment Module. Aggregate of all the modules reveals that Andhra Bank secured the top position followed by Indian Bank, Oriental Bank of Commerce, Punjab National Bank and Bank of Baroda in the top five banks, whereas Central bank of India, United bank of India, UCO Bank, Dena bank and Bank of Maharashtra are at the bottom five. State Bank of India, the largest Public sector bank, did not figure in the top five positions in any of the five modules. However, it occupied 21st position based on overall performance.

KEYWORDS
CAMEL model, Module, Performance evaluation, Public sector banks, Rank.

INTRODUCTION

In India, prior to nationalization, banking was restricted mainly to the urban areas and neglected in the rural and semi-urban areas. Large industries and big business houses enjoyed major portion of the credit facilities. Agriculture, small-scale industries and exports did not receive the deserved attention. Therefore, inspired by a larger social purpose, 14 major banks were nationalized in 1969 and six more in 1980. Since then the banking system in India has played a pivotal role in the Indian economy, acting as an instrument of social and economic change. Although on one hand nationalization of banks helped in the spread of banking to the rural and till then uncovered areas, on the other hand it resulted in monopoly and lack of competition which led to overall inefficiency and low productivity of public sector banks. Excessive focus on quantitative achievements had made many of the public sector banks unprofitable and undercapitalized by international standards. Many banks were earning less than reasonable rates of returns, had low capital adequacy and high non- performing assets, and were providing poor quality customer service. By 1991 the Indian financial system was saddled with an inefficient and unsound banking system. Some of the reasons for this were i) High reserve requirements; ii) administered interest rates; iii) directed credit; iv) lack of competition; and v) political interference and corruption. However on the onset of reforms, the main focus has been on strengthening the balance sheet rather than the size so as to make its presence in the international milieu. Several measures have been suggested by the RBI to examine the financial viability of the banks. One such measure is the CAMEL method. Against this background, this paper attempts to examine the performance of public sector banks using the CAMEL model for the period from 2006 to 2011.

REVIEW OF LITERATURE

Several studies have been carried out to examine the productivity and profitability of Indian commercial banks during different intervals of time using CAMEL model. The results of these studies varied according to the parameters used in the study, the period of study, and also the sample of banks. Some of these are reviewed for the present study.

Bhattacharyya, Lovell and Sahay (1997) in their study observed that Indian banks with low risk portfolios, as indicated by a higher capital ratio, are less efficient because they prefer safer and lower earning portfolios over riskier higher earning portfolios. They concluded that capital adequacy does not have a significant impact on the performance of public sector banks in India.

Subba Rao. S.R and Datta.L. (1998), attempted to evaluate performance of 19 nationalized banks for the period 1997-98 using CAMEL rating model and found that 11 out of 19 banks in the nationalized banks group turned out to be better banks based on factors considered for the study. They suggested that a bank could compare its own performance with the peer group to identify its weakness and take immediate steps for rectification.

Cole, Rebel A and Gunther (1998) conducted a study on "A CAMEL Rating Shelf Line", and found that CAMEL rating improved forecast accuracy, but only of the examination which had occurred during the previous two quarters.

Das, A and Ghosh, A (2006) conducted an empirical study of the Indian banks during the post reforms period to examine the association of the capital adequacy, asset quality and profitability with banks efficiency. The study reported that the banks having higher profitability attract more customers, create more deposits and lending and hence efficient in intermediation.

Siva S and Natarajan P,N. (2011), empirically tested the applicability of CAMEL norms and its impact on the performance of SBI groups and found that there is significant difference in the ratio's in CAMEL among the state bank groups.

OBJECTIVES OF THE STUDY

1) To conduct a comparative analysis of public sector banks in India during the period 2006-11 using CAMEL model.
2) To rank the banks based on their performance in each of the modules.
3) To provide a composite ranking based on overall performance.

RESEARCH METHODOLOGY

The study is primarily analytical in nature and uses data retrieved from the relevant reports on 'Performance Highlights of Public Sector Banks', published by Indian Banks' Association, Mumbai. The scope of the study is limited to six years (2006-2011). For the purpose of analysis CAMEL model is used. The Acronym of CAMEL is Capital adequacy, Asset quality, Management efficiency, earnings quality and Liquidity assessment. Each of these constituent is considered as a module. A minimum of three and a maximum of six performance indicators are used to capture the profitability and operational efficiency of the individual banks within each module. An attempt has been made evaluate and rank the public sector banks on each module and subsequently an aggregate ranking has been assigned based on composite average.

SELECT RATIOS/INDICATORS USED IN EACH MODULE

CAPITAL ADEQUACY MODULE

Capital Adequacy is stipulated by Bank for International Settlement (BIS) to ensure that it can absorb a reasonable amount of losses from assets which turn bad and complies with statutory requirements. The norms are fixed as percentage of risk weighted assets i.e the assets are weighted on the basis of risk involved in their realization. It reflects the overall financial condition of the banks and also the ability of the management to meet the need for additional capital. The following ratios were used in this module.

Capital Adequacy Ratio (CAR) : CAR is a ratio of a bank's capital to its risk which determines the capacity of a bank in terms of meeting the time liabilities and risks like credit risk, operational risk etc. This ratio is used to protect the depositors and promote the stability and efficiency of financial systems .The stipulated a requirement as per RBI is 9 per cent.

Advances to Assets Ratio (Adv/Ast): This ratio shows the total advances as percentage to total assets which can give capital adequacy of the firm. It shows the ability of a firm to meet the capital needs. A higher ratio is preferred to a lower one.

Government Securities to Investments (G.Sec/T.Inv): This ratio indicates the percentage of risk free investments by the banks in its investments portfolio. Since the investment in Government securities are risk free, the higher the G-Sec to investments, the lower the risk involved in bank investments.

ASSET QUALITY MODULE

Asset quality is rated with reference to a) the level of distribution and health of the classified assets; b) the recovery performance. The asset quality is an important parameter to assess the strength of a bank in terms of current position and future viability. It helps to assess the credit risk associated with a particular asset. Higher levels of classified assets can have an adverse impact on the earnings of the bank. The following ratios were used in this module**.**

Return on Assets (ROA): Return on Assets is the ratio of net profit to total average assets. This is the main indicator of profitability used in international comparisons and also given under the RBI guidelines for balance sheet analysis.

Net Non-performing Assets as % to Net Advances (NNPAst/NAdv): NPAs reflect the performance of banks. A high level of NPAs suggests high probability of a large number of credit defaults that affect the profitability and net-worth of banks and also erodes the value of the asset. The NPA growth involves the necessity of provisions, which reduces the overall profits and shareholders' value. Non-performing Asset (NPA) has emerged since over a decade as an alarming threat to the banking industry in our country sending distressing signals on the sustainability and endurance of the affected banks. Lower the ratio, better the soundness of the banks.

Investments as % to Assets (Inv/Ast): This ratio shows the extent of deployment of assets in investment as against advances. This ratio is used as a tool to measure the percentage of total assets locked up in investments, which, by conventional definition, does not form part of the core income of a bank.

MANAGEMENT EFFICIENCY MODULE

Management efficiency is evaluated against the factors of ability to a) improve the productivity; b) reduction in operating expenses; and c) improve the profitability. Management quality is basically the capability of the board of directors and management, to identify, measure, and control the risks of an institution's activities and to ensure the safe, sound, and efficient operation in compliance with applicable laws and regulations. The ratios used under this module are:

Staff Cost as % to Net Income (SC/N.Inc): It is an efficiency measure most commonly used in financial sector. The lower is the better.

Staff Cost as % to Operating Expenses (SC/Op.Exp): Staff Cost occupies a major share of bank's expenses. This ratio explains as to what percentage of operating expenditure is used on staff. The staff cost is subject to increase due to two factors- the increase in number of employees and in the scale of their emoluments.

Business per Employee (BPE): The average business per employee is a proxy of employee's productivity. The input is number of employees and output is the total business. This ratio therefore indicates input-output relationship. The higher the ratio, the greater is the efficiency of employees – the human element.

Staff Cost per Employee: Staff cost is the expenditure incurred on salaries and other allowances paid to the staff. It includes expenses made on salaries, allowances, provident fund and bonus, etc. The higher the expenses per employee, the lower will be the profit, which ultimately reduces the productivity of the employees.

Profit per Employee (PPE): Profit at the employee level is one of the basic indicators to measure the performance of a bank. It is not only a profitability indicator but also an efficiency indicator. A higher ratio indicates more profit per employee, which means greater efficiency of employees.

Operating Cost as % to Net Income: This ratio is used as a benchmark by bank while reviewing its operational efficiency. Lower the ratio, better the performance.

EARNINGS QUALITY MODULE

The quality of earnings is an important indicator that determines the ability of a bank to generate income consistently. It is related to a) ability to recover losses and provide capital; b) quality of composition of net income; and c) ability to improve the spread. The ratios used under this module are:

Spread as % to Total Income (SP/T.Inc): Spread is a key indicator of the resource intermediation of the bank. Higher the ratio, better the performance.

Net profit as % to Total Income (NP/T.Inc): Total income is the sum of interest spread and other income. Higher the ratio greater will be the profitability.

Net profit as % to Average Working Funds: This ratio measures the efficiency of utilization of working funds.

Interest Income as % to Total Income (Int .inc /T. inc): Interest income is obtained from interest earning assets. Interest income is defined as earnings on advances, investments and on deposits with RBI and other accounts. Interest income of banks accounts for a large proportion of total earnings. It constitutes the most important source of the total income. The higher the ratio, the better is the profitability position.

LIQUIDITY ASSESSMENT MODULE

Liquidity assessment basically assess a) the ability of the bank to promptly meet the demands of the depositors at a particular time; b) to readily satisfy the reasonable credit demand ; and c) to take proper care to hedge the liquidity risk. The ratios used in this module are:

Credit-Deposit Ratio (CDR): The higher the CD ratio, the higher is the credit deployment, and results in larger profits. According to RBI, CD ratio of 60 percent is considered as ideal.

Government Securities to Total Assets (Gov.Sec/T.Ast): This ratio primarily measures the Government securities as proportionate to total assets.

Liquid Assets as % to Total Assets (L.Ast/T.Ast): This ratio measures the overall liquidity position of a bank. It shows the Percentage of liquid assets in the asset structure of a bank Liquid assets includes cash in hand, balance with institutions and money at call and short notice.

Liquid Assets as % to Total Deposits (L.Ast/T.Dep): This ratio indicated the extent of liquidity maintained by a bank for meeting the demand made by the depositors and sometimes taken as a measure of bank liquidity.

DATA ANALYSIS AND RESULTS

CAPITAL ADEQUACY MODULE

Annexure I present relative performance in terms capital adequacy of public sector banks during the period of study. It is pertinent to note that all banks have registered CAR higher than the prescribed level by the RBI. Indian Overseas Bank secured the top position by registering highest average of 13.11, followed by Indian Bank (12.92), Bank of Baroda (12.85), Allahabad Bank (12.79) and IDBI Bank Ltd.(12.77), Whereas Central Bank of India (10.85), followed by Dena Bank (11.21), Syndicate Bank(11.22), Bank of Maharashtra(11.33) and UCO Bank (11.35) secured the bottom five ranks by reporting lowest average.

On the basis of Adv/Ast ratio, Indian Overseas Bank occupies the top rank by registering an average of 64.40 , followed by State Bank of Travancore (63.92), Indian Bank (63.40), State Bank of Mysore(63.23) and State Bank of Indore(62.89), While Dena Bank(45.56), followed by Punjab and Sind Bank(50.38), Central bank of India (52.95), United bank of India (53.63) and Corporation Bank (53.85) are positioned at the bottom five ranks.

In terms of G.Sec/T.Inv State bank of Patiala registered the highest rank by reporting an average of 96.26, followed by State bank of Bikaner and Jaipur(4.91), State bank of Indore (92.46) State bank of Mysore (90.91) and State Bank of Travancore(89.20), while IDBI Ltd (73.55), followed by Corporation Bank(76.03), United bank of India(76.50), Allahabad Bank(77.56) and Bank of Baroda (78.68) occupied the bottom five ranks.

In an aggregate basis in the module of Capital adequacy Indian Overseas Bank secured the top position, followed by state bank of Bikaner and Jaipur at the second position and Indian Bank at the third Position while Corporation Bank and Dena bank and secured the last ranks due to poor performance on all the three parameters.

ASSET QUALITY MODULE

The aggregate position of asset quality is depicted in Annexure II. The best bank in terms if ROA is Indian Bank (1.51) followed by Andhra Bank (1.28), Punjab national Bank (1.24), Corporation Bank (1.23) and Allahabad Bank (1.19), while State Bank of Saurashtra (0.35) followed by Central bank of India (0.55), UCO Bank (0.56), United Bank of India (0.58) Bank of Maharashtra and IDBI Bank Ltd.(0.59) secured the bottom five ranks on this ratio.

Evaluation of asset quality based on NPAs as percentage of Net advances, Andhra Bank(0.21) occupied the top rank by registering the least on this ratio, followed by Indian bank (0.38), Corporation Bank(0.41), State bank of Hyderabad(0.42) and Bank of Baroda (0.49) while UCO bank(1.73), followed by State bank of India (1.72), Dena Bank(1.58), United Bank of India (1.54) and Central bank of India (1.3) occupied the bottom five ranks by reporting highest on this ratio.

With regard to T.Inv/T.Ast, Dena Bank is at top position with an average of (21.7), followed by Bank of Baroda (24.13), State bank of Indore (24.78), Bank of India (24.82) and State Bank of Bikaner and Jaipur, while Indian Bank (36.82), followed by United Bank of India (33.83), Indian Overseas Bank (30.71), Vijaya Bank (30.35) and Bank of Maharashtra (30.23) secured the bottom five positions by registering highest on this ratio.

The group average of all the parameters in the module of asset quality, Andhra Bank (3.67) is ranked at the first position followed by Corporation bank (5.62), Bank of Baroda (6.67), Punjab National Bank (7.33) and Oriental bank of Commerce (8.00), While United Bank of India (25.00) occupied the bottom most position due to poor performance on all the sub parameters. This has been followed by UCO Bank (24) and bank of Maharashtra (23.00). SBI the largest Public Sector Bank is positioned at 20th.

MANAGEMENT EFFICIENCY MODULE

Annexure III presents the various ratios under the module of Management efficiency. In terms of SC/N.Inc, IDBI Ltd. (17.10) secured the top rank by registering the least average, followed by Corporation Bank (19.33), Oriental bank of Commerce (23.17), State bank of Indore (24.89) and Union Bank of India (25.01) while State Bank of Saurashtra (38.83) followed by United Bank of India(38.12), Central bank of India(37.97), UCO Bank(37.57) and Punjab and Sind bank (37.39) secured the bottom five positions by reporting highest average on this ratio.

In terms of SC/Op.Exp, again IDBI (40.49) stood at the top position followed by Corporation Bank (48.85), State bank of Indore (53.12), Oriental Bank of Commerce(53.67) and state bank of Mysore(57.23), while Punjab and Sind Bank (74.49), followed by UCO Bank (71.04), Central Bank of India(70.88), Punjab National Bank (69.28) and United bank of India (68.30) occupied the bottom five ranks by reporting highest average on this parameter.

On the basis of BPE, IDBI Bank Ltd. (19.8) is again ranked at number one position, being the best bank on this front, followed by Oriental Bank of Commerce (10.21), Corporation Bank (9.82), Bank of Baroda (8.14)and Bank of India(7.76), while State Bank of Saurashtra (3.47) , followed by State Bank of Bikaner and Jaipur (5.02), Central bank of India (5.08), United bank of India(5.37) and State bank of Mysore (5.42) secured the bottom five ranks by reporting lowest average on this parameter.

In terms of SC/Emp, State bank of Saurastra (0.0319) secured the highest score by reporting the lowest average, followed by State bank of Indore(0.0365), State Bank of Mysore(0.0391), United Bank of India (0.0418) and Corporation Bank(0.0419), whereas IDBI Bank Ltd.(0.0585) followed by Punjab and Sind bank(0.0570),bank of Baroda(0.0552), Punjab National Bank(0.0519) and Bank of India, Indian Bank (0.0552) secured the bottom five ranks by registering highest average.

IDBI Ltd.(9.603) registered highest profits per employee, followed by Corporation bank(7.070), Oriental Bank of Commerce (6.572), Indian bank (5.657) and Bank of Baroda (5.617) whereas State bank of Saurashtra (0.863), followed by United bank of India(1.928), Central Bank of India(2.0730), Bank of Maharashtra(2.173) and UCO Bank(2.467) occupied the bottom 5 ranks .

In terms of Op.C/N.Inc, Corporation bank(39.60) secured the top rank by registering lowest average, followed by State bank of Hyderabad(42.54), Union bank of India (43.10), Oriental bank of Commerce (43.28) and IDBI Bank Ltd.(44.00), whereas State bank of Saurashtra(58.64), followed by Bank of Maharashtra (56.87), United bank of India(55.65), Central bank of India (53.48) and UCO Bank(52.78) secured the bottom five ranks by reporting the lowest average.

On the basis of group average of different sub- parameters in the management efficiency module, Corporation bank (2.50) is positioned at the top, followed by Oriental bank of Commerce (5.66), IDBI Bank Ltd.(6.0), Union Bank of India (7.00) and State Bank of Patiala(8.50). Central bank of India (23.33) occupied the bottom rank due to poor performance in almost all the parameters in this module. SBI occupied 18th position.

EARNINGS QUALITY MODULE

Annexure IV presents the earnings efficiency of public sector banks during the period of the study. In terms of SP/T. Inc Punjab national bank (36.93) secured the top position by registering highest average, followed by Indian bank(35.72), Punjab and Sind bank(33.14), Indian Overseas bank(32.81) and bank of Baroda(32.72), whereas IDBI bank Ltd.(10.94), followed by UCO Bank (25.68), State bank of Patiala (25.85), State bank of Indore(26.82) and Oriental bank of Commerce(27.29) occupied the bottom five ranks by registering lowest average.

In terms of NP/T.Inc, Indian Bank (15.60), followed by Punjab national bank(13.62), Corporation bank(13.52), Andhra bank(13.39), and Allahabad Bank(12.79) secured the top five ranks , while State bank of Saurashtra(4.51), followed by Central bank of India(6.37), United bank of India(6.43), UCO Bank(6.51) and Bank of Maharashtra(6.86) secured the bottom five ranks by registering lowest average.

On the basis of NP/AWF, Indian bank (1.37) occupied the top rank, followed by Punjab national Bank(1.18), Andhra bank(1.10), Allahabad bank(1.049) and Corporation bank(1.047) , while State bank of Saurashtra(0.35), followed by Central bank of India(0.48), UCO Bank (0.49), United Bank of India (0.52) and Bank of Maharashtra (0.53)) secured the bottom five ranks by registering lowest average.

In terms of Int.inc/T.Inc, Central Bank of India(90.69) is ranked at number one position, followed by Bank of Maharashtra(90.65), UCO Bank(90.38), Syndicate Bank(90.30) and Oriental bank of Commerce(90.12) , whereas State Bank of Travancore(73.42), followed by Corporation bank(85.12), State Bank of Mysore(85.83), Dena bank(85.84) and IDBI Bank Ltd.(85.91) secured the bottom five ranks on this parameter.

On the basis of group average on sub- parameters in the module of management efficiency Punjab National Bank (5.25), secured the first position followed by Indian bank (6.25), Indian Overseas bank (6.75), and Andhra Bank (7.0). IDBI Bank Ltd. (24.25) followed by United bank of India (21.5) secured the bottom most ranks in this module. SBI the largest public sector bank is positioned at 14th.

LIQUIDITY ASSESSMENT MODULE

Performance of Public sector banks in the liquidity assessment module is presented at Annexure V. In terms of CDR IDBI bank Ltd. (120.18) secured the first place and is far above the other banks on this parameter, followed by State Bank of Travancore (77.37) , State Bank of India(76.10), State Bank of Mysore(75.95) and Andhra Bank(75.46), while Vijaya bank(53.70), United Bank of India(61.29), Central bank of India(64.60), Indian Bank (65.76), and Bank of Maharashtra(66.39) secured the bottom five positions.

In terms of Gov.Sec/T.Ast, Indian Bank (30.12) secured the top position followed by State Bank of Saurashtra (26.99), Indian Overseas bank (26.46), United Bank of India (26.03) and Bank of Maharashtra (25.69), whereas Dena bank (17.94) followed by Bank of Baroda (18.82), Corporation Bank (19.60), Bank of India (19.82), IDBI Bank Ltd. (20.44) secured the bottom five positions on this parameter.

On the basis of L.Ast/T.Ast, Bank of Baroda (12.39) occupied the first position, followed by Bank of India (10.67), Oriental Bank of Commerce (10.51), Andhra Bank (10.14), and Punjab National Bank (10.09), whereas State bank of Travancore (6.51), IDBI Bank Ltd.(6.77), Dena Bank (6.97), Bank of Maharashtra (7.06) and State Bank of Indore(7.43) are positioned at the bottom five ranks.

Evaluation based on L.Ast/T.Dep, again Bank of Baroda(14.53), secured the top position followed by IDBI Bank Ltd.(13.12), Corporation Bank(12.94), Bank of India(12.67) and Oriental bank of Commerce(12.36) whereas State Bank of Travancore(7.89), followed by State bank of Mysore (8.50), Allahabad Bank(8.66), Bank of Maharashtra(8.89) and State Bank of Indore(8.94) secured the bottom five rank on this parameter.

On the Basis of group average of all the parameters in the Liquidity Assessment module, State Bank of Bikaner and Jaipur is at the first position with group average (8) followed by Andhra Bank (8.5), Bank of India (8.75), Indian Overseas Bank (10.75) and Punjab National Bank (11.00). Dena Bank secured the bottom

most rank by reported poor performance on almost all the parameters with a group average of (22.75). It is pertinent to note that though State Bank of Bikaner and Jaipur did not figure out in the top five ranks on any of the individual parameters, yet ranked at first position based on group average in the module. State Bank of India is positioned at 9th.

COMPOSITE INDEX

Table VI presents composite ranking of the banks on the CAMEL model. On aggregate basis Andhra Bank is ranked the best bank with a lowest composite index of 7.40. Indian Bank secured the second position with a composite index of 10.68; the third position is secured by Oriental Bank of Commerce with composite index of 10.93, followed by Punjab National Bank (11.08) and Bank of Baroda (11.38) at the fourth and fifth position. Central Bank of India (21.03), followed by United Bank of India (20.89), UCO Bank (19.78),Dena bank(19.48) and Bank of Maharashtra(19.38) occupied the bottom five ranks with lowest composite index. State bank of India the largest public sector bank, secured 21st position, .

CONCLUSION

This study aimed to examine the productivity and profitability of banks in the public sector group during the period 2006-2011 using 20 ratios using CAMEL model. Some of the key findings that emerged from this study are:

1) Indian Overseas Bank occupied the top rank in terms of Capital Adequacy Module
2) Andhra Bank occupied first rank in the Asset Quality Module.
3) Corporation Bank stood at first position in the Management Efficiency Module.
4) Punjab National Bank occupied the top rank in Earning Efficiency Module.
5) State Bank of Bikaner and Jaipur occupied the top rank in the Liquidity Assessment Module.
6) Aggregate of all the modules reveals that Andhra Bank ranked the top position followed by Indian bank, Oriental Bank of Commerce, Punjab National Bank and Bank of Baroda in the top five banks, whereas Central bank of India, United bank of India, UCO Bank, Dena bank and Bank of Maharashtra are at the bottom five.
7) State Bank of India, the largest Public sector bank, did not figure in the top five positions in any of the five modules. However, it occupied 21st position based on overall performance.
8) Out of six parameters used in the study pertaining to Management Efficiency, IDBI bank Ltd. appeared in the top five positions on five of the parameters.

CAMEL is a useful tool to examine the soundness of banks and help lessen the potential risks which may lead to potential failures. It plays a crucial role in banking supervision

REFERENCES

1. Bhattacharya A, Lovell C A K and Sahay P.(1997), "The Impact of Liberalization on the Productive Efficiency of Indian Commercial Banks", European Journal of Operational Research, Vol. 98, No. 2, pp. 250-68.
2. Cole, Rebel A. And Gunther, Jeffery (1998), "Predicting Bank Failures: A Comparison of On-And Off-Site Monitoring Systems". Journal of Financial Services Research, Vo.13, No.2,pp.103-117
3. Das,A and Ghosh,A(2006), "Financial Deregulation and Efficiency: An Empirical Analysis of Indian Banks During the Post Reform Period", Review of Financial Economics, Vol. 15, No. 3, pp. 193-221.
4. Performance Highlights of Public Sector Banks (Various issues), IBA, Mumbai.
5. Reserve bank of India, (1991), "Report of the Committee on Financial System, Mumbai.
6. Siva,S and Natarajan,P, "CAMEL Rating Scanning(CRS) of SBI Groups, Journal of Banking Financial Services & Insurance Research, Vol 1, Issue 7, pp.1-17.
7. Subba Rao, R and Laksmikant Datta (1998), "Benchmarking in Banking- A CAMEL Approach", Paper presented at Proceedings of Bank Economists Conference, Bangalore, India, 16-18 December.

ANNEXURE

ANNEXURE -I CAPITAL ADEQUACY

Bank	CAR (%)		Adv/Ast (%)		G.Sec/T.Inv		Group	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank
Allahabad Bank	12.794	4	59.088	17	77.560	25	15.33	13
Andhra Bank	12.682	6	60.947	11	88.472	7	8.00	4
Bank of Baroda	12.850	3	60.147	15	78.687	24	14.00	11
Bank of India	12.118	15	61.160	9	80.110	21	15.00	12
Bank of Maharashtra	11.335	25	58.084	19	84.946	15	19.67	18
Canara Bank	12.063	17	61.444	8	85.734	12	12.33	7
Central Bank of India	10.858	28	52.952	26	85.581	14	22.67	21
Corporation bank	11.373	23	53.857	24	76.036	27	24.67	22
Dena Bank	11.217	27	45.562	28	82.077	19	24.67	22
Indian Bank	12.920	2	63.403	3	82.292	18	7.67	3
Indian Overseas Bank	13.112	1	64.391	1	86.085	10	4.00	1
Oriental Bank of Commerce	11.953	19	58.637	18	86.022	11	16.00	14
Punjab and Sind Bank	12.372	11	50.381	27	85.606	13	17.00	15
Punjab National Bank	12.130	14	60.073	16	83.136	16	15.33	13
Syndicate Bank	11.222	26	62.193	6	88.255	8	13.33	10
UCO Bank	11.352	24	61.146	10	82.459	17	17.00	15
Union Bank of India	11.814	20	60.943	12	79.613	22	18.00	16
United Bank of India	12.243	13	53.631	25	76.509	26	21.33	20
Vijaya Bank	11.968	18	57.009	22	81.225	20	20.00	19
State bank of India	12.270	12	58.059	20	79.233	23	18.33	17
State Bank of Bikaner and Jaipur	12.485	7	62.165	7	94.911	2	5.33	2
State Bank of Hyderabad	12.430	8	57.364	21	87.817	9	12.67	8
State Bank of Indore	11.674	22	62.893	5	92.460	3	10.00	6
State Bank of Mysore	12.082	16	63.238	4	90.911	4	8.00	4
State Bank of Patiala	12.427	9	60.439	14	96.267	1	8.00	4
State Bank of Saurashtra	12.383	10	55.729	23	89.397	6	13.00	9
State Bank of Travancore	11.725	21	63.922	2	89.602	5	9.33	5
IDBI Bank Ltd.	12.777	5	60.631	13	73.553	28	15.33	13

Source: Performance Highlights of Public Sector Banks , Relevant Issues , Computed using MS-Excel and SPPS

ANNEXURE II- ASSETS QUALITY

Bank	ROA(%)		NNPAst/N.Adv (%)		T.Inv/T.Ast(%)		Group	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank
Allahabad Bank	1.195	5	0.8133	10	29.821	22	12.33	12
Andhra Bank	1.282	2	0.2150	1	25.765	8	3.67	1
Bank of Baroda	1.018	13	0.4900	5	24.135	2	6.67	3
Bank of India	0.965	14	0.9883	17	24.824	4	11.67	10
Bank of Maharashtra	0.593	22	1.3100	23	30.236	24	23.00	24
Canara Bank	1.115	6	1.0267	19	26.700	12	12.33	12
Central Bank of India	0.557	25	1.3867	24	27.211	16	21.67	23
Corporation bank	1.232	4	0.4150	3	26.082	10	5.67	2
Dena Bank	0.848	18	1.5817	26	21.738	1	15.00	16
Indian Bank	1.513	1	0.3867	2	36.827	28	10.33	7
Indian Overseas Bank	1.065	10	1.1400	22	30.711	26	19.33	18
Oriental Bank of Commerce	1.073	8	0.7450	7	26.072	9	8.00	5
Punjab and Sind Bank	1.058	11	0.7833	9	27.044	14	11.33	9
Punjab National Bank	1.240	3	0.5400	6	26.705	13	7.33	4
Syndicate Bank	0.815	19	0.9000	13	25.386	7	13.00	14
UCO Bank	0.565	24	1.7350	28	28.187	20	24.00	25
Union Bank of India	1.098	7	0.8383	11	27.155	15	11.00	8
United Bank of India	0.580	23	1.5483	25	33.834	27	25.00	26
Vijaya Bank	0.698	21	0.9583	16	30.351	25	20.67	21
State bank of India	0.895	15	1.7200	27	27.725	19	20.33	20
State Bank of Bikaner and Jaipur	0.868	16	0.9267	15	24.995	5	12.00	11
State Bank of Hyderabad	1.072	9	0.4233	4	28.441	21	11.33	9
State Bank of Indore	0.860	17	1.1240	21	24.787	3	13.67	15
State Bank of Mysore	1.073	8	0.7533	8	26.526	11	9.00	6
State Bank of Patiala	0.805	20	0.8783	12	25.167	6	12.67	13
State Bank of Saurashtra	0.350	26	0.9233	14	30.155	23	21.00	22
State Bank of Travancore	1.048	12	0.9933	18	27.224	17	15.67	17
IDBI Bank Ltd.	0.593	22	1.0717	20	27.638	18	20.00	19

Source: Performance Highlights of Public Sector Banks , Relevant Issues , Computed using MS-Excel and SPPS

