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# CONTENTS

Sr. No.	TITLE & NAME OF THE AUTHOR (S)	Page No.
1.	<b>ANTECEDENTS OF NON-GOVERNMENTAL ORGANIZATIONS' EFFECTIVENESS</b> <i>DR. M.S.A. MAHALINGA SHIVA, DR. DAMODAR SUAR &amp; DR. SANTANU ROY</i>	1
2.	<b>CRITICISING THE IMPLEMENTATION OF THE SERVQUAL MODEL IN GENERIC INDUSTRIES</b> <i>TAMEEM AL BASSAM &amp; SARMA AL SHAWI</i>	9
3.	<b>TOWARDS A MODEL FOR ENHANCING CONSUMER TRUST IN AN ONLINE ENVIRONMENT</b> <i>PRIYANKA MEHARIA, BISWAJIT PANJA &amp; JUAN HU</i>	14
4.	<b>A RESEARCH STUDY ON ORGANIZATIONAL CULTURE IN COMMERCIAL BANKS (A CASE OF SELECTED BANKS IN HAWASSA CITY OF ETHIOPIA)</b> <i>DR. BREHANU BORJI &amp; DR. ARAVIND SOUDIKAR</i>	19
5.	<b>THE IMPACT OF MICRO FACTOR OPPORTUNITY ON ENTREPRENEURIAL SUCCESS OF SMES – A CASE STUDY ON COMMERCIAL FAST FOOD SMES</b> <i>DR. ANSIR A. RAJPUT, WASEEM AHMED, SYED JEHANZEB JAVED &amp; SEHRISH JEHANGIR</i>	25
6.	<b>ANALYSIS OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ADOPTION/USE FACTORS AMONG RWANDAN COMMERCIAL BANKS</b> <i>MACHOGU, M. ABIUD &amp; DR. EGWAKHE, A. JOHNSON</i>	30
7.	<b>A STUDY ON IDENTIFICATION OF CONTEXTUAL KEY FACTORS IN PERFORMANCE APPRAISAL IN PUBLIC SECTOR ENTERPRISES IN INDIA</b> <i>DR. KAIPA RAGHURAM SHASTHRY &amp; DR.VIMALA SANJEEVKUMAR</i>	35
8.	<b>GROWTH AND PERFORMANCE OF HOUSING FINANCE COMPANIES IN INDIA: A CASE STUDY WITH REFERENCE TO HOUSING DEVELOPMENT FINANCE CORPORATION</b> <i>DR. D. GURUSWAMY</i>	40
9.	<b>TRAVEL MOTIVATIONS AND DESTINATION SELECTION: A CRITIQUE</b> <i>W.K. ATHULA GNANAPALA</i>	49
10.	<b>ROLE OF INFORMATION TECHNOLOGY IN BUSINESS</b> <i>DR. R. KARUPPASAMY &amp; C. ARUL VENKADESH</i>	54
11.	<b>ASSESSMENT OF SERVICES OF TEACHING HOSPITALS IN THE CHANGING GLOBAL SCENARIO</b> <i>ARCHANA MISHRA &amp; DR. RITU BHATTACHARYYA</i>	58
12.	<b>PROVOCATIVE SELLING TECHNIQUE AT THE BOTTOM OF THE PYRAMID IN A RECESSIONARY SITUATION: STUDY ON UNIFORM MANUFACTURING INDUSTRY - IN AND AROUND KOLKATA</b> <i>BHUDHAR RANJAN CHATTERJEE &amp; SUKANYA CHATTERJEE</i>	63
13.	<b>CONSUMER BEHAVIOUR TOWARDS SMALL CARS - A CASE STUDY OF NALGONDA DISTRICT IN A. P.</b> <i>DR. G. RAMA KRISHNA, D.K. PRATHIBHA, S. DESE NAIK &amp; A. RAMA CHANDRAIAH</i>	67
14.	<b>A STUDY ON THE BARRIERS AFFECTING THE GROWTH OF SMALL AND MEDIUM ENTERPRISES IN INDIA</b> <i>DR. KRISHNAVENI MUTHIAH &amp; SUDHA VENKATESH</i>	77
15.	<b>A MEDICAL IMAGE COMPRESSION TECHNIQUE</b> <i>K. S. SELVANAYAKI &amp; DR. RM. SOMASUNDARAM</i>	82
16.	<b>HIGH ENGAGEMENT &amp; LOW ATTRITION – A STUDY OF THE TELECOM INDUSTRY IN INDIA</b> <i>LRK KRISHNAN &amp; DR. A SETHURAMASUBBIAH</i>	85
17.	<b>ANALYTICAL STUDY ON EMPLOYEE SATISFACTION [CASE STUDY OF GAMMON INDIA LTD. (T &amp; D BUSINESS), MIDC, BUTIBORI, NAGPUR]</b> <i>DR. SHINEY CHIB</i>	96
18.	<b>INNOVATION IN HIGHER EDUCATION ADMINISTRATION THROUGH ICT</b> <i>J. MEENAKUMARI</i>	104
19.	<b>THE IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY: EVIDENCE FROM SUGAR INDUSTRY IN INDIA</b> <i>GOPINATHAN RADHIKA &amp; DR. RAMACHANDRAN AZHAGAIAH</i>	107
20.	<b>A STUDY ON MOBILE PAYMENT SYSTEMS AND SERVICES</b> <i>CHANDRAKANT D. PATEL</i>	113
21.	<b>SERVICE QUALITY IN HIGHER EDUCATION</b> <i>DR. NARINDER TANWAR</i>	118
22.	<b>CONSUMER BUYING BEHAVIOUR ON MOBILE PHONE: A COMPARATIVE STUDY</b> <i>ANIL KUMAR</i>	122
23.	<b>EVALUATING FINANCIAL HEALTH OF DR. REDDY'S LABORATORIES THROUGH 'Z' SCORE THEORY- A CASE STUDY</b> <i>DR. SHITAL P. VEKARIYA</i>	128
24.	<b>EFFECT OF BARRIERS IN CREATION OF KNOWLEDGE</b> <i>VIDYA L.HULKUND</i>	131
25.	<b>THE ELECTRONIC-NOSE TECHNOLOGIES IN HEALTHCARE AND BIOMEDICINE: A CASE STUDY</b> <i>M.NAVEEN KUMAR</i>	134
	<b>REQUEST FOR FEEDBACK</b>	138

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**ANTECEDENTS OF NON-GOVERNMENTAL ORGANIZATIONS' EFFECTIVENESS**

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**ABSTRACT**

*Non-governmental organizations have been around for more than 150 years. Over the last decade, however, their number has increased exponentially and the nature of their involvement has broadened in the Indian society in terms of their enhanced role in socio-economic development of the country. The enhanced role of non-governmental organizations in the public and private sectors has created a need to study what goes into making these organizations effective. Transformational leadership and organizational culture are crucial components for non-governmental organizations' effectiveness. The leader-member exchange and employees' commitment are also essential for effectiveness of NGOs that can further non-governmental organizations' efficiency vis-a-vis effective service delivery to the beneficiaries. Critically examining the literature, the present study explores the interplay among these constructs and sets the agenda for future research.*

**KEYWORDS**

Commitment, culture, leader-member exchange, NGO effectiveness, transformational leadership.

**INTRODUCTION**

An NGO is a broad term encompassing a wide array of diverse organizations. NGOs are private and non-profit organizations that are supposed to pursue activities to relieve suffering, promote the interest of the poor, protect the environment, provide basic social services, or undertake community development (World Bank, 1989). The NGO sector, also known as the third sector has diverse entities operating under different paradigms. These organizations receive substantial funds from various funding agencies. These funds need to be deployed effectively for the effective delivery of the goods and services to the beneficiaries. This requires a leadership style that, on one hand, can help create a culture that is conducive to effective operation of the NGO, and on the other hand, can infuse enthusiasm among the NGO staff by developing better leader-member exchange that would lead to enhanced employee commitment, thereby resulting in NGO effectiveness, which in turn could lead to more favourable programme outcomes.

Under Indian context, most of the NGOs are run as one-man shows supported by a handful of professionals and even fewer staff functionaries, and mostly devoid of hierarchy. Generally, the founders of the NGOs provide the necessary vision, mission and the direction. They do not possess many physical or financial resources, hence, have nothing much to offer their staff or volunteers in exchange for the services rendered by them. Here, the role of leaders is to provide a kind of exemplary, selfless and charismatic leadership, all bundled into a typology of leadership, termed as transformational leadership (TL), a concept put forth by Burns (1978) and further developed by Bass (1990). TL exists when the employees are motivated to work for transcendental goals and higher-level self-actualizing needs, rather than external pay-offs (Bass & Avolio, 1990b). On the contrary, Transactional leadership involves an exchange between leaders and followers (Bass and Avolio, 1990b). These leaders 'give followers something they want in exchange for something the leaders want' (Kuhnert and Lewis, 1987, p. 649). Compared to results of transactional leaders, transformational leaders achieve greater improvements and are considered to be "of a higher order with respect to effort, development and performance" (Bass and Avolio, 1990b, p.241). Further, Bass (1997) has stated that the prototype of leadership is that of a transformational leader.

Leader-member exchange involves the interpersonal relationships between leaders and followers. They are dyadic in nature and may bear a relationship with the various dimensions of organizational commitment, which is, in general, defined as 'a psychological state that binds the individuals to the organization (Allen and Meyer, 1990, p14). Managing organizational commitment of employees furthers organizational effectiveness (Meyer and Herscovitch, 2001), which could possibly affect the outcomes of the programmes undertaken by NGOs (Sowa et al., 2001). With this conceptual backdrop, this study critically examines (a) NGOs and their activities (b) NGO effectiveness and programme outcomes, (c) the factors of TL, organizational culture, as well as organizational commitment, and leader-member exchange contributing to organizational effectiveness vis-à-vis programme outcomes in the context of NGOs in India.

**REVIEW OF LITERATURE****NGO: CATEGORIZATION AND ACTIVITIES**

Sen (1987) has viewed NGOs forming a sector of society that has diverse entities operating under different paradigms. According to him, NGOs represent the nucleus of experimentation in grassroots development. NGOs can be private agencies that support international development, or indigenous or religious groups organized nationally or regionally (Nalinikumari and Maclean, 2005). They can be a group of citizens that raise awareness among the public and influence government policies. Various charitable and religious associations and groups that mobilize private funds and use them for development of society also are considered NGOs. The diversity of NGO defies any simple definition, according to the World Bank (1990). Such organizations are, at times, referred to as not-for-profit organizations (NPOs). However, the terms NGO and NPO have been used interchangeably in the NGO literature and as such no clear cut distinction has been made (Vakil, 1997; NGO Workshop, 1988) and we would use the term NGO to mean all such organizations.

NGOs have been around for more than 150 years. Over the last decade, however, there has been a subtle but steady shift in the nature of their influence over business (Nalinakumar and Maclean, 2005). There has been tremendous growth in the number of NGOs participating in international negotiations (Gulbrandsen and Andersen, 2004) in the last two decades. The report of the 'Thirtieth United Nations Issues' conference (1999) has clearly stated that NGOs are more involved than ever before in global policymaking. This report has also predicted that the numbers of NGOs, and nature of their involvement, would broaden and would be evolved in terms of substance. Nalinakumar and Maclean (2005) have observed the exponential growth in the numbers of NGOs. They have reported that from around 12,500 during the year 1980, the number of international NGOs that is working in different parts of the world has increased to 45,000 in the year 2000. The NGO sector in the United States of America today accounts for a significant portion of overall economy ([www.independentSector.org](http://www.independentSector.org)). As per the study made by Mandato (2003), 70% American households contribute more than U.S. \$700 billion each year to NGO sector.

Poverty is one of the major problems in all the developing countries and the government sector in such countries lack personnel to address the basic human needs. NGOs play a crucial role by supplementing governments' efforts and by acting as a channel between government and the people. Of the various factors, the timely availability of credit to the rural masses and to the primary sector is crucial for economic development of these countries. There remains a challenging task for most governments to meet the credit needs of this hinterland. Bangladesh has shown the way to the rest of the world the power of the NGO sector in alleviating the poverty that is prevalent among the rural masses. The emergence of the micro-finance industry in Bangladesh has presented a tremendous opportunity to extend financial services to the vast majority of the poor people. The micro-finance industry in Bangladesh consists of (a) NGOs, (b) cooperative public sector programmes, and (c) Gramin Banks. In this winning trio, the Gramin Bank and the NGOs have played the major role in alleviation of poverty that is so prevalent in the hitherto neglected hinterland of Bangladesh. The country is now teeming with more than 1,000 micro-finance NGOs (<http://www.dgcr.org/icm/country/bangla-001.html>, dated 11/11/2004).

### IMPORTANCE OF NGOS IN THE INDIAN CONTEXT

In the developing world, irrespective of the form of governance prevailing in a country, NGOs have been increasingly being recognized as a conduit for financial aid and assistance. In a democratic pattern of governance, one of the ways in which the collective aspirations of the common people find expression is in the form of NGOs. This is well supported by research. Handy and associates (2005) have observed that in the last few decades, there has been a proliferation of NGOs in India. The John Hopkins Comparative Study of the Third Sector found more than one million NGOs in India representing various sectors, ranging from the environmental to social sector development (Salmon and Anheier, 1997). The non-profit sector in India employs about 20 million people and attracts to the tune of INR 18,000 crores of funding annually (<http://timesfoundation.indiatimes.com>, dated 5<sup>th</sup> May 2006).

The growth of the NGOs has been further supported by the government policies as expressed by India's five year plans. The 1985-90 five year plan of the Indian government included NGOs explicitly in its plan for the first time and has integrated them in the development process. Then in the subsequent five-year plans, the role of NGOs as a partner in the development process has been duly articulated in the policy documents. In the ninth and the tenth five-year plan, an enhanced role of the sectoral trio of public-private-community has been visualized as the synergistic combination that would act as the prime mover for overall development of India. NGOs like 'CARE' that functions in the area of childcare and 'PRADAN', which works for sustainable rural development, are operational NGOs because they are addressing the various developmental issues. NGOs like 'PETA', 'CRY' and similar others can be termed as advocacy NGOs as they advocate for various causes, like PETA for ethical treatment of animals; and CRY for child rights (<http://www.cry.org>). An International NGO 'GREENPEACE' advocates for initiating environmental protection measures. At times, besides being developmental in nature, some NGOs may also act as an advocacy NGO under certain circumstances. For instance, in the vicinity of the proposed steel plants sites in the East Singhbhum and Seraikella-Kharsawan districts of the Jharkhand state in India, some NGOs which were previously working either independently or as a support NGOs, have changed their focus and have taken a stance to defend the interests of the people who would be displaced by the proposed steel plants.

All organizations thrive to fulfill some purpose of society. Irrespective of the type of organization, the pertinent concern is their effectiveness. That leads us to a brief exploration of the concept of organizational effectiveness and the NGO effectiveness.

### ORGANIZATIONAL EFFECTIVENESS

Organizational effectiveness (OE) has been one of the most extensively researched issues since the early development of organizational theory (Rojas, 2000). Despite some consensus, there is still significant lack of agreement on the definition and operationalization of this concept (Cameron, 1986; Cameron and Whetten, 1983). This is perhaps due to the fact that the concept of effectiveness is linked to the concept of the organization. The conceptualization of effectiveness changes with the different types/categories of organizations. The obvious approach to both defining and evaluating OE is to ask, to what extent does an organization reach its goal (Herman and Renz, 1997)? The underlying assumption being that all organizations have measurable goals, which may not always be true (Pfeffer, 1982; Elmore, 1978; Mohr, 1982). Mahoney (1967) has described OE from the standpoint of managers. More recently, Walton and Dawson (2001) have described OE using a manager's perspective. Their results suggest that similar values help describe the effectiveness criteria in a cohesion-based solution for managers and academics. Kimberly and Rottman (1984) have used the biographical approach to investigate the concept of OE. Shetty (1978) has used managerial power as the basis to study OE. He has explained the concept in terms of five sources of managerial power, namely, legitimate power, reward power, coercive power, expert power, and referent power. Blankhorn and Gaber (1995) have used 'warm fuzzies' to assess OE. Warm implies there are corporate ideals that few managers could take exception to, but fuzzy implies that measurement issues make most managers uncomfortable with having their personal performance evaluated on these dimensions. OE is popularly assessed in terms of productivity (output/input). This is mostly applicable to manufacturing organizations but cannot be applied to NGOs.

Some of the researchers believe that all the organizations are same, so a common set of variables can explain all the OE. However, studies have shown that this is not always true and that there are specific variables that determine the effectiveness of different kinds of organizations (Campbell, 1977; Cameron, 1986; Chelladurai and Haggerty, 1991; Herman and Renz, 1997). A study carried out by Jobson and Schneck (1982), designed to assess the OE of a police organization has rejected using universal indicators of effectiveness (for instance, adaptivity, flexibility, participants satisfaction and turnover) and instead has chosen criteria related specifically to a police organization. Cameron (1978) and others too have observed that each type of organization, because of its different goals, attributes, environment, constituents, and histories, requires a unique set of effectiveness criteria. The contextual criteria are important in defining OE. This leads us to the fundamental questions of what is NGO effectiveness and how can it be assessed.

### NGO EFFECTIVENESS

The complexity in defining OE arises primarily due to two underlying factors: (a) different types of organizations, and (b) differing perspectives of viewing OE in these organizations. The effectiveness of NGOs too, continues to remain an elusive concept (Herman and Renz, 2004). First, making generalizations about management in the NGO sector is difficult, because the sector contains an overwhelming varieties of NGOs make the problem of assessing the effectiveness even more problematic and challenging (Herman and Renz, 1997) to practitioners and researchers. Second, there are so many perspectives that it is sometimes suggested that NGO effectiveness may be described by the parable of the blind men and the elephant (Herman and Renz, 1997). In spite of these, very little attention has been given to the development and testing of models that explain variation in performance of NGOs (Glisson and Martin, 1980). This has given rise to the multiplicity of the approaches to express the concept with the help of models.