ANNEXURE III - MANAGEMENT EFFICIENCY

Bank	SC/N.Inc (%)		SC/Op.Exp %)		BPE(crores)		SC/Emp(crores)		PPE (lakhs)		Op.C/N.Inc (%)		Group	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank	Average	Rank	Average	Rank	Average	Rank
Allahabad Bank	27.692	9	61.72	11	6.7483	12	0.0443	10	4.738	11	44.982	9	10.333	9
Andhra Bank	26.586	8	58.76	7	7.3717	8	0.0496	20	5.505	6	45.357	10	9.833	6
Bank of Baroda	30.075	14	63.96	18	8.1483	4	0.0552	25	5.617	5	46.980	15	13.500	11
Bank of India	29.460	12	63.52	17	7.7650	5	0.0509	23	4.565	12	46.355	12	13.500	11
Bank of Maharashtra	35.796	23	62.72	13	5.7500	22	0.0455	13	2.173	25	56.870	27	20.500	20
Canara Bank	29.003	11	63.00	15	7.6500	6	0.0442	9	5.223	8	46.138	11	10.000	7
Central Bank of India	37.978	26	70.88	26	5.0883	26	0.0446	11	2.073	26	53.487	25	23.333	24
Corporation bank	19.338	2	48.85	2	9.8233	3	0.0419	5	7.070	2	39.608	1	2.500	1
Dena Bank	30.730	17	61.38	10	6.6650	13	0.0459	14	3.602	18	50.057	18	15.000	12
Indian Bank	30.345	15	67.98	23	5.7583	21	0.0509	23	5.657	4	44.665	8	15.667	13
Indian Overseas Bank	31.791	18	67.56	22	6.3433	16	0.0494	19	4.010	16	46.953	14	17.500	15
Oriental Bank of Commerce	23.171	3	53.67	4	10.2183	2	0.0473	18	6.572	3	43.280	4	5.667	2
Punjab and Sind Bank	37.398	24	74.49	28	6.4700	15	0.0570	26	4.152	14	50.210	20	21.167	21
Punjab National Bank	30.605	16	69.28	25	6.2067	19	0.0519	24	5.020	9	44.117	6	16.500	14
Syndicate Bank	33.844	22	65.45	20	6.3283	17	0.0463	16	3.133	23	51.607	22	20.000	19
UCO Bank	37.575	25	71.04	27	6.8883	10	0.0437	8	2.467	24	52.788	24	19.667	18
Union Bank of India	25.010	5	57.65	6	7.0567	9	0.0450	12	5.355	7	43.107	3	7.000	4
United Bank of India	38.128	27	68.30	24	5.3767	25	0.0418	4	1.928	27	55.650	26	22.167	22
Vijaya Bank	32.352	21	63.29	16	6.5950	14	0.0504	21	3.425	21	50.955	21	19.000	16
State bank of India	32.317	20	64.35	19	5.4402	23	0.0505	22	4.132	15	50.157	19	19.667	18
State Bank of Bikaner and Jaipur	31.872	19	61.34	9	5.0200	27	0.0461	15	3.175	22	51.843	23	19.167	17
State Bank of Hyderabad	26.478	7	62.30	12	6.8683	11	0.0467	17	4.978	10	42.546	2	9.833	6
State Bank of Indore	24.890	4	53.12	3	5.9520	20	0.0365	2	3.600	19	46.845	13	10.167	8
State Bank of Mysore	28.442	10	57.23	5	5.4200	24	0.0391	3	3.498	20	49.782	17	13.167	10
State Bank of Patiala	26.268	6	58.95	8	7.6233	7	0.0420	6	3.988	17	44.589	7	8.500	5
State Bank of Saurashtra	38.830	28	66.99	21	3.4767	28	0.0319	1	0.863	28	58.645	28	22.333	23
State Bank of Travancore	29.993	13	62.84	14	6.2367	18	0.0436	7	4.343	13	47.705	16	13.500	11
IDBI Bank Ltd.	17.708	1	40.49	1	19.8000	1	0.0580	27	9.603	1	44.005	5	6.000	3

Source: Performance Highlights of Public Sector Banks , Relevant Issues , Computed using MS-Excel and SPPS

ANNEXURE IV - EARNINGS QUALITY

Bank	SP/T.Inc (%)		NP/T.Inc (%)		NP/AWF (%)		Int .inc /T. inc (%)		Group	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank	Average	Rank
Allahabad Bank	29.828	14	12.799	5	1.049	4	87.603	14	9.25	7
Andhra Bank	32.637	6	13.396	4	1.102	3	87.528	15	7	4
Bank of Baroda	32.726	5	12.591	6	0.919	14	86.053	22	11.75	9
Bank of India	30.415	12	11.221	13	0.867	15	86.122	20	15	15
Bank of Maharashtra	30.862	10	6.868	24	0.539	24	90.653	2	15	15
Canara Bank	28.234	20	12.368	7	1.003	6	87.698	13	11.5	8
Central Bank of India	28.748	18	6.376	27	0.481	27	90.692	1	18.25	18
Corporation bank	29.417	17	13.526	3	1.047	5	85.122	27	13	10
Dena Bank	29.666	16	9.288	19	0.744	20	85.847	25	20	22
Indian Bank	35.723	2	15.603	1	1.377	1	86.070	21	6.25	2
Indian Overseas Bank	32.816	4	11.871	9	0.995	7	89.058	7	6.75	3
Oriental Bank of Commerce	27.291	24	11.347	12	0.926	12	90.125	5	13.25	11
Punjab and Sind Bank	33.141	3	11.197	14	0.921	13	89.435	6	9	6
Punjab National Bank	36.938	1	13.628	2	1.118	2	87.303	16	5.25	1
Syndicate Bank	30.195	13	9.404	17	0.737	21	90.300	4	13.75	12
UCO Bank	25.683	27	6.517	25	0.499	26	90.385	3	20.25	23
Union Bank of India	31.675	7	11.967	8	0.953	11	89.047	9	8.75	5
United Bank of India	27.448	23	6.436	26	0.523	25	88.713	12	21.5	25
Vijaya Bank	27.655	22	7.477	23	0.601	22	88.940	10	19.25	20
State bank of India	31.373	8	10.548	16	0.853	16	86.180	19	14.75	14
State Bank of Bikaner and Jaipur	31.060	9	9.192	21	0.794	17	86.043	23	17.5	17
State Bank of Hyderabad	27.774	21	11.789	10	0.969	9	86.577	18	14.5	13
State Bank of Indore	26.829	25	9.362	18	0.792	18	86.662	17	19.5	21
State Bank of Mysore	30.667	11	11.119	15	0.965	10	85.830	26	15.5	16
State Bank of Patiala	25.858	26	9.208	20	0.749	19	88.748	11	19	19
State Bank of Saurashtra	28.643	19	4.516	28	0.357	28	89.053	8	20.75	24
State Bank of Travancore	29.715	15	11.639	11	0.992	8	73.427	28	15.5	16
IDBI Bank Ltd.	10.942	28	7.494	22	0.565	23	85.911	24	24.25	26

Source: Performance Highlights of Public Sector Banks , Relevant Issues , Computed using MS-Excel and SPPS

ANNEXURE V - LIQUIDITY ASSESSMENT

Bank	CDR (%)		Gov.Sec/T.Ast(%)		L.Ast/T.Ast(%)		L.Ast/T.Dep		Group	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank	Average	Rank
Allahabad Bank	67.76	21	23.138	15	7.557	23	8.667	26	21.25	22
Andhra Bank	75.46	5	22.652	18	10.142	4	11.834	7	8.5	2
Bank of Baroda	70.57	15	18.882	27	12.392	1	14.539	1	11	5
Bank of India	72.66	8	19.820	25	10.673	2	12.677	4	9.75	3
Bank of Maharashtra	66.39	24	25.690	5	7.780	21	8.892	25	18.75	20
Canara Bank	70.86	14	22.880	17	8.925	15	10.299	17	15.75	15
Central Bank of India	64.60	26	23.230	12	8.013	19	9.847	20	19.25	21
Corporation bank	70.40	16	19.600	26	9.752	8	12.949	3	13.25	10
Dena Bank	66.69	23	17.940	28	6.977	26	10.776	14	22.75	23
Indian Bank	65.76	25	30.120	1	9.667	9	9.934	19	13.5	11
Indian Overseas Bank	72.00	10	26.460	3	9.271	12	10.119	18	10.75	4
Oriental Bank of Commerce	69.00	19	22.420	20	10.513	3	12.360	5	11.75	7
Punjab and Sind Bank	67.04	22	23.150	14	7.795	20	10.723	15	17.75	18
Punjab National Bank	71.53	12	22.190	21	10.099	5	12.054	6	11	5
Syndicate Bank	71.23	13	22.430	19	9.652	10	11.031	11	13.25	10
UCO Bank	69.18	18	23.200	13	8.124	18	9.165	23	18	19
Union Bank of India	71.87	11	21.610	23	8.341	17	9.828	21	18	19
United Bank of India	61.29	27	26.030	4	9.341	11	10.675	16	14.5	13
Vijaya Bank	53.70	28	24.670	7	9.776	7	10.849	13	13.75	12
State bank of India	76.10	3	22.020	22	8.800	16	11.510	9	12.5	9
State Bank of Bikaner and Jaipur	74.64	7	23.710	11	9.840	6	11.814	8	8	1
State Bank of Hyderabad	69.32	17	25.070	6	9.043	13	10.933	12	12	8
State Bank of Indore	75.10	6	22.920	16	7.439	24	8.949	24	17.5	17
State Bank of Mysore	75.95	4	24.100	10	7.067	25	8.506	27	16.5	16
State Bank of Patiala	72.35	9	24.140	9	7.776	22	9.319	22	15.5	14
State Bank of Saurashtra	68.94	20	26.990	2	8.986	14	11.134	10	11.5	6
State Bank of Travancore	77.37	2	24.460	8	6.517	28	7.897	28	16.5	16
IDBI Bank Ltd.	120.18	1	20.440	24	6.773	27	13.125	2	13.5	11

Source: Performance Highlights of Public Sector Banks , Relevant Issues , Computed using MS-Excel and SPPS

ANNEXURE VI - COMPOSITE RATING - OVERALL PERFORMANCE

Bank	C	A	M	E	L	Average	Rank
Allahabad Bank	15.33	12.33	10.333	9.25	21.25	13.6986	15
Andhra Bank	8	3.67	9.833	7	8.5	7.4006	1
Bank of Baroda	14	6.67	13.5	11.75	11	11.384	5
Bank of India	15	11.67	13.5	15	9.75	12.984	14
Bank of Maharashtra	19.67	23.00	20.5	15	18.75	19.384	24
Canara Bank	12.33	12.33	10	11.5	15.75	12.382	9
Central Bank of India	22.67	21.67	23.333	18.25	19.25	21.0346	28
Corporation bank	24.67	5.67	2.5	13	13.25	11.818	7
Dena Bank	24.67	15.00	15	20	22.75	19.484	25
Indian Bank	7.67	10.33	15.667	6.25	13.5	10.6834	2
Indian Overseas Bank	4	19.33	17.5	6.75	10.75	11.666	6
Oriental Bank of Commerce	16	8.00	5.667	13.25	11.75	10.9334	3
Punjab and Sind Bank	17	11.33	21.167	9	17.75	15.2494	19
Punjab National Bank	15.33	7.33	16.5	5.25	11	11.082	4
Syndicate Bank	13.33	13.00	20	13.75	13.25	14.666	18
UCO Bank	17	24.00	19.667	20.25	18	19.7834	26
Union Bank of India	18	11.00	7	8.75	18	12.55	12
United Bank of India	21.33	25.00	22.167	21.5	14.5	20.8994	27
Vijaya Bank	20	20.67	19	19.25	13.75	18.534	23
State bank of India	18.33	20.33	19.667	14.75	12.5	17.1154	21
State Bank of Bikaner and Jaipur	5.33	12.00	19.167	17.5	8	12.3994	10
State Bank of Hyderabad	12.67	11.33	9.833	14.5	12	12.0666	8
State Bank of Indore	10	13.67	10.167	19.5	17.5	14.1674	17
State Bank of Mysore	8	9.00	13.167	15.5	16.5	12.4334	11
State Bank of Patiala	8	12.67	8.5	19	15.5	12.734	13
State Bank of Saurashtra	13	21.00	22.333	20.75	11.5	17.7166	22
State Bank of Travancore	9.33	15.67	13.5	15.5	16.5	14.1	16
IDBI Bank Ltd.	15.33	20.00	6	24.25	13.5	15.816	20

Based on Calculations

A STUDY ON THE PRODUCT FACTORS AFFECTING AN INVESTOR'S PREFERENCE TOWARDS PUBLIC SECTOR LIFE INSURANCE PRODUCTS

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ABSTRACT

The Insurance sector in India is growing at a very high rate over the last decade. With liberalization, more and more private players have entered the market and taken a huge share from the public sector player, i.e., Life Insurance Corporation. With almost 80% of the Indian Population still not having an insurance policy, there is a huge market available for the taking. With large number of private insurance companies having entered the foray, it is vital to understand the factors which affect the decision of the prospective investor's in selecting a policy. The study tries to find out the product factors which influence the purchase decision of investor's in Kerala, India. The study found out that the various product features have different significance to the investors.

KEYWORDS

Investors preference, Insurance companies, Life Insurance, product factors, Public sector.

INTRODUCTION

The insurance sector in India has experienced a 360-degree journey over a period of more than a hundred years. Its transition from an open competitive sector to nationalization and then back to a liberalized market characterizes this phenomenon. Life insurance has emerged as the fourth basic necessity of the modern world— after food, shelter and clothing. This is a natural consequence of the post- Independence change in the social structure—the time-tested joint family system giving way to nucleus families. Although the history of the life insurance business in India predates Independence and the annals list Oriental (1818) as the earliest life insurance company on Indian soil, its operations were mainly restricted to the coverage of European population in the sub-continent. On September 3, 1870, seven earnest men of Bombay with just seven rupees as initial expense gave shape to a plan of offering insurance to the public. They formed the Bombay Mutual Life Assurance Company.

The Indian Life Assurance Companies Act of 1912 was the first law enacted to regulate the insurance sector in the country. It was followed by the Insurance Act of 1938. These regulations streamlined insurance contracts. But the existence of 256 companies in the market led to malpractices and the customer interest was unprotected.

Recognizing the potential of life insurance in channelizing funds for building infrastructure, the Central government proposed nationalization of life insurance. The Life Insurance Corporation Act of 1956 ensured consolidation of the life insurance industry and formation of one of the premier financial institutions of modern India—the Life Insurance Corporation of India (LIC). The corporation thrived under monopoly and surpassed the expectations of its most ardent critics. The nationalization of the company benefited the customers and the economy.

IMPORTANCE OF THE STUDY

The study titled 'A study on the product factors affecting an investor's preference towards Public sector life insurance products' is an attempt to find out the product factors that influence the customer's preference towards the life insurance products of public sector insurance company in India. With globalization, large numbers of private players have entered the Indian Insurance market. Though there has been high rate of growth in the Insurance Industry, the penetration of Insurance into the urban as well as the entire rural areas has been very poor. With almost 80% of the Indian Population still not having an insurance policy[11], there is a huge market available for the taking. With large number of private insurance companies having entered the foray, it is vital to understand the factors which affect the decision of the prospective investor's in selecting a policy. The study tries to find out the product factors which influence the purchase decision of investor's in Kerala, India.

LITERATURE REVIEW

Most of the studies on insurance aim at studying the decision process of individuals, focusing on the economic, financial and social aspects. Bernoulli (1954) and Yarri (1965) looked into the economic aspects of insurance. Solvic (1977), Kunreuther (1978), Kahneman and Tversky (1979) and Schoemaker (1980) explored aspects of insurance from the viewpoint of decision theorists. Doherty (1977) and Brennan (1976) investigated from the viewpoint of financial theorists. Prashanth Athma and Ravikumar in their study titled *An Explorative Study of Life Insurance Purchase Decision Making: Influence of Product and Non-Product Factors* has brought out the product and non-product factors by taking 100 samples each from the urban as well as the rural sector. The current study focuses only on the product factors affecting the purchase decision in the case of public sector insurance policy holders.

OBJECTIVE OF THE STUDY

The researcher has formulated the following objective for the study;

- To identify the product features affecting the investment decision of public sector life insurance policy holders.
- To know whether there is significant difference among the product factors perceived by investors while investing

Ho: There is no significant difference among the product factors while selecting the Insurance policy of a Public Sector Life insurance Company

SOURCES OF DATA

The study was conducted using both primary as well as secondary data. The primary data was collected using structured questionnaire. Secondary data was collected through internet, books, journal and other published sources related to Insurance. EBSCO, EMERALD, SAGE Publications, ICFAI University press journals, IRDA website etc are some of the important sources which has been referred.

SAMPLING

To conduct the study questionnaire was designed for policy holders. The questionnaire was given to 200 LIC investors' from Kottayam, Kollam, Ernakulam, Thrissur, Kozhikode, Kannur, Thiruvananthapuram, Pathanamthitta, Alleppey and Palghat districts of Kerala. From each of the districts, 20 respondents were taken using convenient sampling method. The respondent could have life insurance products of public as well as private sector insurance companies, but the response was taken only for the policy of public sector insurance company. The same was collected and tabulated for the study.

LIMITATIONS OF THE STUDY

Since the sample is taken entirely from Kerala, the results derived out of this may not be applicable to other parts of the country. The study covers only the product factors influencing the investment decision.

TABLE 1- AGE GROUP CLASSIFICATION OF RESPONDENTS		
Age group(Yrs)	**Respondents**	**%**
Below 21	0	0
21-40	53	26.5
41-60	142	71
Above 60	5	2.5
Total	**200**	100

FIG. 1

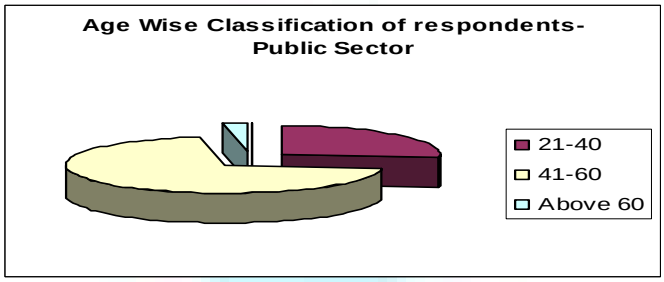


Figure 1 and table 1 shows the age wise classification of public sector life insurance policy holders under the study. 71% of the respondents belonged to the 41-60 category. Almost 27% of the respondents belonged to the 21-40 category. Only 5 out of 200 respondents belonging to the age group of Above 60 had investment in Insurance products of public sector insurance company.

TABLE 2- INCOME WISE CLASSIFICATION OF RESPONDENTS		
Income category (Rs. PA)	**Respondents**	**Percentage**
<1,00,000	49	24.5
100,000-3,00,000	116	58
3,00,001-5,00,000	31	15.5
Above 5,00,000	4	2
Total	**200**	**100**

FIGURE 1

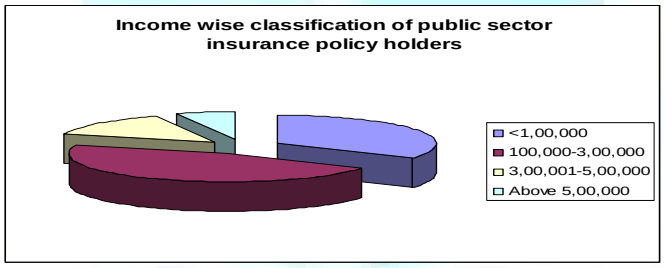
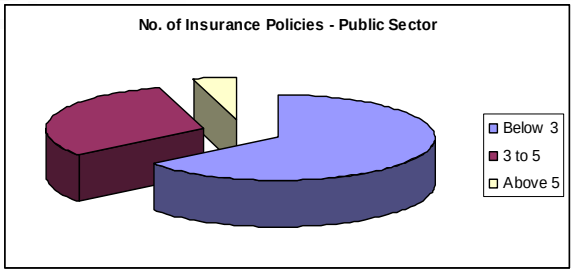


Figure 2 and table 2 shows the income wise classification of public sector insurance policy holders. 58% of the respondents fall in the annual income category of Rs.1,00,000-Rs.3,00,000. 24% of the respondents fall in the lower income category of less than Rs. 1,00,000. 16% of the respondents have an annual income of Rs. 3,00,000-Rs. 5,00,000. Only 2% of the respondents had an annual income of more than Rs. 5,00,000.

TABLE 3 - NO. OF POLICIES HELD BY THE RESPONDENTS		
No of policies	**Respondents**	**Percentage**
Below 3	129	64.44
3 to 5	62	31.11
Above 5	9	4.44
Total	200	100

FIGURE 2



From Figure 3 and Table 3 we can see that 64.44% of the respondents have investment in less than 3 policies. Out of this category, 51% of the respondents have investment in only one life insurance policy. 31.11% of the 200 respondents of public sector life insurance policy holders fall in the category of 3-5 life insurance

policies with them. Only, less than 5% of the respondents have more than 5 life insurance policies with them. It is important to note that policy holders who have more than 5 life insurance policies are having all the policies in the public sector.

PRODUCT FACTORS

Following are the Product factors which are considered in this study;

1. Return
2. Fringe Benefits
3. Unit Linked Feature
4. Income Tax savings
5. Lock-in-period
6. Amount of premium

TABLE 4 - PRODUCT FACTORS AFFECTING THE INVESTMENT DECISION FOR PUBLIC SECTOR INSURANCE COMPANY POLICY HOLDERS

Factors	Observed	Average Score	Expected	O-E	(O-E)^2	(O-E)^2/E
Return	1238	800	1054	184	33795	32.06
Fringe Benefits	1039	800	1054	-15	230	0.22
Unit Linked or not	822	800	1054	-232	53901	51.13
IT savings	1108	800	1054	54	2898	2.75
Lock-in-period	996	800	1054	-58	3383	3.21
Amount of premium	1122	800	1054	68	4601	4.36
	6325					**94**

Table 4 shows the various product factors which have affected the decision to invest in life insurance policies of Public Sector Life Insurance Company. The frequencies are based on the responses obtained from 200 public sector life insurance company's policy holders. The response was received in a 7 point scale.

Out of the 6 product features rated by the respondents Return has been rated as the most important influencing factor or investing in the life insurance policy of a Public Sector Company. The amount of premium is the second important factor which the investor will look into before taking the decision to invest. Third important factor affecting the decision as per the respondents was the Income Tax Savings offered with the product. Fringe benefits, Lock-in-period and unit linked feature of the policy stands as the fourth to sixth factor affecting their investment decision.

The hypothesis that there is no significant difference among the product factors while selecting the Insurance policy of a Public Sector Life insurance Company was tested using chi square at 95% level of significance. Since the calculated value (94) is greater than the table value (1.145476), we fail to accept Ho. This means that there is significant difference perceived by the investors among the product features of a public sector life insurance company's policy.

FINDINGS AND CONCLUSIONS

97 % of the respondents belong to the broad age group category of 21-60. Insurance as a savings instrument or as a risk management instrument has not been of much success among the high income sections of the society. Tax saving options of insurance policies is the biggest reason for the large number of investors from the lower middle class income category (i.e., Rs. 1,00,000- Rs. 3, 00,000). The risk coverage and the investment options which are available with insurance policies are the major attractive factors for the lower income category respondents.

Out of the 200 public sector life insurance policy holders, 187 respondents i.e., 93% of the respondents prefer the public sector life insurance company over the private sector insurance companies. The remaining 7% prefer both the public as well as the private sector insurance companies. But no public sector life insurance policy holder has preferred private sector alone. This could be because of the satisfaction they have by being a public sector insurance policy holder. The performance of Life Insurance Corporation of India over the years has been outstanding and has been giving consistent bonus to its policy holders with almost zero risk. There is significant difference perceived by the investors among the product features of a public sector life insurance company's policy. Return , amount of premium, Income tax savings, fringe benefits, lock –in-period and unit linked features were rated 1 to 6 respectively, as the product factors affecting the investment decision.

REFERENCES

1. Athma Prashanta and Kumar Ravi, An Explorative Study of Life Insurance Purchase Decision Making: Influence of Product and Non-Product Factors (2007), ICFAI University Press.
2. Babbel, David F. (1981): Inflation, Indexation and Life Insurance Sales in Brazil, Journal of Risk and Insurance 48, 115-35.
3. Bhattacharya Arjun & Rane O'Neil, Nationalisation of Insurance in India, The Indian Economy, Centre for Civil Society
4. Dr. Periyasamy P, Principles and Practice of Insurance, Himalaya Publishing House.
5. Gopalakrishna Barkur, K.V.M. Varambally & Lewlyn L.R. Rodrigues, Insurance Sector Dynamics: towards transformation into learning organization, The Learning Organization, Vol. 14, No.6, 2007, pp 510-523.
6. http://business.mapsofindia.com/insurance/brief-history-of-insurance-sector.html retrieved on 22nd December 2011
7. http://en.wikipedia.org/wiki/Insurance_in_India retrieved on 22nd December 2011
8. http://www.irda.gov.in/ADMINCMS/cms/NormalData_Layout.aspx?page=PageNo4&mid=2 retrieved on 22nd December 2011
9. http://www.licindia.com/history.htm retrieved on 22nd December 2011
10. http://www.mapsofworld.com/insurance/global-insurance.html retrieved on 22nd December 2011
11. http://www.propertieshut.com/insurance-companies.html retrieved on May, 2011
12. http://www.reuters.com/article/pressRelease/idUS141255+07-Jul-2008+BW20080707 retrieved on 22nd December 2011
13. John Virgo and Philip Ryley, Duties of insurance brokers, Journal of Finance Regulation and Compliance.
14. Krishna Chaitanya Vadlamannati, Do Insurance Sector Growth and Reforms Affect Economic Development? Empirical Evidence from India, The Journal of Applied Economic Research 2 : 1 (2008): 43–86
15. Kukkudi, Jagannath B and Bais, Santhosh Singh (2006), "Customer Satisfaction in Insurance Sector", Osmania Journal of International Business Studies, June.
16. M. Mahadeva, Financial Growth in India: Whither Financial Inclusion?, The Journal of Applied Economic Research 2 : 2 (2008): 177–197
17. Mishra M. N ., Mishra S. B, INUSRANCE Principles and Practice, S Chand
18. Outreville, Francois J. (1996): Life Insurance Markets in Developing Countries, Journal of Risk and Insurance 63.
19. Panayiotis G. Artikis, Stanley Mutenga and Sotiris K. Staikouras, A practical approach to blend insurance in the banking network, The Journal of Risk Finance Vol. 9 No. 2, 2008, pp. 106-124.
20. Risk Management Team, Marsh UK, Five Things and FD needs to know about the Insurance Market, Balance Sheet 10,4, pp. 9-12
21. Sinha Tapen, An Analysis of the Evolution of Insurance in India, CRIS Discussion Paper Series – 2005.III, Centre for Risk and Insurance Studies
22. Tienyu Hwang & Simon Gao, The Determinants of the Demand for Life Insurance in an Emerging Economy – The Case of China, Managerial Finance.
23. Vyas, Parimal H and Joshi, Drishti (2006), "Insurance Sector in India: A SWOT Analysis", Osmania Journal of International Business Studies, June.
24. Wen-chang Lin, Insurance Market Equilibrium: a multi period dynamic solution, The Jouranl of Risk Finance, Vol 6 No.3, 2005, pp 239-250.

EARNING MANAGEMENT – OPPORTUNITY OR A CHALLENGE

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ABSTRACT

Earning management is art of managing the books in creative way. It sometime creates wrong impression about the company in the mind of stakeholders and facilitates the management to fulfill personal objectives. In recent earning management cases it has been observed that the real players of numbers are top level managers and directors who are doing it as regular course of their business. In growing and developing economy like India it is very important to understand how such practices may affect the corporate world and economy in long run. India has been considered as most attractive market for investment these days and over this if cases like, Citi bank, Satyam Computers and 2 G Spectrum takes place, potential growth of economy may get affected. The present paper aim to identify the reason of earning management and various facilities companies get from regulatory system to fulfill personal objective. The ethics of motivation to indulge in earning management practices will also be discussed to ensure the legality or illegality of such actions. Lastly, the paper aim to draw attention of regulatory bodies towards the probable threat and challenge which may create problems in growth and development of Indian corporate.

KEYWORDS

Creative accounting, Earning management, Ethics and corporate governance, Regulatory bodies.

INTRODUCTION

Earning management is an art of manipulating books to accomplish the predetermined targets. Although many times such practices are not considered as fraud or unethical unless intentions are cleared. Making the best use of alternatives or choices available in accounting system is ethical and duly allowed by system but when methods are selected to manipulate the books or for creating fake image of company's performance in the mind of investors then such practices are considered as unethical and immoral. Earning management is the transformation of accounting figures from what they actually are to what perpetrators desire by taking advantage of the existing rules and/or ignoring some or all of them.

In India the concept of earning management is new for stakeholders but in many developed countries like UK and Europe the concept is very much popular. It is also known by cooked books, income smoothing and creative accounting. India being an attractive market is required to concentrate on corporate actions and practices in order to create an ethical corporate image in international market. And to support that many steps have already been taken and many are in pipeline.

India is one of the countries which turnaround after global financial crises and is becoming one of the most attractive investment choices for investors all over world. Recent decision of Wall mart and Starbucks to come in India shows how much global players are interested in testing their luck in India. Many more major players are looking India as most attractive market that forces India to think over maintaining the brand image of country. The path to reach at that stage is not easy for India as there are many problems and challenges, acting as roadblock for the economy. Growth in financial and commodity market, micro finance, mergers and acquisitions and foreign exchange market, attracting many unexpected investors. But on the same side this growth is affected by many problems which may spoil the image and goodwill of Indian corporate sector.

Today there are numbers of such services available which finance newly established firms or entrepreneurs having profitable ideas and such services have proven successful also. But the functioning and practices of these services are not known properly to either market or companies which are financed. Similarly, many mergers and acquisitions are taking place by Indian companies, which shows the growth and capability of Indian corporate, but the purpose or objective of such actions are not defined to stakeholders. Lastly, investors always prefer to invest in most profitable firms but do not understand or segregate real profitable companies or nominal profitable companies. These are some most ignored areas in today's competitive environment that may create threat and challenges for Indian corporate to fulfill the expectation of international market.

What is required from Indian corporate these days is trust and faith, by investors or market because even after many norms or regulations and their implementation, investors are helpless to get insight of functioning of companies and they have to rely on information provided by management. Regulatory bodies have given many protective norms to protect the interest of investors but failure on part of companies to implement same is leading to problems of trust among prospective investors. Today investors are very active and want to think and analyze the system before investment decision; they are ready to spend money on advisors or consultancy. But sometime relying on advisors or expert's advice also create problems in wrong investment decision due to two important reasons; first when expert is not expert enough in concerned areas, second, when advice is based on personal gains or objectives. And in many economies latter failure on part of advisors are more prevailing which duly facilitate the management to manage the earnings in desired manner. Thus there is a need of system where safety and trust can be ensured.

RESEARCH METHODOLOGY

Since the topic of earning management or accounting manipulations is to some extent controversial over which management of any company avoid to comment, thus secondary data is used for present study and website of journals from SSRN, DOAJ, and websites of India forensic, Directors database, SEBI, MCA and ICAI will be the prime sources four secondary data.

Research Design: Exploratory research will be used in present paper, it will draw definitive conclusion with extreme caution and with its fundamental nature, it will try to conclude the probable existence or non existence of problem.

Structure: The paper is divided into four major sections; section one will describe brief meaning of earning management and reasons behind it with literature review; section two will consist of various facilities companies get from regulations to get into earning management practices; section three will examine ethical dilemma on good or bad side of managing the earnings and last but not the least section four will draw a attention of government or regulatory bodies towards the probable challenge for Indian corporate from such accounting manipulations.Paper is however more of descriptive in nature thus the conclusion drawn will give a scope for future research.

LITRATURE REVIEW

The concept of earning management is new in country like India but the practices followed are very common and attracting many scholars to work on various facts and issues related to earning management in future growth and development of Indian economy. There are studies available on relationship between good governance and less financial fraudulent reporting (Beasley 1996; Abbott. Parker and Peters 2000) but very less research is available on dramatic case of earning management.

Earnings management (EM) is an accounting practice which, it is argued, is used to represent the financial situation of a company realistically. The accounting literature reveals that EM is mainly undertaken with the following intentions: to represent the 'true' value of a firm; to mitigate information asymmetry; managerial concern towards incentives and job security; to reduce cost of capital, social and political costs, agency cost; for strategic reasons (e.g., mergers and

acquisitions); impression, reputation and/or relationship management; internal aspects of organizations (e.g., competing managers attract resources on the basis their superior performance. (Siddharth Mohapatra, 2011)

Sonda Marrakchi (2001) in his study investigated the relationship between governance, publicly available information and earning management and examine that whether firms' corporate governance practices have an effect on the quality of its publicly released financial information. The findings suggest that earning management is significantly associated with some of the governance practices by audit committees and board of directors. He also gave evidence that effective board and audit committee is a constrain for earning management. Similar to Marrakchi findings and consistent with Beasley (1996) it was also found that experienced and knowledgeable independent board decreases the probability of high earning management. There are many scholars who have worked on disclosure practices of different firms and one of such study indicate that there is negative relationship between firm disclosure practices and earning management, it is observed that earning management arises from information asymmetry, which can be minimized through proper disclosure system.Gerald J. Lobo &Jian Zhou (2001) used rating published by the Association for Investment Management and Research to measure corporate disclosure, and discretionary accruals from the modified Jones model to measure earnings management. Consistent with theoretical predictions, the empirical analysis indicates that there is a statistically significant negative relationship between corporate disclosure and earnings management.

Disclosure practices are not yet clearly defined and investors are not well aware whether the information disclosed is full and relevant for investment decision. In India there is only one source whereby stakeholders can have information about the financials of the company i.e. financial statements or auditor report. However, the manner in which those statements are prepared and the kind of judgments mangers have used in recording the transactions are not disclosed properly and even the information which is easily available and are provided under legal rules to the market is not properly utilized or assessed for taking investment decision.

Recent study conducted by Imen Fakh fakh (2010) has shown that earning management is the result of CEO compensation. When the compensation or incentive of managerial personnel is based on performance of the company, the probability of earning management or manipulations in accounts are more. It is however observed that earning management is not easy to remove from the system as it is based on judgment and management discretion and thus in order to get more incentive favorable judgments can be made in taking decision. It is also seen that regulatory bodies have tried in taking steps to protect statements from such malpractices but due to lack of moral and ethical values, such norms could not support the objective.

One of such step is taken by US in enacting Sarbanes Oxley Act 2000 and Clause 49 of listing agreement in India which are proven very successful in minimizing earning management. Findings suggested that regulatory intervention through the implementation of SOX reduced the practice of earnings management (Rachel Ang, 2011).

Enhancing the role and importance of auditors and independent directors (Clause 49) again depends upon their moral and ethical values. Indulging in wrong practices is possible even through independent nature of directors if they are also involved in incentive based motives. Board plays an important role in minimizing such practices and in order to analyze their importance in providing ethical picture of firm, four broad characteristics are examined; board size, independence, motivation and competence (Sonda Marrakchi, 2001) in analyzing the role of board in minimizing earning management and it was found that larger the board size there will be less probability of working effectively. Adequate number and quality board can help in reducing earning management practices.

The essence of theories conducted on earning management does not lie in the meaning of earning management only. Theories have focused on the practices followed by major corporate in India and other developing countries within the purview of system. Efficient board, effective governance system and well defined disclosure system of any company can minimize the probability of higher earning management. Performance based incentives are considered as major reason of earning management and therefore needs to be regularized. Any improvement in performance of company should be properly checked and sources of better performance in terms of profit or revenue should be examined properly.

MOTIVATION FOR EARNING MANAGEMENT

REASONS OF EARNING MANAGEMENT

In spite of many regulations and prevention steps such practices are not completely removed due to the nature of transactions. One can not take action against use of particular method of accounting if that method is approved and allowed by regulatory bodies itself.

Secondly, investors are not well aware and informed about the concepts and methods of accounting and finance and thus mostly rely on expert knowledge and advices. This is one of the major reasons of increasing number of earning management practices. Team effort of management of company and financial advisors sometimes lead to personal gains at a cost of investors' losses.Secondly, information asymmetry is another reason these days and many scholars have considered it as major motivational factor of manipulations. Dye (1988) and Trueman and Titman (1988) show analytically that the existence of information asymmetry between management and shareholders is a necessary condition for earnings management.

In case of performance based incentives and pressure of achieving the targets it becomes a necessity for the management to mould the books in the way it is desired.

The solution for minimizing the gap in information available with stakeholders and managers is awareness, which is facilitated by rights provided to public by regulatory bodies. But many investors are not accessing those rights and depend upon market to react. Although numbers of studies have been conducted on information asymmetry and major findings, suggest that the probability of occurrence of earning management will be more in companies having less disclosure practices (Gerald J. Lobo**)**. The problem in system is, different people knows different things but no one knows everything and in such a environment a managed earning stream can convey more information than an unmanaged earning stream. (Arya, Glover & sunder)

Apart from performance based incentive and personal profit making objective, there are other motivations also which have never been considered in studies conducted on aggressive accounting or earning management, such as flexibilities provided by regulatory bodies and lack of knowledge about accounting or financials of company among investors.

It has also been observed that there is no clear solution of earning management or aggressive accounting as the line which can differentiate fraud and aggressive accounting is not clear and usually depends upon judgments. And hence presence of judgment in system is motivation of earning management. Another most important motivation is competition which forces management to indulge in managing the books in most profitable form at the cost of its truthiness' as happened in Xerox decade ago. Through an open discussion with auditors and accountants, it was observed that earning management is always appreciated by the management and accountants are asked to manage the earnings in desired way. Such acts are usual course of business and are considered as regular duty of accountants. Many believe that there is nothing wrong in utilizing the best possible alternative available in system unless bad intentions are clear. If the interpretation of such an act misrepresents financials of the company and there is no scope of questioning management, investors or analysts will be helpless, thus there is strong need of understanding and clearance what is right and what will be wrong.

Some of the earning management techniques available in system and duly allowed by regulatory bodies are as follow:

- Alternative method of inventory valuation such as LIFO, FIFO and average inventory pricing method
- Cooking Jar reserves are created by companies through recording more expenses in current fiscal period to make it possible to record less in future period and they can tap into later to get an earning boost.
- Creating special purpose entity as happened in Enron Ltd. where assets are transferred to SPE by the means of sale and gain or losses are shown in books
- Revenue and expense recognition techniques
- Using more of derivatives
- Transfer pricing techniques: Transferring goods to inflated market to increase the profits or buying goods from deflated market is another technique of producing desired results.
- Showing unexpected gains or losses from long term assets which were shown on cost

EARNING MANAGEMENT-GOOD OR BAD

There is no clear definition of earning management and can not be considered as fraud thus it is very difficult to decide whether earning management is good or bad. Selecting the best method of treating any transaction is not bad and should be appreciated for managing the books effectively. But when one method is misrepresenting the financial position of firm and giving wrong impression in the mind of investors or public at large then such practice should be considered as bad. But here the detection of intention or motivation of management to indulge in such practices is not easy job and require detailed information about the working of accounting practices.

Earnings management can be useful for shareholders if it is used to inform stuffs not included in the company's financial report. Some researches support this statement and called it beneficial earnings management (Subramanyam, 1996). There are situations where particular practice do not affect negatively to either management or investors but can misinterpret the financial position. Common example is maintaining high level of reserves in case of good financial position, such transfer of profit in reserves will reduce the earnings and analyst may get wrong impression of less earning in that particular time period.

Company can justify the reason of transfer of profits in reserves, to consider such treatment of profit as ethical and effective earning management. It can give justification on requirement of reserves in future for e.g major projects in pipeline or some future investments etc. But if decision of transfer of profit to reserves are done without any future requirement or need then it may be assumed that company wants to hide its profits from higher corporate taxes. Although hiding profits from taxes may be beneficial for investors, too in short run but socially and legally it is unethical and illegal. Thus the decision on good and bad of earning management depends on motivation and intentions to adopt one particular method of treating the transaction.

There is no doubt that company can get short term profits from earning management practices. If a company follows any technique which shows higher fictious revenue and in result of which market image of the company improves then existing shareholder seeing the higher prevailing market prices can sell their shares and go out of the market in good time but on the same side it is bad for prospective buyers and long term sustainability of firm.

Ignoring the fraud part in managing earnings if firm transfer some part of expenses or losses from one unit of business to other then such practices are consider as smart act on part of management. In many cases companies in order to be competitive eliminate or restructure the subsidiaries and estimate the cost of this change against current earnings. Estimating higher end of such change may give negative impression to the market and market price of share may fall down and if company selects lower end side of cost then future high expenses may again affects the image. In such situation it becomes the management discretion to decide which method is better for firm's image and performance. Such management of earnings is well invited and appreciated by the corporate and experts try to spend plenty of time in deciding in favor of firm.

Another most popular technique is creating special purpose entity and sell of loss making assets or non performing assets to SPVs. The profit or loss on sale is shown in transferor's accounting books and removing such assets from the books improves the face of transferor books of accounts. The accounts of such SPEs are not consolidated with transferor and thus its effect can be hiding from market. Under such situation the objective of creating SPE is to remove non-performing or loss making assets from the books and the purpose is neither harming the image of firm nor the investors' interest. Till any management of earning technique harm the value system of firm or affect the interest of investors, such practices should be consider as good practices.

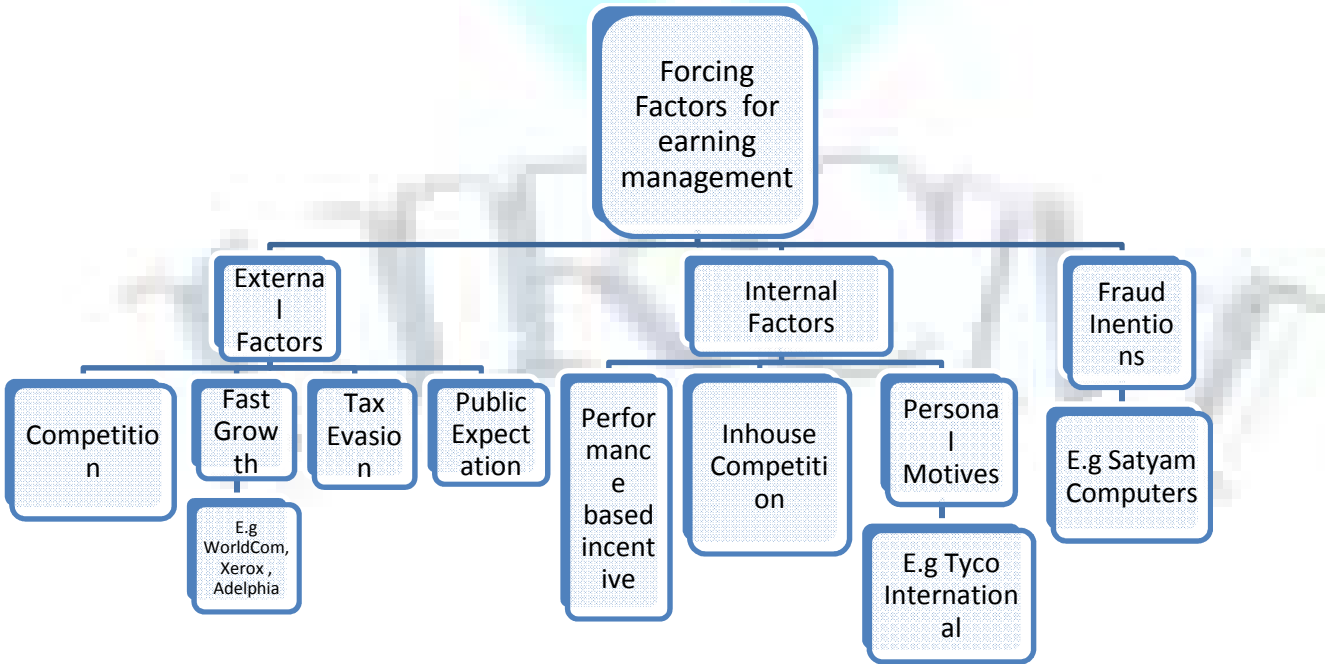
Hanna (1999) stated in his article that management in order to put more earnings in the bank tempted to provide excessive unusual, non recurring and extraordinary charges. Hence, it becomes difficult for stakeholders to understand the reason of increment in earnings. It has also been observed that most of earning management occurred at the time of IPO where by investors are ready to pay unrealistic price for shares. Teoh et al. (1998b), using annual accounting information, find that earnings management around the IPO are higher for issuing firms as compared to non-issuing firms.

PROBABLE CHALLENGES FOR INDIAN CORPORATE FROM SUCH ACCOUNTING MANIPULATIONS

A responsible earning management practice is good for corporate as well as investors because unmanaged earning do not generate perfect figures always. For the management of books effectively it is important to use innovative way of managing them but it should not be used aggressively. Corporate have very well adopted innovative ways of managing their books of accounts, many technological based updation have been made in managing the books which is good enough for running the business efficiently and can help in long tem sustainability of firm. Another mode of managing books is also prevalent in various giant firms i.e. managing the books in aggressive way. Although there is nothing wrong in managing accounts in ways suggested by accounting system such as following any alternative method of accounts preparation is legal and smart practice but following alternative way of managing the books just to mislead the stakeholders and getting undue advantage from it should be avoided and can lead to short life of the company.

Companies are also in favor of ethical accounting but the internal and external pressure pushes management to manipulate the books. Figure-1 below shows factors which forces companies to indulge in earning management practices:

FIG. 1: MOTIVATIONAL FACTORS



WorldCom, Enron, Adelphia and many more such big name in creative accounting and earning management cases were under external pressure i.e. competition and fast growth in the industry. Satyam Computer was the third factor i.e. fraud intention which forces management to follow creative or earning management practices.

Problems or challenges may arise for those honest firms which are following ethical management practices. The act of WorldCom might have vanished many growing companies by giving them strong competition. Market was not aware about the wrong doing of Satyam Computers before 2009 and those competitors who were performing well and were following ethical practices could not make better image or positive image in the mind of investors due to facing strong competition from Satyam Computers. Fraudulent practices followed by Satyam Computers became a constraint in the growth of its competing firms.

Earning management can be a constraint in growth and development of companies in any country in two ways first, it spoil the image of economy and affect the long term sustainability, second, it hinder the growth of small and growing firms. Secondly, corporate have to make an effort to convince stakeholders that they are following ethical practices. In highly competitive market corporate are forced to spend their quality time and money in implementation of ethical practices. This creates a road block in growth and development of corporate. It is however observed that such problems cannot be removed from the system as it is personal moral values which guide the person about right and wrong.

Economy never allow any citizen whether person of corporate to enter into any unethical practice even if it brings profits for the country. Companies keeping in mind the importance of ethical business have started realizing that the main aim of any business should be sustainability not profitability. And sustainability should not be at the cost of company's image. We have seen that companies in order to fulfill this objective are following unethical practices so that they can be competitive and can survive in the market. Major challenge for corporate is to be competitive as it is consider as only way of ensuring sustainability. It has also been argued that ethical business can not be possible fully as it depends upon moral and ethical values of individual too. Companies while recruiting people can not ensure fully whether selected person has good moral and ethical values. And secondly, many of our accounting standards depend upon judgment of decision maker. Thus many of studies have concluded that there is no perfect solution for earning management or creative accounting.

Concept like social responsible investing and ethical investment are introduced to promote ethical culture in society. Investors are advised to invest in ethical firms and in promoting same there are ethical funds available in mutual fund. Taurus Ethical Fund from Taurus Mutual Fund is India's First Actively Managed Equity Oriented Shariah Compliant Diversified Fund.It allows a socially responsible form of investing and offers adequate diversification. But unfortunately investors hardly know about such funds floating in the market. And those who knows consider them as secondary investment option as these funds are still not consider as profitable investment options. There is a need of generating such a system where awareness becomes mandatory for all investors before investment decision. However there are investors' protection and awareness program available but due to lack of understanding of financial aspects and importance of analysis before investment, such protection programs becomes handicap. Thus this is another challenge for government to design a proper system which can ensure that market is fully aware about services and rights available to them.

When corporate tries to indulge in any unethical practices, regulatory bodies' vows to remove flaws from the system and ensure to provide safe market for investment but moral and ethical values of individual sitting in responsible positions in reverse inhibit the system to let corporate in producing the desired results in unethical ways. Thus in spite of various norms and protection initiatives of government, such practices can not be removed completely from the system.

CONCLUSION

Earning management is art of managing the books, utilizing the alternatives available in accounting system in best practice. Such management of earnings can be ethical or can be unethical depends upon intentions and aim of following any particular method. There are studies conducted on justification of earning management practices and it has been observed that such practices are not bad unless the real intentions are clear. There are alternatives available in accounting system and selecting one method to manage the earning in better way is consider as smart practice. But on the similar side if such practices are followed to produce desired results by showing false numbers are consider as unethical and immoral.

One can not predict or assess the transaction whether it is good or bad the only option available is to keep a check on movement of numbers and methods. What method is adopted, when did it changed and the reason of change and most important is what the impact of such change on financials is. Although various techniques have been found out by studies which can give an idea of unethical accounting practices such as creating cooking jar reserve, more use of derivatives, adopting one method of inventory valuation which provide desired results and creating special purpose entity to transfer transaction which company don't want to show in its books.

Gone are the days when companies aim to earn profits, today in highly competitive market all the companies are aiming to sustainability and in order to sustain in the market, various practices are followed which are helping them in fulfilling the sustainability objective. There are evidences of long term sustainability through wrong practices also. Enron, Satyam and WorldCom were the major example of how they have achieved the objective of competing in the market though manipulations. From practices like earning management, creative accounting or aggressive accounting these companies could compete in the market for long. There were number of competing firms who could not compete because of growth of those firms which were following wrong practices. Such practices help them in attracting large number of stakeholders and hence growing and new companies could not sustain for long. Thus this becomes a challenge for government and regulatory bodies to find out the solution for honest market players. Corporate needs to understand the importance of ethical practices and should accept that unethical practices results only loss of business and brand name. Investors who doesn't stay in one company may gain in short period from such companies but market as a whole may face lots of problems if no adequate steps are taken to prevent the corporate. All the sectors of economy are related in one of other way and thus fault on one part of economy affects all other sectors. Thus there is strong need of proper system whereby safety in investment in financial market can be ensured.

REFERENCES

1. Arya, A., J. Glover, and S. Sunder. 2003. —Are Unmanaged Earnings Always Better for Shareholders? Accounting Horizons (Supplement): 111-116.
2. De Angelo, L. 1988 "Managerial Competition, information Costs, and Corporate Governance", Journal of Accounting & Economics
3. Dechow, Patricia M., Richard G. Sloan, and Amy Sweeney, 1996, Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC, Contemporary Accounting Research
4. Diamond, D.W. and Verrecchia R.E. 1991. Disclosure, liquidity, and the cost of capital. The Journal of Finance 66 (September): 1325-1355.
5. Gerald J. Lobo & Jian Zhou. 2001, "Disclosure Quality and Earnings Management", extracted from ssrn.com
6. Healy, P. and Wahlen. J. 1999. A review of the earnings management literature and its implications for standard setting. Accounting Horizons (December): 365-383
7. Jean C. Bedard& Karla M. Johnstone. 2004 "Earnings Manipulation Risk, Corporate Governance Risk, and Auditors' Planning and Pricing Decisions" Accounting Review Vol. 79 No.2,
8. Kaplan, S.E 1985 " An examination of the effects of environment and explicit internal control on planned audit hours" Auditing: A Journal of Practice & theory (Fall)
9. Karpoff, Jonathan M., D. Scott Lee and Gerald S. Martin, 2007 b, The cost to firms of cooking the books, Journal of Financial and Quantitative Analysis
10. Kelly (2011): Earning Management: Is it Good or Bad? Viewed on February 22, 2012 http://www.ezineart.com/finance/accounting/earning-managementis-it-good-or-bad
11. Kelly Wee Kheng Soon. 2011, "Earning management; is it good or bad "Management and Science University (MSU), extracted from ssrn.com
12. Murphy, Kevin J. and Jerold L. Zimmerman, 1993, Financial performance surrounding CEO turnover, Journal of Accounting and Economics.
13. Nelson, M. W J.A Elliott, and Tarpley. R.L 2003 "How are earning managed?" Examples from auditors Accounting Horizons 17 (Supplement)
14. Rachel Ang. 2011, "Sarbanes Oxley Effectiveness on the Earning Management" ,extracted from ssrn.com
15. Roni Michealy, Amir Rubin & Alexander Vedrashko (2011), "Corporate Governance and the timing of earning announcement", AFA 2012 Chicage Meeting Paper extracted from SSRN
16. Sabrina P. Ozawa Gioielli &Antonio Gledson de Carvalho (2008), "The dynamics of earning management in IPOs and the role of venture capital.

17. Sengupta, P. 1998. Corporate disclosure quality and the cost of debt. The Accounting Review 73
18. Siddharth Mohapatra. 2011, "Earning Manipulation and Relative Deprivation – a meaning – making endeavor", available at ssrn
19. Teoh, Siew H.; WELCH, Ivo; WONG, T (1998). Earnings management and the long-run market performance of initial public offerings. Journal of Finance, Vol. 53, No. 6, p.,
20. Werner R Murhadi, 2009, "Good Corporate Governance and Earning Management Practices: An Indonesian Cases" Faculty of Economics, Universitas Surabaya, Indonesia.
21. Wild, J.1996. "The audit committee and earning quality" Journal of Accounting, Auditing & finance (Spring)

MARKET SHARE THROUGH TELECOM RETAILING: AN EVIDENCE FROM AIRTEL

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ABSTRACT

India is the fastest growing mobile market in the world and telecom retailing occupies a significant position of the total Indian retail business which is valued around US$ 550 at present. In this backdrop, the present paper made an empirical analysis on how retail businesses grab the market in general with special reference to Airtel. The study is based on both primary and secondary data. To make the analysis more reliable and transparent, the sample size was restricted to 200 retailers. Collected data has been analyzed in different facets like revenue market share, segment wise performances, passive infrastructure services, segment wise users and so on. Considering the objectives of the study, two sets of questionnaires were developed. Secondary data was gathered from the internet, media and print to obtain relevant information such as industry background and public perception of Airtel, Vodafone and Idea. This study indicates some ways to develop service excellence in the context of high-tech competitive telecom market of the present age. Besides this, the authors also observe some best policies that big players of the sector employ to become competitive.

KEYWORDS
Airtel market share, Indian telecom market, Retail market.

INTRODUCTION

Airtel comes from Bharti cellular Limited - a part of the biggest private integrated telecom conglomerate, Bharti Enterprises. Bharti provides a range of telecom services, which includes cellular, basic internet and recently introduced national long distance internet etc. Besides this, Bharti also manufactures and exports telephone terminals and cordless phones. Apart from being the largest manufacturer of telephone instruments in India, it is also the first company to export its products to the USA. Bharti is the leading cellular services provider, with an all India footprint covering all 23 telecom circles of the country. At present it has over 11 million satisfied customers. In this back drop, present study tried to find out the share of Airtel in the allotted market and to know its potential market. Non telecom shops are targeted and their demand or requirement is understood. Their interest is being taken into consideration i.e. whether they are interested or not interested if given an option to them to keep Airtel connection for selling. Also for existing telecom shops, retailers are being questioned about their level of satisfaction from the business, whether they keep Airtel connection, overall performance of each telecom services providers and their feedback for Airtel. The questionnaires were filled by moving to each and every market which was being allotted. Existing telecom shops and non telecom shops like chemist, general stores, STD / PCO, gifts shops are mainly focused. The questionnaires were filled there by the retailers and then analysis is being done. The questionnaire was bifurcated into different segments i.e. general information about the retailers containing name, address, age, shop address, also overall comparative performance is being asked from existing retailers.

REVIEW OF LITRATURE

Chowdary (1999) discusses how Telecom reform, in India has been bungled. Shaped by legislation dating back to the colonial era and post Second World War socialist policies, by the mid-1980s India realized that its poor telecommunications infrastructure and service needed reform. At the heart of the problem lay the monopoly by the government's Department of Telecommunications (DOT) in equipment, networks and services. The National Telecom Policy 1994 spelt out decent objectives for reform but tragically its implementation was entrusted to the DOT. This created an untenable situation in which the DOT became policymaker, licenser, regulator, operator and also arbitrator in disputes between itself and licensed competitors. He discusses the question: 'Why did India get it so wrong? And What India should do now? Bhattacharya (2000) in her paper constructs a vision of the Indian telecommunication sector for the year 2020. The paper aims at isolating agents of change based on international experiences and situates India in the development continuum. The agents of change have been broadly categorized into economic structure, competition policy and technology. Das (2000) in her paper described the liberalization of the Indian telecommunications services which started in mid nineties with no change in the existing public monopoly structure, entirely controlled by Department of Telecommunications (DOT). In order to evaluate any proposed industry structure, it is essential to analyze the production technology of DOT so as to determine the rationale of liberalization and sustainability of competition. Accordingly, the researcher estimates a frontier multi-product cost function for DOT, where the cost function has been duly modified to account for the production technology of a public monopoly. The study finds that although DOT displays high allocation inefficiency, it is still a natural monopoly with very high degree of sub additively of cost of production. This study implies that the choice of any reform policy should consider the trade-off between the loss of scale and scope economies and cost saving from the reduction in inefficiency of the incumbent monopoly in the event of competition. Vrmani (2000) estimates the contribution of telecommunication (or telecom) services to aggregate economic growth in India. Estimated contribution is distinguished between public and private sectors to highlight the impact of telecom privatization on economic growth. Knowledge of

policy determinants of demand of telecom services is shown to be essential to enhance growth contribution of telecom services. Using a recent sample survey data from Karnataka State in South India, price and income determinants of demand for telecom services are estimated by capacity of telephone exchanges Estimation results offer evidence for significant negative own price elasticity and positive income elasticity of demand for telecom services. Dey (2004), in her article talks about the discussions between the Federal Communications Commission (FCC) and communications policy makers and regulators in other countries and how they have gleaned several clusters of issues where further research would directly benefit them. Narinder (2004), in his article "Enhancing Developmental Opportunities by Promoting ICT Use: Vision for Rural India" talks about the foremost benefits of Information and Communication Technologies (ICTs) in developing countries that can be helpful in improving governance including public safety and eradication of illiteracy. Singh (2005) in his research work shows that the role that information and communication technologies are playing for Indian society to educate them formally or informally which is ultimately helping India to emerge as an information society. Though India has a huge population, the illiteracy rate is also huge in this country. Banka (2006) gives an overview of the mergers and acquisitions in the telecommunication industry. According to him Governments decision to raise the foreign investment limit to 74% is expected to spur fresh rounds of mergers and takeovers in India. He foresees a sector that represents humongous opportunity waiting to be tapped by Indian and foreign conglomerates. Mani (2008) addresses a number of issues arising from the growth of telecom services in India since the mid-1990s. It also discusses a number of spill over effects for the rest of the economy and one of the more important effects is the potential to develop a major manufacturing hub in the country for telecom equipment and for downstream industries such as semiconductor devices. The telecom industry in India could slowly become an example of the service sector acting as a fillip to the growth of the manufacturing sector.

OBJECTIVES OF STUDY

- To find the market share of Airtel in allotted markets.
- To measure the amount of the consumers total spending for Airtel telecom services.
- To know the total amount of money non telecom shopkeepers can spend on our product in planning and managing sales and marketing.
- To know how much Airtel has penetrated into the market.
- To know the satisfaction level from the existing telecom shopkeepers.
- To keep an eye on the competitors strengths and weaknesses.
- To study the hindrances in increasing the sales and market share of Airtel in prepaid category.
- To know which telecom operator is leading in the given market.

RESEARCH METHODOLOGY

Data Base:

The data for the proposed study will be collected both from Primary and Secondary sources. Primary data will be supplemented by the secondary data stated in the report of

- Economic Records from Economic Review.
- Report from Telecom Industries
- Business books / Magazines.

Apart from these some related journals, magazines, and newspapers will also be consulted.

Instrument of Data gathering:

The research design will be formulated keeping in mind of various essentials and requirement of given objectives of the study.

The sample sizes of all the categories were selected on the basis of adhoc method. Sample size will be restricted to 200 while conducting the survey respondents were asked about their demographic profile, income status, issues and challenges of shopkeepers, financial assistance, and role of government. Whereas while collecting the data from the respondents the questionnaire includes information on connections, sales, satisfaction level of retailer & behaviour of the consumers etc. Researcher had conducted a pre test to know the accuracy. As per the suggestion based on pre test the questionnaires were redesigned and administered personally to collected the required data. Pretesting is done to find out the suitability of the questionnaire. The questionnaire will be revised suitably, so that the information sought may be cross checked. The survey will be conducted by the researcher in form of in-depth interview both in form of individual interview as well as group interview.

Telecom Market: Indian Scenario

India has emerged as one of the youngest and fastest growing economies in the world today. In fact, the Indian telecom market has gained recognition as one of the most lucrative markets globally. The vast rural market holds a huge potential to drive the future growth of the telecom companies. Further, the government's initiatives for increasing the telecom connectivity in rural areas are also likely to aid the telecom service providers to extend their services in the unconnected rural areas. The following table focuses only on the current Metro Cities and the mobile subscriber base in each of them. (All Figures in Millions)

TABLE 1: INDIAN TELECOM MARKET SUBSCRIBER BASE

Highlights of Telecom Subscription data as on June 2011			
Particular	Wireless	Wireline	Total Connections
Total Subscribers	851.7	34.29	885.99
Urban Subscribers	562.12	25.82	587.94
Rural Subscribers	289.57	8.47	298.05

Source: Telecom Regulatory Authority of India, (press release no. 45 /2011)

The number of telephone subscribers in India increased to 885.99 Million at the end of June 2011 from 874.68 Million at the end of May 2011, thereby registering a growth rate of 1.29%. The share of Urban Subscriber has marginally declined to 66.36% from 66.38% where as share of Rural Subscribers has marginally increased from 33.62% to 33.64%. With this, the overall Tele-density in India reaches to 73.97 at the end of June, 2011 from 73.11 of the previous month.

TABLE 2: TOTAL TELE DENSITY AS PER URBAN AND RURAL REGION

Highlights of Tele-density as on June 2011			
Particular	Wireless	Wireline	Total Connections
Urban tele density	155.96	7.16	163.13
Rural tele density	34.58	1.01	35.6

Source: Telecom Regulatory Authority of India, (press release no. 45 /2011)

Subscription in Urban Areas grew from 580.62 million in May 2011 to 587.94 million at the end of June 2011. Rural subscription increased from 294.07 million to 298.05 million. The growth of Rural Subscription (1.35%) is higher than the Urban Subscription (1.26%). The overall Urban teledensity has increased from 161.37 to 163.13 and Rural teledensity increased from 35.15 to 35.60.