Herman and Renz (1997) have found the contemporary perspective on OE to be especially relevant to research on NGOs, namely, the multiple constituency model (which is a modification of the goal approach) and the social constructionist, which is a more general or ontological perspective. The multiple constituency model recognizes that there are multiple stakeholders or constituents who are likely to use different criteria to evaluate OE (Kanter and Brinkoff, 1981; Zammuto, 1984, Tsui 1990). D'Anno (1992) has discussed multiple constituency models in relation to human service organizations.



Rojas (2000) has examined four OE models to determine which is more reliable for comparing the for-profit and non-profit organization effectiveness. According to him, the competing value framework model developed by Quinn and Rohrbaugh (1981) is the most dependable one. Recently, Brainard and Siplon (2004) have identified two models that describe the roles of NGO: (a) the economic model that emphasizes business-like methods, and (b) the voluntary spirit model that emphasizes participation and membership. According to them, highly visible and professional NGOs must constantly struggle with the extent to which they are to emphasize their role as efficient and competitive economic actors or their role as institutions important to their democracy.

Bradshaw's (1998) has felt a need to develop a model for NGOs that addresses the governance aspects. But it has been found by many researchers that NGOs ultimately measure their success by the impact they have on their beneficiaries, their families, and the communities in which they serve (Woller and Parsons, 2002). Sowa et al. (2001) have proposed a measure of OE on four dimensions that measure the internal functioning of the organization and its outcomes. These dimensions are *programme capacity*, *management capacity*, *management outcome* and *programme outcome*. Programme capacity is simply a measurement of how effective the programme is (<http://www.allwildup.com/Effectiveness.html>, dated 11-10-2006). An assessment of how closely the NGO's mission is aligned with community needs and how well its programmes advance its mission and achieve desired outcomes are the matter of importance to the funding sources, donors, clients and other partners. The assessment of programme capacity also helps in identification of the needed improvements. *Management capacity* is composed of the following management practices and systems: a formal mission statement, a strategic plan, the human resource systems, an independent financial audit, and an information technology system(s) (Sowa et al., 2004). *Management outcomes* captures how well the management capacity, the structures and processes, work in terms of the degree to which the employee of the organization are successfully managed and the degree to which the management structures and processes generate sufficient resources to maintain the operations of the organization (Hall, 1999; Rainey, 1997; Scott, 1998). Programme outcomes measure the effect of outcomes on the consumers of those programmes. It has objective measures which measures the extent of the goal achieved against a set benchmark or target. It has a perceptive measure which measures the client satisfaction (Sowa et al., 2004). In addition, it is proposed to capture the beneficiaries' perceptions of the effectiveness of a particular NGO in terms of their feedback regarding change in their income level, education level, health indicators, and happiness index. Whatever the NGOs do, these are reflected in improvements in income, education, health, and happiness of the target population.

Now, no NGO can effectively meet the aspirations of the beneficiaries without a person who can provide the leadership to the NGO. This brings us to the topic of leadership.

## LEADERSHIP

Every successful organization requires effective leadership to fully utilize the skills, knowledge and attitude of its employees. This is not just a matter for large organizations alone; the point is valid even for small NGOs. Leadership is the catalyst that enables one organization to differentiate itself from another and not only endure, but thrive. One of the most crucial tasks of the leadership is to provide motivation to its followers to attain the organizational goals. External payoffs, to an extent, could serve as motivators to the staff and followers. But, there exists a kind of leadership where the leaders do not resort to such payoffs, yet get their followers to do more than required towards attaining the organizational goals (Burns, 1978). This kind of leadership has a mixture of charisma, the ability to pay individual attention and to provide intellectual stimulation to their followers and thus to motivate them to indulge in extra-role behaviour (Ardichvili and Gasparishvili, 2001; Bass, 1998). This is especially so in the case of NGOs that are founded and run mostly as a one-man show. At the best, the leader may have meagre resources at his/her command. Such a leader may attract followers, by his/her charisma, his/her individual attention to each follower, or may also serve as a role model by selfless service. This discussion leads us to the two types of leadership namely *transactional* and *transformational*.

## TRANSACTIONAL AND TRANSFORMATIONAL LEADERSHIP

Transactional leadership involves an exchange between leaders and followers (Bass and Avolio, 1990b). In the Indian NGO sector where most NGOs face resource crunch (Handy et al, 2005), the transactional leadership is not likely to keep their personnel motivated based on external pay offs. TL, on the other hand, adopts a different approach. The distinguishing feature of transformational leaders is that they are held in high regard and respect by their followers. According to Bass (1985), transformational leaders motivate their followers by inspiring them, offering challenges, and encouraging individual development. Superior performance and performance beyond expectation is possible only by transforming followers' values, attitudes, and motives from a lower to a higher plane of arousal and maturity. Such type of leaders is found to be effective irrespective of the nature of organizations.

Bass (1985), and later Bass and Avolio (1990a) have identified four dimensions of TL. First, *Individualized consideration* involves a leader paying special attention to the needs for achievement and growth of each individual by acting as a mentor. By using this characteristic, leaders develop each employee to successively higher levels of potential within the organization. Second, *Idealized influence (behaviour)* involves leaders acting as role models for subordinates. The leader models behaviours that indicate high standards of moral and ethical conduct. The leader has a vision and a strong sense of mission that s/he shares with subordinates. S/he makes sure to share risks with employees. Those cause the subordinates to identify with the leader and try to emulate him/her (Bass and Avolio, 1990a, 1994, 1995). Another component, *Idealized influence (charisma-attributed)* refers to the situation where the leader uses behaviours such as considering the needs of others over his/her own, in order to inspire trust, respect, and admiration of followers (Bass & Avolio, 1995). Third, *Inspirational motivation* involves behaving in a way that provides meaning and challenge to subordinates' work. This helps to motivate and inspire those around the leaders. The leader makes sure that s/he communicates clearly stated expectations and motivates employees to strive to meet these goals. This can include the use of symbols and metaphors to increase understanding (Bass and Avolio, 1994; Ohman, 2000). Further, *Intellectual stimulation* encourages creativity among employees. Employees are facilitated to become more effective and creative problem solvers and are challenged to meet their full potentials (Bass and Avolio, 1995, Ohman, 2000).

Culture prevailing in an NGO is the central theme that makes the NGO strong or weak, productive or unproductive, efficient or inefficient. It is the central epitome that mediates the relationship between TL and OE (Chen, 2004).

## ORGANIZATIONAL CULTURE

The concept of organizational culture was introduced by Andrew Pettigrew in 1979. Since then organizational culture has attracted so much interest that it is even anticipated to become a theme as central as leadership in management research. Schein (1988) has defined organizational culture as a cognitive framework consisting of attitudes, values, behavioural norms, and expectations shared by organization members. At the root of any organization's culture is a set of core characteristics that are valued collectively by the members of an organization. Kanungo and Jaeger (1990) too agree that the term culture means a system of shared meaning where members of the same culture have a common way of viewing events and objects, and, therefore, are likely to interpret and evaluate situations and management practices in a consistent fashion.

## DIMENSIONS OF ORGANIZATIONAL CULTURE

Sashkin (1990) has analyzed the concept of organizational culture in terms of five dimensions. The first one called *managing change* refers to how effective employee feel the organization is in adapting to the managing change. Crises provide an excellent opportunity for leaders to effect change within the organization. The second dimension is *achieving goals*, which involves how effective employees perceive the organization to be in attaining goals. Kent (1995) has described it as the extent to which organizational members are aligned with one another and with the overall goals of the organization. *Coordinated teamwork* is the third dimension. It refers to how effective employees feel the organization is in terms of coordinating work between individuals and groups. It also involves the extent to which the efforts of individuals and groups are linked together so that each person functions effectively within the organization (Kent, 1995; Sashkin, 1990). The fourth dimension is *customer orientation*, which involves how effective employees feel the organization is at meeting the needs of clients and customer. Employees watch to see how well activities are directed towards identifying and meeting the needs, desires, goals, and values of

customers (Shaskin, 1990). The fifth construct is *cultural strength*. This involves how much employees feel the values and goals are agreed upon by members. Wallace (1993) defined it as the extent to which the prevailing culture guides the behaviour and the intensity of that behaviour of organizational members. After reviewing the dimensions of culture let us explore the relationship among the organizational culture, leadership and OE.

### RELATIONSHIP AMONG ORGANIZATIONAL CULTURE, LEADERSHIP AND OE

There is no dearth of literature on leadership, organizational culture, and OE separately. But there is a paucity of literature exploring the relationship among these variables. Organizational culture exerts influences on individuals, organizational processes, and organizational performance and effectiveness (Greenberg and Baron, 2003). When the culture is strong, indicating wide acceptance of its basic elements, it results in enhanced organizational performance (Weiner, 1988). Comparative studies on the culture-performance link have showed that certain cultural orientations are conducive to better performance and effectiveness (Calori and Sarnin, 1991; Denison, 1990; Denison, 2004; Xenikou and Simosi, 2006). Chen (2004) has done a similar study for small and medium enterprises of Taiwan in which he has studied the effect of organizational culture and leadership behaviour on the organizational commitment, job satisfaction, and organizational performance. Reports suggest that leaders affect their subordinates both directly through their interactions and also through the organization's culture. Schein (1988), has developed the thesis that it is a prime task of the leader of an organization to manage the organizational culture. Chidambaram and Krishnakumar (2005) have reported how a leadership intervention has enabled a culture change in a Bangalore based software firm in India. Based on this discussion, we propose that transformational leadership will positively influence organizational culture.

The effects of leadership and organizational culture on the effectiveness have been studied by a few researchers. Ogbonna and Harris (2000) have found that leadership style and performance is mediated by the form of organizational culture. Moreover, it has been proposed that culture might be the filter through which other important variables, such as leadership, influence organizational performance (Lim, 1995; Xenikou and Samosi 2006). A cultural change for betterment is very likely to lead to the overall OE. On the other hand, leadership may also directly influence the effectiveness of an organization. This could be especially so in case of NGOs where the founders and the leaders exercise great influence on the overall functioning and effectiveness of the organization. Being the whole and sole of the NGO, such a leader can help create a culture that lead to effective programme outcomes to the beneficiaries in terms of better service delivery. It is clear that the effectiveness of an organization such as an NGO is influenced by both, the culture of the organization and the quality of its leadership. Based on the discussion, we propose that organizational culture will have a positive influence on the NGO effectiveness, and TL will have a positive influence on NGO effectiveness.

TL can affect the exchange relationship that exists between leader and the other members of the NGO, the commitment of the members, and the resultant NGO effectiveness that finally gets translated into outcomes to the beneficiaries.

### LEADER-MEMBER EXCHANGE

Leader-member exchange (LMX) involves the inter-personal relationships between leaders and followers. The exchange relationship would, to a great extent depend on the leadership style. The relationship between leadership and leader-member relations has been extensively studied (Basu and Green, 1997; Deluga, 1992; Dienesch and Liden, 1986; Howell and Merenda, 1999; Lee, 2005). Leader-member theory suggests that leaders do not use the same style in dealing with all subordinates. They use different types of relationships or exchange with each subordinate (Liden and Maslyn, 1998). The theoretical foundation of LMX has been built using role theory (Graen, 1976). According to this theory, leaders test their subordinates or followers with 'various work assignments in a series of role making episodes' (Liden and Maslyn, p.44). In an NGO, the subordinates may display their degree of worthiness by the extent of their compliance of the task demands. The degree of their compliance of these task demands determines the extent of the LMX, or the quality of relationship between them and their leader. The leader, in turn may reciprocate with allocating work related resources such as, furnishing important information, assigning more challenging task(s), giving more autonomy, better appraisals, etc to her/his subordinates as per the quality of relationship with each subordinate. On the other hand, a transformational leader, under an NGO set-up would make the exchange less dependent on such external pay-offs. Such a leader may utilize his transformational qualities; such as his/her charisma, putting others' interest before his/her own, infusing inspirational motivation to enhance the quality of exchange with the followers. This leads one to explore the various dimensions of LMX.

### DIMENSIONS OF LMX

LMX has been treated by some researchers as unidimensional (e.g. Graen and Scandura, 1987), as they contend that the exchanges between leader and member are only work related. However, role theory, which provides the foundation of the LMX research stresses that roles are multidimensional (Sparrowe and Liden, 1997). Further, Dienesch and Liden (1986), have suggested that LMX may be based on three dimensions of exchange, which may be task related behaviour (contribution), loyalty to each other (loyalty), and liking for each other (affect). They have contended that an exchange may have one, two or all of these three dimensions. Based on the domination of any one of the above dimensions of the LMX, the nature and quality of the relationship between leader and member could be predicted. A contribution based exchange would mean exchanges that are predominantly based on the work-related issues. An affect based exchange would mean the exchange between the leader and member would more likely be based on liking for each other, and such an exchange would mostly be over non-work related issues.

Dienesch and Liden (1986, pp.624-626) has defined the affect dimension of LMX as "the mutual affection members of the dyad have for each other based primarily on interpersonal attraction rather than work or professional values". *Loyalty* is the extent to which the leader and member are loyal to one another. It is based on the leader and members' support of each other's actions and character. *Contribution* is perception of the amount, direction, and quality of work-oriented activity each member puts forth toward the mutual goals.

Many researchers have studied the relationship between LMX and organizational commitment (Lee, 2005; Tansky and Cohen, 2001; Rowden, 2000). Organizational commitment is an important work behaviour that has potential to influence the OE and employee well-being (Meyer and Herscovitch, 2001). One of the side bets for employee for staying in an organization is the financial benefits that they draw from the organization. It is a widely known fact that not all NGOs are good pay masters, especially those that are small and are working at the grassroots have shoestring budgets. In such a situation, commitment that develops on account of the financial benefits offered by the NGO (i.e. the continuance commitment) may not be a reason strong enough to keep an employee. Also, there is a wide scope to study the dimensions of commitment that are relatively more important for employee retention in NGOs. How organizational commitment is affected by the exchange relation that takes place between the leader and the member of the organization forms an important consideration.

### COMMITMENT AND ORGANIZATIONAL COMMITMENT

Commitment has been conceptualized and defined as unidimensional (Brown, 1996; Mowday, Porter, and Steers, 1982; Weiner, 1982) or multidimensional (Allen and Meyer, 1990; Gordon et al. 1980; O'Reilly and Chatman, 1986) construct.

Now, there are two perspectives or approaches to view at commitment: the attitudinal and the behavioural perspectives. Mowday et al. (1982, p.26) offer the following description of the two perspectives. 'Attitudinal commitment focuses on the process by which people come to think about their relationship with the organization.' Behavioural commitment, on the other hand, relates to the process by which individuals become locked into a certain organization and how they deal with their problems. The focus of the commitment research greatly varies in accordance with the approach a researcher follows (Meyer and Allen, 1990).

One more problem that goes with this construct is the target of the commitment, that needs clarification; for example the commitment could be towards one's profession (professional/career commitment), towards one's job (job commitment), one's union (Union commitment), or towards one's organization (organizational commitment). According to Meyer and Herscovitch (2001), all such commitment, in general, makes reference to the fact that commitment is a stabilizing or obliging force, that gives direction to behaviour (e.g., restricts freedom, binds the person to a course of action).

It is important to note that commitment is not the same as *motivation*, and *general attitude* (Brown, 1996; Scholl, 1981). That is, commitment is anything more than a motive to engage in a particular course of action or a positive attitude toward a particular entity that makes a person behave in a manner that benefits that entity.

### DIMENSIONS OF ORGANIZATIONAL COMMITMENT

There is some disagreement with regard to the dimensionality of organizational commitment. According to Meyer and Herscovitch (2001) the number of dimensions that researchers have described varies from one to three. Angle and Perry (1981) have described commitment in two dimensions, namely, *value commitment*, and *commitment to stay*. O' Reilly and Chatman (1986) have viewed commitment in terms of the *compliance*, *identification*, and *internalization*. Mayer and Schoorman (1992) have proposed commitment to be consisting of two dimensions, namely, *value* and *continuance*. Meyer and Allen (1984) have initially proposed two dimensions of commitment: *affective* and *continuance*. Later, Allen and Meyer (1990) suggested a third distinguishable component that they called *normative commitment*. This trio covers all the discussed dimensions. For example, commitment to stay and continuance equates with continuance, value commitment and value equate with normative commitment, whereas, internalization equates with affective commitment.

(a) *Affective commitment* refers to the employee's emotional attachment to, identification with, and involvement in the organization. Employees with strong affective commitment continue employment with the organization because they want to do so (Meyer and Allen, 1991). (b) *Continuance commitment* refers to an awareness of the costs associated with leaving the organization. Employee whose primary link to the organization is based on continuance commitment remain because they need to do so (Meyer and Allen, 1991). It is an awareness of the costs associated with leaving the organization. (c) *Normative commitment* reflects a feeling of obligation to continue employment. Employees with a high level of normative commitment feel they ought to remain with the organization (Meyer and Allen, 1991). It is a feeling of obligation to continue employment.