Market Share

In India, telecommunication has been on the pick of service & marketing. The record says that 525 million mobile user exist in India today. It is the most & fastest sector of business & service in the current affairs. It is the third largest telecommunication network in the world & second largest in the wireless connection. It has been predicted by 2015, India will cross the statistics of China in terms of mobile users. The total amount of money a customer can spend on a

certain product category is a vital piece of information for planning and managing sales and marketing efforts. This amount is usually referred to as the customer's wallet (also called opportunity) for the product category. There are many possible uses for wallet estimates, including straightforward targeting of sales force and marketing actions towards large wallet customers and prospects. In a more sophisticated sales and marketing environment, the combination of classical propensity models for a particular product category with the knowledge of the wallet for the same category can direct the sales efforts: it allows a company to market not only to customers or potential customers with a large wallet, but also to those with a high probability of buying specific products in the category. By combining the customer wallet estimates with the data on how much they spend with a particular seller, we can calculate the share-of-wallet that the seller has of each customer for a given product category. This information allows the seller to target customers based on their growth potential, a combination of total wallet and share-of-wallet. The classical approach of targeting customers that have historically generated large amounts of revenue for the company (known as lifetime value modeling) does not give enough importance to customers with a large wallet, but small share-of-wallet, which are the ones with presumably the highest potential for revenue growth. Share-of-wallet is also important for detecting partial defection or silent attrition, which occurs when customers increase their spending in a given category, without increasing the amount purchased from a particular company. In certain industries, customer wallets can be easily obtained from public data. For example, in the credit card industry, the card issuing companies can calculate the wallet size and respective share-of-wallet using credit records from the three major credit bureaus. For most industries, however, no public wallet information is available at the customer level.

Indian Telecom Market Share

There are many innovations that have helped reduced the cost of ownership of mobile phones. The figure alongside (source: TRAI) is a snapshot of how the subscriber base increased as the tariffs reduced due to innovations and government interventions. India is the second largest market in terms of mobile subscriber base after China but still it is at 66% teledensity and adding 15-17 million new subscribers every month. However, the real subscriber penetration is less than 50% so there is a lot of room for growth. Indian market is not only the most attractive but also the most competitive with over seven operators in each circle and another five new operators likely to start operations in the near future. Nowhere in the world does any country have so many carriers. The dominant players are Airtel, Reliance, Vodafone, Tata, BSNL (state owned) and Idea. Reliance and Tata offer CDMA technology while all the other players are in the GSM space. GSM has 86% share of subscribers and now even Reliance and Tata have launched nation-wide GSM services. Apart from the current players, there are several new players like Aircel, Unitech-Telenor, Shyam-Siestema, Etisalat that have got the license and spectrum to launch mobile services in several telecom circles. Shyam-Siestema is the only player to launch CDMA services while all the new operators are in the lucrative GSM space.

TABLE: 3 TELECOM MARKET SHARE IN INDIA AS ON JUNE 2011

Sl. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Name of Company	BHARTI AIRTEL	RELIANCE	VODAFONE	IDEA	BSNL	TATA	AIRCEL	UNINOR	SISTEMA	VIDEOCON	MTNL	STEL	LOOP MOBILE	HFCL	ETISALAT
% Market Share	19.86%	16.82%	16.62%	11.17%	11.00%	10.68%	6.81%	3.09%	1.38%	0.84%	0.65%	0.39%	0.37%	0.16%	0.16%

Source: Telecom Regulatory Authority of India, (press release no. 45 /2011)

DATA ANALYSIS AND INTERPRETATIONS

A comparative study on Revenue Market Shares of Telecom Market Leaders for Third Quarter Financial year starting from 2009 to 2011

TABLE: 4 REVENUE MARKET SHARES OF TELECOM MARKET LEADERS

Revenue Market Share of Telecom Market leaders			
Company	Q3FY09	Q3FY10	Q3FY11
Bharti Airtel	33.90%	32.70%	32.00%
Vodafone	19.60%	20.70%	20.80%
Idea Cellular	11.60%	13.10%	13.40%
Reliance Telecom	12.00%	10.80%	8.80%
Tata Tele Services	7.20%	7.30%	9.00%
BSNL	11.00%	9.80%	8.10%
Aircel	3.10%	3.90%	4.90%
MTNL	0.80%	0.60%	0.60%

Source: Data gathered from Field Survey

As per the Revenue Market Share concern Bharti Airtel is in the most leading position among all the market leaders. If we compare the revenue market share of Airtel specifically, we may observe that in 2009 the revenue share was 33.9% and after that it declined down to 32.70% on 2010 and finally in this year it has come down to 32%. Same as Revenue share of Reliance and BSNL also dropped down but we can see other market leaders they did well in this year. In spite of that Airtel is holding the topmost position in case of Revenue Market share in this Telecom world. We can see that Airtel has reached the top most position in the third quarter of 2011 though the total revenue market share has gone down to 32% from 33.9% whereas MTNL held the last position. Airtel reaches top-most position because of their unique marketing strategies.

Segment wise Performances for Third quarter, Financial year 2011 (3Q, FY11)

TABLE 5: SEGMENT WISE PERFORMANCES FOR 3Q FY11

Segment wise Performance for 3Q FY11 (Rupees in Cr.)				
Revenue	India and South Asia	Africa	Total	Total (%)
Mobile Services	9145.9	4082.1	13228	83
Telemedia Services	906.8	NA	906.8	6
Enterprise Services	1050.3	NA	1050.3	7
Passive Infra Services	2197.2	NA	2197.2	14
Other Services	279.3	NA	279.3	1
Sub Total	13579.50	4082.1	17661.6	112
Eliminations	1858.2		1858.2	(-12)
Total	11721.3	4082.1	15803.4	100

Source: Networth capital (03/02/2011)

According to Segment-wise Performances it's found that Mobile Services, Telemedia Services, Enterprise Services, Passive infra services and other services done wonderful job. Whereas only Mobile service can expand their business in Africa and that is also comparatively very less than in India and South Asia. Above all we can say that Mobile service cover 83% of Markets whereas Telemedia, Enterprise, Passive infra and others cover 6%, 7%, 14% and 1% respectively.

Mobile Services in India for Third quarter Financial Year 2011 (3Q FY11)

TABLE 6: MOBILE SERVICES FOR 3Q FY11

Mobile Services (India)			
Mobile Services	3Q FY11	3Q FY10	Change in percentage
Customer Base (in 000's)	152495	118864	28.29
Net Addition (in 000's)	9203	8353	10.17
Market Share			
Wireless market share (in %)	20.3	22.6	-2.3
Market share of Net Addition (in %)	14.2	15.6	-1.4
Prepaid subscriber total (in %)	96.2	95.3	0.9
Average Revenue per user (in Rupees)	198	230	-13.9
Average Rate per unit (in Rupees)	0.44	0.49	-10.2
Average Minutes of user per user (in Minute)	449	446	0.67

Source: Networth capital (03/02/2011)

Bharti Airtel has the largest wireless subscriber base in India with 15.2 crores GSM subscribers as on December 31, 2010 with a customer market share of 20.3%. Airtel's long distance infrastructure comprises of 139,541 kms of optical fibre providing a pan India reach. Airtel is strengthening its position in Sri Lanka with presence in 25 administrative districts and more than 1.4 crore customer base. For 3Q FY11 the customer base and prepaid subscriber as percentage specifically for the mobile service in India have been increased in comparison to 3Q FY10 and net addition have been increased automatically, whereas wireless market share has been decreased. Hence Market share of net addition has been also decreased Simultaneously Average Revenue per user and Average Rate per unit has been decreased. In the other hand Average Minutes of user per user has been increased.

Passive Infrastructure Services in India for Third quarter Financial Year 2011 (3Q FY11)

TABLE 7: PASSIVE INFRASTRUCTURE SERVICES FOR 3Q FY11

Passive Infrastructure Services (India)			
Passive Infrastructure Services	2Q FY11	3Q FY10	Change in percentage
BHARTI INFRATEL			
Total towers (in Numbers)	32424	29806	8.78
Revenue per sharing operator per month (in Rupees)	37859	38107	-0.65
Sharing Factor (in Times)	1.68	1.57	0.07
INDUS TOWER			
Total towers (in Numbers)	107789	102696	4.95
Key Indicators			
Revenue per sharing operator per month (in Rupees)	30847	28333	8.87
Sharing factor (in Times)	1.8	1.61	11.8

Source: Networth capital (03/02/2011)

As per as Passive infrastructure is concern it is found that Number or total towers have been increased from last year in case of Bharti Infratel tower as well as Indus Tower. But in case of Bharti Infratel tower Revenue per sharing operator per month have been decreased and for Indus tower it has been increased. Accordingly Sharing factor of Bharti Infratel towers and Indus towers both have been increased.

Category of shop where Telecom services are kept

TABLE 8: CATEGORY OF SHOP

CATEGORY OF SHOP	TOTAL NUMBERS
TELECOM	77
STATIONARY	19
ELECTRONICS	13
STD / PCO	11
GROCERY	8
XEROX	6
CAFÉ	5
MEDICAL	3
STUDIO	2
OTHERS	16

Source: Data gathered from Field Survey

According to this question researchers have found different categories of 160 shops surveyed by me from different areas, among which most of them are Telecom shops and rest are Stationary shops, Electronics shops, PCO booth, Grocery shops, Xerox centre, Cafe, Medical shops, Studio etc. In the course of surveying researchers have identified the shops and put them in different categories.

Do you keep Telecom connections?

TABLE 9: TELECOM CONNECTIONS KEEPERS

NUMBER OF RESPONDENTS	REPLY OF RESPONDENTS
TOTAL	200
YES	160
NO	40

Source: Data gathered from Field Survey

If NO, do you want to keep Airtel connection?

TABLE 10: AIRTEL CONNECTION KEEPERS

NUMBER OF RESPONDENTS	REPLY OF RESPONDENTS
TOTAL	40
YES	2
NO	38

Source: Data gathered from Field Survey

After the second question have tried to link up another question for the retailers who are not interested having telecom connections in their shops. A few shows their interest to have connection and majority of the retailers are not interested.

How many customers use the following facilities and face the following problem in their daily life according to you?

TABLE 11: COMPARATIVE STUDY OF AIRTEL WITH OTHER SERVICE PROVIDERS

SERVICE PROVIDER	FEATURES USAGE IN PERCENTAGE PER 10 USER				
	GPRS	FULL TALK TIME	SMS CARDS	MNP TO OTHERS	NETWORK PROBLEM
AIRTEL	10%	30%	20%	70%	50%
VODAFONE	10%	40%	20%	70%	50%
RELIANCE	30%	50%	70%	30%	30%
TATA DOCOMO	80%	90%	80%	30%	60%
AIRCEL	80%	90%	70%	40%	60%
UNINOR	5%	90%	10%	40%	60%
MTS	5%	80%	10%	60%	70%
VIRGIN	5%	70%	10%	80%	70%

Source: Data gathered from Field Survey

With the above question researchers wanted to collect some informations regarding the features using by the customers through retailers of Airtel and other services. The above question was surveyed to retailers so that they can answer it by visiting 10 customers in a day.

According to you which age group of people likes Airtel connection most?

TABLE 12: AIRTEL USERS WITH THEIR AGE GROUP AND OCCUPATIONS

Age Group	Occupation	Ratings
15 – 25	Students	13%
25 – 35	Executives	62%
35 – 45	Householders	21%
45 and above	Retired / others	4%

Source: Data gathered from Field Survey

Above table indicates that people who are above 45 years and basically who are retired or retired person use very less number of Airtel connections and gradually comes student whose age lies between 15 years to 25 years and then householders basically focused on housewives and entrepreneur or self businessman, whose age lies between 35 years to 45 years. Finally we last but not the least the maximum Airtel users are executives, servicemen, whose age lies between 25 years to 35 years.

FINDINGS OF THE STUDY

- Bharti Airtel as the largest cell phone player in India with a footprint that covers all telecom circles in the country.
- It has high return of equity, revenue growth, shareholder return, and total revenue.
- Strong market position and share with diversified services range with an aggregate of 33.71 million customers, 31.97 million mobile customers and 1.74 million broadband and telephone service customers are its strength.
- Different and large range of service for both household and business purpose.
- Bharti Airtel established a far-reaching outsourcing relationship with IBM that substantially mitigates its IT investment risks by giving IBM full control and ownership of Bharti Airtel's IT infrastructure and associated processes.
- Customer demand is high for Airtel but due to service complaints, less features, less advertisements and promotions issues the retailers are diverting the customers to Tata Docomo, Uninor and Aircel.
- Customer diversification from Airtel is increasing in regular basis due to increase in service complaints like VAS activation problem, Activation complaints in some areas, less Glow Sign Boards and In shop branding in many shops etc.
- Tata Docomo, Aircel, Uninor are giving better schemes and margin than Airtel.
- Network of Airtel is better than any other telecom services. New schemes are not properly being conveyed to the retailers, so they are facing problem of no responses to customer queries.
- Schemes in Airtel and tariff plans are expensive whereas Tata Docomo, Aircel, Uninor are providing better schemes and Vodafone sale services are quickest among all in this area than other telecom services.
- There is different tariff plan for different connection in Airtel, which frustrates customers.
- More visibility of other telecom service provider's boards and advertisements which are improving their promotion and branding.
- There is large number of rejection rate for taking up any new kind of business in the non- telecom shops this is due to lack of awareness.

CONCLUDING COMMENTS

In the conclusion, we can say that, the results obtained after analyzing the data collected, it is clear although Airtel enjoys a very strong brand image in the market, yet it has to do a lot in building up trade relationships with its channel partners through retailing. One of the main objectives of our research was to identify the underlying expectations of the channel partners from Airtel. From the results obtained it is evident that both the retailers and distributors recommend starting programs like Airtel Aur Aap club very strongly. After analyzing the findings of the research, we can conclude that Airtel has a very good reputation in the market in relation with other telecom brand. According to the channel partners, the most important factors that would help in building up relationships are; Recognition, Monetary benefits, Regular meetings with Airtel, Family engagement, Gift in kind, Assured gifts and Leisure trips and so on. Airtel must seriously look into forming strategies in order to enhance trade relationships, as the other telecom operators are running various small engagement activities like giving away movie tickets, Reebok shoes; Get together, etc to retailers on achieving a certain target. Due to this, Airtel has to face a strong competition in the market despite of its good reputation. From the above discussion we can reasonably argue that it can be concluded that if Airtel wants more and more profit then it needs to satisfy the end users or customers who are the king of all market by satisfying dealers and distributors in order to keep it in mind that the company should agree with all their fair suggestions and make them happy. If it is done in proper way then distributors, dealers and finally retailers will give sincere efforts to achieve their targets and increase the sales of the company.

REFERENCES

1. Annual Report (2006-07), Department of Telecommunications, Minisrtry of Communication and IT, Government of India,
2. Benson T, Neame R (1994.), Healthcare Computing: A Guide to Health Information Management and Systems Longman, Harlow.
3. Borko Furht, Mohammad Ilyas (2003), Wireless Internet Handbook, CRC Press: USA.

4. Choudhury Ashish (2005), Growth of Telecom in India, Nokia, India TRAI, Consultation Papers. National Telecom Policy, Department of Tele Communication.
5. Communication and IT, Government of India
6. Darkens AW, Cary MA.(2000.), Telemedicine and Telehealth: Principles, Policies, Performance,and Pitfalls, Free Association Books, London
7. Economic Research Unit (2002), Indian Telecommunication Statistics, Department of
8. Government of India. New Delhi Broad Band Policy (2004), Department of Telecommunications, Ministry of Communication and IT, Government of India,
9. Govt of India, (2004), Broadband Policy, Department of Telecommunications.
10. Harnett B. (2006), Telemedicine Systems and Telecommunications. J Telemed Telecare.
11. Herscovici & Christodoulou,(2002), Wireless Telemedicine Systems Overview Telemedicine, IEEE Antenna's and Propagation Magazine, 44
12. Heuser S.(2006), Telehealth Systems Slowly Gaining: Devices help curb Visits to Hospital, The Boston Globe.
13. Hovenga E, Kidd M, Cesnik B.(1996), Healthcare Informatics: An Overview. Churchill Livingstone,New York
14. Jain, Rekha and Trilochan Sastry (1999) 'Assessment of Socioeconomic Impact of Rural Telecom Services: Implications for Policy', Workshop on Telecom Policy Initiatives: The Road Ahead.
15. Lauter K. (2004), The Advantages of Elliptic Curve Cryptography for Wireless Security, IEEE Wireless Communications, 62-67
16. Malhotra K, Gardner S, Rees D.(2005), Evaluation of GPRS Enabled Secure Remote Patient Monitoring System, , ASMTA , Riga, Latvia.
17. Malhotra K, Gardner S.(2006), Evaluating Security Issues in Mobile Internet Healthcare Systems, PGNET2006, Liverpool John Moores University, Liverpool.
18. Malhotra K, Gardner S, Patz R (2007), Implementation of Elliptic-Curve Cryptography on Mobile Healthcare Devices, IEEE International Conference on Networking, Sensing and Control, London, United Kingdom. April 15-17.
19. Manas Bhattacharya (Vision 2020), Department of Telecommunications, Minisrtry of
20. New Telecom Policy (1999), Department of Telecommunications, Minisrtry of Communication and IT, Government of India
21. Norris AC.(2002), Essentials of Telemedicine and Telecare, John Wiley, UK Gold WR, Manning T, Street Jr R (1997), Health Promotion and Interactive Technology: Theoretical Applications and Future Directions. Lawrence Erlbaum Associates,
22. Pederson CD.(2002), Electronic Communications & Internet Opportunities in the Danish Health Services, The British Journal of Healthcare Computing & Information Management, 19, 22-25
23. Seaton B, Tsoukatos T.(2004), A new Way of Accessing Clinical Information on the Move, . The British Journal of Healthcare Computing & Information Management, 21: 27-28.
24. Subramanian, Dilip (2004), 'Impact of deregulation on a public sector firm, Case study of ITI' Economic and Political Weekly, Vol. XXXIX, No: 49, pp. 5233-5245.
25. Telecommunications,
26. Win KT, Susilo W.(2006, Information Security and Privacy of Health Data, International Journal of Healthcare Technology and Management, 7: 492-505
27. Wootton R, Craig J.(1999), Introduction to Telemedicine, Royal Society of Medicine Press, London.

WEBSITES

28. http://info.shine.com/Article/Telecom/Telecom-industry-overview/4175/cid183.aspx
29. http://www.airtel.com
30. http://www.capitaline.com
31. http://www.financialexpress.com
32. http://www.ibef.org
33. http://www.netwothdirect.com
34. http://www.telecomcircle.com/2009/06/india-telecom/
35. http://www.telecomindiaonline.com/india-telecom-growth-and-subscribers-2010.html
36. www.emkayglobal.com

TRAVEL SERVICE DISTRIBUTION IN INDIA – IN TRANSITION??

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ABSTRACT

Travel Planning has become less complicated and more convenient for consumers in recent times. Be it online portal or Service providers' own website or a traditional Agent, consumers have ample options to plan the booking of travel tickets. The purpose of this paper is to understand the various channels existing today that support online booking of travel services and bring out the issues related to distribution of travel services through online. Different structures co-exist, but online channel in one's travel planning is finding a major space among the available options. However, traditional channels have learnt to satisfy and retain customers, leveraging the core competencies coupled with technology adoptions.

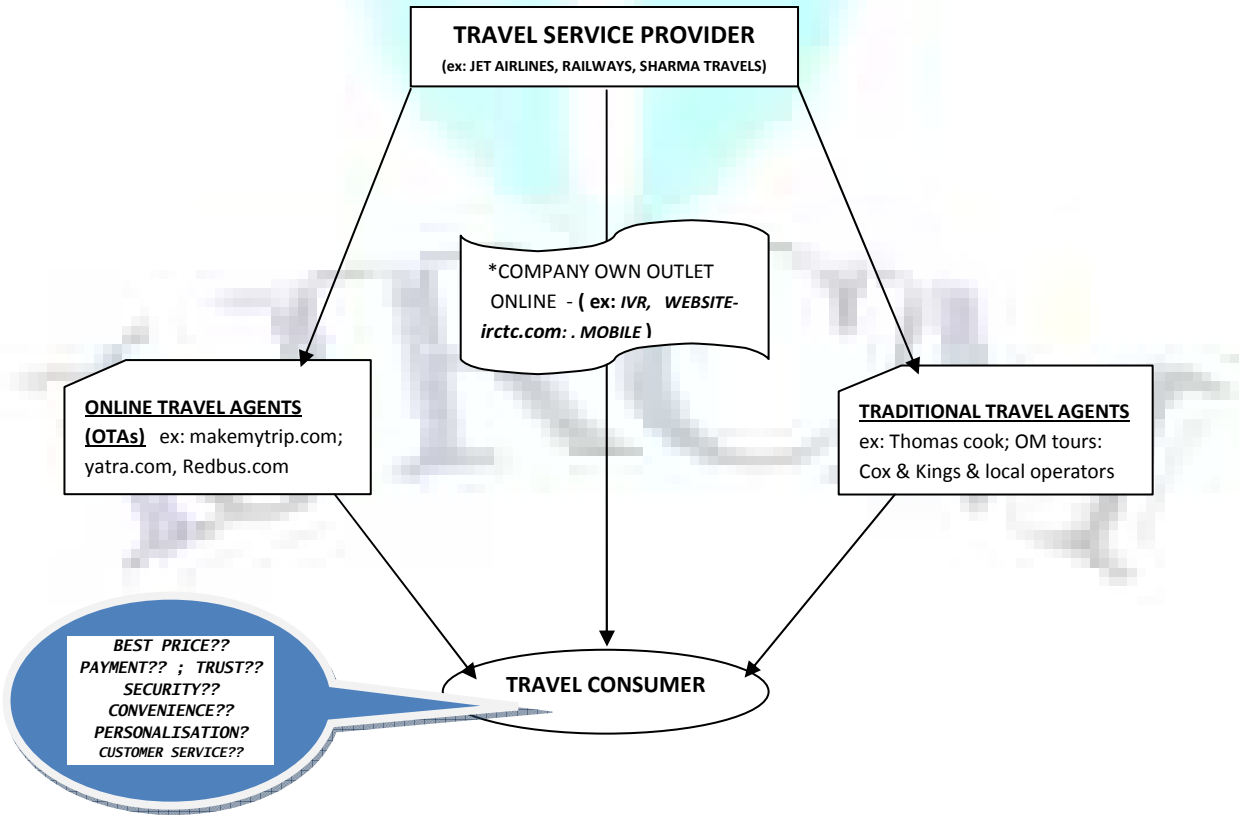
KEYWORDS
OTAs, Online travel, Travel Distribution.

INTRODUCTION

Travel Industry in India has been a major contributor for the Indian economy and has undergone tremendous changes in the recent times. Travel industry in India was predominently into Road, Rail transport and Airways. Consumers have been for many years getting their travel solutions fulfilled by a strong network of travel agents. Travel agents, who were operating initially with a brick and mortor model i.e., typically working in a outlet kind of an environment started with the minimal usage of Internet technology and more of telephone, personal interaction. Consumers were guided over telephone or through personal interaction with the travel agent, most of the times information was limited and so choice for consumer. But, with the advent of Internet and its marvelous applications, travel industry has seen a turn around the way the business is performed. The travel service providers started connecting with their customers through their own websites. This was not sufficient as consumer has very less choice of comparing and selecting the best deal and so Online Travel Agents like makemytrip.com, travelguru.com, Yatra.com etc could open their operations and fill the gap. Modern travellers demand more high quality travel services, products, information, and value for their money (Christian, 2001; Lubetkin,1999; Samenfink, 1999). Also, for travellers internet allows them to communicate directly and purchase products / services from any place and any time (Olmeda and Sheldon, 2001). This revolution has given the consumer world a greater autonomy in gaining information, selecting the required travel service more or less without interacting with any travel agent. This ofcourse also depends on the length of the trip the traveller is choosing and the complexity in the trip. The tourist purchasing behaviour differs with the length of haul (Crouch, 1994; Murphy and Williams, 1999; Tideswell and Faulkner, 1999). With such developments around, travel agents started adopting smarter ways of transacting with the consumers. Improving real world shopping experience, offering value added services, knowledge about market, supplier offerings are the points travel agents should focus on (Bedard, 2005; Law et al., 2001; Wynne et al., 2000). With a greater edge in providing personalised services, Traditional Agents started leveraging IT technology by which they can compete with the new era online travel agents. As per the report given by PhoCusWright's Asia Pacific Online Travel Overview Fourth Edition, Online Travel Market in India has reached Rs 20,490 crores in 2010 and is expected to touch Rs 32,391crores in 2012.

TRAVEL SERVICE DISTRIBUTION

Fig. 1



The travel service in India has seen a sea change in the way it operates. The change was such that there was an increase in the number of travelers as well as number of travels per traveler. Today, consumer has varied choice in booking his travel plan through many modes…it can be through regular traditional agent or can be from online travel agent or directly get into service providers website and plan his travel. But definitely, the issues like comfort, convenience, security related to payment and refund, price per ticket, personalisation, trust and the security of the credit card / personal details has bearing on the type of channel travel consumer chooses.

In a move to directly serve the customer bypassing the travel agent, Service providers like jet airlines, kingfisher etc., came out with roboust ways of reaching consumers viz., through IVR, info through SMS, Mobile booking along with the online booking facility in their own website. Service providers went ahead in announcing discounts if purchased tickets through online, which probably posed direct threat to traditional travel agents. This initially was seen in airlines, but slowly now road travels. We find service providers' websites like rajtravels.com, kesineni.com, sharmatravels.com and also OTAs like redbus.com, ticketwala.com etc. Indian railways, on the other hand initiated the disintermediation process very smartly by marketing its own website www.irctc.co.in without giving much space to any OTA in this, though few players like makemytrip.com have made dent in this direction. A phenomenal growth has been observed as many train passengers today travel with their e-ticket in hand. With the existing conducive environment in the travel industry, a stiff competition previals among the players and this may likely to affect the sales volume of traditional travel agents.

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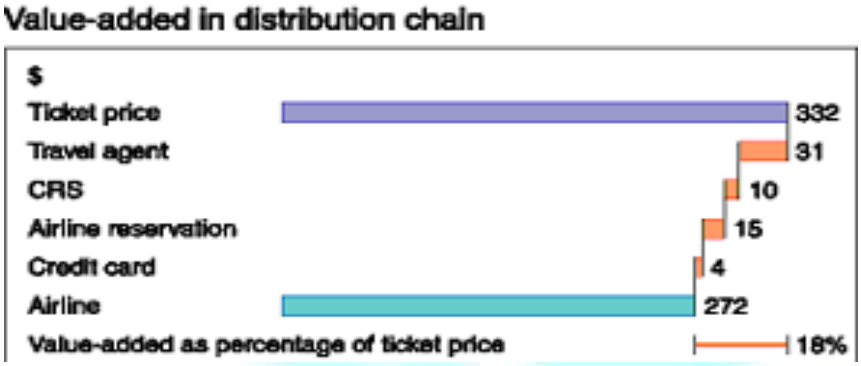
FIG. 2



Source: ComScore Report 2011

Travel service distribution is in the stage of transition with traditional channel existing along with online channels and service provider's websites providing almost similar booking solutions. In purchase of travel tickets, apprx 18% of the total value of the ticket goes to the intermediaries that operate between the Service provider and the Consumer. As heavy investments go into the capital investment for any travel service, (airlines especially) and as they get effected with higher variable costs, there is always a thought on cost reduction from the Service provider's top management. One such area where they can reduce the costs is distribution. And so many a time, Service provider tries to reduce the players in the channel so that the commission can be saved that can help to record higher profits. But, Service providers should consider the intermediaries role in performing specialized function. If the service provider can create a system (ex: irctc) that take care of all the important activities the key players in the traditional channel perform, it may be successful.

FIG. 3

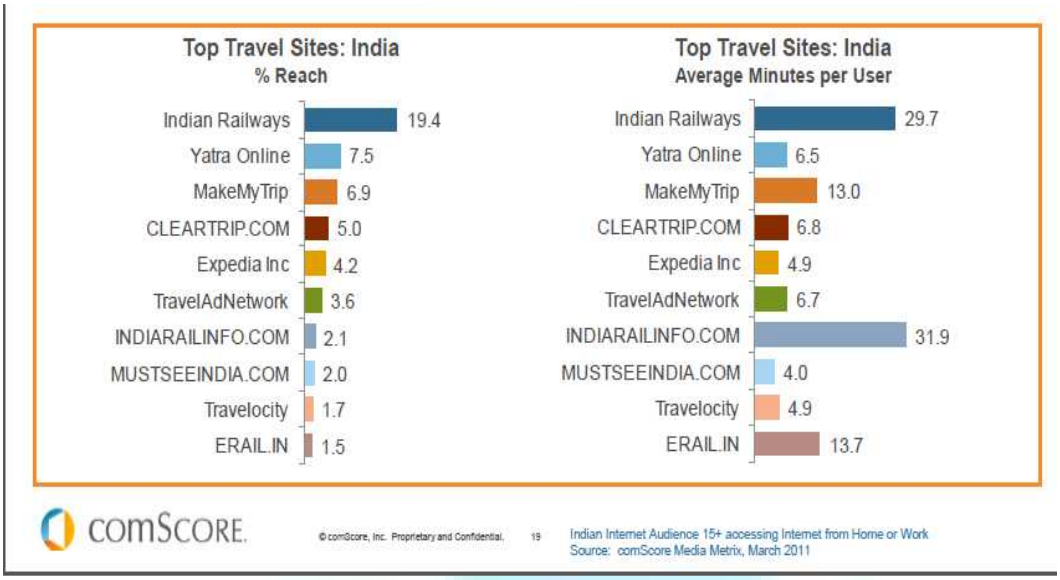
Source: ComScore Report 2011

ONLINE TRAVEL INDUSTRY & AGENTS (OTAs)

Online Travel Industry is the largest contributor to the B2C E-Commerce Industry, sized at Rs**. 5500 crores** for the year 2006-07 and was around **Rs. 7000 crores** by the end of 2007- 08. Online Travel Industry, comprises Air, Rail, Hotel Reservations; Car Rentals, Tour Packages. At 40% year on year growth, the online travel industry is a rapidly growing space, and its worth US$ 2 billion by 2008. Thanks to the IT technology and Internet usage, new business opportunities emerged and one of which was online travel agent. Online travel agents, whether it is Yatra.com, Makemytrip.com or irctc.com or even the recent one that is supporting road travel service - Redbus.com, came into existence as there was a gap that Service providers were not able to fill. Of course, this led to clear business opportunity, which was very promising. Many players identified the gap, gained the expertise both in reaching consumer and servicing with 100% accuracy. The main USP of OTAs is that they can provide consumer a plethora of choices at a single point, which makes him/her to clinch the best deal for their travel. This feature attracted customers to move towards the online travel agents, as it was more a one-stop solution for their travel plans.

According to ComScore report for the month of March, 2011- Top travel sites have been topped by Indian railways ticketing service websites – irctc.com, followed by Yatra.com, Makemytrip.com and other OTAs.

FIG. 4



According to the latest Internet and Mobile Association of India (IAMAI) report, online travel industry has grown at a rate of 81% in 2011 from 76% in 2009.

Online travel facts and figures

Source: makemytrip.com report

- Travel business Comprises half of all e-Commerce in India
- 84% of online buyers searching for online travel services
- Buyer profile**:** 28-44yrs Male; Owns car & hi-end appliances; Salaried and /or Self-employed

OPPORTUNITY

- Long tail evident - geographic spread of buyers over 500 towns
- Market expected to grow to $5 Bn by 2010
- Air product is the low-hanging fruit

CRITICAL ISSUES IN THE ONLINE TRAVEL BUSINESS

- Poor IT infrastructure both Internet & PC penetration that support online travel search, Booking and Payment.
- Low Inventory levels with respect to Bus travel or Hotels which is more or less limited.
- Limited penetration of credit cards and their usage online
- Consumer apprehensions – towards Security, Refund process, etc.,

TRADITIONAL TRAVEL AGENTS IN NEW ENVIRONMENT

Traditional travel agents had a great advantage to service customers closely and enjoy loyalty through personalisation, which can be one of their strength. For consumer, it was more a personal interaction or through telephone till date, which traditional agents were successful in. But, when it comes to comparision of prices, travel service features etc., consumer is not aware and can get proper help provided the agent has sufficient knowledge and information access. Also, the act of choosing service provider is left more with Agent than the consumer himself. This kind of a situation may be helpful for the customers who are unable to do their travel plan, but it is not for those who require choice of selecting service provider. It becomes still more complex if customer is planning for a tour package that includes car rental, Hotel etc.

With the growing usage of internet, traditional travel agents have learnt to leverage from it. Travel agents have positive attitudes towards internet applications and believe that they can take advantage of the internet technology (Law et al., 2001; Maselli, 2002). Major factors to be worked out to build confidence of travel agencies in using the internet as an effective marketing tool are - secutiry concern, tehnology needed and cost effective concerns (Cai et al., 2004, Chen and Yen, 2004; Wan, 2002, Yung, 1998). Travel agents, traditional intermediaries and tour operators are being given new roles in the distribution channel (Law et al., 2004; Nysyeen and Lexhagen, 2001; Park, 2000) and will remain secure if their advice offering capability could be strengthened by the presence of the internet rather than just being like a booking agency (Chu, 2001; Govers et al., 2000; Law et al., 2004; Ozturan and Roney, 2004)

It is difficult for online travel services to emulate the advantages offered by traditional travel agents. When things go wrong, it's amazing how much the customers want us to help them," said one New England travel agent who requested anonymity. "When you use a brick-and-mortar company, you're buying security."

- Traditional travel agencies continue to play role (Source: Las Vegas Business Press)

The traditional travel companies by improving technology can offer fantastic websites as well as personal touch that customers expect from travel agents. Nevertheless, it is easier for traditional travel agent to offer the advantages of an online travel agent, than the other way around. Definitely, the internet is going to be the there even with traditional agents.

But, while more people are booking everything online, this doesn't signal the demise of (brick-and-mortar) travel agencies. They've had to adapt, and many have done so admirably.

Cultural speculation in the online travel industry has been ignored for long. This is where Local travel advisor has an edge over the online travel agent, who relies on technology than personal touch. A local travel agent is the best source for information and support for any travel solution as he has hands-on experience and

understanding of local terrain. Simple tips like where to find, let's say finding the right beach resort in south Goa, or probably the accessories you might not want to carry while holidaying at the backwaters of Kerala is what makes the traditional travel agent a hit.

CONCLUSION

Travel service distribution is definitely in transition with Service providers continuously identifying new channels to serve customers directly. However, the process of disintermediation has its own challenges given the stake holders in the business. As Service providers cannot afford to loose the business from any intermediary, there should be a business arrangement that also encourages traditional/online agents partially, if not completely. This Model or Business arrangement to be in such a way that it provides cost benefit for the Consumer, generate higher volumes for agent (both OTA or traditional). Perhaps, this would work as a trade-off for Service providers. The more service provider directly meets and renders service to the consumer, the more profitable the business is and so every travel service provider is trying to directly get in touch with the customer. At the same time, Service providers are worried about the reach in the market.

An attempt to directly reach the consumer is carried out by Indian Railways and few Bus services, may be because less inventory to sell or there is no or less competition.

Travel Service providers with their huge investments are always on the opinion that they are providing the actual service and so they should get the higher pie than any other player in this business. Many a time, there were instances of arm-twisting attempts by Service providers with travel agents. On the other hand, we have Traditional & Online agents with their expertise of providing personalized services are continuously trying to strengthen. Also, there are lot of associations formed all over country like TAAI (Travel agents association of India), IATO (Indian Association of Tour Operators), ATAI (Association of Travel agents of India) TAFI (Travel Agents Federation of India) etc., which may object the disintermediation process, if at all it tends to happen.

The Travel distribution market may witness few changes over the years to come, some of which has already started……..

a. ***One channel member taking lead/advantage:***

(i) Kingfisher Airlines Introduces New Mobile Ticketing Solution (May 27th, 2009 - 12:50 am ICT)

(ii) Jet airlines provide IVR facility to book tickets through.

** Are we moving towards m-commerce?...if yes, Is it threat to agent?*

b. ***Takeovers & Agreements for mutual cooperation can evolve as markets are growing at a faster pace and becoming matured.***

(i) Global online travel firm Travelocity Global has acquired India's leading hotel distribution network firm Travel guru for an undisclosed amount(…Aug 18)

(ii) Cleartrip.com ties up with ItzCash for online travel booking **(***BS Reporter / Mumbai February 27, 2009***)**

(iii) Jet airways signs agreement with Travelocity for Hotel Bookings

C. Online travel agents face the heat along with traditional?

Online travel is going from Internet to mobile ie., e-travel to m-travel. This shift in technology may pose a challenge to existing players including OTAs.

With Different kinds of channels prevailing, Consumer is given varied choices for his/her travel plan. Few channels may provide Convenience more and less perceived safety and others may provide 100% security. This may provide the marketers a scope for segmentation of travel consumers and study their decision making process so as to have better marketing strategies in place. Probably, there can be studies in future on Segmentation of travel customers and so the market share or growth for OTAs, Traditional, Mobile, Online etc.

REFERENCES

1. Bedard.F (2005), "Case study of the successful strategic transformation of the 'brick and mortar' travel agency into 'clicks and mortar' business – lessons learned from a small, independent Travel agency in Cananda" *Information and Communication Tehnologies in Tourism*, Springer-Verlang, Wien/ Newyourk, NY. PP 417-39.
2. Christian, R. (2001). "Developing an online access strategy: issues facing small – to – medium sized tourism and hospitality enterprises". *Journal of Vacation Marketing*, Vol. 7, No.2, pp. 170-178
3. Chu R. (2001), "What online Hong kong travelers look for on airline / travel websites?'' *International journal of Hospitality Management*, Vol 20, No.1, pp. 95-100.
4. Comscore media Matrix report 2011
5. Crouch, G.I. (1994), "Demand elasticities for Short-haul versus long-haul tourism", *journal of travel research*, Vol.33, No.2, pp 2-7.
6. Phocus Wright Online Travel Review – Asia Pacific Report – 2011
7. Rob Law, Kenith Leung and James Wong (2004) "The impact of the internet on travel agencies", *International journal of contemporary Hospital Management*, Vol 16, No.2, pp 100-107.
8. Vasiliki, V, Costas (2006) "Tourism agents attitudes on internet adoption: an analysis from Greece, *International journal of contemporary Hospital Management*, Vol 18, No.7, pp 601-608.

AN EMPIRICAL STUDY OF CONSUMER BEHAVIOUR TOWARDS FINANCIAL PLANNING AMONG FACULTY MEMBERS OF DIFFERENT COLLEGES OF PUNJAB TECHNICAL UNIVERSITY

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ABSTRACT

A product or service is the heart of marketing mix. Without a product there is no chance of satisfying the customer's need. The customer is the king of the market. The life insurance companies deals in intangible product. The instinct and need for security against uncertain risk is a motivating force for human behaviour and action. Insurance is universally acknowledged as it eliminates "risk" and provides timely aid to the family in case of any contingency. The main purpose of the study is to understand the investment pattern adopted by the consumer at large. A sample of 100 faculty members of different colleges of Punjab Technical University is drawn on the basis of convenience sampling. The data is collected using a well structured questionnaire. Efforts are made to represent the demand pattern of financial planning and the factors influencing purchase of these tax saving instruments.

KEYWORDS

consumer behavior, different investment schemes, faculty members, financial planning and tax slabs.

INTRODUCTION

Once bedecked with smart saving and fine trimming the windows of most web browsers wearing "Save Tax" these days. Though it is hard enough to find a good tax saving instrument, but that does not stops an individual and most of us end up picking the stuff which is not required. The word "SAVE TAX" triggers us to leave a hole in the pocket, if it is not planned and analyzed well according to our needs.

In the months of December to March, the life insurance agents are found to be the busiest people for the season as they are every now and then busy in appointments with tax savers where they are offered investment plans to save money and make money instead of insurance, out of what and how much they will get on maturity or before and wherefrom. It is a common practice of an insurance agent, as the common man is very happy to see the money growing like anything but is it the true picture of insurance plans.

As the March approaches, it is a human tendency, to start investing in different financial instruments to save tax and they are busy finding solutions and the agents of Post office, Life insurance companies, Banks, etc become the busiest persons on this earth.

In India, the term investment is related to tax saving instruments in different categories and the benefits associated with them. It has been observed that general trend of a common man is → Total Income - expenses = savings; whereas, we should practice → Income – savings = expenses

And they generally practice putting money into something with an expectation of gain without thorough analysis, without security of principal, and without security of return.

In India, As per Union Budget 2011: The financial year is the current closing year i.e. Financial year April 2011 – March 2012): All savings done during the financial year are taken into consideration. As per the income tax slabs of different assesses as under.

TAX SLABS FOR MALE

(less than 60 years)

- Income: up to 1.8 lakh -- No Tax; Income: Rs 180001 to 5 lakh – 10%; Income: Rs 500001 to 10 lakh -- 20 %; Income: above Rs 10 Lakhs – 30%

TAX SLABS FOR WOMEN (< 60 YEARS)

- Income: up to Rs 1.9 lakh -- No tax; Income: Rs 190001 < Rs 5 lakh -- 10 %; Income: Rs 5 lakh to Rs 10 lakh -- 20 %; Income: above Rs 10lakh -- 30 %

TAX SLAB FOR SENIOR CITIZEN (ABOVE 60 YEARS)

- Income: up to Rs 2.5 lakh -- No tax; Income: Rs 2,50,001 to Rs 5 lakh – 10%; Income: Rs 500001 to Rs 10 lakh – 20%; Income: > Rs 10 L—30%

There are various tax saving instruments available where investments/contributions qualify for Section 80C deductions,

DIFFERENT TAX SAVING SCHEMES AVAILABLE IN INDIA IS AS UNDER

National Saving Certificate, Post Office time Deposit, Employees Provident Fund, Public Provident fund, Post Monthly Income Scheme, Kisan Vikas Patra, Senior Citizens Savings Schemes, Life insurance policies, Fixed Deposits, Equity Linked Saving Schemes, Unit Linked Insurance Plans, Relief Bonds, Medical insurance (health insurance)(covered under sec 80D), Housing Loan (Principal), Tuition fees , Pension Policy, and Infrastructure bonds.

In this paper, the researcher has studied the importance of personal financial planning of an individual. The study stresses to find out the investment behaviour of the investors mainly Faculty members of different colleges of Punjab Technical University according to their designation. What importance does insurance hold in the consumer's investment portfolio? Whereas in Indian Insurance market, with introduction of private companies in life insurance, the scenario of insurance sector has changed from security to investment opportunity.

The term insurance contract has been defined as A promise of compensation for specific potential future losses in exchange for a periodic payment. Insurance is designed to protect the financial well-being of an individual, company or other entity in the case of unexpected loss. Some forms of insurance are required by law (e.g. motor insurance), while others are optional (e.g. Medical insurance, life insurance).

The concept behind insurance is that a group of people exposed to similar risk come together and make contributions towards formation of a pool of funds. In case a person actually suffers a loss on account of such risk, he is compensated out of the same pool of funds. Contribution to the pool is made by a group of people sharing common risks and collected by the insurance companies in the form of premiums. It is also designated as forceful saving instrument for which a person is bound to pay for longer period.

REVIEW OF LITERATURE

Peter F Drucker has illustrated "A well designed product would answer most customer needs. The needs of different cultures, populations and regions may not be homogenized into one product".

According to Professor Theodore Levitt of the Harvard Business School, the study of Consumer Behaviour is one of the most important in business education, because the purpose of a business is to create and keep customers. The study of consumer behaviour helps management understand consumers' needs so as to recognize the potential for the trend of development of change in consumer requirements and new technology. The activities directly involved in obtaining, consuming, and disposing of products and services, including the decision processes that precede and follow these actions.

Jha (1999) has commented that improvement in life span and advancement in medical science had changed the customer's needs for insurance products worldwide. The focus of the insurers in matured market of the west had shifted to pension, health care and protection products. But the scenario was totally different in Indian market. There was a massive mismatch between customers need and their buying of insurance products.

Kapse et al (2003) has argued in their paper that in the changing scenario for the insurance sector there is going to be a good opportunity for insurance sector to expand its market base.

Hasanbanu (2007) concluded that there is significant relationship between age, educational qualification, gender, occupation and income of respondents and their level of investment while taking LIC policies and further concluded that there is no significant relation between marital status, family type, and family size and their level of investment while taking LIC policies.

OBJECTIVE OF THE STUDY

- To understand consumer's current knowledge, attitudes and practices regarding future investment planning.
- To find the popular investment option among faculty member for financial planning
- To find out the trend of investment towards life insurance by different academicians.
- To find out the factors influencing purchase of investment products.

SCOPE OF THE STUDY

- It aims to study the popularity of the different investment schemes.
- It assesses the overall quality of services provided by the insurance companies.
- It will definitely help the insurance companies to increase their market share.

LIMITATION OF THE STUDY

- It is assumed that the investment details given by the respondents are true and honest.
- The study is applicable only to the faculty member of different colleges of Punjab Technical University and not to other population.
- Entire analysis of the study, its findings and conclusions are based on the data collected through 100 samples.

RESEARCH DESIGN

- Research design constitutes the blue print of collection, measures and analysis of data. Here in this study, the researcher used Descriptive research design, which is concerned with describing the characteristics of a particular individual or of a group. This survey was conducted using in-person delivery techniques.

RESEARCH METHODOLOGY

Data collection method

1 PRIMARY

a. Questionnaires : 100 questionnaires were administered to people from diverse educational and occupational backgrounds within varying age groups

b. Personal interviews: the attitude of the investor has been measured by the survey methods like face to face interviews.

2. SECONDARY

a. Website of different insurance companies is visited.

b. Research articles: from books, publications, magazines and journals.

DATA ANALYSIS

OBSERVED FREQUENCY

TABLE 1: THE SUMMARY OF THE SURVEY ACTIVITY

Designation	Govt LIC	Pvt LIC	Total
Lecturer	23	2	25
Sr Lecturer	21	2	23
Assistant Professor	16	1	17
Professor	35	0	35
	95	5	100
Expected Frequency = 95/4 = 23.75			

$\chi^2 = \frac{\sum (O-E)^2}{E} = 8.20$

Degree of freedom df (c-1)= df(4-1)=df(3)=7.815 @ 95%

χ^2 at significance level of 5% =7.815 which implies that the H_a is accepted and

H_o is rejected as the result lies in the acceptance zone.

H_o → Designation and investment in Life insurance are dependent on each other

H_a→ Designation and investment in Life insurance are independent of each other

Inference: Table 1 reveals the Government insurance sector LIC covers the entire market of insurance. It also reveals that irrespective of category, almost all teachers preferred LIC as opposed to Private insurance companies where Professors prefer it the most and assistant professors prefer it the least.

TABLE 2: ANNUAL INVESTMENTS IN DIFFERENT TAX SAVING SCHEMES AVAILED AS PER ACADEMIC DESIGNATION

OBSERVED

Designation	LIC	PPF	Others (NSC/KVP, Housing loans)	Tuition fees	Total
Lecturer /Sr Lecturer	16	20	6	13	55
A.P/Professor	7	14	9	15	45
	23	34	15	28	100

$\chi^2 = \frac{\sum (O-E)^2}{E} = 4.367$ df(r-1)(c-1) = (2-1)(4-1)=1X3=3 at significance level 5%=7.816

H_0 : O=E : the designation and investment options availed are independent of each other

H_a : O =E : the designation and investment options availed are dependent upon each other

Inference: Though value of chi square is less than table value, it implies that null hyposthesis is accepted and alternate hyposthesis is rejected. Hence, it is evaluated that the designation and investment options availed by the faculty members are independent of each other.

TABLE 3: SHOWS INVESTMENT IN DIFFERENT SCHEMES

Investment options	O	E	$(O-E)^2$	$(O-E)^2/E$
LIC	23	20	9	0.45
PPF	33	20	169	8.45
NSC/KVP	10	20	100	5
Housing Loans	6	20	196	9.8
Tuition fees	28	20	64	3.2
Total	100	100		26.9

H_0→ Investment options are similar
H_a→ Investment options are not similar
Df (5-1) = 4 Value of X2 at Significance level of 5% is 9.488 which implies

- H0 is rejected
- Ha is accepted.

As the value of Chi square test is much higher as compared to the table value hence Ho is rejected.
Inference: Investment options LIC, PPF, NSC /KVP Housing loans, Tuition fees are not same and they are significantly different. And PPF is the most preferred option for tax planning for academicians.

TABLE 4 : PRIORITY OF FINANCIAL PLANNING	
Retirement planning	35
child's education	25
marriage of kids	10
safety against risk	7
wealth creation & Tax benefits	7
critical illness and physical disability	16
Total	100

Ho → Priority for financial planning is significantly similar.
Ha → Priority for financial planning is significantly different.
df (6-1) = 5; value of $\chi 2$ at significance level of 5% is 11.071
Ho is rejected
Ha is accepted.
Priority for financial planning is significantly different.
Inference: Table 4 reveals that Academicians major concern for financial planning is retirement as compared to other concerns like child's education and safety against critical illness and physical disability due to accident and risk coverage towards uncertainty is least concern for financial planning.

TABLE 5 : FACTORS INFLUENCING FOR PURCHASING INSURANCE POLICIES			
			observed
		No	Yes
a)	reputation of company	80	20
b)	Friends	75	25
c)	Advertisement	90	10
d)	Relatives	85	15
e)	Advisor	50	50
f)	Proximity	90	10
g)	tax benefits	75	25
	Mean of population replied "yes" to the various options		22.143

df (n-1) =6 for $\chi 2$ at significance level of 5% is 12.592
Ho is rejected
Ha is accepted
All the factors are not influencing for purchasing insurance equally. There is a significant different in seven factors for influencing for purchasing insurance.
Inference: Table 5 reveals that advisors, friends and tax benefits are the most influencing factors in purchasing the insurance

TABLE 6: SATISFACTION RATE OF THE SERVICES PROVIDED BY THE COMPANY

Satisfaction rate of the services provided by the company						
	very satisfied	satisfied	neutral	not satisfied	not at all satisfied	
a. Services provided by the financial advisor	20	10	1	1	2	34
b. Services provided by the branch maintaining the policy	10	12	4	1	0	27
c. Bonus / Returns	15	12	7	5	0	39
Total	45	34	12	7	2	100

Inferences drawn in the above three cases is as under
1. Services provided by the financial advisor
H_o : Xp < 4.7 H_a : Xp > 4.7
T_c = (4.7000 – 4.1481) ÷ 0.1875 = 0.3765 ÷ 0.1875 = 2.008
t_t (df= 33) @ 95% = 1.6924 (1.6924 < 2.008) which implies that Ha is accepted
2. Services provided by the branch maintaining the policy
H_o : Xp < 4.5 H_a : Xp > 4.5
T_c = (4.5000 – 4.3235) ÷ 0.157= 0.3765 ÷ 0.1875 = 9.413
t_t (df= 26) @ 95% = 1.7065 (1.7065 < 9.413) which implies that Ha is accepted

3. Bonus / Returns

Ho : Xp < 4.2 Ha : Xp > 4.2

T_c = (4.2000 – 3.9487) ÷ 0. 168 = 0.2513 ÷ 0.168 = 1.4958

Z_t (DF=38) @ 95% = 1.6860 (1.6860 < 1.4958) which implies that H_0 is accepted

Inference: Hence, Table 6 reveals that the faculty members are overall satisfied by the services provided by the financial advisor and branches of insurance companies and on the other hand the bonus and returns on the policy is not a matter of great consideration for them.

FINDINGS OF THE STUDY

1. Insurance plans and PPF are most preferred schemes for investment for financial planning as compared to others tax saving instruments.
2. Advisors, friends and tax benefits are the most important influencing factors in purchasing the insurance.
3. The faculty members prefer to invest in Retirement and children education plans.
4. The faculty members have capacity to invest in insurance plans if they are guided and good financial advisors with complete knowledge of products approach them.

RECOMMENDATIONS

1. This study reveals that there is ample business opportunity available in the insurance sector. The Govt sector insurance companies are still more appreciated as compared to private insurance companies due to the service provided by the branches and their financial advisors.
2. If the money invested in other instruments like PPF, NSC, FDR can be diverted towards life insurance investment schemes; this will help them enhance their business

REFERENCES

RESEARCH PAPERS

1. Dr. M C Garg and Dr. Anju Verma "An empirical analysis of product policy in Life insurance industry in India", Gurukul Business Review Vol. 5, Spring 2009, pg 90-100.
2. Dr. V K Gangal and Naveen Kumar, "Insurance Services Marketing in India; some issues" Prabhadhan Guru (Jul – Dec 2008) A research journal of Mgmt & IT –, Vol 1, Issue pp-22-25
3. Financial Planning for Old Age Journal of insurance institute of India, 2008, issue Feb.
4. Hasanbanu, Dr S and Nagajoyhi, R S, A study of insurance perspective in Uthamapalyamtaluk, Indian Journal of Marketing, May 2007, pp 10-16
5. Indian Journal of Marketing, May 2010 "Business opportunities for the insurance sector"
6. Kapse, Sampada and Kodwani,DG " Insurance as an investment option, The Insurance Times, May 2003 pp 15-21
7. Mala Srivastava, "An Empirical analysis to study the impact of switching cost on switching behaviour in Indian Insurance sector" Journal of Insurance and Risk Management, Vol. VI, Issue 15, December 2009; pp 47-59
8. R Haridas, P Palanivelu : A study on the behaviour of Policyholders towards Life insurance products in Coimbatore, Journal of Insurance and Risk Management, Vol. VIII, Issue 15, Dec 2009

WEBSITES

9. www.equitymaster.com
10. www.irdaindia.org
11. www.licindia.com
12. www.moneycontrol.com
13. www.unionbudgetindia.com

AN INSIGHT INTO SUSTAINABILITY REPORTING PRACTICES - STUDY OF ITC & TATA MOTORS

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ABSTRACT

The article tries to highlight how human led economic activities become a curse to the society and environment. It throws light on how the companies are disclosing their performance towards sustainability at macro level by means of sustainability accounting and reporting framework. Today many mammoth MNCs are taking up such projects and reporting measures voluntarily. Corporate sustainability has now become a part of corporate activities.

KEYWORDS

Community Development, Corporate Sustainability, Economic Performance, Educational Development, Environmental Performance, Occupational Health & Safety, Socially Responsible Investment, Sustainability Accounting, Sustainability Reporting, Social Performance, Triple Bottom Line, Water Management.

INTRODUCTION

Earlier accountants' community believed that accounting profession has nothing to do with environment and society. Since the Industrial Revolution in 18th century, the corporate entities of that time and their immediate successor with their present existence in the form of gigantic MNCs have continuously been degrading natural environment, snatching away rare and valuable natural resources and also been destroying every balance of nature and environment; be it natural resources, be it biodiversity, be it biosphere surrounding all of us. Until recently, most of the corporations have guided their all activities keeping in mind their economic considerations and benefits. They have always thought of development, which is obviously economic development. Having concentrated more on economic perspective of development, they have forgotten to look back and evaluate what they had committed so far. If they would have taken slight pain to look back and evaluate what they have so far done, they could have discovered how they spoiled environment, socio-cultural norms, ethics and natural beauty. All these, in turn, have called a bleak future for the entire humanity and planet. The present notion of development has become dangerous for corporate sustainability, survival of the people and natural virginity.

REVIEW OF LITERATURE

Garg (2002) analysed the concept of sustainability accounting/ reporting and its key factors such as social, environmental and economical. The paper throws light on the principles for providing assurance on sustainability report.

Ghosh and **Chakroborty (2005)** took an attempt to draw the attention of alarming condition of environmental degradation, which might endanger the sustainability of future generation. They basically concentrate on environmental accounting and reporting. Their paper illustrates the different methodological approaches of environmental accounting, which is by and large used for measuring and reporting economic impact of environmental pollution in different levels.

Sarker (2006) has examined the link of environmental accounting and reporting with sustainable development. He suggests that environmental accounting is essential for an organisation implementing the concept of sustainable development as it facilitates to take into account ecological activities of an organization in economic measurement.

Rob Gray's (2006) paper takes its starting point from the ICAEW's 'Sustainability: The Role of an Accountant'- one of the outputs from the Institute's Information for the Better Markets Initiatives. He seeks to investigate the issues related to sustainability in some detail by considering, in turn, what is meant by 'sustainability', current state of affairs in sustainability reporting and the extent to which social disclosure can be said to be related to the social and/ or financial performance of organisations. His analysis suggests that sustainability reporting consistently fails to address sustainability and the increasing claims that financial and social performances are mutually determined and determining is probably incorrect and founded upon a tautology. The central theme of his paper is that sustainability is a matter of such concern that it must be treated, at least, as important as any other criteria currently facing business, that sustainability reporting needs to be developed in a mandatory context as urgently as possible and that continuing focus upon the tautologies of social responsibility is a particularly foolish and dangerous for the enterprise.

Bhattacharya (20007) takes an attempt to embrace the global new trend of sustainability measurement. He examines corporate sustainability and social responsibility of different Indian and foreign corporate entities and tried to set a link between CSR and performances of corporate entities.

Majumdar (2007) investigates how triple bottom line reporting practice embraces corporate sustainability. She examined TBL reporting practice of several Indian companies and analysed how several companies in India initiated sustainable development approach and sustainability reporting as part of corporate governance, The central theme of her paper is to find out whether in India the companies are practicing sustainability just to have a clear image in the eyes of the stakeholders in the form of green wash or is it a sincere effort from their side.

Singh (2007) has made an attempt to evaluate performance of the companies on corporate sustainability. His study includes instances of several other countries regarding sustainability norms adoption. This paper shows in detail how adoption of sustainability reporting by some Indian MNCs improves corporate behaviour and helps in social and environmental development in particular.

Chakroborty (2008) gives an overview of increasing awareness among the stakeholders about the environmental problems caused by economic activities and argues that with the increasing awareness among different people, corporates could no longer remain indifferent to green issues.

Saha and Gupta (2011) mainly concentrated on the assurance aspects of reports. Their paper discloses global best reporting practices and guidelines along with the process of conducting assurance on the sustainability reports.

OBJECTIVES OF THE STUDY

The primary objectives of the study are to understand the sustainability accounting and reporting framework, development of reporting practices in India and abroad including the recent position of such reporting practices. In addition to these, another objective is to gain an understanding about corporate sustainability activities adopted by ITC Ltd. and Tata Motors as mammoth Indian corporate entities.

RESEARCH METHODOLOGY

The study under research is based on the secondary data only. The study is based on the ITC's Sustainability Report 2011 and Tata Motors Sustainable Development Report 2011, which were obtained from the websites of the respective companies.

CONCEPTUAL FRAMEWORK OF SUSTAINABILITY ACCOUNTING & REPORTING

Sustainability accounting is a framework for measuring and reporting corporate performance against economic, social and environmental parameters. In other words, sustainability accounting & reporting (SAR) is a framework that evaluates the impact and performance of the companies on 3 Ps (i.e. Planet, People and Profit) and tries to embrace corporate missions and visions. It is also known as Triple Bottom Line (TBL) accounting.

A sustainability report refers to a single, consolidated disclosure that provides a reasonable and balanced presentation of performance over a fixed time period (Global Reporting Initiative, 2006). Such reports may include quantitative and qualitative information on their financial/ economic, social/ ethical and environmental performance in a balanced way.

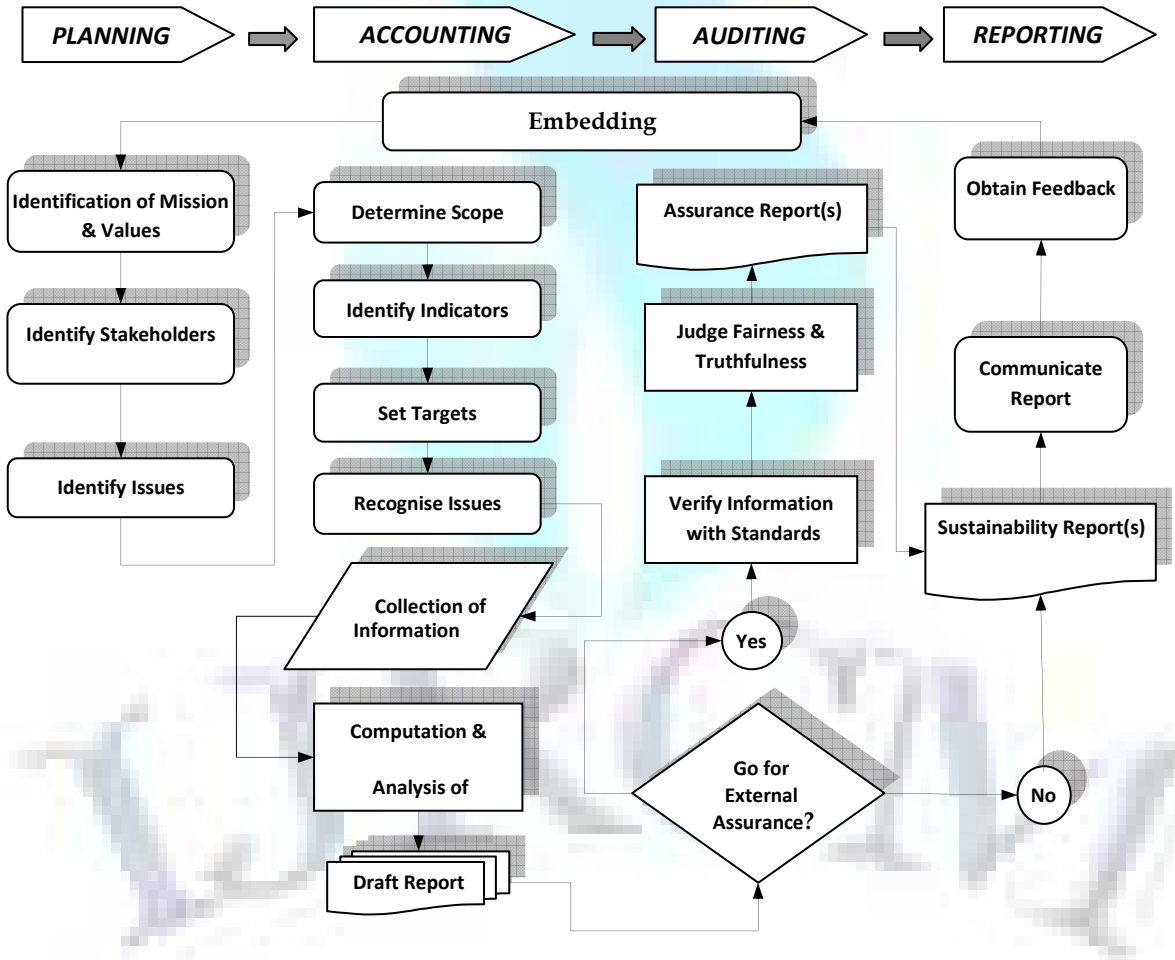
PROCESS OF SUSTAINABILITY ACCOUNTING & REPORTING

An organisation intending to record and report its performance against triple bottom line of sustainability may proceed in the ways mentioned as follows:

- **Planning-** It involves consideration of three questions –who are the stakeholders? What are the mission and values and which issues are to account for? Scope of SA also depends on these issues.
- **Stakeholders' Engagement-** It involves which stakeholder should be included and understanding what matters about performance.
- **Recognition-** It involves methodologies for selection of items to be included and accounted for.
- **Measurement-** It provides various methods by which numeric data may be computed in a form which is comparable, understandable and reliable.
- **Assurance -**It is the verification of fairness and truthfulness of information disclosed relating to economic, environmental and social sustainability of the organisation by a trusted independent authority.
- **Reporting & Disclosure-**It is the specific format of disclosing and communicating information relating to corporate sustainability to diverse stakeholders.
- **Communication & Feedback-** Communication of Sustainability Report either with Annual Report or on standalone basis or through organisation's website and obtain feedback and responses from stakeholders.
- **Commitment to Improve and change**- It is a dynamic process. So it must improve and change so as to disclose real changes in economic, social and environmental phenomena.
- **Embedding-** It is the institutionalisation of the entire process of accounting and reporting. In other words, it relates to adoption of sustainability process into mainstream operations, systems, policies etc.