### TL AND LMX

Transformational leaders develop relationships with their followers/team-members that go beyond pure economic and social exchange (Bass, 1985). Studies have linked TL to high levels of efforts that the members put (Seltzer and Bass, 1990), trust in the leader (Bass, 1990), and the followers' reverence for the leadership (Cogner, et al., 2000). Deluga (1992) has demonstrated that TL is significantly related to high quality LMX. A transformational leader may act as a mentor and help develop the potentialities of his followers, thus creating a meaningful exchange between them. Such a leader may evoke favourable responses from his followers by paying individual attention to the careers of his followers. S/he may use such discretionary powers as, assigning meaningful and challenging jobs to his/her followers, allowing greater autonomy, more flexibility, etc., which in turn likely to give rise to better, and more meaningful exchanges between him/her and his/her followers. Hence, TL will positively influence LMX.

### LMX AND ORGANIZATIONAL COMMITMENT

TL has been found to be positively associated with organizational commitment (Rowden, 2000). As a transformational leader puts his/her followers' interests before his/her own, pays attention to each individual's development needs, provides inspirational motivation, he is likely to develop followers who are either emotionally attached to him, exhibiting affective commitment (Bycio et al.1995), and /or develop a sense of loyalty towards the organization on account of such a leadership. Hence, LMX will positively impact organizational commitment.

### COMMITMENT AND OE

A committed employee is likely to contribute better than a non-committed employee. Commitments in the workplace can take various forms, and could have the potential to influence OE (Meyer and Herscovitch, 2001). In case of NGOs, employee commitment is a crucial factor that decides its effectiveness. Therefore, organizational commitment will positively affect the NGO effectiveness.

The OE for an NGO could be measured on various dimensions but the specific outcomes of the various programmes undertaken by the NGO are of great importance, not only to the funding agencies but also to the beneficiaries of programmes. These specific outcomes, resulting on account of the NGOs, can be assessed from gauging their perceptions on changes in income level, health status and educational level. Hence, NGO effectiveness will positively impact specific programme outcomes.

The external factors have not been explicitly discussed. But, NGOs are subjected to a range of external factors, such as political change; pressure to demonstrate performance, change in donor profile and that of the donor agencies, and so on. Some authors have focused on external factors in developing criteria of performance or effectiveness emphasizing the relationship of an organization to its environment (Seashore and Yuchtman, 1967). Snavely and Tracy (2002) have found that a number of environmental factors such as location of the NGOs, race relations, government policies and mandates, leadership, and organization financial and political resources have powerful effects on the NGOs and on creation and collaboration of trust. But the external factors are too many and not all of them are determinable. So they can, at the best, be assumed to just exist. It is difficult to assess because NGOs operate in a dynamic environment where external factors change fast and continuously.

### PEOPOSED MODEL

In line with the above discussions, the present study develops a conceptual model that links NGO effectiveness with TL, organizational culture, organizational commitment, LMX, and specific programme outcomes in terms of different dimensions of these theoretical constructs. The model is divided into two sub-model, the first links OE, organizational culture and TL, and the second sub-model focuses on the possible link among TL, LMX, organizational commitment and how they act as antecedents of the NGO effectiveness and finally influence the specific programme outcomes. (See figure 1).

Insert Figure 1 about here

### MANAGERIAL IMPLICATIONS

The significance of the model proposed in this study is apparent in both its contributions to the literature as well as to the understanding and management of organizations in general. The model reflects critical implications for management regarding the use of TL style to achieve OE directly and also through the intermediary of organizational culture. In order to motivate employees to do more than what is implied in the employment contract and focus on the employees' higher order needs, the NGO leaders can adopt TL behaviour. This leadership style could be helpful in project based organization as well, where the project managers are the line managers, but, do not have much control over the members of the project team. They may not be in a position to grant external pay-offs like reward, or mete out punishment, but they could use the components of the TL to attain the project goals, as well as to reduce the attrition rate by increasing employer satisfaction, satisfaction with the supervision, and the overall employee performance. Similarly, in the NGO sector, where job-hopping by the skilled manpower and poaching by the competitor is rampant, the managers may have to adopt TL behaviour to inculcate organizational commitment in the workforce to check the employee turnover. In case of NGOs, that in most cases have scarcer resource availability, attracting and retaining committed staff and volunteers is a perpetual challenge. The leaders may have to take recourse in TL style, in order to keep the staff motivated and the keep the NGO effective in terms of beneficiary satisfaction.

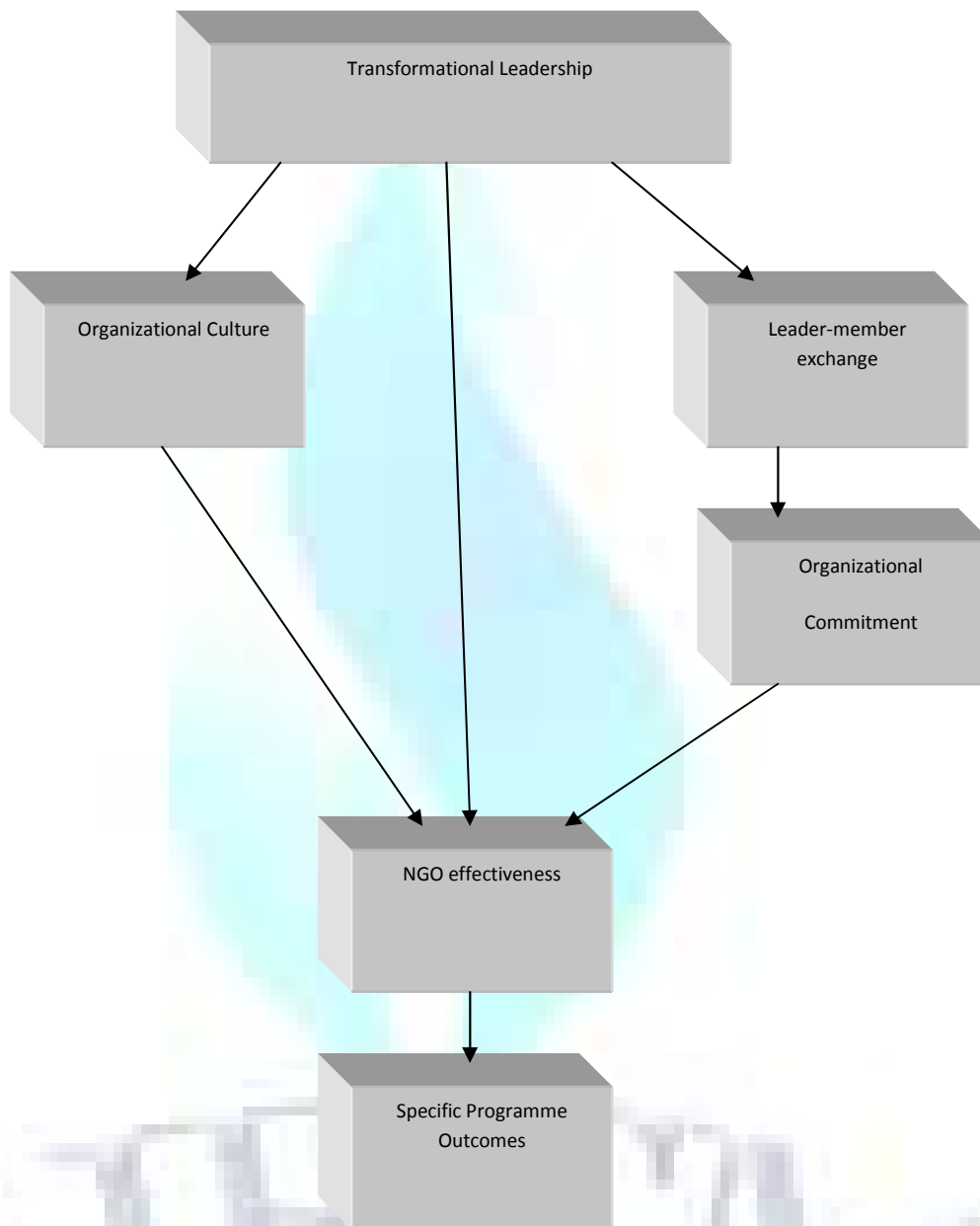
Further, the model creates an opportunity to collect data to actually measure the constructs of TL, organizational culture, and OE, and document the best practices in the NGO sector that can help in benchmarking these organizations across the sector. This, in turn, provides basis to compare organizations in terms of these benchmarks. Finally, our model also proposes that under a given set of external factors, NGO effectiveness could result in better programme outcomes. The management may be working efficiently, the programmes may also be very ambitious, but they may not get translated into the outcomes that would be real



benefit to the target audience. If the management of the NGOs functions to effectively deliver the goods to the target population, their effectiveness would be reflected in specific programmes outcomes.

Further research could be conducted in various aspects, some of which are (a) exploring whether a difference in culture leads to a difference in leadership style and in turn, resulting in a difference in NGO effectiveness as reflected in the specific programme outcomes (b) taking culture as an independent variable and studying its effect on the leadership behaviours (c). Testing the proposed model for NGOs based in different geographical locations, and across varying local cultures would help establish the external validity and replicability of the model.

FIGURE 1: THE PROPOSED MODEL FOR INVESTIGATION



Source: Shiva, Suar, and Roy 2008 (unpublished paper)

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**CRITICISING THE IMPLEMENTATION OF THE SERVQUAL MODEL IN GENERIC INDUSTRIES**

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**ABSTRACT**

*The survival of any organisation in a highly competitive environment depends on its ability to provide the best service quality to its existing customers as the quality of service is a key factor in the success of any organisation. It is well established that the measurement of service quality is an important procedure for the improvement of the performance of any organisation. Facts indicate that more attention is needed toward developing an industry-specific scale for measuring service quality from the end-user perspective within specific-industry contexts. The main aim of this research-in-progress paper is to review comprehensively previous and contemporary literature on service quality measurement and to discuss the key issues on the development of an industry-specific scale for measuring service quality from the customer's perspective in specific-industry contexts. This study contributes to knowledge in the field of service quality research as it suggests future research directions for academicians in related research.*

**KEYWORDS**

Service Quality, SERVQUAL Model.

**INTRODUCTION**

owadays, in a severe competitive environment, the most central factor to sustainable competitive advantage is to provide the best possible service quality which will result in improved customer satisfaction, customer retention, and profitability (Sureshchandar et al., 2002; Buttle 1996). The significance of the service quality concept derives researchers and scholars to address this issue and to investigate it further across different service sectors. Thus, throughout the past two decades, service quality has become an established area in the marketing literature. There have been many research studies that have studied, examined, and investigated its nature in the traditional face-to-face service environment (see, for example, Rust and Oliver, 1994; Hallowell, 1996; Sureshchanar et al., 2002, etc.). Moreover, numerous traditional service quality models have been developed to assess and evaluate service quality performance in the traditional service environment such as the SERVQUAL model (Parasuraman et al., 1985).

It appears that service quality is not a new concept; however, measuring and managing service quality from the consumers' point of view is still a developing and a challenging issue. Both from the academic community point of view, and in business practice, it is well established that measurement of service quality is an important procedure for improving the performance of service quality (Jayawardhena et al., 2004). Thus, there has been an abundance of research on the measurement issues of service quality, which have contributed to the development of a solid research foundation.

In current service literature, there are a number of key instruments available for measuring service quality performance. Though, the SERVQUAL model has been the major generic model used to measure and manage service quality across different service settings and various cultural backgrounds (Buttle, 1996). However, apart from its wide use, a number of theoretical and empirical criticisms of the measurement model have been pointed out (Ladhari, 2008). First of all, the validity of the SERVQUAL model as a generic instrument for measuring service quality across different service sectors has been raised. Also, there has been an argument that a simple revision of the SERVQUAL items is not enough for measuring service quality across different service settings.

As a result, Ladhari (2008, p. 68) stated that "It has been suggested that industry-specific measures of service quality might be more appropriate than a single generic scale". This argument was supported by Dabholkar et al. (1996, p. 14) who stated that "It appears that a measure of service quality across industries is not feasible; therefore, future research on service quality should involve the development of industry-specific measures of service quality". Ladhari (2008) reported that in recent years, more attention was paid by researchers and scholars toward the development of an alternative industry-specific research instruments for measuring service quality. Consequently, a number of industry-specific research instruments have been developed in the past several years in different service settings and various countries and cultural backgrounds.

**RESEARCH APPROACH**

Saunders et al. (2007, p. 610) defined research as "the systematic collection and interpretation of information with a clear purpose, to find things out". The key issue when choosing a correct research methodology approach to examine and explore a particular research problem is the suitability of the selected method to accomplish and address the research objectives. Quantitative research, qualitative research, and mixed research methodologies are the main methodological approaches used in most academic research. Each approach has its advantages and limitations and each is mainly appropriate for a particular context. This study adopts the approach that is supposed to be more suitable to achieve its research objective. It has been emphasised that the main aim of this research-in-progress paper is to review comprehensively previous and contemporary literature on service quality measurement and to discuss the key issues on the development of an industry-specific scale for measuring service quality from the customer's perspective in specific-industry contexts. In order to accomplish the main aim of this study, secondary forms of research will be conducted.

Saunders et al. (2007, p. 246) defined secondary research as "data used for a research project that were originally collected for some other purpose". The secondary data collected for this study gave the researcher the opportunity to find out useful information and data about the service quality topic in general. There are many forms through which secondary data may be presented. In this paper, the researcher applied them in the development of the literature review. There are different sources from which to obtain secondary data, including books, journal articles, and websites. Some of the advantages of secondary data lie in the time factor as they are quick to obtain and in many cases available for the public. Another advantage is cost. It is not always expensive to obtain secondary data and in many cases they are available for free to the public. However, there are some disadvantages inherent in this type of research. One of these is that in some cases that data are produced and designed for different purposes and not aimed for the specific case study the research may be concerned with.

**LITERATURE REVIEW**

The main aim of this section is to present a broad comprehensive and contemporary review of the literature on the service quality. The section will begin with the process of defining key terms, as it is essential to create and establish a solid foundation for this study. The importance, benefit, and significance of service quality will be discussed. This will be followed by describing the three formal models of service quality and their schools of thought, namely the Nordic School, the Holistic School, and the North American Gap School. This will then lead to a detailed review of the SERVQUAL model, including its evolution and development, potential applications, contexts of adoption, discussions, its criticisms and limitations.

**DEFINITION OF SERVICE QUALITY**

In service literature, service quality is usually defined based on consumers' assessment. Parasuraman et al. (1985, p. 42) defined service quality as "a measure of how well the service level delivered matches customer expectations; delivering quality service means confirming to customer expectations on a consistent basis". Parasuraman et al. (1988, p. 16) defined perceived service quality as "a global judgment, or attitude, relating to the superiority of the service". Zeithaml (1988, p. 3) defined service quality as "the consumer's judgment about a product's overall excellence or superiority". It is clear that defining service quality is an important step toward the development of a solid foundation for this study. Kotler and Armstrong (1996, p. G9) defined service quality as "the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs". Therefore, being in line with the service literature, this study looks into service quality as the standard of excellence toward fulfilling customers' requirements, which contributes toward achieving customers' ultimate satisfaction. This, in turn, entails organisations and firms to investigate, explore, and identify customers' requirements and to try to meet them in order to provide a high standard of service quality.

**IMPORTANCE AND BENEFITS OF SERVICE QUALITY**

Lewis et al. (1994) have explored and identified a number of possible benefits service organisations can look forward to when they pursue service quality. Service organisations are competing to achieve sustainable competitive advantage through providing a high-quality service to their existing customers in a severely competitive environment. This has led to a continued focus on service quality. Organisations have recognised a number of potential benefits derived from implementing service quality programs, including increasing customer satisfaction, customer retention, customer loyalty and positive word-of-mouth, increasing opportunities for cross-selling, employee benefits, improved corporate image, profit gains, and financial performance.

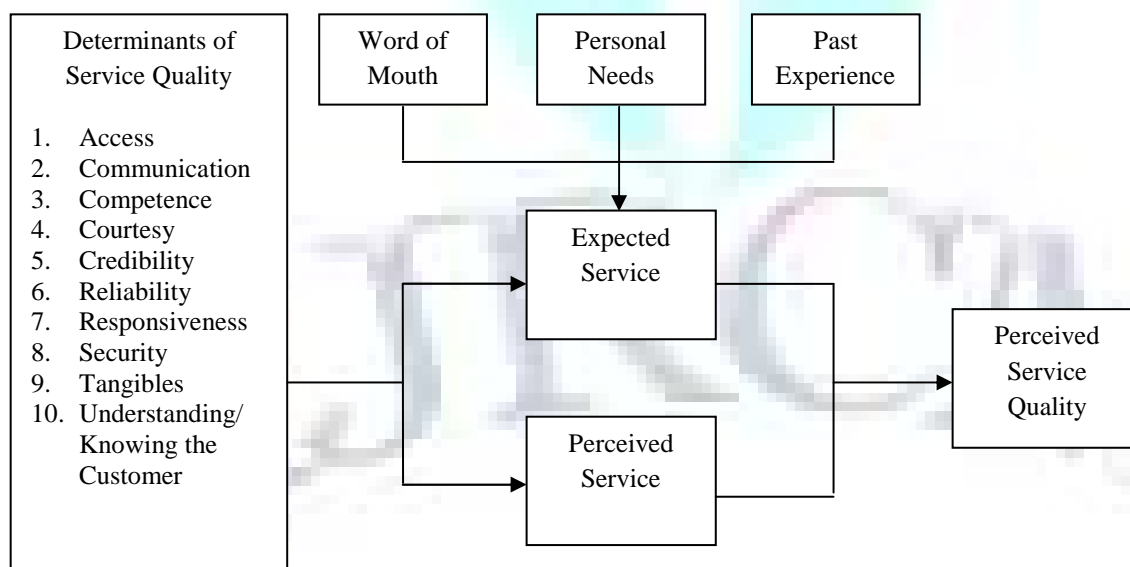
**FORMAL MODELS OF SERVICE QUALITY**

There are a number of conceptual models that have been developed by various researchers and scholars world-wide to investigate the service quality concept. At the same time, these models have been aimed to be adopted by service organisations as a tool to assist in quality improvement programs. In a literature review study, Seth et al. (2005) presented a list of key service quality models including, for example, Technical-Functional Quality Model (Gronroos, 1984), Gap Model and SERVQUAL Model (Parasuraman et al., 1985, 1988), Service-Profit Chain Model (Heskett et al., 1994), and Satisfaction-Service Quality Model (Spreng and Mackoy, 1996). These conceptual models along with other models have contributed to the development of various schools of thought of service quality. Generally, in the current service marketing literature there are three key schools of service quality modelling, namely the Nordic School, the Holistic School, and the North American School (Gap Analysis School).