The process of sustainability accounting and reporting is shown with the help of following flow chart (table 1).

TABLE 1: SUSTAINABILITY ACCOUNTING AND REPORTING PROCESS



STANDARDS OF SUSTAINABILITY REPORTING & ASSURANCE

The organisations generally use the following global standards to report their sustainability performances. Among the standards of disclosure Global Reporting Initiative (GRI) guidelines are used by most of the organisation worldwide. According to KPMG Survey 2011, 80 % of the Global Fortune 250 companies and 69 % of the national 100 companies of 34 countries adhere to GRI guidelines.

REPORTING STANDARDS

1. **The Global Reporting Initiative (GRI) Guidelines-**It is an international multi-stakeholder effort in order to create a common framework for reporting the performance of the companies against social, economic and environmental triple bottom line of sustainability. It was established in 1997 by the Coalition for Environmentally Responsible Economies (CERES) in partnership with the United Nations Environment Programme (UNEP). The first GRI Guidelines G1 were released in the year 2000 after having a lengthy consultation period and extensive pilot testing in companies such as Body Shop, Ford, and British

Airways. These represented the first global framework for comprehensive sustainability reporting. Immediately following the release of the 2000 guidelines, GRI initiated another extensive and wide ranging consultation process involving hundreds of individuals and organisations. The next revised guidelines were published in 2002 which is known as G2. A similar consultation process and feedback preceded the release of the third generation of the GRI, known as G3, in 2006. In the year 2011, GRI released revised version of G3 guidelines known as G 3.1. ***In the year 2011, GRI started formulating the new generation guidelines G4 and it is proposed to be issued in the year 2013.***

2. **The Social Accountability 8000 Standard (SA 8000 ®)-** It is a global work-place standard launched in 1997 that covers key labour rights such as working hours, forced labour and discrimination and crucially certifies compliance through independent accredited auditors. It was developed after having consultation with a broad range of stakeholders such as workers, employees, NGOs and of course, labour unions. It is based on the core conventions of International Labour Organisation (ILO), the United Nations Convention on the rights of the Child and the Universal Declaration of Human Rights. By June, 2009, SA 8000 had certified nearly 2,010 facilities in 64 countries representing 66 industries and 11,19,145 employees. The SA 8000 ® had been revised in 2001. The third issue of SA 8000 ® was released in 2008.
3. **AA 1000 Assurance Standard-** It was launched in 2002 by UK based AccountAbility. It was the first attempt to provide a coherent and robust basis for assuring public report and its underlying process, systems and competencies against principles of accountability and stakeholders' engagement. It was specifically designed to be consistent with the GRI guidelines. AA 1000 AccountAbility Principles Standard (AA 1000 APS) 2008 is used by organisations to develop an accountable and strategic response to sustainability including reporting.

ASSURANCE STANDARDS

1. International Standard on Assurance Engagements (ISAE) 3000- ISAE 3000 on 'Assurance Engagement Other Than Audit or Reviews of Historical Financial Information' was developed by the International Auditing and Assurance Standards Board (IAASB) of the International Federation of Accountants (IFAC). It is used by the assurance providers of sustainability reports to guide their assurance engagements.

2. AA 1000 Assurance Standard (AA 1000 AS), 2008- It evaluates the adherence of an organisation to the AA 1000 APS and the reliability of associated performance information.

The organisations in different countries are also required to comply with different mandatory and voluntary standards, codes and regulations etc. relating to environmental and social, ethical aspects of business.

LIMITATIONS OF SUSTAINABILITY ACCOUNTING & REPORTING

There are some problems which act as hindrances of sustainability accounting. These are as follows:-

- **Perceived High Cost:** Cost includes research, engagement, data collection and analysis, report production, auditing, communication and management etc. of sustainability accounting systems. For example, the external verification cost of the Co-operative Bank, UK in 1999 was around 50-60 pounds/ annum.
- **Format:** No mandatory format of disclosing sustainability issues has yet been formulated. The formats of disclosing sustainability performance of a company issued by several international organisations are mainly voluntary and recommendatory in nature. As a result they are not binding on the company.
- **Insufficient Information & System:** Organisations, generally, do not maintain proper systems and information relating to society and environment.
- **Lack of Standard:** There is a lack of standard to recognise and measure sustainability accounting information. Neither the International Accounting Standard Board (IASB) nor the Financial Accounting Standard Board (FASB) of USA has extended any standard exclusively meant for sustainability accounting and reporting. However there are some mandatory standards for disclosing environment related aspects which are mainly issued by national governments of different countries and applicable only for that country whose national government or regulatory body/ bodies has (have) issued those standards or guidelines. There is, of course, several voluntary standards issued mainly by the Global Reporting Initiative (GRI), Social Accountability organizations etc. Since these are not mandatory, companies have not yet shown their interests and willingness to adopt them. As a result there is no harmonisation among the companies which are not reporting on the basis of GRI or SA 8000 or AA 1000. Moreover there is lack of unity among the voluntary standard setting organisation regarding the scope of disclosure and items to be disclosed. For example, GRI guideline has concentrated on the triple bottom line aspects of corporate sustainability disclosure, whereas AA 1000 and SA 8000 have concentrated more on social disclosure.
- **Secrecy and Unwillingness:** Most of the companies do not want to disclose information which is considered to be secret. They are eager to disclose information on the areas on which they have either strong commitment or performed well.
- **Voluntary Assurance Requirement:** Till the date, assurance of sustainability report by external assurance provider is not mandatory. So it mainly depends on the companies whether to get sustainability report assured by some external assurance provider or by their internal audit departments or no assurance required.

GLOBAL TRENDS OF SUSTAINABILITY ACCOUNTING & REPORTING

SAR is not mandatory. Since there are no mandatory global standards to be followed by the companies and others, consensus is yet to achieve relating to the name, form and contents of the reports. However it is treated as an integral part of corporate social responsibility (CSR). In a report of 2005, the following is the trend of CSR (often treated as replica of the concept of sustainability) in major countries of the world:

TABLE 2: TABLE SHOWING CSR COMPLIANT COMPANIES AROUD THE WORLD

Year	*(Percentage of Companies which are CSR Compliant)*								
	US.	Japan	UK	Korea (South)	China	Russia	India	Brazil	Canada
2002	30	64	83	40	-	-	-	-	-
2005	35	83	100	60	18	8	6	5	1

Source: Financial Express, Page- III, 6th August, 2005.

There has been a clear increase in percentage of the large 100 companies in a number of countries publishing environmental or sustainability report. KPMG International Corporate Responsibility Reporting Surveys have clearly shown that number of companies reporting on sustainability issues has continued to rise. It is evident from the following table:

TABLE 3: TABLE SHOWING SURVEY OF G 250 AND N 100 COMPANIES BY KPMG

% of Companies							
	1993	**1996**	**1999**	**2002**	**2005**	**2008**	**2011**
G 250	-	-	36	45	64	83	95
N 100	12	18	24	28	41	53	64

Note: G 250-Top250 largest companies of Fortune Global 500 and N 100- Top 100 companies from different countries [16 countries (2005, 2005), 22 countries (2008), 34 countries (2011)].

Joint research survey conducted by the American Institute of Certified Accountants (AICPA) USA, Chartered Institute of Management Accountants (CIMA) London and Canadian Institute of Chartered Accountants (CICA) Canada published in December 2010 shows that among large companies, 29 % include sustainability information in their annual reports, 17 % publish separate sustainability reports and 13 % do both. Among small and medium sized (SME) companies these are 6 %, 8% and 2% respectively.

Research survey by Radley Yeldar and GRI published in April, 2011 regarding online sustainability reporting in the year 2009-10 revealed that 55 % of the sample companies adopted flat PDF or interactive PDF form of reporting as against 40 % adopted digital format. 70 % of the companies issued sustainability report only whereas 30 % integrated sustainability along with other reports. 77.5% of reporters included a mail-to link or contact form in their reporting, while 12.5% included an online feedback form.

FINDINGS AND DISCUSSION

1. CORPORATE SUSTAINABILITY PRACTICE AT ITC LTD.

ITC Ltd., one of the popular Indian conglomerates, issued its report covering FMCG, hotels, paperboards, paper & packing, agribusiness, lifestyle retailing and others business areas for the period from 1st April 2010 to 31st March, 2011. In the 2010-11, it achieved 26 % growth in total shareholders' returns over the last 15 years. ITC's sustainability philosophy draws upon its "deep commitment to build an exemplary Indian enterprise that can progressively contribute to building a secure, sustainable and inclusive future for all our shared tomorrows."

ECONOMIC PERFORMANCE-

ITC is considered amongst top 10 private sector companies in terms of market capitalisation. Its value added disclosure is as follows:

TABLE 4: VALUE ADDED DISCLOSURE *(in percentage)*

	2008-09	2009-10	2010-11
To Exchequers	74	6	20
To Employees	75	6	19
To Providers of capital	74	5	21

Its Returns on Capital Employed has improved substantially from 41 % in 2009-10 to 46 % in 2010-11. It procured nearly 87 % of the raw materials indigenously.

ENVIRONMENTAL PERFORMANCE:

Minimising carbon intensity- ITC has adopted strategies that address climate change related impacts and has also developed mitigation and adaptation plans. In the year 2010-11 it has consumed 22,554 Terra Joules (TJ) of energy which is 5.2% higher than the energy utilised in the previous year. (21,456 TJ in 2009-10). Out of total energy consumption, 61.9 % was from fossil fuels, 2.8 % from purchasing state utilities and 35.3 % from renewable resources. ITC's social and farm forestry initiatives added 11,652 hectares of plantations during 2010-11. Total plantations, as on March 31, 2011, now stand close to 114,000 hectares. Its status as a carbon positive company is as follows:

TABLE 5: CARBON INTENSITY

	2006-07	2007-08	2008-09	2009-10	2010-11
CO2 sequestered in Kilotonnes	2025	2638	3695	4785	4011
CO2 released (Manufacturing & Freight) in Kilotonnes	1143	1352	1572	1709	2046

Water Management- It is committed to conserve and manage this precious natural resource. In 2010-11 it withdrew 29.36 million Kilolitres of fresh water as against 29.96 million Kilolitres in 2009-10, a reduction over 2 % over previous years.

Recycling and Waste Management – In 2010-11 it generated 6,38,405 tonnes of wastes which is 10.3 % higher over the last year due to higher production volume in all most all the business. It ensured recycling of 99.8 % of waste generated. The data on waste are as follows:

TABLE 6: WATER MANAGEMENT

	2006-07	2007-08	2008-09	2009-10	2010-11
Waste generated (in Kilo Tonnes)	304	353	490	579	638
Recycling percentage	93.10	98.90	98.80	99.80	99.80

Significant Air Emissions- In 2010-11, the total significant air emissions included 765 tonnes of Particulate Matter (PM), 874 tonnes of NOX and 1133 tonnes of SO2 emissions (In 2009-10, PM : 880 tonnes, NOX : 811 and SO2 : 909 tonnes). The increase in the total emissions is mainly due to significant growth in production volumes in almost all businesses; Paperboards Business up by 2.9%, Foods' Business snacks and biscuits by 94% and 25.8% respectively and soaps in Personal Care by 27.8%. The total consumption of ODS by all our Units was 139 Kg of CFC-11 equivalent.

SOCIAL PERFORMANCE:

ITC is famous for its social performance. It popularised the concept "E Choupal" among the farmers and rural people.

Occupational Health- In 2010-11, over 12,430 employees underwent preventive medical examinations, to identify symptoms of any occupational illness and there were no occupational related illnesses reported from Units. Also, at least 2% of total employees in each Unit are trained to provide first aid.

TABLE 7: NO. OF EMPLOYEES UNDERWENT PREVENTATIVE MEDICAL TREATMENT

2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
7718	8135	8006	9752	11510	10801	12430

HIV/ AIDS- During 2010-11 it conducted 123 awareness programmes for the employees and communities around the units. The interventions covered a total of 14,935 people of which 13,306 were its own employees while the balance were members of the local community. In addition it also organised counselling sessions at various locations covering a total of 1,667 people, of which 1,452 were its employees.

Social Investments – Mission Sunhera Kal- The total number of projects implemented during 2010-11 was 76, up from 66 during 2009-10. These projects are spread across 51 districts of Andhra Pradesh, Bihar, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Haryana, Tamil Nadu, Uttar Pradesh, and West Bengal. Together these programmes reach out to more than 3 lakh households and more than 16 lakh individuals who are directly impacted by the various programmes spread over 5,495 villages.

Strengthening Rural Livelihoods- The e-Choupal initiative revolutionised the Indian agricultural landscape by leveraging digital technology and customised extension services to empower farmers and raise rural incomes. By providing the power of Information and Digital Technology, small and marginal farmers are empowered with a host of services related to knowhow, best practices, timely and relevant weather information, transparent discovery of prices and much more. The e-Choupal network not only connects farmers to markets, but also allows for virtual integration of the supply chain, to create significant efficiencies in the traditional system. E-choupal initiative had benefited over 4 million farmers in 40,000 villages.

Social Forestry- Total area brought under plantations during 2010-11 was 3,349 Hectares and 251.71 Lakhs sapling were planted during the year.

Primary Education, Health and Sanitation- Total number of children covered cumulative to 2010-11 is 2.48 Lakhs and cumulative total number of health camp till 2010-11 were 314 reaching out to over 22,819 patients.

Reporting Standards, Assurance Standards and Assurance Provider- The reports of 2008-09, 2009-10 and 2010-11 were assured by Ernst & Young Pvt. Ltd. following GRI G3 guidelines and assurance standard ISAE 3000.

2. CORPORATE SUSTAINABILITY PRACTICE AT TATA MOTORS LTD.

The Indian automobiles giant Tata Motors Ltd. issued its Corporate Sustainability Report covering the period from 1st April, 2010 to 31st March, 2011. During the FY 2010-11 it achieved all- time high sales of commercial vehicles- a growth of 22 % over the previous year.

ECONOMIC PERFORMANCE-

During the FY 2010-11, it generated a gross revenue of Rs. 521.36 billion which is 35.9 % higher than the previous year. Its disbursement of value added for the reported year is as follows:

Economic value added to operating costs Rs. 441.93 billion, employee benefits Rs.22.94 billion, providers of capital Rs. 26.11 billion, government Rs.3.84 billion and Rs. 26.54 billion retained for it s growth purpose.

ENVIRONMENTAL PERFORMANCE:

In the current year its total investments reached Rs. 346.90 million towards environment management activities across operations. It had recycled metal scrap and forgings (in Tonnes) to the extent of 17386.73 in 2008-09, 17784.50 in 2009-10, and 37373.00 in 2010-11.

HAZARDOUS WASTE DISPOSAL-

TABLE 8: HAZARDOUS WASTES DISPOSAL REPORT

	2008-09	2009-10	2010-11
Sludge (Tonnes)	4536.28	4299.25	4812.81
Used Batteries (Tonnes)	32.14	37.76	198.19
Used Oil (Tonnes)	150.93	168.00	497.68
Oil Contaminated Material (Tonnes)	44.83	23.56	55.31
Other Hazardous Wastes (Tonnes)	209.97	402.15	936.65
Liquid hazardous Wastes (KL)	131.24	121.66	231.90

Tackling Climate Change- It had adopted climate change policy from its parent group Tata. It is continually working to develop low carbon fuel, fuel saving technologies that will substantially reduce Green House Gases, development of CNG vehicles, electric and hybrid vehicles. It adopted the United Nations Framework Convention for Climate Change's (UNFCC) Clean Development Mechanism (CDM). for its wind power project of 20.85 M.W, UNFCC issued 27,554 CER for the FY 2008-09. Its total annualised energy savings in the 3 years periods were amounting to 109460 Giga Joules (GJ) in 2008-09, 175975 GJ in 2009-10 and 230959 GJ in 2010-11.

GHG Emissions Reduction- Due to its consistent efforts in GHG reduction, it achieved GHG reduction (in Tonnes of CO2e) amounting to 25236.63 in 2008-09, 40572.00 in 2009-10 and 47817.92 in 2010-11.

Water Management- It is continually working towards reducing its water footprint. The total water consumption by its plants was increased by 14 % from the previous year's level, whereas during the same period the average water use per unit of automobile production was reduced by 3.80 %. Its total water withdrawal (in Kilo Litres) were 65,26,653 (2008-09), 68,19,413 (2009-10) and 77,85,748 (2010-11).

Air Emissions Management- The Company uses R134a which has zero Ozone Depleting potential as a refrigerant in its products. It no longer uses Ozone Depleting Substances (ODS) in manufacturing supporting processes or in production locations. During FY 2010-11, emissions of NO_X reduced substantially, SO_X and particulate matters (PM) have increased to a large extent.

SOCIAL PERFORMANCE:

Occupational Health & Safety- In its plant, it dedicates teams of safety and health professionals working to devise safer procedures. It has mandatory for all workers to undergo a health check0up at regular interval. Due to several measures its reportable injuries reduced from 145 in 2009-10 to 113 in 2010-11. Fatalities also reduced from 1 in 2008-09 to zero in both 2009-10 and 2010-11. Reported minor injuries were also decreased from 814 in 2009-10 to 783 in 2010-11.

Community Development- As a part of these measures, healthcare facilities were provided to nearly 3,00,000 people annually. 'Amrutdhara Project' was implemented to provided safe drinking water to 100 villages in the coming 3 years. In education facilities, infrastructure upgradation benefited 50,000 students annually; teachers' training benefited more than 2,000 primary schools teachers. Throughout their plants, Tata Motors has spent Rs. 14.79 Million on community infrastructure initiatives.

Independent Assurance- It has prepared its report for the FY 2010-11 based on GRI revised guidelines G3.1 which was launched in 2011. Its report was externally assured by Det Norske Veritas As (DNV) and got GRI Application Level 'A+' rank.

CONCLUSION

Today Sustainability Reports have become one of the means of disseminating information of corporate social performance of corporate entities. The numbers of organisations that are taking care of triple bottom line of sustainability and issuing standalone reports are increasing gradually. However there are some hindrances (such as perceived high cost, no clear cut format, insufficient information systems, lack of global standards, secrecy and unwillingness) for which substantially high number of organisations could not adopt and institutionalise such framework. It has also been observed in several research studies that many corporate entities are publishing such reports only to green wash their current and prospective investors. It is generally accepted that some corporate entities have been bringing out of such reports to attract Socially Responsible Investment (SRI) in Europe and western countries. Another criticism is that at the time of reporting, the companies generally report and disclose those issues in which they have performed well or issues which brought some awards and popularity. However in Indian perspective, though the position is not mentionable, some companies in private sector are bringing out such reports. The examples include Tata group of companies, ACC Ltd, Exide Industries Ltd, Dr. Reddy's Laboratories Ltd, HCC, Infosys Technologies Ltd, Larsen & Toubro, Mahindra, Maruti- Suzuki, Reliance Industries Ltd, Wipro, Sesa Goa, Jubilant Life Sciences Ltd and Asian Paints etc. In public sector, Navratnas and others such as Steel Authority of India Ltd. (SAIL), Oil and Natural Gas Corporation (ONGC), SIDBI, Hindustan Paper Mills Ltd. etc, are contributing their best efforts towards sustainable development. It is also a fact that in absence of any mandatory reporting and assurance standard, companies often have to follow self developed standards. Recently the Accounting Research Foundation (ARF) of the Institute of Chartered Accountants of India (ICAI) has taken up a project to formulate a comprehensive standard on sustainability reporting. In India, Ministry of Corporate Affairs (MCA), Govt. of India, published guidelines on voluntary disclosures of triple bottom lines information in the year 2009. Such guidelines were prepared keeping in mind GRI and other international frameworks. Any company, in India, may follow such guidelines of MCA to prepare and disclose information on sustainability. In August 2011, MCA issued the ***revised guidelines*** under the title ***"National Voluntary Guidelines on Social, Environmental, & Economic Responsibilities of Business".*** It is to be motioned that information that are disclosed through SAR framework has little relation with planetary sustainability in the sense of Brundtland Commission of United Nation's World Commission on Environment & Development (UNWCED). But they, at least, provide the corporate impact on TBL. In near future, it is an expectation, more and more companies will be disclosing their performances fairly and without any hesitations with such reporting framework.

REFERENCES

1. Accenture & UNEP, (2010), "A New Era of Sustainability- UN Global Compact- Accenture CEO Study 2010".
2. AccountAbility, (2008), Accountability 1000 Standards.
3. Bhattacharyya, Jayanta., (2007), "Corporate Social Responsibility: Ethical and Strategic Choice", RSBA Publication, Rajasthan.
4. Chakroborty, P.K., (2008), "Corporate Environment Management- A key to Sustainable Development", The Chartered Accountant, Vol. -56, No. -12.
5. Garg, Lakshmi Kant., (2002), "Assurance on Sustainability Reporting", The Chartered Accountant, Vol.- 51, No.-3.
6. Ghosh, Dr. Arindam, and Chakroborty, Shantanu, (2005), "Environmental Accounting: an attempt for sustainable development with methodological approach", The Management Accountant, Vol.-40, No. - 6.
7. Global Reporting Initiative, (2006), "The Global Reporting Initiative Guidelines 2006".
8. Gray, Rob, (2006), "Does sustainability reporting improve corporate behaviour? :Wrong question? Right time?" Accounting & Business Research, International Accounting Policy Forum Issue, 2006.
9. GRI, (2011), "GRI Sustainability Disclosure Database 2011".
10. IFAC, International Standards on Assurance Engagement 3000, IFAC.

11. KPMG International Survey of Corporate Responsibility Reporting 2005 and 2008, KPMG.
12. Majumdar, Barnali. (2006), "Triple Bottom Line Reporting System, a Tool to achieve good Corporate Governance: A Study of Indian Practices".
13. Saha, Anandaraj, and Gupta, Debraj, (2011), "Assurance on Corporate Sustainability Reports", The Chartered Accountant, Vol- 60, No. -2.
14. Sarker, Siddhartha. (2006),"Environmental Accounting and Reporting for Sustainable Development", The Management Accountant,Vol.-41, No.- 6.
15. Singh, S., (2007), "Triple Bottom Line Reporting & Corporate Sustainability", Prentice Hall of India Pvt. Ltd., New Delhi.

WEBSITES

16. www.globalreporting.org
17. www.itcportal.com
18. www.kpmg.com
19. www.tatamotors.com/sustainability/pdf/GRI-10-11.pdf.

PERFORMANCE EVALUATION AND ENHANCEMENT OF THE INITIAL RANGING MECHANISM IN MAC 802.16 FOR WIMAX NETWORKS USING NS-2

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ABSTRACT

In the IEEE 802.16 standard, Initial Ranging (IR) is defined as the mechanism of acquiring the correct timing offsets and power adjustments such that the Subscriber Station (SS) is co-located with the Base Station (BS). In this paper, we evaluate the performance of this mechanism based on the metrics of delay and success-ratio. First we analyze IR using a Markov Model and arrive at an expression for the delay incurred. Next we enhance its performance by introducing a novel principle of circularity. Circularity is a paradigm that allows the identification of specific groups of packets or events. Employing this principle, we introduce delay control and backoff window control into IR. This new paradigm reduces the collisions among request packets and thereby, reduces the delay resulting in the increase of the success-ratio of IR. The evaluation and enhancement are performed through extensive simulation studies using NS-2.

KEYWORDS

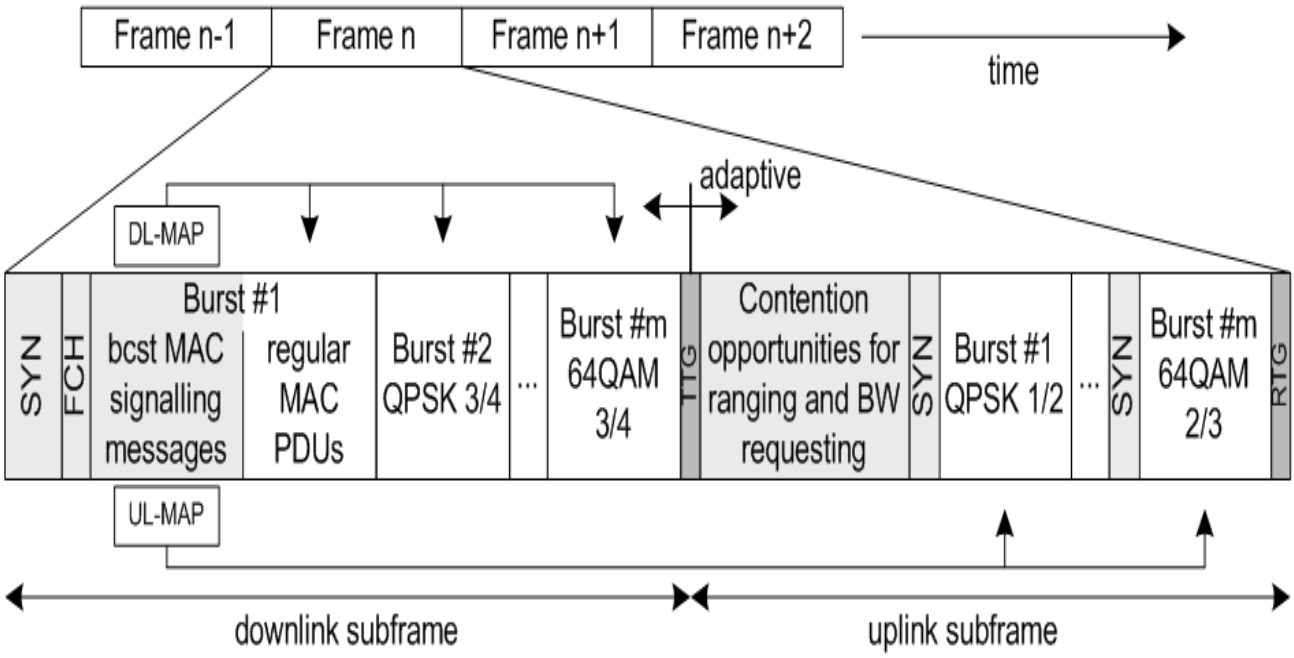
WiMAX, MAC 802.16, Network Entry Process, Initial Ranging, Contention Resolution, Circularity.

INTRODUCTION

The IEEE 802.16 standard for Wireless Metropolitan Area Networks currently presents the most recent development of wireless technology. It was originally intended for Fixed Broadband Wireless Access (FBWA) networks and as a wireless competitor for wireline DSL and cable modem access in particular in rural and low-infrastructure areas. The most recent stage of the IEEE 802.16 standard also provides mobility support mainly intended for nomadic users or users with little mobility. Worldwide Interoperability for Microwave Access (WiMAX) is a consortium founded to enable the interoperability and foster the commercialization of products based on the IEEE 802.16 standard. The current IEEE 802.16-2004 standard with the extensions for mobility support amended in the IEEE 802.16e-2005 standard is the basis for the two classes of WiMAX certified products. The Orthogonal Frequency Division Multiplexing (OFDM) part of IEEE 802.16-2004 is called Fixed WiMAX and the Orthogonal Frequency Division Multiple Access (OFDMA) part of IEEE 802.16e-2005 is called Mobile WiMAX.

At the physical layer defined by the IEEE 802.16 standard, the flow of bits is structured as a sequence of frames of equal length. There is a downlink subframe and an uplink subframe in the Time Division Duplexing (TDD) mode of operation, and they are consecutive. In TDD, the portion allocated for the downlink and portion allocated to the uplink may vary. Downlink map (DL-MAP) and uplink map (UL-MAP) signaling messages are used to inform SSs about bandwidth allocations in downlink (DL) and uplink (UL) respectively. These are sent on the downlink. The DL subframe also has data bursts addressed to different SSs. The UL subframe begins with contention intervals scheduled for initial ranging (IR) and bandwidth request opportunities. Thereafter the bursts consisting of user data are transferred by particular SSs using different modulation types and coding rates. The Transmit/Receive (Tx/Rx) transition gaps are inserted between the subframes to allow stations to switch between transmission and reception operation modes. The structure is as shown below in Fig. 1.