**THE NORTH AMERICAN GAP SCHOOL**

Parasuraman, Zeithaml, and Berry (1985) are three researchers in the service quality academic field from the United States of America. They are considered the key contributors to the North American School (Gap Analysis School) of thought concerning service quality. They have developed a research model (SERVQUAL Model) to examine the service quality concept. The model development was based on exploratory qualitative research projects including focus group interviews with consumers and in-depth interviews with firms' executives. It was developed on the bases of data collection from four service settings in the United States of America including retail banking, credit cards, securities brokerage, and product repair and maintenance. Their research findings showed that service quality as perceived by customers is a comparison of the customers' expectations with their perceptions of the performance of the actual service (See Figure 1).

**FIGURE 1: DETERMINANTS OF PERCEIVED SERVICE QUALITY**



Source: Parasuraman et al. (1985) pp. 41-50

**A GENERIC MEASURE OF SERVICE QUALITY: THE SERVQUAL SCALE**

Apparently, service quality is an old concept. It was initiated in the late 1980s, grown in the 1990s, and progressed in the 21<sup>st</sup> Century. However, measuring and managing service quality from the consumer's point of view is still rather a debatable issue. In the literature, there are a number of key instruments available for measuring service quality. Nevertheless, the SERVQUAL instrument has been the major technique used to measure service quality and has been extensively implemented and valued by academics and practitioners.



Parasuraman et al. (1988) identified a number of potential applications for the SERVQUAL model, including:

1. It can be used on a regular basis to track customer perceptions of service quality of a particular firm compared to its competitors.
2. It provides the opportunity for a firm to assess its service quality performance on the basis of each dimension individually as well as the overall dimensions.
3. It allows the firm to classify its customers into different segments based on their individual SERVQUAL scores.
4. It allows multi-unit retail companies to assess the level of service quality offered by individual stores and to group them into different sectors with different quality images.

However, the main aim of the model is to be employed as a generic instrument for measuring service quality across different service sectors. Parasuraman et al. (1991b) proposed that the SERVQUAL instrument is developed for use in various service settings and provides a basic skeleton that can be adapted to fit the specific attributes of a particular organisation. It is applicable across different empirical contexts and various countries and cultural backgrounds. Parasuraman et al. (1988, p. 6) stated that "SERVQUAL instrument is designed for use in a broad set of service business and provides a basic skeleton through its expectations/perceptions format encompassing statements for each of the five service quality dimensions. The skeleton, when necessary, can be adapted or supplemented to fit the characteristics or specific research needs of a particular organisation".

The SERVQUAL model was theoretically and empirically studied, examined, and discussed in several academic studies. In addition, it has been implemented to measure and assess service quality across different service, industrial, commercial, and non-profit settings (Buttle, 1996; Ladhari, 2008). This includes, for example, hospitals and health-care sector, banking and financial services sector, fast food chain, telecommunications industry, retail chain, information systems, library services, hotels and leisure services, travel and tourism, car servicing, higher education, hospitality, business-to-business channel partners, accounting firms, architectural services, recreational services, airline catering, apparel retailing, and local government (see, for example, Carman, 1990; Parasuraman et al., 1994; Johns, 1993).

In addition, it has been employed to measure service quality across different countries and various cultural backgrounds (Ladhari, 2008) including, for example, the United States of America, China, Australia, Cyprus, Hong Kong, Korea, South Africa, the Netherlands, the United Arab Emirates, and the United Kingdom (see, for example, Babakus and Boller, 1992; Lam 2002; Pitt et al., 1995).

Moreover, there are a number of other unpublished SERVQUAL studies apart from the above-mentioned examples of empirical and cultural contexts. Additionally, a number of well-known international organisations have implemented it, such as the Midland and Abbey National Banks.

## CRITICISMS AND LIMITATIONS

Clearly, the SERVQUAL instrument has been extensively adopted by several academic researchers and practitioners worldwide to measure service quality. The previously mentioned academic research studies are examples of this. However, regardless of its extensive use, numerous theoretical, operational, conceptual, and empirical criticisms of the measurement instrument have been identified and mentioned (Buttle, 1996; Van Dyke et al., 1997, 1999; Ladhari, 2008). These criticisms can be summarised into two main points including the following:

### 1. DIMENSIONALITY AND CONTEXTUAL STABILITY

A number of research studies have been carried out to test SERVQUAL within different service contexts and to investigate its modified versions in a variety of service settings such as health care, education, hospitality, utility, retail clothing sector, and retail banking services (Carman 1990; Brown et al, 1993; Gagliano and Hathcote, 1994). Additionally, a number of researchers undertook cross-cultural studies to investigate SERVQUAL application in similar and different cultural contexts in developed countries such as the United States of America and New Zealand and in less developed countries such as the United Arab Emirates (Ford et al., 1993; Jabnoun and Khalifa, 2005).

Researchers have criticised SERVQUAL regarding its dimensionality and contextual stability both from empirical and cultural context sides. Dimensionality and contextual stability refers to the applicability of a particular research instrument across different empirical contexts and various countries and cultural backgrounds. Their research findings showed that SERVQUAL does not apply equally across cultures. However, the main important concern is the one related to the number of dimensions and their applicability from one specific context to another. It has been argued on the unstable dimensionality and the uncertainty of the SERVQUAL applicability as a single instrument for measuring service quality across different service industries. It has been stated that service quality may be complex in some industries and very simple and uni-dimensional in others. As a result, based on the particular service being offered, the number of service quality dimensions may vary from one context to another. Empirical evidence does not support a five-dimensional concept of service quality as it was proposed by the North American Gap School. It has been argued that managers and service providers may miss important requirements of customers when assessing service quality based on the generic SERVQUAL items. It can be concluded clearly that a simple adaptation of the SERVQUAL factors is not sufficient to capture service quality across diverse settings. This leads to the need for the development of a measure of service quality for specific-industry settings. This view is supported by the following multi-case study.

Carman (1990) undertook a research study aimed to investigate SERVQUAL within four different service settings in the United States of America including:

1. Dental school patient clinic
2. Business school placement centre
3. Tyre store
4. Acute care hospital

He indicated that an additional number of 13 items are required to be added to the SERVQUAL model in order to capture service quality sufficiently across different service industries. He adjusted and modified the original ten-factor SERVQUAL instrument to fit the four service contexts. The end result of the factor analysis recognised between five and seven original service quality dimensions. His results indicated that in all four service settings three factors - tangibles, reliability, and security - were confirmed. On the other hand, the responsiveness factor was weak in the dental school patient clinic case. Moreover, he argued that the combination of the two factors "understanding/knowing the customer" and "access" to a single factor "empathy" as SERVQUAL proposed was not proper in his case. The author originally proposed that the factor analysis would confirm the SERVQUAL dimensions in all service settings. However, this was not the case. He has concluded that the original SERVQUAL instrument is not as well fitted as was expected in the four different service sectors. He has recommended that the wording of the SERVQUAL model needed to be customised to each service setting.

### 2. EXPECTATION-MINUS-PERCEPTION SCORE

In the current service literature and besides the SERVQUAL model, there is another competing instrument for measuring service quality which is the SERVPERF. It was developed by Cronin and Taylor (1992) and aims to measure only consumers' perception of service quality. In other words, it cuts the measurement scale of the SERVQUAL by half. Researchers studied both instruments in detail and compared each to the other (Robeldo, 2001). In terms of gap analysis, there are few who support the view that customers evaluate service quality on the basis of perception-minus-expectation scores (Babakus and Boller, 1992). Conceptually, there has been criticism about using two different instruments for measuring two different concepts (perceptions and expectation) to measure a third concept (perceived service quality) (Lam, 1997). On the contrary, it has been argued that a direct measurement of perceived service quality is more reliable. Moreover, it has been argued that a vaguely defined concept resulted from the uncertain expectations constructed from different definitions and views of the concept. Additionally, and from an operational perspective, it has been stated that consumers evaluate service quality on the basis of standards other than expectations (Mehat et al., 2000). Therefore, it has been recommended that service quality is more precisely and correctly evaluated by measuring only perceptions of quality. In addition, it has been pointed out that previous research suggested using perception-only scores rather than gap scores for the overall assessment of service quality (Teas, 1994; Robeldo, 2001).

Lee et al. (2000) undertook an investigation across three service industries: entertainment parks, aerobic schools and investment consulting firms. Their research findings supported the SERVPERF as perceptions-only is a better approach than the SERVQUAL gap scores. Motoya-Weiss et al. (2003) defined service quality as the general evaluation of perceived performance of the service provider. This basic definition supports the above arguments through defining the service quality as a perception-only concept. Babakus and Boller (1992) enquired about the operation of the SERVQUAL gap analysis. Their findings from a study conducted at

an electric and gas utility company in the United States indicated that the expectations half of the SERVQUAL model did not provide any added value of information to that gained from the performance-only scores. The previous examples prove that the concept expectation is poorly defined and can be interpreted from different perspectives. Consequently, it is suggested that the gap analysis measure should not be used in consumer research.

## CONCLUSION

It appears that regardless of the extensive acceptance and adoption of SERVQUAL, there has been a severe hesitation concerning its future use as a tool for measuring service quality. This argument is supported by Robinson (1999, p. 21) who stated that "although it has probably been the best, and most popular approach available during the 1990s, it is becoming apparent that it has some significant shortcomings. It can be argued that SERVQUAL is applicable to contexts close to its original setting".

In view of the criticisms mentioned, researchers have argued that there is a doubt about the applicability of a single generic scale for measuring service quality across a range of service settings (Jabnoun and Khalifa, 2005; Akbaba, 2006; Caro and Garcia, 2007). Moreover, there is a general agreement among researchers that a simple adaptation of the SERVQUAL dimensions is unsatisfactory for measuring service quality across a variety of service settings (Carman, 1990; Brown et al., 1993; Van Dyke et al., 1997).

For these reasons, it has been suggested that developing industry-specific scales for measuring service quality can be more suitable than a single generic scale (Caro and Garcia, 2007; Ekiz and Bavik, 2008). This argument is supported by Dabholkar et al. (1996, p. 14) who stated that "It appears that a measure of service quality across industries is not feasible; therefore, future research on service quality should involve the development of industry-specific measures of service quality".

Subsequently, a number of specific-industry measures have been developed to measure service quality (Ladhari, 2008, p. 78), including, for example, restaurants, retail banks, career centres, Internet retailing, hotels, hospitals, and higher education (see, for example, Sureshchandar et al., 2002; Janda et al., 2002; Wilkins et al., 2007). In addition, the scales have been developed in different countries and various cultural backgrounds, including, for example, Turkey, Australia, Canada, Croatia, India, the United States of America, Korea, Hong Kong, Belgium, the United Arab Emirates, and Spain (see, for example, Dabholkar et al. 1996; Sureshchandar et al., 2002; Akbaba, 2006).

Ladhari (2008) stated that all of the related research studies described service quality as multi-dimensional construct. However, the number and nature of dimensions change on the bases of the service contexts. It is clear that evaluating and assessing service quality differs from one customer group to another and from one circumstance to another. Therefore, the review of previous literature has documented a need for a future work to be done in order to discover additional appropriate and suitable specific-industry measures for service quality in further service industries and sectors. Researchers are advised to describe the empirical context in which the specific model was developed and the contexts in which it can be applied.

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**TOWARDS A MODEL FOR ENHANCING CONSUMER TRUST IN AN ONLINE ENVIRONMENT**

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**ABSTRACT**

*Lacking consumer trust in e-commerce merchants poses a major challenge to the large-scale uptake of e-commerce. In this paper, we present a literature review on how to enhance consumer trust online. The results show that consumer trust online can be increased by Interface design features, using trustmark seals strategies, branding strategies, privacy strategies, payment security strategies and reputation systems. Based on the literature review a research model is developed which can be empirically tested in future research in the area on ways to build trust in an online environment, specially in the cloud computing platform. This model can be of interest to both practitioners and researchers working in the area of trust such as trust in the cloud computing platform and stimulate further interest.*

**KEYWORDS**

Assurance, Cloud Computing, E-commerce, Security, Trust.

**INTRODUCTION AND BACKGROUND**

Although online shopping is becoming more and more popular nowadays, the lack of trust between businesses and most consumers on the internet is a significant barrier to the wide spread use of electronic commerce. As per the results of a survey, almost 95% of consumers have declined to provide personal information such as SSN and credit card information to web sites at one time or another: 63% of these users indicated this is because they do not trust those collecting the data [1]. Trust online is brought to the forefront of today's business issues. The remainder of the paper is organized as follows. In Section 1.1, we introduce what is trust followed by why is it important to study how to build trust in an online environment. In Section 2, based on the survey of literature we have outlined ways to enhance consumer trust in an online environment. In Section 3 we have proposed a research model that can be used in future empirical studies in the area of enhance trust. Finally, we have outlined the future research directions in Section 4 followed by conclusion in Section 5.

**DEFINITIONS OF TRUST**

There are a wide variety of definitions of trust that have been proposed. Several typical definitions that have been offered are:

- "Trust is a personality characteristic of an individual that influences that person's interactions with the world at large."*[2]
- "Trust is a property of the recipient, such as dependability or reliability."* [3]
- "Trust is an attitude, such as expectation or confidence, that is directed toward a specific other."*[4]
- "Trust is an action performed by an individual, such as cooperation or reliance."*[4]

An integrated definition of trust that combines the personal characteristic of trustee, the attitude - confidence and the action of cooperation and willingness defines trust as *"the willingness to rely on a specific other, based on confidence that one's trust will lead to positive outcomes."*[5]

**TRUST IN ELECTRONIC COMMERCE ENVIRONMENT**

Trust is the most important foundation in commerce. It may inhibit customers and sellers' desire to carry on business if there exists uncertainty between the parties [6]. Customers will not transact with suppliers if the uncertainty is not reduced. Trust can be a great way to reduce uncertainty.

The problem of trust may be even more serious in electronic commerce than in brick and mortar store trading [7], because there are more uncertainties in e-commerce. For example, the customers cannot see the real product by themselves, so they may not be sure whether the quality or the features of the product would satisfy them even though there are detailed descriptions provided for that product. At this time, they have to count on the validity of secure communication with the online sellers. However, the merchants cannot enhance their trust by a warm handshake or a trusting smile like off-line trade. On the other hand, the merchants may not trust the customers either. For instance, they may worry about the customers providing them stolen credit card information etc. Especially when the parties are from different countries, the situations can be more difficult because once one party infringes the contract, there may not exist specific laws to regulate it [8].

**WHY CONSUMER LACK TRUST WHEN SHOPPING ONLINE**

Why would people not trust Electronic Commerce in the first place? Because customers have great perceived risks due to the uncertainties in e-commerce transactions. Two forms of uncertainty are naturally present in on-line transactions: behavioral uncertainty and environmental uncertainty [9].

The behavioral uncertainty means that it is difficult to predict the behavior of the other party you are transacting with. Just take the customer's view-point for instance, they cannot easily predict what merchants will do after they pay for the goods online, and they have so many concerns: whether the merchants will send them the wrong or an inferior product? Whether the merchants will reveal their private information to others?

The environmental uncertainty means that the internet environment is difficult to be fully controlled by the sellers and the buyers. In addition, the government has not established perfect laws and rules for electronic commerce transactions, which increases the risks for both customers and merchants.

Therefore, as Paul [10] mentioned, these two uncertainties primarily create the following risks:

1. Economic risk, because of the possibility of monetary loss;
2. Personal risk, because of potentially unsafe products and services;
3. Seller performance risk, because of opportunistic behavior by Web retailers such as product misrepresentations;
4. Privacy risk, because of the opportunity to disclose private consumer information and the possibility of theft of private information or illegal disclosure.

## HOW TO ENHANCE CONSUMER TRUST ONLINE

We have already known that consumer trust online is vital to e-commerce transactions and most customers lack trust when shopping online. Hence, knowing how to enhance consumer trust online can help businesses overcome the major challenge to the large-scale uptake of business to consumer e-commerce.

### DESIGN FEATURES [11]

The primary method for online sellers to attract potential customers and to interact with them is their websites. Hence, the most effective way to increase trust online is to apply trust-inducing features to the electronic storefront of online merchants. In a sense, a web site with trust-inducing features functions as a skillful salesperson for the company [12].

### GRAPHIC DESIGN

Usually, the first impression that the websites leave to customers is decided by the Graphic design. In 2002, an analysis conducted by The Stanford Persuasive Technology Lab showed that nearly half of the internet users give their credibility of the websites based on the appearance of the visual design [13]. Therefore what graphic designs can make your websites more appealing? A research study [14] showed that the Web site trustworthiness was influenced by the clipart and color layout. It found out that, if the website uses three-dimensional and dynamic pastel colored clipart, it can increase the trustworthiness to a large extent. Karvonen and Parkkinen [15] mentioned in their research that internet users' confidence can be enhanced by taking full use of these well-chosen designs [16]. Basso said in his research, if a website uses attractive photographs, it can catch customers' attention efficiently, at the same time, it can show the professionalism of the website [17].

Through their research, they also found out that attributes of interface color affected trustworthiness. For instance, if the main color is a moderate pastel color and the tone of the interface color is cool, it will enhance customer trustworthiness to this website. In addition to this, low brightness and symmetrical colors are preferable [16].

### STRUCTURE DESIGN

This refers to how to display your business information on the website. A vital aspect to enhance online trust is the ease of navigation [18]. A website should be designed so that its web navigation functions are not too complicated and information can be found easily. This ease of use reflects two characteristics of a trustworthy web site: simplicity and consistency [19].

Users don't wish to see too complex or messy designs because it may waste their time and make them frustrated. As an article indicated, when internet customers move on one website and find thoroughly different designs in different pages, they will be unsatisfied with the website [20]. Consistency is the key to usable interaction design: when all interface elements look and function the same, users feel more confident using the site because they can transfer their learning from one website to the next rather than having to learn everything over again for each new page [20].

In addition, Cheskin and Sapient [18] in their research found out that those navigations which help internet customers find useful information can enhance customers trust.

### CONTENT DESIGN

It defines the textual or graphical informational components that the web site may include. The significance of "branding" is usually emphasized by many researchers, which means to enhance the brand reputation of the company online. As Egger [21] mentioned there are two ways to achieve branding; first, showing an outstanding logo; second, display the business's major product line on the front page that is attractive to their customers. Egger in his research suggests that it is significant to make full disclosure on all the aspects that are related to customers such as privacy and security, because it can also build online trust.

In addition, using web assurance providers and seals into the website can be a good way to enhance customer trust [22]. Third party assurance seals often used by companies are WebTrust, BBBOnline, TRUSTe, VeriSign, SysTrust. Hu et al. [23] in their research differentiated those third party trust/assurance seals into five categories: protecting privacy, providing security, demonstrating consumer satisfaction, providing reliability, and providing assurance or guarantee. They also mentioned that the trusted seal can not only enhance customer trust but also increase customers' willingness to purchase through the internet.

### TRUSTMARK SEALS STRATEGIES

There are so many advantages to use Trustmark Seals in your website: (1) Conveys Positive Feelings about the company and products; (2) Products Look more believable, reliable, superior in quality; (3) Enhances Image that the company is trustworthy; (4) Instills Confidence that company will stand behind products; (5) Powerful Motivator to Buy your product instead of competitors. [24]

Currently, there are many kinds of Trustmark seals that provide assurances about Web business. One example is TRUSTe, it provides online third party dispute resolution for complaints reported by consumers regarding a licensed TRUSTe website. This service is called the WatchDog Dispute Resolution process. It is available at no cost to any consumer who files a privacy-related complaint online. The WatchDog Dispute Resolution process allows TRUSTe to initiate a negotiation between the individual and the company. At no point is the individual's right to legal recourse affected. While the outcome is not binding on the individual, the company must comply with TRUSTe's final determination or face removal from the TRUSTe program, breach of contract legal proceeding, and/or referral to the appropriate governing body. [25]

Another example is BBBOnline, it uses its Privacy Policy Review Service (PPRS) to process consumer complaints. The PPRS is responsible in the dispute resolution process for determining the eligibility of a complaint and evaluating, investigating, analyzing and making a decision on the merits of an eligible complaint. The PPRS will make a final determination as to whether a complaint is eligible and, if so, continue with its dispute resolution process. [25]

### BRANDING STRATEGIES [26]

As Hankinson and Cowking said, branding has been characterized as the process of creating value through the provision of a compelling, consistent offer and customer experience that will satisfy customers and keep them coming back [27]. This explains its dominant perception as a source of companywide benefits, including enhanced competitiveness, differentiated corporate/products/services' profile, increased equity and greater customer loyalty [28]. Companies that excel in creating favorable emotional associations with their customers, through effective branding, typically gain a strong market share and an enhanced and sustainable competitive advantage, which generally provide a firm basis for future growth [29].

"As customers develop trust in the brand through satisfaction of use and experience, companies have the opportunity to start building relationships with them, strengthening the brand further and making it more difficult for competitors to imitate." [30] Hence, brand can be a good tool to help businesses build their own identity and increase the possibilities that their customers would transact with them again [31]. Berry [32] pointed out in his research that if your product has strong e-brands, it can not only increase consumers' trust to the product or services, but also help them understand better about what they are purchasing. The writer said:

*"The extraordinary growth in the number of sites to choose from has caused confusion and frustration for the average internet user. In an environment characterized by extreme choice, perplexed customers will turn to the familiar. They will establish relationships with specific internet brands and do business with them repeatedly . . . As the number of companies online multiplies, the increased choice will strengthen customer/company relationships — not weaken them — for those organizations that have built premier internet brands. Power is flowing to those companies with brand cachet."*

**PRIVACY STRATEGIES [33]**

With the development of internet, e-commerce also has an extremely rapid developmental momentum. Without a doubt, e-commerce brings people great convenience; however, it also brings people potential trouble which is not involved in traditional business -- disclosure of personal privacy data through the network. Research has showed that privacy is the primary concern when customers plan to purchase online [35].

In fact, the privacy concerns of internet users are mainly due to the lacking of understanding of how their information is protected. If the network allows users to clearly understand how the website will handle their personal information, they will increase their trust online to a large extent [36].

Platform for Privacy Preferences (P3P) is a good strategy to provide the protection of customer information. P3P provides a way for customers to control their privacy information by themselves. It enables Websites to express their privacy practices in a standard format that can be retrieved automatically and interpreted easily by user agents. P3P user agents will allow users to be informed of site practices (in both machine- and human-readable formats) and to automate decision-making based on these practices when appropriate. Thus users need not read the privacy policies at every site they visit [37].

In addition, other private privacy service providers are also emerging [38]. One example is iPrivacy, to use this technology, internet users download the software from the website they trust, when they want to buy stuff online, they will run this software to generate a one-off fictitious identity (name, address and email address), so in this way, even iPrivacy will not know the true identity of the people who use its service [39].

**PAYMENT SECURITY STRATEGIES**

In those factors which contribute to online trust, payment security is the most significant and urgent factor, because it may involve money loss which is very sensitive to online consumers. When customers perceive that the website is not able to protect them from money loss, they will not put trust in that website, even if customers are very interested in the products or services the website provides, they will not be likely to generate actual purchasing actions [39]. As Mary Anne Patton and Audun Jøsang [33] said, "It is commonly accepted that people will only trust and embrace e-commerce if they perceive that sufficient security is in place, and considerable effort is therefore being put into the development and deployment of security services."

The website should point it out what potential transaction risks the customers may face, and that how the website will prevent and deal with those security risks. In this way, customers can perceive that the website really is concerned with the interests of its consumers instead of only their own profit; they can make sure that they will not lose control of their money until they receive the products or the services purchased [40].

In addition, websites should regularly check and assess the customers' accounts and give consumers security advices to help them protect their money. Also, the secure payment instruction provided by the websites will guide customers to choose the appropriate payment method to reduce risks. Hence, if online customers can perceive that sufficient security is in place, they will put more trust with the online transaction [41].

**REPUTATION SYSTEMS**

A reputation system computes and publishes reputation scores for a set of objects (e.g. service providers, services, goods or entities) within a community or domain, based on a collection of opinions that other entities hold about the objects. The opinions are typically passed as ratings to a reputation center which uses a specific reputation algorithm to dynamically compute the reputation scores based on the received ratings. [42] The role of reputation systems is to facilitate trust, and often functions by making the reputation more visible [43].

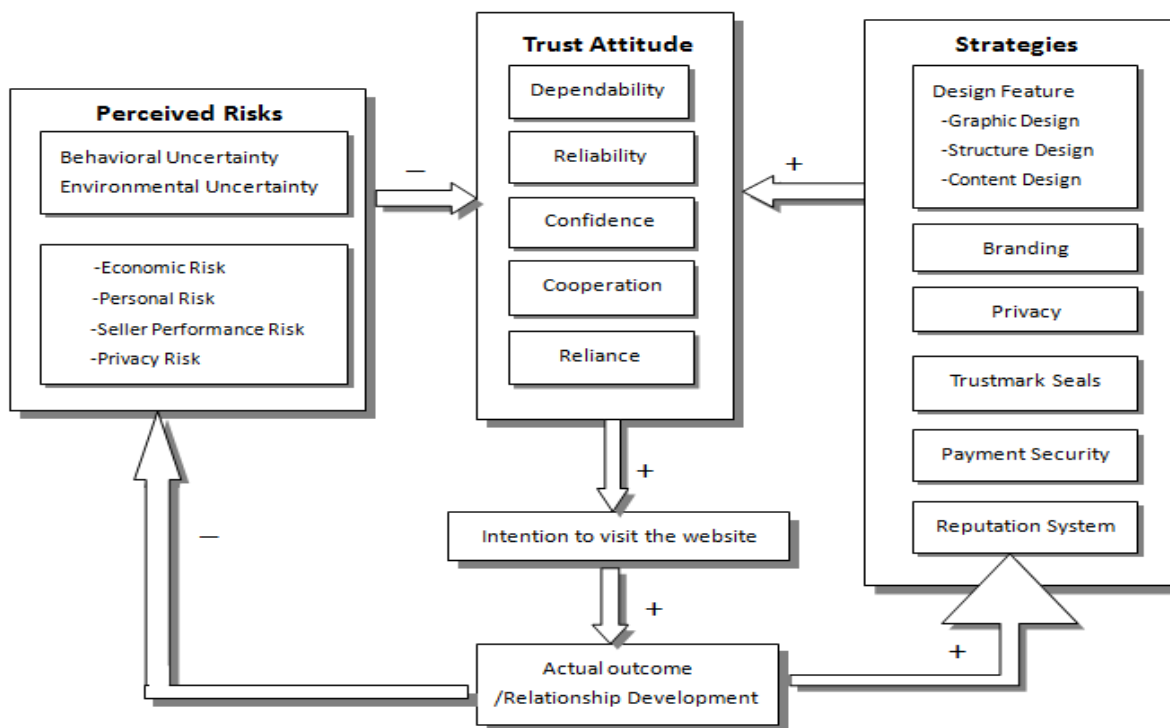
Why are these explicit reputation systems so important for fostering trust among strangers? A research study [44] explains this question well. First, when you interact with someone over time, the history of past interactions informs you about the other party's abilities and disposition. You learn when you can count on that party. Second, the expectation of reciprocity or retaliation in future interactions creates an incentive for good behavior. Robert Axelrod refers to this as the "shadow of the future" [45], an expectation that people will consider each other's past in future interactions. That shadow constrains behavior in the present.

The first Web sites to introduce reputation schemes were on-line auction sites such as eBay [33]. They are now also used by company reputation rating sites such as BizRate, which ranks merchants on the basis of customer ratings. Consumer Reports Online's eRatings, rates merchants on the basis of test purchases carried out by Consumer Reports staff [33].

However, there are three problems related to leaving feedback [44]. The first is that people may not bother to provide feedback at all. Second, it is especially difficult to elicit negative feedback. For example, at eBay it is common practice to negotiate first before resorting to negative feedback. Therefore, sometimes only really bad performances are reported. The third difficulty is assuring honest reports. One party could blackmail another—that is, threaten to post negative feedback unrelated to actual performance.

**RESEARCH MODEL**

**FIGURE 1: FACTORS AFFECTING TRUST IN AN ONLINE ENVIRONMENT**



a. Based on our proposed research model (Refer Figure 1) based on review of literature, those strategies mentioned above can enhance the customer trust online, but the perceived risks along with uncertainties may reduce the trust. The more trust customers have on your website, the more likely they will visit



your website and generate actual purchase actions. If customers are satisfied with the transactions, it will help build the reputation system; if not, however, it will increase the risks such as personal, economic, seller performance and privacy risk of the consumers. Many research propositions can be developed based on this research model which can be empirically tested. This model also proposed that Risks such as Economic risk, (because of the possibility of monetary loss); Personal risk (because of potentially unsafe products and services); Seller performance risk, (because of opportunistic behavior by Web retailers such as product misrepresentations); and Privacy risk, (because of the opportunity to disclose private consumer information and the possibility of theft of private information or illegal disclosure) can moderate the relationship between strategies and risk.

One such proposition can be

*There will be positive relationship between strategies such as use of payment security or reputation systems and trust in the cloud computing platform. This relation will be stronger when the perceived Cloud vendor performance risk is higher.*

## FUTURE RESEARCH

Trust issues and their effects on e-commerce uptake provide a rich and compelling impetus for further work [33]. While there are already many research studies about trust issues, We have some suggestions for future research.

First, most of the objects in the research studies are based on ways to build and improve consumer trust on the e-tailer but not many studies have focused on ways to build e-tailor's trust on the consumer.

Second, future researches on building trust in an online environment can focus on a specific industry or a specific kind of product so that the research studies can be done on a micro level. Currently, most of the studies carry out research at the macro level, however, different industries and different products may vary significantly which will affect the results of the studies.

## CONCLUSION

Electronic commerce is growing at rapidly changing way. For future growth, the greatest barrier: lack of trust online, must be torn down so that customers can transact online with less concern. The best way to get over this barrier is to clearly understand how it works and why they exist [46]. This literature review offers some main strategies that can increase the online trust and provides some suggestions for future research. This review will provide a source for researchers and practitioners working in the area of consumer trust research in an online environment and help simulate further interest in this area.

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## A RESEARCH STUDY ON ORGANIZATIONAL CULTURE IN COMMERCIAL BANKS (A CASE OF SELECTED BANKS IN HAWASSA CITY OF ETHIOPIA)

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### ABSTRACT

*Employee efficiency is a key factor for the success of organizations and it is influenced by several organizational factors. Conceptual models have suggested that there is relationship between Organization Culture and employee efficiency and this study aims at an empirical study of this association. This paper examines the Organization Culture in banks through questionnaire based data from 260 employees belonging to six Commercial banks operating in Hawassa city of Ethiopia. The validated questionnaire measured the Organization Culture through seven dimensions. The study examines the relationship between Organization Culture and employee efficiency through Pearson's correlation. Also the discriminant dimensions of Organization Culture between high and low employee efficiency banks were identified through discriminant analysis. A predictive regression model between Organization Culture and employee efficiency was developed. The paper concludes with a discussion on implications for managers in the banking sector.*

### KEYWORDS

Organisational Culture, Commercial Banks, Employee Efficiency.

### INTRODUCTION

Efficiency is a vital indicator of economic performance. In more pragmatic terms, it is a prime determinant of economic well being. It affects job creation, the rate of inflation, the balance of payment and the future of the economic development. Efficiency, as understood in common parlance, measures the output-input ratio. That is, it measures the output per unit of input employed (Srivatsava and Sharma, 1984). International labour Organization defines efficiency as the ratio of the output of wealth produced to the input of resources used up in the process of production. Here the term 'wealth' encompasses the whole range of output both tangible and intangible, produced by the use of input resources. Likewise, input encompasses not merely the tangible production units, but also the whole structure of human resources and the efficiency with which employees' skills can be used through a variety of managerial approaches. Hence, today's organizations focus on employee performance improvement.

Performance improvement approaches (Dean & Ripley, 1997, 1988a) combine various applied models that were developed during the past three decades and that have been used to assess and analyze human performance. These approaches, developed principally in the North American context, are designed to positively modify the performer's outcomes and accomplishments in the workplace. The main approaches to performance improvement are human resource development (HRD), human performance technology (HPT), and Organization Culture. Hence in this study has been undertaken to study how Organization Culture influences employee efficiency.

### ORGANIZATION CULTURE AND ITS IMPACT ON EMPLOYEE EFFICIENCY

The concept of culture has been adopted primarily from the field of anthropology. Different perspectives on culture in organizations have been put forward and they vary in their use of central concept. The central concept in use includes, behavioral regularities (Van Maanen, 1979), norms in working groups (Homans, 1950), rules that guide the new comers in the organization (VanMaanen, 1976, 1979 ; Ritti and Funkhouser, 1982), climate in the organization (Tagiuri and Litwin, 1968), ideologies (Harrison, 1972), a coherent set of beliefs (Baker, 1980; Sapienza, 1985; Sadler and Milmer, 1993), basic assumptions (Schein, 1985), a set of shared values (Deal and Kennedy, 1982; Peters and Waterman, 1982), important understandings (Sathe, 1983), philosophy that guides an organization (Ouchi, 1981; Pascale and Athos, 1981), myths and rituals (Trice and Bayer, 1983), system of shared meaning held by members that distinguishes the organization from other organizations (Schein, 1985).

For measuring Organization Culture on the basis of values, many authors have suggested the inclusion of various dimensions. They include values such as Innovation, stability, customer orientation, outcome orientation, learning, people orientation, team orientation, beurocracy, supportive orientation, respect for people and detail orientation (Harrison, 1975; Handy, 1979; Margerison, 1979; Glaser, 1983; and Lessem 1990; Reynolds, 1986; and Hofstede., 1991). Deal and Kennedy (1982) proposed risk orientation and speed of feedback.