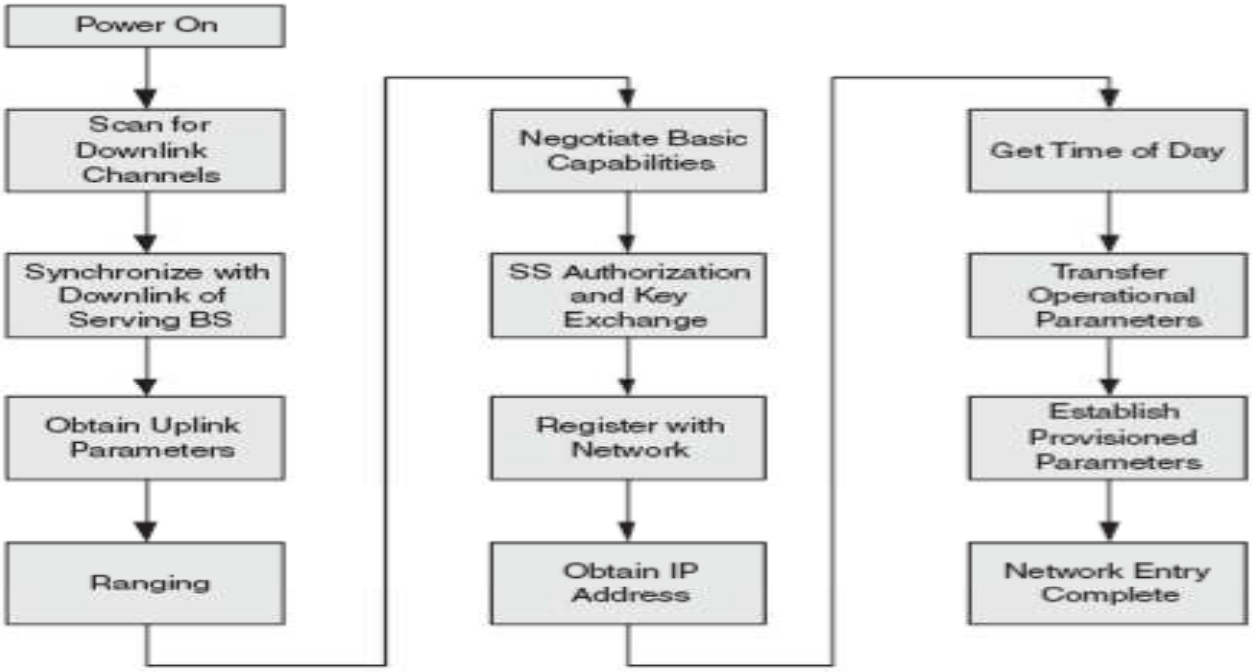
FIGURE 1: FRAME STRUCTURE FOR IEEE 802.16



NETWORK ENTRY PROCEDURE

A subscriber station (SS) has to complete the network entry process, in order to communicate on the network. The first stage of network entry is Downlink Channel Synchronization. When an SS wants to communicate on a WiMAX network, it first scans for available channels in the defined frequency list. On finding a DL channel, it tries to synchronize at the physical layer (PHY) level using the periodic frame preamble. Information on modulation and other DL and UL parameters is obtained by observing the DL Channel Descriptor (DCD) and the UL channel descriptor (UCD) respectively on the DL channel. In IR, the SS acquires the timing offsets and power adjustments from the BS. This enables the SS to properly communicate with the BS. IR is a very important part of the network entry procedure and is dealt with in more detail in the next section. The network entry procedure is as shown below.

FIGURE 2: NETWORK ENTRY PROCESS



In Exchanging Capabilities, after successful completion of the IR step, the SS sends capability request message indicating the supported modulation level, coding scheme and rates and duplexing methods. In Authentication, the BS authenticates the SS, determines the ciphering algorithm to be used, and sends an authentication response to the SS. In registration, the SS sends a registration request message to the BS and the BS sends a registration response. The registration response message includes the secondary management CID of the SS. Using this, a SS is allowed entry into the network and the SS is said to be manageable. Next in Internet Protocol (IP) Connectivity, the SS gets the IP address via Dynamic Host Configuration Protocol. The SS also downloads other operational parameters using Trivial File Transfer Protocol. In Connection Creation, after completing the IP connectivity step, transport connections are created. For preprovisioned service flows, the BS sends a dynamic service flow addition request message to the SS and SS confirms the creation of connection. For non-preprovisioned service flows, connection creation is initiated by the SS by sending a dynamic service flow addition request message to the BS. The BS responds with the confirmation.

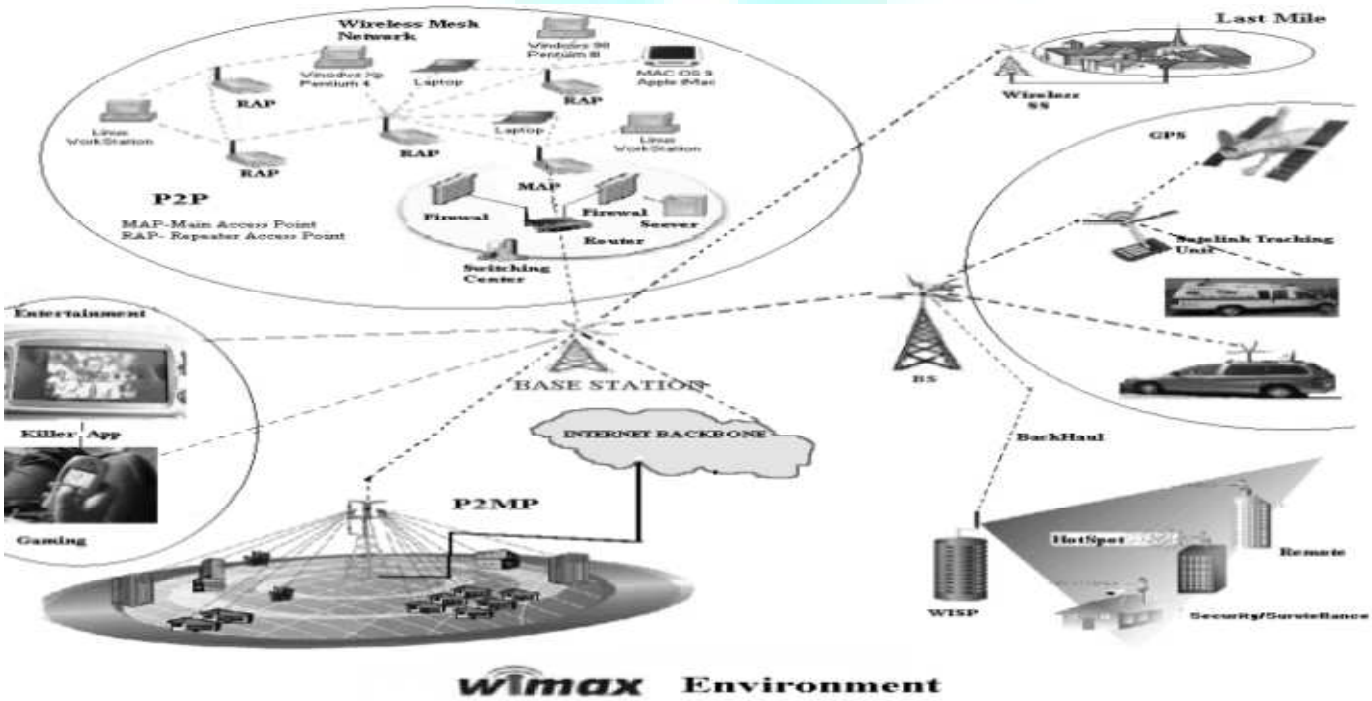
SALIENT FEATURES OF WIMAX

WiMax basically offers two forms of wireless service:

1. **Non-line-of-sight**: This service is a WiFi sort of service. Here a small antenna on your computer connects to the WiMax tower. In this mode, WiMax uses a lower frequency range -- 2 GHz to 11 GHz (similar to WiFi).
2. **Line-of-sight**: In this service, where a fixed dish antenna points straight at the WiMax tower from a rooftop or pole. The line-of-sight connection is stronger and more stable, so it's able to send a lot of data with fewer errors. Line-of-sight transmissions use higher frequencies, with ranges reaching a possible 66 GHz.

The entire WiMax scenario is as shown in **Figure 3.**

FIGURE 3



WiMax is a wireless broadband solution that offers a rich set of features with a lot of flexibility in terms of deployment options and potential service offerings. Some of the more salient features that deserve highlighting are as follows:

- OFDM-based physical layer
- Very high peak data rates
- Scalable bandwidth and data rate support
- Scalable bandwidth and data rate support
- Link-layer retransmissions
- Support for TDD and FDD
- WiMax uses OFDM
- Flexible and dynamic per user resource allocation

INITIAL RANGING MECHANISM

Initial Ranging is an important part of the network entry procedure performed by the SSs, upon power up, in IEEE 802.16 networks. In the IR procedure, the correct timing offsets and power adjustments are obtained from the BS so that the SS can successfully transmit data to the BS. It occurs after the SS has synchronized with a DL channel from the BS and has obtained the UL transmit parameters from the UCD medium access control (MAC) management message. After this the SS will scan the UL-MAP message to find an IR Interval, consisting of one or more transmission opportunities allocated by the BS. The SS begins the IR procedure by assembling a Ranging Request (RNG-REQ) message to be sent to the BS in an IR interval.

The SS sends this message as if it is colocated with the BS. This is done by setting the initial timing offset to the internal fixed delay equivalent to colocating the SS next to the BS. The SS calculates the maximum transmit signal strength for IR and transmits the RNG-REQ message at a power level below this as measured at the antenna connector. In case a response is not received from the BS, the next RNG-REQ message is sent at the next higher power level in the next appropriate IR interval. In case it receives a response from the BS, depending the contents of the response the SS does the following.

If the Ranging Response (RNG-RSP) message contains the frame number in which the RNG-REQ message was sent, the SS will consider the previous attempt to be unsuccessful. Nevertheless, it will make the adjustments specified in the RNG-RSP message. If the RNG-RSP message contains the MAC address of the SS, then the request attempt will be considered successful. When the RNG-REQ message is successfully received by the BS, it will send an RNG-RSP message using the IR Connection Identifier (CID).

At this point the BS starts using Invited Initial Ranging Intervals addressed to the Basic Connection Identifier of the SS to complete the process of IR. But if the status in the RNG-RSP is success, the IR procedure will be completed. On receiving an RNG-RSP message with continue status, the SS first makes the power level and timing adjustments. Then it retransmits another RNG-REQ using the Basic CID assigned to it. The BS yet again sends an RNG-RSP message containing additional fine tuning, if required. This exchange of RNG-REQ and RNG-RSP messages continues till an RNG-RSP message with status success is received by the SS or the BS aborts the IR procedure.

Whenever the SS has to transmit the request packets it performs the Truncated Binary Exponential Backoff procedure. This method is the contention resolution procedure used in IEEE 802.16 networks. The minimum backoff window and the maximum backoff window are both controlled by the BS. Initially the SS sets its backoff window to the minimum possible backoff window. Now the SS randomly selects a number from this backoff window. This number selected indicates the number of IR transmission opportunities that the SS must defer before transmitting the request packet. After the selected number of transmission opportunities is deferred, the SS transmits the RNG-REQ message.

After transmitting the request message, the SS waits for a response message from the BS. If the RNG-RSP message is received from the BS before the specified timeout then the contention resolution is considered to be a success. If not, the SS doubles its backoff window until the maximum backoff window is reached. It then randomly selects another number from this new window and the deferring process is repeated. This may happen due to the collision of RNG-REQ packets or due to the loss of RNG-RSP messages. There exists a maximum limit for the number of such IR retries allowed. If this limit is reached by an SS, then the particular downlink channel being used is marked as unusable and the subscriber station begins scanning for a new downlink channel.

The backoff windows are always expressed in terms of powers of two. Suppose the backoff window at a certain time for an SS is 0 to 15 (0 to 2^4 - 1) and the random number picked is 8. The SS has to defer a total of 8 Initial Ranging Intervals before transmitting the RNG-REQ packet. This may require the SS to defer IR intervals over multiple frames. In case a collision is detected, the backoff window is doubled. Now a random number is picked between 0 and 31 and the deferring is continued. This procedure can be repeated for a maximum of 16 times after which the uplink channel is marked as unusable.

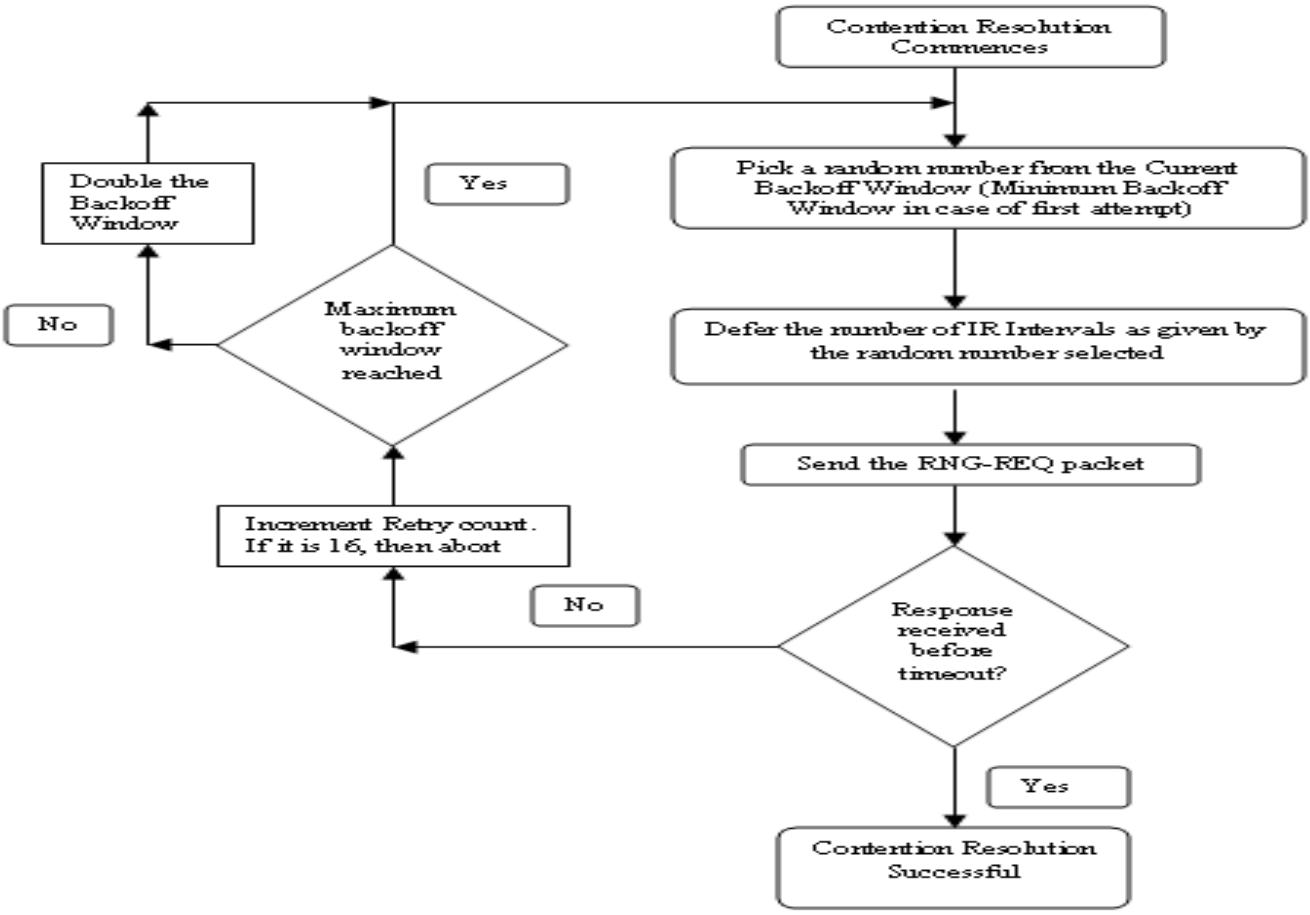
EVALUATION AND ENHANCEMENT OF INITIAL RANGING: DELAY AND SUCCESS-RATIO

In this section we analyze the IR scheme and evaluate mathematically the delay involved in the procedure. First we structure the IR mechanism as a set of distinct states with transitions among these states. Then this information is used to model IR as a Markov process. In a Markov process, the probability of the system making a transition to a particular state depends only on the state the system is currently in. Also, in this Markov process, we calculate the delays associated with the transitions between the states. Finally, by making use of the delays and probabilities associated with each of the transitions, we derive a mathematical equation describing the total IR delay. The Markov process is derived for IR in case of OFDMA PHY, since it covers all the steps in the OFDM based procedure as well. In case of the OFDMA PHY, Code Division Multiple Access (CDMA) codes are used instead of the RNG-REQ messages in the first part of the IR procedure.

MODELING IR AS A MARKOV PROCESS

Markov processes provide very flexible, powerful, and efficient means for the description and analysis of dynamic (computer) system properties. Performance and dependability measures can be easily derived. Moreover, Markov processes constitute the fundamental theory underlying the concept of queuing systems. In fact, the notation of queuing systems has been viewed sometimes as a high-level specification technique for (a sub-class of) Markov processes. A stochastic process is defined as a family of random variables $\{X_t: t \in T\}$ where each random variable X_t is indexed by parameter t belonging to T, which is usually called the time parameter if T is a subset of the set of positive real numbers. The set of all possible values of X_t (for each $t \in T$) is known as the state space S of the stochastic process. A large number of stochastic processes belong to the important class of Markov processes. A stochastic process is a Markov process when the future state of the process depends only the current state and not on the history of the system. A Markov process is a memory-less stochastic process.

FIGURE 4: CONTENTION RESOLUTION PROCESS



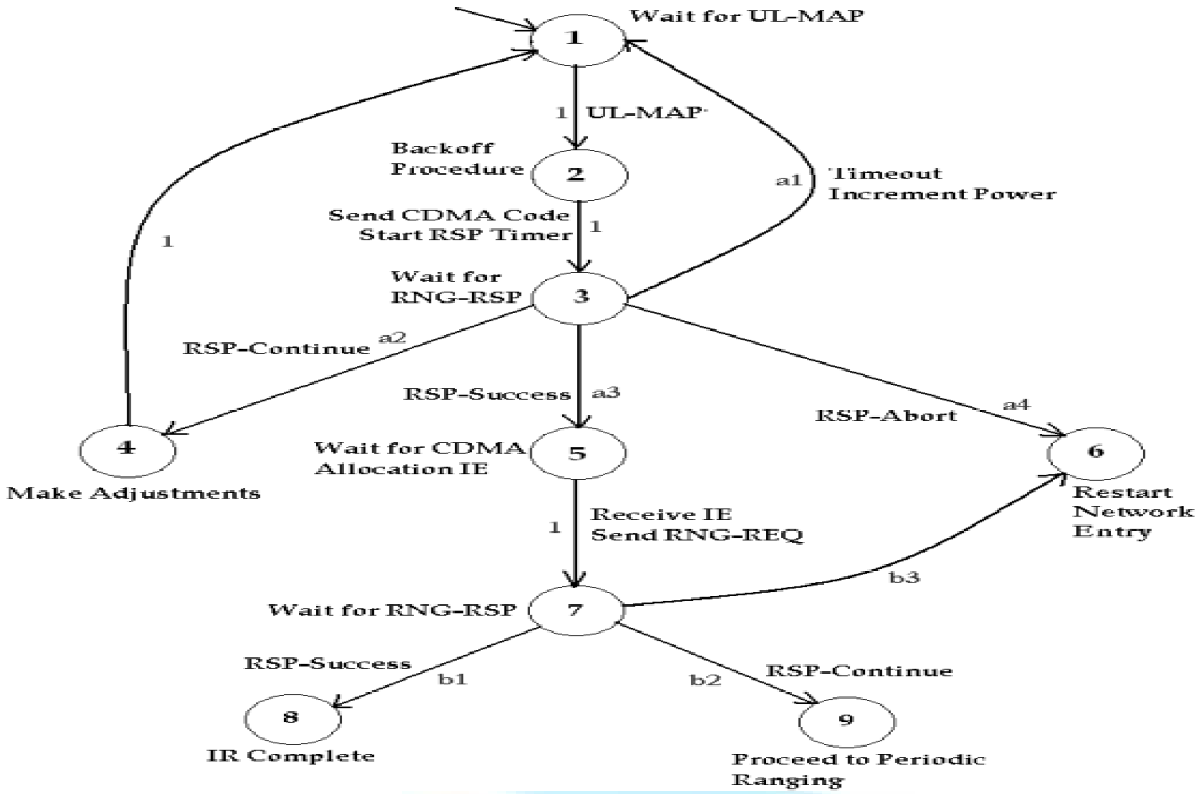
After analyzing the Initial Ranging procedure, we enumerate the following states as well as transitions needed for modeling the procedure.
State 1: Waiting for UL-MAP. This is also the start state.
State 2: SS is performing Backoff procedure.
State 3: Waiting for an RNG-RSP message from BS.
State 4: Continue
State 5: Success State – Wait for CDMA Allocation IE.
State 6: Abort – Start network entry procedure at a different DL channel
State 7: Waits for RNG-RSP again.
State 8: Proceed to next phase of network entry
State 9: Commence Periodic Ranging
The transitions among the states are as follows. In State 1, the SS waits for a UL-MAP. After receiving this message it makes a transition to State 2. Transmission of CDMA code occurs at end of State 2. Also a timer is set for waiting for RNG-RSP message. This transition leaves the system in State 3. When in State 3, if the timer for RNG-RSP expires then SS increments the power level and goes back to State 1. When in State 3, if RNG – RSP is obtained with Ranging code as well as the Ranging slot, then it makes a transition to State 4. Here the necessary adjustments specified in RNG-RSP are made and system moves to State 1. When in State 3, if RNG-RSP is obtained with success status, then the system transits to State 5. Here it waits for CDMA Allocation IE. After reception it sends RNG-REQ message on the allocated bandwidth and moves to State 7. When in State 7, on reception of RNG-RSP with success status it moves to State 8. On reception of RNG-RSP with continue status it moves to State 9. Else on reception of RNG-RSP with abort status, it goes to State 6 and SS starts the network entry procedure again. When in State 3, if RNG-RSP is obtained with abort status then the system goes to State 6 and SS starts the network entry procedure again. The following matrix diagram shows the transition probability matrix for IR.

TABLE 1: TRANSITION PROBABILITY MATRIX FOR IR

	1	2	3	4	5	6	7	8	9
1	0	1	0	0	0	0	0	0	0
2	0	0	1	0	0	0	0	0	0
3	a1	0	0	a2	a3	a4	0	0	0
4	1	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	1	0	0
6	0	0	0	0	0	1	0	0	0
7	0	0	0	0	0	b3	0	b1	b2
8	0	0	0	0	0	0	0	1	0
9	0	0	0	0	0	0	0	0	1

Using these probabilities we design the Markov process representation of IR as shown in Fig. 3. The states 6, 8 and 9 lead out of IR and are the absorbing states. For these states, transition occurs back to the same state with a probability one. In states 3 and 7, the outgoing probabilities are marked with algebraic symbols a1 to a4 and b1 to b3. This is because the probabilities of the transitions originating from these states are non-deterministic in nature. The sum of probabilities of all transitions originating from states 3 and 6 are still equal to 1. Next, the transition matrix is used to obtain the overall delay formula. For this, we first need to tabulate the delays involved in the individual states.

FIGURE 5: MARKOV MODEL FOR IR SCHEME



The details of the delays involved along with the associated probabilities are given in the table below.

TABLE 2: DELAY COMPONENTS IN IR

Delay Involved	Probabilities
UL-MAP Reception (1 to 2)	1
Backoff Delay + Sending CDMA (2 to 3)	1
RNG-RSP Timeout (3 to 1)	A1
RNG-RSP Reception + Processing (3 to 4, 5 or 6)	A2,a3,a4
IE Allocation Delay +Sending RNG-REQ (5 to 7)	1
RNG-RSP Reception + Processing (7 to 8, 9 or 6)	B1,b2,b3

The numerical values of the delays involved are expresses below:

1. UL-MAP Reception = 5ms (Maximum of one complete frame length) [1 → 2]
2. CDMA Sending Time = Transmission Time = 5ms/2 = 2.5ms [Frame Length/2 (Length of UL subframe) with frame length=5ms] [2 → 3]
3. RNG-RSP Timeout (T3) = 200 milliseconds [3→1]
4. RNG-RSP Reception + Processing (average value)
   = T3/2 + Max. RNG-RSP Processing Time/2
   = 100 ms + 10ms/2 = 105 ms [3 → 4, 5, or 6]
5. CDMA Allocation IE delay = 5s (same as 1) [5→7]
6. Sending RNG-REQ (Same as 2) = 2.5ms [5 → 7]

RNG-RSP Reception + Processing (average value) = 105ms [7 → 8 or 9]

We assume that the delay involved for making changes at SS is negligible compared to the other delays involved.

MATHEMATICAL DERIVATION OF THE BACKOFF DELAY

Consider the first time an SS enters Backoff procedure. Let the Initial Contention window be w_0. The random number will be picked in the range [0, w_0-1]. Let this random number be called k. The SS has to defer a total of k contention slots (CSs). Let the number of CSs in a frame be n_{cs}. The number of frames that have to be deferred is k / n_{cs}. The delay involved here will be (k / n_{cs}) * frame length. After k / n_{cs} frames have passed the SS defers a further k modulo n_{cs} CSs. The delay involved here is equal to (k % n_{cs}) * T_{cs}, where T_{cs} is the length of one CS and % denotes the modulo operation. Therefore the total delay incurred so far is (k / n_{cs}) * frame length + (k % n_{cs}) * T_{cs}. Here the value of k can vary from 0 to w_0-1. Thus, we take an average of the delay over the random number.

AD_0 = (1/w_0) *Sum of [(k/n_{cs})*frame length + (k % n_{cs})*T_{cs}]
as k varies from 0 to w_0-1.

Next we make an assumption that the probability of a successful transmission in a CS is 'p'. Thus, probability of failure will be '1-p'. In case of a failure the contention window is doubled in size. Let the new window be equal to [0, w_1-1]. Similar to previous derivation the delay involved will be

AD_1 = (1/w_1) *Sum of [(k/n_{cs})*frame length + (k% n_{cs})*T_{cs}]
as k varies from 0 to w_1-1. Here w_1 = 2 * w_0.

Again there could be success or failure. So, it will enter the third Backoff window phase [0, w_2-1]. Continuing in this fashion, we get the following delays for the next three phases.

AD_2 = (1/w_2) *Sum of [(k/ n_{cs})*frame length + (k% n_{cs})* T_{cs}]
as k varies from 0 to w_2-1.

AD_3 = (1/w_3) *Sum of [(k/ n_{cs})*frame length + (k% n_{cs})* T_{cs}]
as k varies from 0 to w_3-1.

AD_4 = (1/w_4) *Sum of [(k/ n_{cs})*frame length+ (k% n_{cs})* T_{cs}]
as k varies from 0 to w_4-1.

Here w_2 = 2 * w_1, w_3 = 2 * w_2 and w_4 = 2 * w_3.

We make another assumption at this point. The SS is assumed to complete successful transmission of its CDMA code, in a maximum of 5 Backoff phases. Thus, the worst case of transmission will be four failures followed be a success. The final formula for the delay will be as follows.

Backoff Delay (BD) = $p*\{AD_0 + t/2\} + ((1-p))*p*\{[AD_0 + t] + [AD_1 + t/2]\} + ((1-p)^2)*p*\{[A D_0 + AD_1 + 2t] + [AD_2 + t/2]\} + ((1-p)^3)*p*\{[A D_0 + AD_1 + AD_2 + 3t] + [AD_3 + t/2]\} + ((1-p)^4)*p*\{[A D_0 + AD_1 + AD_2 + AD_3 + 4t] + [AD_4 + t/2]\}$

Here t is the time-out after which failure is assumed. So, we take half that value for success i.e. t/2.

MATHEMATICAL DERIVATION OF THE OVERALL IR DELAY

By traversing the transition diagram and multiplying the probabilities with the corresponding delays, the total delay can be calculated. The first part of the delay is in the loops 1-2-3-1 and 1-2-3-4-1. We call this D_{loop}. Then either success or abort occurs which is added to this part to get the final formula.

D_{loop} = 1*UL-MAP + 1*(BD + CDMA sending) + a_1 * (Timeout T3 + D-loop) + a_2 * (RSP + D-loop)

Simplifying we get,

$$D_{loop} = \frac{UL + BD + CDMA\ sending + a_1*T3 + a_2*RSP}{1-(a_1+a_2)}$$

Now, the total delay involved can be represented using the formula given below.

$D_{total} = D_{loop} + a_3 * (RSP + CDMA\_IE + RNG\text{-}REQ + (b_1+ b_2 + b_3) * RSP) + a_4 * RSP$ (here $b_1 + b_2 + b_3 = 1$)

Substituting the expression for the delay in the loop into the formula for overall delay in IR, we get the following final formula.

$$D_{loop} = \frac{UL + BD + CDMA\ sending + a_1*T3 + a_2*RSP}{1- (a_1 + a_2)} + a_3 * (RSP + CDMA\_IE + RNG\text{-}REQ + RSP) + a_4 * RSP$$

We define the Initial Ranging delay as the time taken by an SS to complete the IR scheme. Therefore, this is the time elapsed from the moment when an SS finds an IR opportunity to the moment when it receives an RNG-RSP message with a success status from the BS. This is done for the purposes of comparing the IR delay before and after the application of circularity. The IR delay process consists of the transmission delays of the request and response messages, the time needed for contention resolution, and the time needed by SS and BS to process the messages received.

Delay = {Time at which RNG-RSP with Success status is received}-{Time at which the first IR opportunity is found}

During IR, multiple SS can send their request messages to the same BS at the same time resulting in a collision. This leads to the contention resolution procedure being restarted with double the size of the backoff window. This leads to an increased IR delay. Thus, the contention resolution phase is the most affected by collisions among packets. We are interested in reducing the time spent by the SSs in competing with each other to send their request messages to the BS. This directly reduces the overall IR delay as well.

The IR success-ratio is defined as the ratio of the number of successfully completed IR procedures of various SSs to the sum of successfully completed IR procedures of various SSs and the number of retransmissions needed to be done as a result of the request packets timing out. This ratio is also directly affected by the collisions between RNG-REQ packets. Success-ratio can be mathematically expressed as shown in the equations below.

$$\text{Success Ratio} = \frac{\text{Successful Attempts}}{\text{Total Number of Attempts}}$$

$$\text{Success Ration} = \frac{\text{RNG-RSP with Success Status}}{\text{RNG-RSP with Success Status} + \text{RNG-REQ Expire}}$$

In the next section we explain the paradigm of circularity that aims to reduce the number of collisions between request packets sent by various SSs. Thereby, it reduces the delay and enhances the Success-ratio of the IR mechanism.

ENHANCEMENT MECHANISM FOR IR

In IEEE 802.16 networks, the IR scheme is used by the SSs in order to acquire the timing offsets and the power adjustments from the BS, so that it can successfully transmit data packets. Although the mechanism is completely defined in the IEEE 802.16 standard, the performance of this mechanism is affected by the collisions between the RNG-REQ packets sent by different SSs. In this section we propose an enhanced mechanism for IR, which incorporates the principle of circularity.