Organizational cultures have a very positive impact on the organizations. Many authors have established and supported the hypothesis that successful organizations have a strong culture (Deal and Kennedy, 1982; Kilman, Saxton and Serpa, 1985; Ouchi and Jaeger, 1978; Peters and Waterman, 1982; Schein, 1985; Chatman and Jehn, 1994). Most of these studies are at a conceptual level. Some studies have tried to relate culture with certain organizational outcomes like performance (Gordan and Titomaso, 1992). Kotter and Heskett (1992) found positive relationship between corporate culture and organization's long term sustainability and financial performance. Denison (1984) found that certain traits such as organization of work, emphasis on human resources, and coordination were significantly correlated with return on investment. Despande et al. (1993) found that higher levels of business performance were associated with a culture of innovation and flexibility. Marcoulides and Heck (1993) found that organizational culture significantly affects performance. However there is lack of studies associating Organization Culture and employee efficiency and hence the study was undertaken to throw light in this area.

### ORGANIZATIONAL CULTURE BUILDING PROCESS IN COMMERCIAL BANKS

Today, the most effective factor in enhanced performance of organizations is culture. For the present study, we are considering the six Commercial Banks operating in Hawassa City of Ethiopia with high and low employee efficiency. The most important aspect of commercial banks are to give various financial services to customers. So, in commercial banks management have policies more on "Customer Orientated". To serve different types of customers, banks are having "competent organizational culture". Overall, one can say that competent organizational culture expresses the coordination and adoption of

organizational culture components with values system, aims and strategies as well as integration of components that are respected by organizational member enthusiastically and can play the role of a basic capital for the organization. To achieve this aim, the organization should identify and disseminate the most important effective components in obtaining the goals and better services to customers via researches and obtaining the ideas of significant beneficiaries. In fact, competent organizational culture is a skill that managers can develop them in individual and organizational level in order to act with employees in a more effective and efficient manner. And of course in this paper various dimensions of culture are explained in analysis part.

**THE OBJECTIVES OF THE STUDY ARE**

1. To study the Organization Culture prevalent in commercial banks.
2. To assess the association between Organization Culture and Employee Efficiency.
3. To identify the Organization Culture defining the employee efficiency.

**METHODOLOGY**

The study was carried out in Commercial banks operating in Hawassa city of Ethiopia. Primary data was collected from the employees of the bank. A representation sample of the population was selected by two stage stratified random sampling method. The total of six banks were selected by simple random sampling method by distributing the sample in probability proportion to the total number banks in high and low employee efficiency. Employee efficiency of the banks were measured through secondary data that were collected from their annual reports for three years 2007 -2010 on net profit per employee (NP) and amount of advances and deposits per employee (AD). The sum of mean values of the two variables (NP and AD) for three years was a measure of average efficiency of the employees. In the second stage, all the employees of the selected sample of six banks in the rank of officers/executives were listed and those with a minimum of two years service in the particular bank were retained. From the list of retained officers/executives (hereafter simply referred to as employees) 260 respondents were selected by simple random sampling method by distributing the sample in probability proportion to the total number of banks selected.

The tool used for the study was organizational culture profile which consisted of seven dimensions viz., innovativeness, stability, people orientation, team orientation, outcome orientation, learning environment and customer orientation. The instrument consisted of 56 statements with eight statements under each of the seven dimensions. The scaling used in the instrument is a five point Rensis Likert scale. The minimum score for each statement is one and the maximum score is five. A rating of 5 indicates that the statement is **ALMOST ALWAYS TRUE**, a rating of 4 indicates that the statement is **MOSTLY TRUE**, a rating of 3 indicates that the statement is **SOMETIMES TRUE**, a rating of 2 indicates that the statement is **RARELY TRUE**, and a rating of 1 indicates that the statement is **NOT AT ALL TRUE, about the organizational culture in the commercial banks.**

The higher the score, the organizations are high on the cultural dimensions understudy. Split –half reliability test yielded a score of .9508 The statistical tools that were used for the study were ANOVA, Correlation, Regression and discriminant analysis.

**RESULTS AND DISCUSSION**

The collected data were analyzed to realize the objectives of the study

**ORGANIZATION CULTURE IN BANKS**

Organization Culture prevalent in the commercial banks was analyzed. The dimensions of innovation, stability, Employee orientation, outcome orientation, learning orientation, team orientation and customer orientation were analyzed through percentage scores. The mean and SD of different categories of banks were calculated (Table 3.1).

**TABLE 3.1: MEAN AND SD SCORES OF THE ORGANIZATION CULTURE IN BANKS**

Organization culture	Mean	SD
Innovation	51.2	13.7
Stability	67.3	11.9
Employee Orientation	54.0	11.3
Outcome Orientation	64.8	13.8
Learning Environment	55.0	12.4
Team orientation	57.2	10.1
Customer Orientation	60.5	18.4
<b>OC</b>	<b>58.6</b>	<b>9.4</b>

Source: Primary Data

The table 3.1 indicates that the extent of stability in the banking sector is the highest (67.3) compared to the other organization culture dimensions. This indicates that the frequency of changes that take place within the banks is less and also individual jobs and demands are more stable. The second key dimension of organization culture is outcome orientation (64.8) indicating that organizations place emphasis on achieving results. Innovation has the least mean score and the high stability seen in banks will hinder innovations, leading to a low score. The overall organization culture dimensions score in the banking sector was found to be 58.6.

**RELATIONSHIP BETWEEN ORGANIZATION CULTURE VARIABLES**

The inter correlation coefficient of Organization Culture dimensions were calculated and the results are seen in Table 3.2

**TABLE 3.2: PEARSON CORRELATIONS AMONG THE ORGANIZATION CULTURE VARIABLES**

Organization Culture	1	2	3	4	5	6	7
1 Innovation	1.00	-.59	.55	.87	.76	.69	.87
2 Stability		1.00	-.02	-.42	-.18	-.16	-.53
3 Employee Orientation			1.00	.57	.74	.43	.39
4 Outcome Orientation				1.00	.81	.77	.89
5 Learning Environment					1.00	.72	.73
6 Team orientation						1.00	.78
7 Customer Orientation							1.00

Source: Primary Data

\*\*Correlation is significant at the 0.01 level (2-tailed).

The significant result of the inter correlation among Organization Culture variables is that Stability is negatively correlated with all other variables i.e Innovation, Employee Orientation, Outcome Orientation, Learning Environment, Team Orientation, and Customer Orientation. However stability is negatively correlated to all other dimensions. It can be inferred that highly stable environment will stifle creativity and innovation since major changes will seldom take place in a stable organization. If Stability is high, the management’s attitude toward employees is complacent thus reducing the Employee Orientation. Also when there is a culture of high stability it will have a negative impact employee’s values towards Outcome Orientation, Learning and Customer Orientation. All the other dimensions of Organization Culture positively correlate with each other. There is high association between innovation and Customer Orientation suggesting that

service excellence to customer is guided by Innovation. Also there is high correlation between Outcome Orientation and Customer Orientation since banks being in the service sector, goals of the organization can be achieved only through being customer centric. So it can be concluded that there is inter correlation among the variables of Organization Culture.

**ORGANIZATION CULTURE IN BANKS WITH HIGH AND LOW EMPLOYEE EFFICIENCY**

It is of interest to study the Organization Culture prevalent in banks with high and low employee efficiency and so mean and standard deviations were calculated (Table 3.3)

**TABLE 3.3: MEAN AND SD SCORES OF ORGANIZATION CULTURE IN BANKS WITH HIGH AND LOW EMPLOYEE EFFICIENCY**

OC DIMENSIONS	Employee efficiency				Diff	t-value	p-value
	High (n=134)		Low (n=126)				
	Mean	SD	Mean	SD			
Innovation	57.7	11.2	44.3	12.7	13.4	9.0	<0.001
Stability	70.3	12.2	64.0	10.6	6.3	4.4	<0.001
Employee Orientation	60.9	8.8	46.7	8.8	14.2	13.0	<0.001
Outcome Orientation	73.6	10.3	55.4	10.3	18.2	14.2	<0.001
Learning Environment	66.6	6.6	47.2	8.8	19.4	20.0	<0.001
Team orientation	62.1	6.4	47.5	7.6	14.6	16.7	<0.001
Customer Orientation	70.5	15.4	49.8	15.1	20.7	10.9	<0.001
<b>Overall</b>	<b>64.9</b>	<b>7.1</b>	<b>51.6</b>	<b>8.0</b>	<b>13.3</b>	<b>14.2</b>	<b>&lt;0.001</b>

Source: Primary Data

The overall mean score of the organization culture is much higher in banks with best employee performance (64.90) than that of banks with low employee performance (51.6) indicating that Organization Culture is better in banks with employee efficiency. In banks with high employee efficiency, Outcome Orientation (73.6), Stability (70.3) and Customer Orientation (70.5) are high, implicating that these three dimensions may contribute for high employee efficiency. Also all the dimensions of organization culture have a higher mean score in the banks with best employee efficiency compared to banks with low employee efficiency. Hence it can be inferred that in banks with high employee efficiency Organization Culture is better than in banks with lower employee efficiency.

In order to find out the if there is significant difference in the Organization Culture dimensions between banks with high and low employee efficiency; t-test was carried out. The results revealed that there is significant difference in all the Organization Culture dimensions between banks with high and low employee efficiency. The summary statistics and t-values reveal that Banks with high employee efficiency will have better Organization Culture than banks with lower employee efficiency.

**RELATIONSHIP BETWEEN ORGANIZATION CULTURE AND EMPLOYEE EFFICIENCY**

Another objective of the study was to find the association between Organization Culture and employee efficiency. Spearman's correlation coefficient was calculated (Table 3.4)

**TABLE 3.4: ASSOCIATION OF HRD PRACTICES AND ORGANIZATION CULTURE WITH EMPLOYEE EFFICIENCY**

Parameter	Scales	Employee-efficiency-Index	
		Spearman's Correlation coefficient (%)	p-value
OC	Innovation	85.5%	<0.001
	Stability	-7.2%	0.751
	Employee Orientation	67.4%	0.001
	Outcome Orientation	82.7%	<0.001
	Learning Environment	70.6%	<0.001
	Team orientation	68.7%	<0.001
	Customer Orientation	76.8%	<0.001
<b>OC</b>	<b>72.3%</b>	<b>&lt;0.001</b>	

There is high association between Organization Culture and employee efficiency (72.3%). When the individual dimensions of Organization Culture are analyzed for its association with employee efficiency, innovation has very high relationship with employee efficiency (85.5%). Innovative culture consists of several features. Employee creativity will be encouraged at every level of responsibility. Organizational problems will be solved through innovative methods. New methods are periodically implemented in the organization to improve effectiveness. Employees will be encouraged to encourage taking risks in work to improve efficiency. New ideas are sought from the employees and used in the organization. Employees will be rewarded if they follow innovative methods. All these features will improve the efficiency of the employees.

The Outcome Orientation has the second highest association with employee efficiency (82.7%). Outcome Oriented culture will exhibit several features. Achieving the goals of the organization will be the main concern of the employees and the organization. The employees will be keen on showing results and will have the drive to achieve the set targets. Employees will clearly know the goal to be achieved for specific periods. When this culture is prevalent the employee efficiency will also be high.

There is also positive association between Customer Orientation and employee efficiency (76.8%). A bank with customer oriented culture will have the service excellence as their guiding vision and providing good service to internal and external customers will be considered important. Employees are willing and able to provide prompt and promised services to their customers. Employees will build good rapport and trust with the customers through providing individualized attention. Banks operating in the service sector will have better employee efficiency when the above mentioned culture prevails. There is also positive association between employee efficiency and Learning Environment (70.6); Team Orientation (68.7); People Orientation (67.4)

However the striking feature is that there is a negative correlation between Stability and employee efficiency (- 7.2%). It can be inferred that the higher the stability, the lower will be the employee efficiency. High stability in organizations will be characterized by very few changes in the individual responsibilities and in the organization. Expectations relating to employee targets are constant and employees enjoy job security. All these factors will create complacency in the minds of the employees and hence will have a negative effect on the employee efficiency. However the low score indicates that the association is not very strong, which implies that there has to be certain level of stability in the organization.

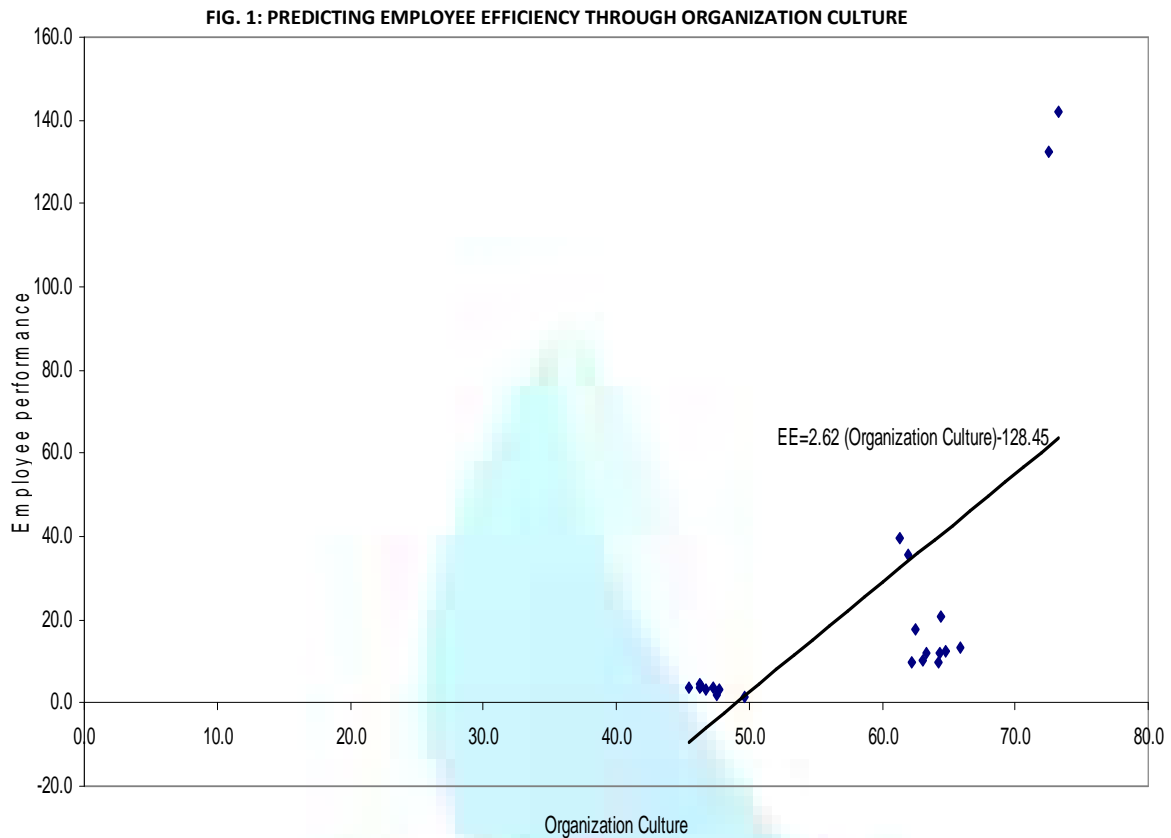
**PREDICTING EMPLOYEE EFFICIENCY THROUGH ORGANIZATION CULTURE**

Similarly, the regression was run between Organization Culture and employee efficiency with employee efficiency as the dependent variable and Organization Culture as the independent variable, which yielded the following result (fig.1):

$$EE=2.62(\text{Organization Culture}) - 128.45$$

This model can be used to predict the employee efficiency in the banks from the Organization Culture found in the banks. For this model R<sup>2</sup> value was 0.60, meaning Organization Culture explains 60% of the variability in employee efficiency. When Organization Culture is good it will result in better employee efficiency in the organization. So Organization Culture is a good predictor of employee efficiency in banks.





**ORGANIZATION CULTURE DIMENSIONS DEFINING HIGH AND LOW EMPLOYEE EFFICIENCY OF BANK**

Earlier studies (refer 1.1) have revealed that Organization Culture has an influence of the employee efficiency. However the analysis was done to define the Organization Culture dimensions that would define employee efficiency. The ANOVA test in Organization Culture in banks revealed that there is significant difference between banks with high and low employee efficiency.

In order to determine what Organization Culture dimensions explained the differences in employee efficiency in banks discriminant analysis was carried out. The independent variables were the Innovation, Stability, People orientation, Outcome Orientation, Team Orientation, Learning Environment and Customer Orientation, the seven Organization Culture dimensions understudy.

The mean and standard deviations (Table 3.3) revealed the mean Organization Culture dimension scores are higher among the best performing banks than the low performing banks consistently. It may be noted that the level of difference is high in customer orientation, Outcome Orientation, Learning Environment, Team Orientation and Employee Orientation indicating that these dimensions may discriminate banks with high and low employee efficiency.

**TABLE 3.6.1: WILK’S Λ (U STATISTIC) AND UNIVARIATE F RATIO WITH 1 AND 258 DEGREES OF FREEDOM**

Dimensions	Wilks' Lambda	F value	P value
Innovation	.803	63.20	.000
Stability	.962	10.25	.002
Employee Orientation	.567	196.70	.000
Outcome Orientation	.506	252.14	.000
Learning Environment	.525	233.09	.000
Team Orientation	.701	109.83	.000
Customer Orientation	.712	104.12	.000

All dimensions when considered individually significantly differentiated between best and low performance banks except stability (Table 3.6.1). It can also be observed that Outcome Orientation followed by Learning Environment and Employee Orientation appear to separate the performance of banks widely than the other dimensions.

**TABLE 3.6.2: CANONICAL DISCRIMINANT FUNCTION FOR EMPLOYEE PERFORMANCE**

Function	Eigenvalue	% of Variance	Canonical Correlation	% Variance explained in Dependent Variable
1	6.053	100	0.926	85.74%

As the performance is dichotomized into two groups, only one discriminant function is generated (Table 3.6.2). The eigen value associated with this function is 6.05 and accounts for 100% of the explained variance. The canonical correlation associated with this function is 0.926 indicating that 85.74% of the variance in the performance is explained or accounted for by this model.