Circularity is a principle that aims to reduce the number of collisions between the request packets in the IR scheme. It is defined as a number that allows us to identify specific groups of events or packets in the network. The number of packets or events in one such group is equal to the circularity value. In each group, one of the packets or events is said to be circularity-satisfied. Here, we introduce certain control measures in case of circularity-satisfied packets and events. By doing this we achieve a decrease in the IR delay as well as an increase in the IR success-ratio. The circularity value is a positive integer. In order to identify the circularity-satisfied packets or events, we keep a count of the number of such packets or events. This count is global in the sense that we do not keep an individual counter for each SS. Whenever the value of this counter is a multiple of the circularity value, the packet or event is said to be circularity satisfied. If the counter is represented by k and the circularity value by c, then the mathematical representation for satisfying circularity is as follows

k modulo c = 0

The control measures taken are the following. Before sending the first RNG-REQ message or after sending its RNG-REQ packet if the SS does not receive a RNG-RSP message before a timeout, the RNG-REQ is said to have timed out. Then the SS doubles its backoff window and restarts the contention resolution procedure. We keep a count of the number of such expire events. When an 'expire' event is circularity satisfied, the backoff window is double an extra time. By setting the backoff windows, in case of circularity satisfied expire events, the random numbers chosen by the different SSs will have lesser probabilities of being equal. This would mean that the backoff counters of the SSs would also have lesser probabilities of reaching zero at the same instant. Hence, the likelihood of collisions among the request packets decreases. After the requisite number of IR intervals is deferred, the SS is ready to send its RNG-REQ packet. We keep a count of such RNG-REQ packets as well. In the case of circularity satisfied RNG-REQ packets we introduce a certain finite delay before the RNG-REQ packet is sent on the Initial Ranging Interval. Due to the delay introduced a particular request packet is sent a little later than it should have been. So, this sacrifice allows another SS to send its request packet in the meantime.

SIMULATION STUDIES

SIMULATION SETUP

The simulations have been carried out using the Network Simulator 2 (NS-2) which is a discrete event simulator. We have added the WiMAX patch. The simulation script is written in the Tool Command Language (Tcl). The WiMAX control agent is used in the Tcl script in order to produce a detailed account of the activities in the network. The parameters used during the simulations are mentioned in fig 6.

The network configuration used is as follows. A single Base Station is considered. A sink node is considered that is attached through a wired link to the BS. The different values used for the number of Subscriber Stations are 8, 16, 32 and 64. The simulation metrics used are the Initial Ranging delay and success-ratio. The values for these metrics are calculated from the output of the WiMAX control agent. The table in the following page lists the set of important parameters that have been used during the simulation.

TABLE 3: PARAMETERS USED IN NS-2 SIMULATION

Channel Type	WirelessChannel
Radio Propagation Model	TwoRayGround
Network Interface Type	Phy/WirelessPhy/OFDM
MAC Type	802_16
Interface Queue Type	DropTail Priority Queue
Link Layer Type	LL
Antenna Model	OmniAntenna
Maximum Packets in Interface Queue	50
Routing Protocol	DSDV
BS coverage	20 meters
Simulation Time	50 seconds
Number of SS	6 to 54
Traffic Start Time	20
Traffic Stop Time	40

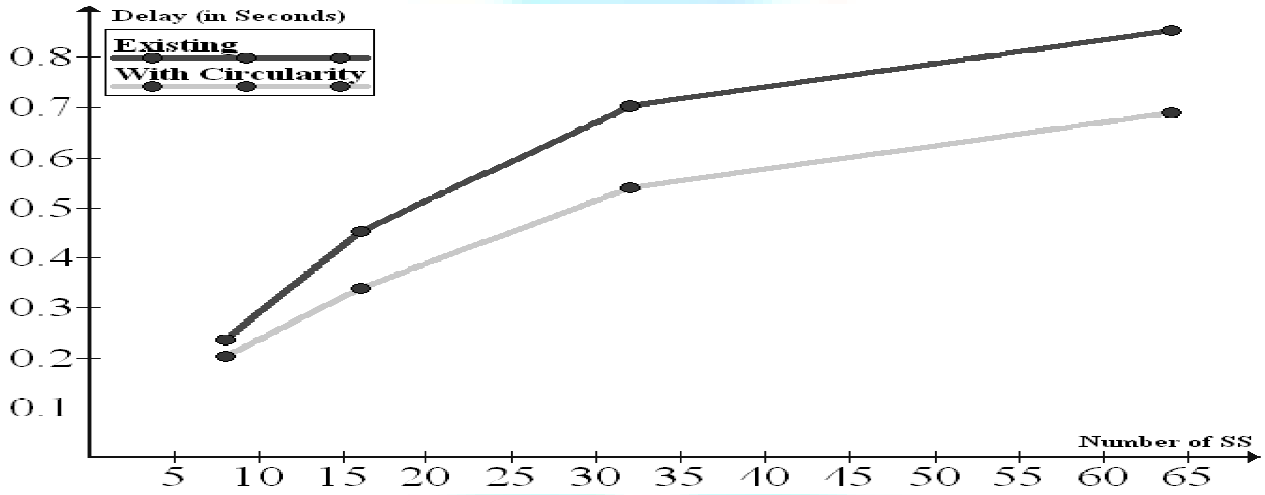
In order to implement circularity the backend files of NS-2, which are written in C++, are modified and the simulations are carried out again.

SIMULATION RESULTS

In this section we present the results of the simulations we have conducted using NS-2. In the first graph (Fig. 6), we compare the delay incurred in the IR mechanism in the existing and enhanced scenarios. The circularity value used in selectively delaying the RNG-REQ packets is 3. The circularity value used in selectively doubling the backoff window an extra time is 5.

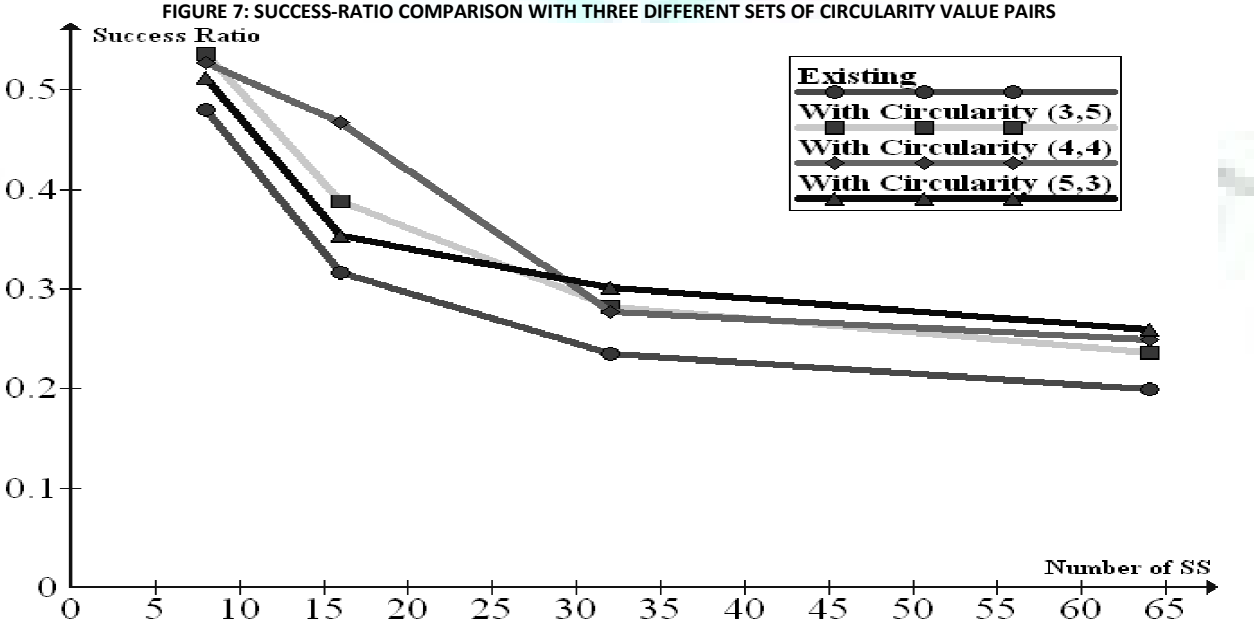
In the second graph (Fig. 7) we plot four sets of values obtained from using four different pairs of circularity values namely (3, 5), (4, 4) and (5, 3). The implementation of Circularity in the IR scheme has decreased the delay incurred and increased the success-ratio. Within the improved scenario we observe the following. Around the 8 node scenario, for small network sizes, the circularity value pair (3, 5) gives higher success-ratio. Around 16 node scenario the circularity value pair (4, 4) gives higher success-ratio. For higher numbers of SSs (32 and 64) the circularity value pair (5, 3) gives higher success-ratio.

FIGURE 6: IR DELAY COMPARISON



From the above observations we can also conclude the following. With increasing number of SS, the circularity value controlling the delay must be increased. This implies that for increasing network sizes, the introduction of delay must be less frequent. With increasing number of SS, the circularity value controlling the window size must be decreased. This implies that for increasing network sizes, the doubling of window size must be more frequent.

FIGURE 7: SUCCESS-RATIO COMPARISON WITH THREE DIFFERENT SETS OF CIRCULARITY VALUE PAIRS



CONCLUSION

IR is an important part of the network entry process. This step allows the SSs to be collocated with the BS. The delay incurred during the mechanism is mainly a function of the delay incurred in the backoff procedure that is at the centre of IR. The concept of a Markov Model Scheme is used in order to analyze the IR mechanism. Due to the collisions among the request packets the performance of the IR mechanism is degraded and leads to an increased time to complete the network entry procedure. The introduction of circularity into this mechanism alleviates this problem leading to reduced delay and increased success-ratio in IR. We have successfully analyzed and obtained a mathematical formula to calculate the delay involved in the IR Scheme. We have also enhances this scheme using circularity, achieving about 25.10% reduction in IR delay.

We have seen the results of minimized uplink access delay, improved throughput and there by reduction in contention slots per frame. Hence circularity principle can be used to enhance the performance of MAC 802.16. We tried to reduce the collisions by using circularity principle comparing with normal the through put is high in circularity. For current design we have assumed the circularity on all SSs.

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REFERENCES

1. 2004. “IEEE Standard for Local and Metropolitan area networks, Part 16: Air Interface for Fixed Broadband Wireless Access Systems”, IEEE Computer Society and IEEE Microwave Theory and Techniques Society.
2. 2005. “IEEE Standard for Local and metropolitan area networks, Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems, Amendment 2: Physical and Medium Access Control Layers for Combined Fixed and Mobile Operation in Licensed Bands”, IEEE Computer Society and IEEE Microwave Theory and Techniques Society.
3. Ahmed Younus. 2006. “WiMAX – Broadband Wireless Access”. Technical University of Munich, Germany.
4. Doo Hwan Lee, etc, “Fast Handover Algorithm for IEEE802.16e Broadband Wireless Access System”, ISWPC, 2006
5. Jeffrey G. Andrews, Arunabha Ghosh, and Rias Muhamed 2007. “Fundamentals of WiMAX – Understanding Broadband Wireless Networking” Prentice Hall Inc.
6. Jenhui Chen and Wei-Kuang Tan, “Predictive Dynamic Channel Allocation Scheme for Improving Power Saving and Mobility in BWA Networks,” *ACM/Springer Mobile Networks and Applications (MONET)*, 2006.
7. M. Morelli, “Timing and frequency synchronization for the uplink of an OFDMA system,” *IEEE Trans. Commun.*, vol. 52, no. 2, pp. 296–306, Feb. 2004.
8. Minsik Shim, Hwasung Kim, Sangho Lee, "A Fast Handover Mechanism For IPv6 Based WiBro System", Feb.20-22, 2006 ICA0T2006.
9. Mohammad Z. Ahmad, Damla Turgut, and R. Bhakthavathsalam. 2006. “Circularity based Medium Access Control in Mobile Ad hoc Networks”. 5th International Conference on AD-HOC Networks & Wireless (ADHOCNOW’06), Aug.17-19, Ottawa, Canada.

SOCIAL MEDIA MARKETING: AN ADVANCE MARKETING PRACTICE

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ABSTRACT

Social media has been recognized as an innovative and the most potentially powerful medium in business practice. Extensive literature review reveals that the concept of Social Media evolved during the last few years. Today, it is among the best opportunities available to a brand for connecting with prospective consumers. Social media is no longer a trend for marketers it is a reality (Williamson, 2010). Social media is an inevitable channel for customer support (Jacobs, 2009). Weber, L (2009) observes that marketing's role has changed, and the social web is promoting that change. Vollmer, G and Precourt G (2008) argued that the emergence of new media, models, and metrics creates challenges and opportunities for more effective marketing and advertising. It takes an advance form in marketing. This paper examines the concept of social media and its role, benefits, strategies, growth, current scenario and future of social media marketing in India and world-wide.

KEYWORDS

Benefits and future of social media, Social media, Social media marketing, strategies.

INTRODUCTION

Marketing has always been a crucial part of a business. Good companies have become great on the sheer basis of effective marketing strategies. Social media marketing has emerged as one of the effective marketing methods in the modern era. It particularly holds true for businesses that are into selling products and services online or just publishing content for ad revenue. Social marketing plan helps companies in promoting their websites or business. It helps in providing a money- making platform using which companies can expand their business and raise awareness about their products and services. In addition, for businesses it represents a marketing opportunity that transcends the traditional intermediary and companies directly with customers. This is why nearly every business on the planet — from giants like Starbucks and IBM to the local ice cream shop—are exploring social media marketing initiatives. A year ago, businesses were uncertain about social media. Now it is here to stay and companies are rapidly adopting social media marketing. Much like and website first empowered businesses, social media is the next marketing wave.

SOCIAL MEDIA

Social media online applications, platforms and media which aim to facilitate interactions, collaborations and the sharing of content (Richter & Koch, 2007). Luke (2009) stated that social media is very important for marketing environment. LinkedIn was created just for business professionals, also get opportunities for decision makers, as well as online tools and platforms that allow internet users to collaborate on content, share insights and experiences, and connect for business or pleasure (Strauss & Frost, 2009). Social media is a group of Internet-based applications that allows individuals to create, collaborate, and share content with one another (Thackeray, 2012). According to Wikipedia, social media is internet-based tools for sharing and discussing information among human beings. Social media can be called a strategy and an outlet for broadcasting, while social networking is a tool and a utility for connecting with other (Cohen,2010)Social media is all about networking and networking in a way that espouses trust among parties and communities involved. Within this general definition, there are various types of Social Media that need to be distinguished further. However, although most people would probably agree that Wikipedia, YouTube, Facebook, and Second Life are all part of this large group, there is no systematic way in which different Social Media applications can be categorized (Kaplan and Haenlein, 2010).

Social media employ mobile and web-based technologies to create highly interactive platforms via which individuals and communities share, co-create, discuss, and modify user-generated contents.

CHANNELS OF SOCIAL MEDIA

Social media has following channels. Robert Scoble, a noted blogger and technology evangelist introduced what he calls the starfish model of social media. He lists a dozen social media channels, organized around *conversation.* These are:

- ***Blogs*** (Ex: Blogger, wordpress and etc...)
- ***Photo Sharing*** (Ex: flickr, photobucket, picasa and etc…)
- ***Video sharing*** (Ex: youtube, myvideos and etc...)
- ***Social networks*** (Ex: Facebook, orkut and etc...)
- ***Email*** (Ex: gmail, yahoomail and etc…)
- ***Wikis*** (Ex: Wikipedia, SWik and etc…)
- ***Microblogs*** (Ex: twitter, friendfeed and etc...)
- ***Podcasting*** (Ex: talkradio, itunes and etc..)
- ***Collaborative tools*** (Ex: Zimbra, zoho and etc..)

SOCIAL NETWORKS SCENARIO WORLDWIDE - 2012

TABLE 1: SOCIAL MEDIA SCENARIO- WORLDWIDE

S.No.	Name of the Social network	Registered users(In millions)
1	Facebook	845
2	Twitter	465
3	Myspace	110
4	Tagged	106
5	LinkedIn	112
6	Hi5	80
7	Tumblr	16
8	Foursquare	10

Source: compiled by author

POWER OF SOCIAL MEDIA

- 4 out of 5 internet users visit social networks and blogs
- There are now over 2.8 billion social media profiles, representing around half of all internet users worldwide.
- If Facebook(845 million) were a country it would be the world's 3rd largest populated country ahead of the United States(312 million) and only behind China(1339 million)and India(1210 million)
- Over 50% of the world's population is under 30-years-old,96% of them have joined a social network
- 60 million status updates happen on Facebook daily.
- More than 700,000 local businesses have active Pages on Facebook.
- 1 out of 8 couples married in the U.S. last year met via social media
- 80% of companies use social media for recruitment; % of these using LinkedIn 95%
- The 2nd largest search engine in the world is YouTube. While you watch a video, another 100+ hours of video will be uploaded to YouTube
- There are over 200,000,000 Blogs in existence
- Because of the speed in which social media enables communication, word of mouth now becomes world of mouth
- 78% of consumers trust peer recommendations

SOCIAL MEDIA MARKETING

Social media marketing refers to the process of gaining traffic or attention through social media sites. According to Kim and KO (2010a), social media can have a dramatic impact on a brand's reputation. One-third of survey participants posted opinions about products and brands on the brand's blog, and 36% thought more positively about companies that have blogs. Social media marketing is a marketing technique that is concerned with advertising on social media networks. These include networking sites, web logs (blogs), online communities etc. Social media marketing consists of the attempt to use social media to persuade consumers that one's company, products and/or services are worthwhile. Social media marketing is not merely about hitting the FrontPage of Dig or any other social news website. It is a strategic and methodical process to establish the company's influence, reputation and brand within communities of potential customers, readers or supporters.

SOCIAL MEDIA MARKETING VS CONVENTIONAL MARKETING

Social media marketing uses similar techniques of conventional marketing, but the implementation of the same is done using a different set of tools. The purpose of social media marketing is in establishing a long standing relationship with the prospective clients through noncommercial interactions. So, rather than focusing on sales or volumes achieved the objective of the ultimate outcome is enabling a behavior belief change. This shift in brand building from conventional mass marketing to focused social media marketing requires new approaches and different goals. The prime objective here is to launch deeper relationships by initiating conversations with prospects and optimizing their value rather than merely aiming to acquire a new customer.

If market share is the prime driver in conventional marketing, share of customer mind space through share in customer voice and communication forms the crux in social media marketing. Improved and extended service offerings give the added dimension for enhanced customer relationship.

Apart from setting a new marketing approach, a context for the dialog needs to be established to gain legitimacy in the conversation in the case of social media marketing. More often, this dialogue is not directly the company's but those of the influencers. This, bridges the distance between the seller and customer by building on the trust. Conventional marketing directly extends the brand and offers the service / product through direct communication that is clearly commercial in nature.

Social media marketing is all about innovative and creative interaction with the available online communities to generate exposure, opportunity and sales in a non- compelling way.

WHY WE SHOULD CARE ABOUT SOCIAL MEDIA AND WHY IT IS WORTH OUR TIME?

- It's free
- Quick Results
- It's Flexible
- It Gets Easier with Time
- It Will Lead to Other Valuable Sources of Traffic
- Building Links with Social Media is Safer than Buying Links
- Social Media Users are Predictable
- Branding through Social Media is Possible
- Links Can Help Your Search Engine Rankings Rise Quickly
- It Allows You to Leverage Your Existing Traffic
- The Future of the Internet is Social

ROLE OF SOCIAL MEDIA IN MARKETING

- Social media is now increasingly becoming an ingrained aspect of political campaigns, national defense strategies, public policy, public relations, brand management and even intra company communication.
- Since the major task of marketing as tool used to inform consumers about the company's products, who they are and what they offer, social marketing plays an important role in marketing.
- Social media can be used to provide an identity about the companies and the products or services that they offer.
- Social media helps in creating relationships with people who might not otherwise know about the products or service or what the companies represent.
- Social media can be used to associate themselves with their peers that may be serving the same target market.
- Social media can be used to communicate and provide the interaction that consumers look for. Why businesses need to consider social media marketing services?

BENEFITS OF SOCIAL MEDIA MARKETING

Social media, which begins as an entertainment tool in the beginning, then became the most recent marketing phenomena because of its remarkable advantages in area (Karahan, 2011). The number-one benefit of social media marketing is standing out in an increasingly noisy world. A significant 88% of all marketers indicated that their social media efforts have generated more exposure for their businesses. Improving traffic and subscribers was the second major benefit, with 72% reporting positive results. Nearly two-thirds of marketers indicated a rise in search engine rankings was a benefit of social media marketing. As search engine rankings improve, so will business exposure and lead generation efforts, and overall marketing expenses will decrease.

Slightly more than half of marketers found social media generated qualified leads.

Social media marketing helps to:

- Generate exposure to businesses.
- Increase traffic/subscribers.
- Build new business partnerships.
- Rise in search engine rankings.
- Sale more products and services.
- Reduce in overall marketing expenses.

SOCIAL MEDIA MARKETING STRATEGIES

- SMM is still in its infancy. Most of the online retailers though appreciate its positives fallouts on the brand awareness and promotion; they are still in the early stages of adoption. For an organization willing to invest in social media marketing, it is important to understand why SMM is an important marketing strategy and how it can help:
- This is the age of consumer satisfaction. It is not about selling it is more about interacting. There is a lot to learn from the customers. Using social media one can identify customers, listen to their feedback and use them to improve and innovate on products or services.
- SMM is not a mass advertising strategy. It can be used to identify peer groups and advertise to that particular group. Social Media can help in identifying influencers and through them; one can guide a prospective customer into making a purchase.
- SMM calls for novel advertising methods as the attention span of online *junta* is very low. This is largely due to the multitasking phenomena. A person watching a video clip on YouTube might be simultaneously updating a blog, while reading another one and watching friend's photographs on Face book. In order to garner their attention away from distractions the advertisement must be innovative and interesting to hold the imagination and attention of the prospect. At the same time, the message must also provoke the recipient into action; like seeking a detailed description of the product/service, or suggesting to a friend, or initiating purchase. Therefore, if the advertisement is trying to sell something then it should be conveniently placed with links so that the prospect can make a purchase with least effort..
- The Company should not just jump on to the bandwagon just because others are jumping into it. The market should be analyzed first to understand whether their brand would really benefit from SMM. It should try to find out whether SMM strategies fit its brand.
- The Company should not expect results over night. SMM is a long-term strategy. It will not happen overnight. The results might become visible anywhere from three to six months.

GROWTH OF SOCIAL MEDIA MARKETING

A recent study was conducted by a Leading global public relations firm Burson-Marsteller has revealed that more than 80 percent of companies listed on *The Wall Street Journal's* Asia 200 Index have a corporate social media presence, up from 40 percent last year. Showing dramatic growth, the top companies in Asia closed the gap with *Fortune 100* companies, where 84 percent of companies use social media channels for corporate marketing and communications.

Key findings from the study include:

- 81 percent of top Asian companies have a branded corporate social media presence, over double the figure for 2010 and in line with the 84 percent of Fortune global 100 firms
- 31 percent of companies use at least three social media channels, up from three percent in 2010 and expected to more in 2012
- 19 percent of companies still have no official corporate social media presence
- 30 percent of companies use social networks for corporate marketing and communications, up from 30 percent in 2011
- 28 percent of companies use micro-blogs for corporate marketing and communications, up from 18 percent in 2010
- 62 percent of social media channels surveyed were inactive, and the same percentage of companies do not promote their social media channels on their homepages

SOCIAL MEDIA MARKETING IN INDIA – AN OVERVIEW

Social Media in India has been growing rapidly. During 2011 online presence among Indian users has increased very drastically if we compare it from past few years. There are more than 100 million online users from India that comprises 4.5% of total online users across the globe.

TABLE 2: ONLINE INTERNET USES IN INDIA

Year	No. Of Online users(In Millions)
2001	7.0
2003	22.5
2005	42.0
2007	50.6
2009	81.0
2010-11	100.0
2011-12	125.0

Source: Compiled by author

According to above data 12.1% of total Indian population is on online presence. 20 million users come online on a daily basis. From this more than 30 million online users on different social networking sites. And it is expected to reach 45 million by 2012. Daily 50,000 new users are getting connected to these sites.

TOP 5 SOCIAL NETWORKS IN INDIA

TABLE 3: TOP 5 SOCIAL NETWORKS IN INDIA

S.No	Name of the social network	No. of Registered users(In millions)
1	Facebook	33+
2	Orkut	29 +
3	Twitter	14 +
4	LinkedIn	10 +
5	Google+	5+

Source: Compiled by author

SOME WORTHWHILE STATISTICS IN INDIA

- India ranks 3rd maximum users on Facebook after US and Indonesia.
- 60% of the social networking traffic come from Non Metro-Cities but the highest traffic generating city still remains to be a Metro i.e. Mumbai
- The highest number of active users are from the 15-24 age group but LinkedIn has a different age group of active users i.e. 25-34 age-group
- Social media in India reaches out to 60 per cent of the online Indian audience
- Facebook and Orkut, together cater to about 90 per cent of the users in the social media space.
- Facebook is the only social network in India that has witnessed a tremendous growth, almost doubling its users in the last 6 months.
- Highest number of active social media audience in India are in the age group of 15-24 and are graduates who are looking for a Job or planning further studies
- The maximum users come from the 'less than 2 lakhs p.a. income category. This is because social networks are primarily driven by the youth

- More than 45% of the users on Social Networks return during the day. Facebook tops the list with users re-visiting more than 3 times during a day
- Majority of the time spent by the Indian audience on Facebook is on Interactive Games/Applications and then on viewing Photos

FUTURE OF THE SOCIAL MEDIA

i. Social media will beyond marketing

Social media is going to be integral part of everything we do when promoting our business. This will make social media an integral part of marketing and it will not be a separate activity. Much like SEO or email marketing, social media will be just one tool in the box.

ii. Facebook will break the 1 Billion people mark

Where do those more than 1 billion Facebook users come from? The countries with more than 20 million people and Facebook penetration below 20% will add most of this growth in 2012. Add the potential growth of other countries and you get to a cool billion or 1.1 billion even. And that does not include China.

iii. Integrating social media to corporate websites

Brands start large scale integration of social media content into their digital properties. Big brands will use social media connect and user generated content to get closer to customers. This will help them get most out of true fans and brand advocates by linking their web properties to conversations.

iv. Social CRM will make inroads in larger organizations

Social data will be added to the CRM systems to find trends in sentiment and individual preferences of customers. Findings from IBM showed that in the next three to five years, 81% plan to focus on customer analytics and customer relationship management (CRM) solutions.

v. Social media will influence more sales

Social media integration will allow customers to get real user opinions before making purchase decisions. Social commerce is not web shop on Facebook. It's a digital property where people can make their decision based on marketing materials from the brand and augmented with feedback from existing customers in a form of ratings, reviews and comments.

vi. Social media advertising will grow

Social media advertising will grow to $5 Billion in 2012, 25% of that will be locally targeted social advertising.

vii. Rise of the branded content

Next to advertising there will be a push be in the user's stream. This means brands need to create content that is good enough to be curetted and shared.. This means that content creation budgets may in many cases exceed the social advertising budgets. It wouldn't be surprising if some brands will kill advertising in favor of content creation.

***viii.* Location! Location! Location! Location based services will be everywhere**

Local information, reviews, coupons, loyalty programs and more All tied in with your social graph. We are moving towards an era of real-time need for information. More and more people will be checking for recommendations about nearby restaurants, bars, hotels, etc. Location based services will be part of many marketing campaigns.

Near-field communication chips in mobile devices get more common and will pave the way to the new era of —tap & pay commerce. Loyalty programs will start moving towards NFC and location based solutions. NFC will be a convenient way for you to connect, share and react.

***ix.* Most social media usage will be on mobile devices**

Social media is happening in real time and people share content when it's happening! As smartphone penetrations reaches majority and tablets become increasingly popular, sharing content will move towards mobile devices. Smartphones gives us extra depth into personalization – we can share what we want, when we want. The limits are fading! You will always be connected with social media, no matter where you are!

x. News will be social

News websites will gradually be replaced by applications integrated with social media technology such as Facebook's Open Graph. While this won't happen instantly, we're going down that road as we speak. People will be reading news from their dedicated applications such as iPad's Flipboard or Washington Post Social Reader. We will take in a lot of recommendations and read the same things that our friends are reading.

xi. Mobile apps will become more social

All of the successful new mobile apps will be deeply integrated with social networks allowing you to share and engage more than ever before. We will be taking in a lot of suggestions and recommendations from our friends, colleagues and other trustworthy peers.

xii. Social media footprint will grow

Frictionless sharing capabilities and social gestures will make our lives increasingly visible on social networking sites. Music, TV shows, check-ins, purchases and more will be automatically posted to social media sites. Always connected, always sharing! If you don't share, your friends will.

CONCLUSION

Businesses are one of the great benefactors of social media marketing. Because as we trace history, before we were having a hard time in promoting our products and service due to the limited resources we all had. Fortunately, many methods are available to help us generate more traffic and eventually translate the lead generation to our target audience. Social Media optimization is one of the popular way of promoting product online and augmenting its traffic in just a matter of ample time. It is cost effective and you will definitely maximize its effects since as long as it is publish online, higher the chance that people unravel into business. Blogging can have a very positive effect on Company's branding & growth. We can never deny the fact, everyday millions and millions of individuals are hook in different social media websites wherein they are able to connect, create relationship and discover different products online. Thus Social media marketing can be termed as an emerging advance in business and its applications.

REFERENCES

1. Bodnar, K. (2011, April 07). Social Media Important to 90% of Marketers [NewData]. Retrieved February 25, 2012, from http://blog.hubspot.com: http://blog.hubspot.com/blog/tabid/6307/bid/11633/Social-Media- Important-to-90-of-Marketers- New%20Data.aspx#ixzz1cSXuTlAN
2. Kaplan & Haenlein, (2010). Users of the world, unite! The challenges and opportunities of Social Media. Business Horizons, 59-68.
3. Kallas, P. (2011, December 14). 21Social Media Marketing Trends for 2012. Retrieved March 02, 2012, from http://www.dreamgrow.com: http://www.dreamgrow.com/21- social-media-marketing-trends-for-2012/
4. Karahan, A. K. (2011). To Be or Not to Be in Social Media Arena as the Most Cost-Efficient Marketing Strategy after the Global Recession.7th International Strategic Management Conference (pp. 260-268). Paris, France: Procedia Social and Behavioral Sciences.
5. Kietzmann, J. H. (2011). Social media? Get serious! Understanding the functional building blocks of social media. Business Horizons, 241-251.
6. Kim AJ, Ko E. Impacts of luxury fashion brand's social media marketing on customer relationship and purchase intention. J Glob Fashion Mark 2010a; 1(3):164–71.
7. Land, S. E. (2011). What Is Social Media Marketing? Retrieved March 02, 2012, from http://searchengineland.com: http://en.wikipedia.org/wiki/Social_media_marketing
8. Pring, C. (2012, Febraury 13). 100 more social media statistics for 2012. Retrieved march 05, 2012, from http://thesocialskinny.com/100- more social-media-statistics-for-2012/
9. Richter A, Koch M. Social software status quo und Zukunft. Technischer Bericht, Nr.2007–01, Fakultät für Informatik. Universität der Bundeswehr München; 2007.
10. Stelzner, M. A. (2011, April 7). 2011SOCIAL MEDIA MARKETING INDUSTRY REPORT. Retrieved March 03, 2012, from http://www.socialmediaexaminer.com/SocialMediaMarketingReport2011.pdf?9d7bd4

11. Thackeray, R. (2012). Integrating Social Media and Social Marketing- A Four Step Process. Health Promotion Practice, 165-168
12. Traffikd. (2008, August 10). 13Reasons Why Social Media Marketing is Worth Your Time. Retrieved 03 04, 2012, from http://traffikd.com: http://traffikd.com/smm/worth-your- time/
13. Vaidyanathan, R. (2012, January 03).Is 2012 the year for India's internet? Retrieved 03 05, 2012, from http://www.bbc.co.uk/news/business-16354076

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