The discriminant function thus estimated was statistically significant (Wilk’s λ=0.142, p value <0.001) implying that it is able to differentiate the performance of employees significantly and the results may be taken into consideration for interpretation.

TABLE 3.6.3: STANDARDIZED COEFFICIENTS AND STRUCTURE MATRIX

Dimensions	Standardized Coefficients	Structure Correlations
Outcome Orientation	.774	0.402
Learning Environment	.303	0.386
Employee Orientation	.648	0.355
Team Orientation	.356	0.265
Customer Orientation	.856	0.258
Innovation	-.432	0.201
Stability	1.392	0.081

The structure correlations show the magnitude of discriminating ability of the HRD practices on the employee efficiency. The correlation between the predictor and the discriminant function are in the following order of magnitude – Outcome Orientation, Learning Environment, Employee Orientation, Team Orientation, Customer Orientation, Innovation and Stability.

Validation of the discriminant analysis by labeling each bank based on its Organization Culture score and then by cross checking it with the existing objective performance index classification. The hit ratio or the percentage of cases correctly classified is 100 percent. Leave-one-out cross validation correctly classifies again 99.2 percent of the cases. Hence the validity of the discriminant analysis is judged as satisfactory

**IMPLICATIONS**

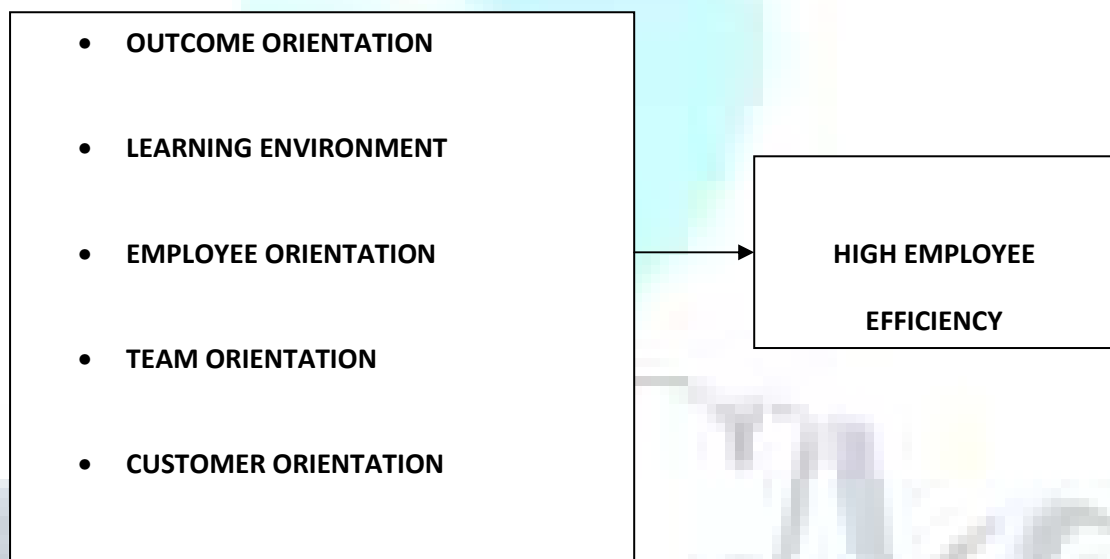
In the commercial banks Stability, Outcome Orientation and Customer Orientation are high. However, Innovation is very low. However in the complex and dynamic banking environment, innovativeness and creativity should be encouraged in banks.

All the Organization Culture dimensions under study were interrelated. However, stability has a negative association with Innovation, Outcome Orientation, Customer Orientation, Team Orientation, Employee Orientation and Learning Environment. It can be inferred that though is stability is important, too much stability can negatively affect the other dimensions of Organization Culture.

The Organization Culture of banks with high employee efficiency had a higher mean value indicating that the banks with lower employee efficiency. It can be inferred that better Organization Culture is found in banks with higher employee efficiency and it is significantly different from banks with lower employee efficiency. There is also strong association between Organization Culture and employee efficiency. Thus banks can improve the employee efficiency through better Organization Culture. However when the individual dimensions were analyzed for its association with Organization Culture it was found that Stability has negative association with employee efficiency. This corroborates with the result discussed earlier and hence banks should have more dynamic policies and strategies to improve its employee efficiency. This study also revealed that employee efficiency of the bank is a good predictor for Organization Culture.

From the results of the discriminant analysis the model showing the Organization Culture dimensions that define the employee efficiency in the descending order of magnitude has been proposed.(Fig 2)

FIG. 2: MODEL SHOWING THE ORGANIZATION CULTURE DIMENSIONS IN ORDER OF MAGNITUDE IN DEFINING EMPLOYEE EFFICIENCY



It can be inferred the above analysis that Outcome Orientation is key Organization Culture dimension which discriminates between banks with high and low employee efficiency. The features of Outcome Oriented culture are many. Achieving the goals of the organization is the main concern of the employees. High achievers are given importance in the organization and duly rewarded. The next dimension which discriminates banks with high and low employee efficiency is the Learning Environment. If employees need to be outcome oriented and goal driven they should equip themselves and constantly be willing to learn. The Learning Environment can have several features. The policies of the organization will facilitate employee learning. The employees are willing to learn to enhance their capacities. Thus a culture of learning will lead to high employee efficiency. The third Organization Culture dimension that discriminates the employee efficiency in banks is Employee Orientation. This dimension reflects how the management meets the needs of its employees. When the needs of the employees are met and they are satisfied, the efficiency of the employees will be high. Team orientation has gained importance in organizations and in banks with high employee efficiency, team work is highly valued. Employees are encouraged to work as teams they exhibit collaborative effort to achieve the goals of the organization. In service sector customer orientation is an important Organization Culture which can determine the employee efficiency. In banks with high employee efficiency, service excellence is the guiding vision of the organization. Giving good service to internal and external customers is considered important. The next Organization Culture dimension that discriminates employee efficiency is Innovation. In the banks with innovative culture, creativity in the employees' jobs is encouraged at every level of responsibility. Organizational problems are solved through innovative methods and employees are encouraged to take calculated risks in their work to improve efficiency. The last Organization Culture dimension that discriminates employee efficiency is Stability. Stability is

required in organizations to function effectively, too frequent changes in the in job responsibilities will cause confusion. Though stability is a discriminating dimension of employee efficiency, it followed with caution a very high stable culture can negatively affect the other dimensions of the Organization Culture.

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## THE IMPACT OF MICRO FACTOR OPPORTUNITY ON ENTRAPRENEURIAL SUCCESS OF SMES – A CASE STUDY ON COMMERCIAL FAST FOOD SMES

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### ABSTRACT

*This thesis endeavored to develop an entrepreneurial model for Pakistani SMEs. While developing the model, the author benefited from the experiences of successful entrepreneurs engaged in commercial fast-food sector. The experiences of such entrepreneurs had been collected through questionnaire survey. It argued that essentially one factor namely opportunity is main determinant of the profitability and business success in the food sector. Therefore, favorable synergies ensuring availability of this determinant is require for the promotion and growth of the SMEs, which would in turn induce economic growth in economy. It was further argued that seeking economic growth through the growth of SMEs sector is most appropriate strategy given the labor-abundant and capital scarce nature of the economy. The proposed model is analyzed through statistical and econometric techniques. The results so obtained validated theoretical model. The opportunity factor turn out to be the most important factor, Hence, the study concluded that entrepreneurial success is influenced by opportunity behavior of the entrepreneurs but being opportunistic, a suitable culture and environment and sufficient resources are also needed for the success of a commercial fast-food SMEs.*

### KEYWORDS

Opportunity, Fast Food SME.

### INTRODUCTION

Pakistan is 6<sup>th</sup> largest country in the world in terms of population. It is gifted with substantial amount of natural resources, favorable climatic conditions, and abundance human resources both in terms of unskilled, semi-skilled and skilled labor force. Unfortunately, the resources have not been properly used to develop the country so far. The major stumbling block has been application of the Western approach based on capital-intensive industrialization. The most appropriate strategy is following a low- cost homegrown approach through proliferation and promotion of SMEs. In spite of the significant favorable role that SMEs can play, the current contribution of this sector is low. SMEs in Pakistan are comprised of 85% of the entrepreneurial sector but its contribution to the GDP is only 7%. Within SMEs sector, fast-food SMEs are growing rapidly in Pakistan but the growth is mostly taking place in Western fast-food franchises. However, a very local few fast-food companies are emerged successfully. Accordingly, an effort is made in this study by developing a model for Pakistani SMEs based on an in depth study of successful commercial fast-food SMEs. The proposed model is structured on the experiences of those entrepreneurs who are in the business for at least two years. In Pakistan, among service sector enterprises, hotel and eating establishments sector ( employing 5.2 million) has 300-400 thousand small-scale establishments and SMEs are around just a few thousand (Mustafa & Khan, 2003). Literature available on Pakistani SMEs is extremely inadequate to make policy (Snage & Nam, 2005) and available management literature on Pakistan business sector is for large corporation (Beaver, 2007).

### THE MOTIVATION FOR THE RESEARCH

The basic motivation for undertaking this study is that Pakistan is labor-abundant and capital-scarce country. Therefore, the most appropriate strategy for the growth of economy is through the growth of SMEs sector. SMEs output contributes to GDP, increases job opportunities, favorably affects income distribution, reduces poverty level and improves standard of living, In spite of these benefits, this sector has remained dormant in Pakistan mainly due to the policy-bias. Consequently, major section of SMEs sector remains in traditional activities with low level of productivity, poor quality products, serving local markets and with little technological development. Currently SMEs comprised 85% of the entrepreneurial sector and their contribution to the GDP is only 7%. Therefore, there is a need to revitalize this dormant sector through invigorating entrepreneurs in this sector. Commercial fast-food SMEs segment forms an important part of the entire SMEs sector in Pakistan. This particular segment is rapidly growing but this growth taking place in the Western fast-food franchises and the number of local fast-food SMEs are just a few thousands. The logical outcome of such scenario warrants a deliberate policy-based support for the promotion of the local fast-food industry along with creating an enabling environment for the entrepreneurial growth, expansion and longevity. Theoretically, quite significant research efforts have been done at the global level on subject of SMEs entrepreneurship and functional and integrative entrepreneurial model of entrepreneurial success have been developed, out of which some have gained wide recognition. But these entrepreneurial models are developed in the western context. In Pakistani context, a very little research work has been done on entrepreneurship in general and SMEs entrepreneurship in particular. This study intends to provide new insight on this subject in the form a model of entrepreneurial success of Pakistani SMEs to promote entrepreneurial education in the country.



## HYPOTHESES

For the purpose of providing scientific support to our proposed model, the hypothesis is suggested. Hypotheses is stated in pairs: null hypothesis and alternate hypothesis. The story of the thesis is lumped in null hypothesis. This hypotheses will be checked in light of statistical and regression analysis. The acceptance of null hypothesis means the underlying story of the thesis is validated or vice versa. Since the basic study of the thesis is that a factor i.e., resources (RES) determine the success of a typical commercial fast-food SMEs. Therefore, essentially the hypotheses are:

H1.0 Opportunity is a factor causing entrepreneurial success.

H1.1 Opportunity is not a factor causing entrepreneurial success.

## LITERATURE REVIEW

Entrepreneurship in general is the phenomena to capitalize on identified opportunities or creation of new opportunities through innovation. (Jennifer et al., 2009). With the spread of capitalism and globalization, entrepreneurship has gained more importance than ever before and there is significant relationship between level of entrepreneurial activity in a country and its economic growth (Rwigema & Venter, 2004 and GEM 2002 ). Furthermore, level of entrepreneurial activity may account for one third of the variation in national economic growth (GEM, 2002). Empirical research studies concluded there is no better way to provide a broad basis for rapid economic growth than to dramatically increase the number of active entrepreneurs in a society (Mushtaq, 2009). In the entrepreneurial economies, entrepreneurship makes a unique contribution to economic growth by permeating knowledge filter and commercializing ideas (Neials et al., 2002; Acs et al., 2004).

In the global economic world, entrepreneurial economies are flourishing due to massive contribution of SMEs and the contribution of a dynamic SMEs sector to economic growth has been widely acknowledged (Blenker & Nielson, 2003). Many authors have pointed out that SMEs contribute: in the GDP as they contribute 30% and 60% of the GDP of many countries (Tustin, 2001, Khurram et al., 2007), in the economic development within a country (Santreli and Vivarelli, 2007), wealth creation (GEM, 2002), job creation (GEM, 2002), innovation and technology transfer, socio-economic transformation (Tustin, 2001) and support during crisis and hardship (Hernan & Lindsay, 2006). In Italy, SMEs contribute to US\$35 million in exports and absorb 2.2 million of national labors (Patrianila, 2003). In Indonesia, there are 42.4 million SMEs and contribute to 56.7% of GDP, account 19.4% of total export, and employ 79 millions of work force (Blenker & Nielson 2003). Among OECD countries, SMEs represents over 95% of enterprises in most of the countries (Hoang 2006). In the European Union, 98% of enterprises are SMEs, providing 65 million jobs, 66% of the total workforce (Kader & Ibrahim, 2007, Esra, 2007). In the United Kingdom, 99 % of businesses are small businesses, 59% of the nation's employment (Catherine, 2007). Around 80% of employment in Japan and South Korea is based on SMEs (Esra, 2007).

However, in many of the developing countries, like Pakistan, significant section of SMEs remain in traditional activities generally with low level of productivity, poor quality products, serving small and localize markets with little or no technological dynamism (GEM 2007). In these economies, SMEs has a significant role to play in employment generation (Blawatt K, 2003; Stel & Suddle, 2005), innovation (Bosma et al., 2007), reduction in unemployment (Loomets & Venesaar, 2006). Some of the micro factors associated with entrepreneur are identified as ability to communicate well (Chandan & Junejo, 2007), creativity ( Brett et al., 2006), decision making (Carland & Peter, 2000; Bird, 2001), energy and capacity to work ( Thomas and Muller, 2000), higher level of education, previous entrepreneurial experience (Bolton & Thompson, 2000), initiative ( Pratt, 2001), innovation ( Mueller & Thomas, 2001), leadership ( Stephanie & Patricia, 2005 ), opportunity alertness ( GEM, 2002), optimists (Bilijan, 2002), perseverance (Chandan & Junejo, 2007), risk taking propensity (Thembas et al., 1999), self confidence ( Rwigema & Venter, 2004), self efficacy (Markman & Bilijan, 2002), self esteem (Pretorus et al., 2005), strategic planning, drive for independence, innovative orientation, attitude towards risk (Frese, Brandjes & Hoorn, 2002; Peter, 2007), time management skills and tolerance of ambiguity (Morris and Zahara, 2000).

Mark and Kickul (2008) argues that innovation is the most important success factor as in an environment of information asymmetries, intense competition and changing market conditions, a variety of innovation practices and processes assist entrepreneurial firm to increase their overall performance. According to Mark and Jill (2004), innovation, foundation of entrepreneurship, begins with creativity. Peter F. Drucker (1985) goes all out for innovation and declares it is the most important ingredient in the success of venture and supports "Creative imitation" for developing economies.

Ardichvili, Cardoz & Ray (2003) stated that identification of opportunities is the most important abilities of a successful entrepreneur. Ajay and Lucky (2008) also summarized that the entrepreneurs with higher education level and experiences have greater chances of success (Rose et al., 2006).

## CONCEPTUAL FRAMEWORK

This study is proposing a model to capture the impact of opportunity factor on entrepreneurial success of Pakistan SMEs. In this proposed model opportunity is taken as micro factor. These factors are further decomposed into components. Reviewing similar studies conducted in other countries with similar objectives and researcher's hunch identifies these factors.

FIGURE 1: MODEL OF ENTREPRENEURIAL SUCCESS OF PAKISTANI SMES



SUC = f (OPP)  
 Where  
 SUC = Entrepreneurial Success of Pakistan SMEs  
 OPP = Opportunity

**RESEARCH METHODOLOGY**

This research study is based on primary data. The questionnaire is distributed to 10 commercial fast food entrepreneurs from 5 selected districts including Islamabad, Rawalpindi, Peshawar, Lahore and Gujarat. As a result of these tests, a bi-lingual (English and Urdu) questionnaire using a 1-7 Likert scale is prepared.

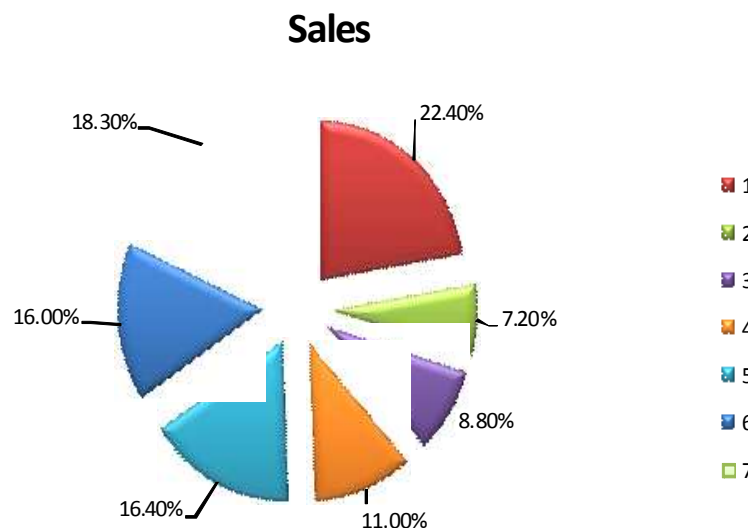
**SCALE RESULT OF OPPORTUNITY FACTOR**

For the responses on the factor of Opportunity (OPP), the highest numbers of participants (22.40 %) highly agree with the statement that opportunity is the least important factor of entrepreneurial success. Table 1.7 shows the findings in detail are given below.

**TABLE 1: SCALE DISTRIBUTION OF THE OPPORTUNITY FACTOR**

No	Scale	Opportunity
1	1	22.40%
2	2	7.20%
3	3	8.80%
4	4	11.00%
5	5	16.40%
6	6	16.00%
7	7	18.30%

**FIGURE 2: SCALE DISTRIBUTION OF THE OPPORTUNITY FACTOR**



**DESCRIPTIVE STATISTICS OF VARIABLES OF OPPORTUNITY FACTOR**

The factor opportunity, a micro factor, consists of component of opportunity source, is comprised of 5 variables including source is contacts (SIC), source is family(SIF), source is government (SIG), source is friends (SIR) and source is participation in tradeshows (SIT). The descriptive statistics are exhibited in Table given below.

**TABLE 2: DESCRIPTIVE STATISTICS OF VARIABLES OF OPPORTUNITY FACTOR (N= 257)**

No	Variable	M	SD
1	SIF	4.59	2.16
2	SIR	4.02	2.05
3	SIT	3.47	2.12
4	SIG	2.92	2.13
5	SIC	5.56	1.48

The comparison show that the variable source is contacts (SIC) has the highest mean (M = 5.56, SD = 1.48) indicating the most important source for entrepreneurial opportunity are the entrepreneurial communities and informal contacts with business communities. The variable with the second highest mean (M = 4.59, SD = 2.16) is source is family (SIF) indicating family is also a source to find entrepreneurial opportunities. The variable source is government (SIG) has the smallest mean (M = 2.93, SD = 2.13) indicating government is not the important source to locate the entrepreneurial opportunities.

**FINDINGS AND RESULTS**

For the factor of Opportunity (OPP), a micro factor, the personal contacts (SIC) was the most important source of opportunity followed by contacts of family (SIF) and the least important source of opportunity was government (SIG).

**REGRESSION ANALYSIS: RESULTS AND FINDINGS**

Accordingly the factor opportunity (OPP) was measured through following equation.

$$OPP = \beta_0 + \beta_1 SIF + \beta_2 SIR + \beta_3 SIT + \beta_4 SIG + \beta_5 SIC + \epsilon$$

Where

- OPP = Opportunity was an index of variables of opportunity (OPP) factor.
- SIF = Source is family.
- SIR = Source is Friends.
- SIT = Source is participation in tradeshows.
- SIG = Source is government.
- SIC = Source is contacts.
- $\epsilon$  = Econometrics error term assumed to be normally distributed

with means zero and variance  $\sigma^2$ .

$$\beta_i > 0 \quad i = 1, 2, 3, 4 \text{ and } 5$$

As regards the factor opportunity (OPP), it was assumed that five variables determine the factor. These variables were: source is family (SIF), source is friends (SIR), source is participation in tradeshows (SIT), source is government (SIG) and source is contacts (SIC).

### REGRESSION ANALYSIS OF THE FACTOR OF OPPORTUNITY

The correlation statistics of all variables for the factor of opportunity (OPP) were exhibited in table 3 given below.

TABLE 3: CORRELATIONS MATRIX OF VARIABLES FOR OPPORTUNITY (N= 257)

No	Variable	1	2	3	4	5
1	SIF	1.00	0.13	0.07	0.041	0.19
2	SIR	0.13	1.00	0.38	0.16	0.06
3	SIT	0.07	0.38	1.00	0.41	0.34
4	SIG	0.05	0.16	0.41	1.00	0.02
5	SIC	0.13	0.13	0.04	0.35	1.00

As noted in table 3, there was no statistically significant correlation among variables. Hence all of these variables were kept for stepwise regression. A stepwise regression was run against all independent variables: source is family (SIF), source is friends (SIR), source is participation in tradeshows (SIT), source is government (SIG) and source is contacts (SIC) and dependent variable opportunity (OPP). Opportunity (OPP) was estimated by taking mean of means of all independent variables and then assigning value 0 to a case if its mean value was less than mean of means and 1 otherwise. The estimated equation was reported below.

$$OPP = -0.94 + 0.09 SIT + 0.07 SIG + 0.06 SIF + 0.06 SIR + 0.06 SIC$$

Results of stepwise regression analysis exhibited in table 4 were given below.

TABLE 4: REGRESSION RESULTS ON OPPORTUNITY FACTOR

No	Variables	$\beta$	t- value	P	Tolerance	VIF
1	Constant	-0.94	-10.35	0.00		
2	SIT	0.09	7.39	0.00	0.68	1.48
3	SIG	0.07	6.51	0.00	0.76	1.32
4	SIF	0.06	6.46	0.00	0.95	1.05
5	SIR	0.06	6.05	0.00	0.86	1.16
6	SIC	0.06	4.08	0.00	0.96	1.04

The table 4 reported that final variables were: source is family (SIF), source is friends (SIR), source is participation in tradeshows (SIT), source is government (SIG) and source is contacts (SIC). The variable source is participation in tradeshows (SIT) had t-value = 7.39 indicating a statistically significant relationship with opportunity (OPP). Its  $\beta$  coefficient had a positive sign and magnitude of its effect was .09. This showed it positively influenced in locating entrepreneurial opportunity by 9%. The variable, source is government (SIG) had a t-value = 6.51 indicating a statistically significant relationship with opportunity (OPP). Its  $\beta$  coefficient had a positive sign and magnitude of its effect was .07. This showed it positively influenced in locating entrepreneurial opportunity 7%. The variable, source is family (SIF) had a t-value = 6.46 indicating a statistically significant relationship with opportunity (OPP). Its  $\beta$  coefficient had a positive sign and magnitude of its effect was .06. This showed it positively influenced in locating entrepreneurial opportunity by 6%. The variable, source is friends (SIR) had t-value = 6.05 indicating a statistically significant relationship with opportunity (OPP). Its  $\beta$  coefficient had a positive sign and magnitude of its effect was .06, therefore, SIR increased the chance of finding the right opportunity by 6%. The variable source is contacts (SIC) had a t-value t = 4.08, p=.00 indicating a statistically significant relationship with opportunity (OPP). Its  $\beta$  coefficient has a positive sign and magnitude of its effect was .06. This showed it positively influenced in locating entrepreneurial opportunity by 6%. The variable source is participation in tradeshows (SIT) had the highest  $\beta$  indicating SIT was the most important variable of opportunity (OPP).

The optimal explanatory power of the model was 60% (Adjusted  $R^2$ ), which meant 60% of variance in independent variables being explained by the model. In order to avoid the possibility of multi-co-linearity, VIF test had been performed that shows that co-linearity among independent variables was within tolerance limit.

### CORRELATION ANALYSES OF MODEL OF ENTREPRENEURIAL SUCCESS

The correlation analysis is conducted between the factor of opportunity (OPP) and entrepreneurial success. The result of correlation between entrepreneurial success (SUC) and factor of opportunity (OPP) is reported in following table.

TABLE 5: CORRELATIONS MATRIX OF SUCCESS AND FACTOR OF SUCCESS (N=257)

No	Factors	M	SD	SUC
1	OPP	10.59	0.43	.25 **

\*\* Correlation is significant at the 0.01 level (1-tailed).

The table 5 shows the correlation coefficient of success (SUC) with resources at 95% and 99% level of significance. The correlation coefficient of opportunity (OPP) and (SUC) is  $r = .21$ ,  $p = .01$  indicating strong positive relationship between opportunity (OPP) and success (SUC). In conclusion, entrepreneurial success and opportunity are positively linked.

### LINER REGRESSION ANALYSES OF MODEL OF ENTREPRENEURIAL SUCCESS

To seek causal relationship between entrepreneurial success and opportunity (OPP) factor regression analyses is conducted. Results of the liner regression between opportunity (OPP) and entrepreneurial success are exhibited in table 6.

TABLE 6: RESULTS OF LINEAR REGRESSION ON FACTORS OF ENTREPRENEURIAL SUCCESS

No	Factors	$\beta$	t- value	P	Adj. R <sup>2</sup>	F
1	OPP	0.26	4.38	0.00	0.06	19.25

According to the above table opportunity (OPP) make positive contribution towards business success. It is exhibiting attractive statistics. As far as the contribution of opportunity (OPP) is concerned it contributes significantly ( $\beta = .26$ ) towards entrepreneurial success. One percent increase in the level of opportunity (OPP) increases business success by 26%. The forgoing results identified the opportunity factor significantly contributes towards the entrepreneurial success.

### HYPOTHESES TESTING

The hypotheses states

H1.0 Resource (RES) is a factor causing entrepreneurial success.

H1.1 Resource (RES) is not a factor causing entrepreneurial success.

As shown in table 5 and table 6, opportunity (OPP) factor having a correlation coefficient of .25 is significantly linked to business success. Similarly, its  $\beta$  coefficient is .26 which implies that it significantly contributing towards success. Therefore, the null hypothesis is (H1.0) accepted and alternate hypothesis (H1.1) is rejected.

### CONCLUSIONS AND IMPLICATIONS

The analysis provides insight into specific areas of Pakistani commercial fast-food SMEs. For budding and existing commercial fast-food entrepreneurs, it is essential to develop business model consist of opportunity as major component. For policy makers like Small and Medium Enterprises Development Authority (SMEDA), it is recommended a) to launch programs through entrepreneurs development centers to learn and educate how to share potential and existing business opportunities, b) to create awareness among family businesses owner to share opportunities with other budding entrepreneurs as these families are the biggest source of entrepreneurial ventures. This study concludes that Opportunity, a micro factor, is the important factor of entrepreneurial success.

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## ANALYSIS OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ADOPTION/USE FACTORS AMONG RWANDAN COMMERCIAL BANKS

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### ABSTRACT

*The developments in information technology are radically changing the platform of business transactions in Rwanda. However, the adoption/usage is essentially an aftermath of banks' perception and willingness to embrace and internalize change. This assumption was investigated among the commercial banks in Rwanda with regard to ICTs' perceived ease of use and compatibility. This research was perceptual-tailored and relationship-oriented; identifying the underpinning elements and pinpointing relationships on how the principal factors foster the adoption/use of ICT in Rwandan commercial banks. Hence, the research is descriptive and correlation research design. Data was collected through a self-constructed and statistically validated questionnaire, thus five commercial banks were used for the research. A sample size of 274 employees of different managerial positions was used for the study. Stratified sampling technique was adopted to sample the employees in each department from the various banks headquarters, and the random sampling technique was used to administer the questionnaires to the respondents. A total of 353 questionnaires were distributed and 274 usable questionnaires were retrieved and utilized for the statistical analysis. The statistical results indicate that perceived ease of use and innovation compatibility had perceived and significant influence on ICT adoption/usage among the surveyed commercial banks in Rwanda.*

### KEYWORDS

ICT, Adoption, & Banking in Rwanda.

### JEL CODES

G21, G27

### INTRODUCTION

The developments in information communication and technology (ICT) are radically changing the platform of business transactions within and outside Africa. These profound developments have opened-up new debates, perspectives and delivery channels for banking products and services. Also, they have created a freedom-enslavement mind-set. The freedom-enslavement mentality is complex and paradoxical. Its complexity emanates from banks' cost-benefit analysis in the adoption of ICT and paradoxical since efficiency-inefficiency doubt is inbuilt. While the control-chaos philosophy has perverted the minds of adopters, the decision to adopt/use is challenging. The technological hardware or facilities are not geographically restricted. Instead, it is the adoption/usage and application of information technology concepts, techniques, and policies to banking services that has become a dividing subject. However, identifying the influence of perceived ease of use and compatibility on adoption/usage in Rwanda context is important to banks and indeed a prerequisite for local and global competitiveness.

Contextually, ICTs and its hype are more than just computers and the internet. ICT encompasses the information that businesses create and use, as well as the wide spectrum of increasingly convergent (Moore, 2004; Brown and Licker, 2007; and Gibbs, Sequeira and White, 2007) and linked technologies that process the information (Rogers, 2004; Moore, 2004 and Barba, Pilar & Jimenez, 2007). Therefore, ICTs should be viewed as a collective term for a wide range of software, hardware, telecommunications and information management techniques (Davis, 1993; Afuah, 2003 ; and Zappala and Gray, 2006), applications and other devices that are used to create, produce, analyze, process, package, distribute, receive, retrieve, store and transform information (Shavinina, 2003 and Barba, Pilar & Jimenez, 2007). While the understanding appears comprehensive, how the psychology of adopters that categorically shapes the choice of adoption/usage decision is divergent.

Rwandan commercial banks and the management are not humanly different from others, rather the competitive characteristics, total capitalization-related features, network externalities, and decision-making process could distinguish them from others. These identified parameters play macroperspective role in shaping ICTs users' perception on determining and the willingness to adopt/use. Although Rwanda is constrained by divergent factors (Lwakabamba, 2006; Bureau of African Affairs, 2008; and World Bank, 2008; 2009) the use ICT becomes a catalyst for leveraging effect; by providing and improving access to commercial banks basic services. While adoption/usage may conjure interpretative differences, understanding it as a process that is subject to psychological behavior makes this analysis relevant.

The choice of these factors as key determinants of ICT adoption/usage in Rwandan Commercial banks rests on competitive advantage and performance enhancement which are structurally imperative to management decisions, customers' convenience, bank's survival, the employees' self-confidence and the board of directors in decision making. The thrust of the research is to establish the roles of ICTs perceived ease of use and compatibility towards adoption/usage decision in Rwandan commercial banks. The research highlights the principal determinants of ICT adoption/usage and investigated accordingly. The work is divided into sections with the foregoing introduction, followed by the theoretical and related literature review, methodology design, data analysis, interpretation and discussions, and the conclusion respectively.

### THEORETICAL AND RELATED LITERATURE REVIEW

Theoretically, Rogers (1983, 1995, and 2003) thesis constitutes the grand principle upon which ICT adoption/usage debate is common investigated. The insights from the innovation diffusion theory and its similarity to the theory of reasoned action (Rogers, 2003), planned behavior theory, perceived innovation characteristics theory, technology perception theory, and technology acceptance model (TAM) (Ajzen & Fishbein, 1980; Davis, 1989 and 1993) have been incorporated in the discussion. The TAM suggests that attitudes predict intentions, and intentions predict behavior (Acs and Audretsch, 2003 and Manuelli, Sequeira, & White, 2007). According to TAM, adoption behavior is determined by the intention to use a particular system and the intention is determined by the

attitude, which in turn is determined by the perceived usefulness and perceived ease of use of the system (Davis, 1989; Lau, 2002; Zappala and Gray, 2006; and Freeman and Engel, 2007).

Perceived usefulness which seems similar to ease of use is the extent to which a manager believes that using a particular system enhances job performance (Fasan, 2007; Agboola, 2006; Bakkabulindi, Nkata, and Amin, 2006; Al-Hajri, 2003 and Rosenberg, 2004), while perceived ease of use denotes the extent to which a consumer believes that using a particular system will be free of effort (Rogers, 2003; Davis, 1998; Gibbs, Sequeira, & White, 2007 and Robson and Haigh, 2008). The aforementioned studies examined usefulness and perceived ease of use and how they individually and mutually influence banks' inclination to adopt/use ICTs.

The new institutional theory (Powell and DiMaggio, 1991 and Scott, 1987) and intervention theory (Argyris, 1970; Scott, 2004; Adapo, 2008; and Burns and Grove, 2007) indicate the structures and established authoritative guidelines influence management behavior (Scott, 2004) to adopt/use. Hence, the management decision to adopt ICT is predicated on other undisclosed norms that exist in a particular system (Basdeo, 2006). Nevertheless, the ecology theory (Hannan and Freeman, 1998) demonstrates that adoption could be triggered by isomorphism, competitive dynamism, structural and operational legitimacy (Bronwyn and Khan, 2002 and Bhawan, 2005). Hence, the red-queen theory (Heylighen, 2000 and Pearson, 2001) becomes relevant as adoption occurs along co-evolution in a highly competitive market or industry.

Although the aforementioned predicts adoption/usage behavior, the perception of the user is influenced profoundly by its ease to use (Bhawan, 2005 and Begum, 2008). This disposition was earlier investigated by Bantel and Jackson (1998), Lau (2002) and Davis & Riemenschneider (2003) which ascertain that attained education correlates significantly with cognitive ability. Hence, higher level of education was associated (Dickerson and Gentry, 2007 and Greenberg and Baron, 2007) with an individual's ability to generate and implement creative solutions to complex problems. Further, the implication connotes workers' cognitive ability to generate creative solutions could explain why people who are more educated have more receptive attitudes towards innovation adoption/usage (Ion and Andrea, 2008).

From the foregoing, it becomes statistically plausible to say that technologies adoption/usage is not only influenced by investment in the physical technologies but also capacity-building and skills acquisition. Thus, Walker, (2005) contends that ICT training is a primary organizational factor since this helps users to understand how best to adopt/use ICT. Kamal (2006) and Kizza (2003) earlier indicated that lack of training plays a hindrance role to the adoption of ICT. Human capital may be developed by investment in education through schools, but emphasizing computer literacy and informatics in engineering are indispensable in the adoption/usage of ICT (Young, 2007). Chun, (2003) indicates that highly educated workers are more likely to implement new technologies such as information technology. The result of Fishbein and Ajzen (2005) on ICT adoption in Malaysian SMEs, indicate that 130 out of 180 companies never develop formal ICT training for their employees; thus, resulting to lack of trained personnel in ICT, which further inhibits the adoption of ICT.

Substantial evidences indicate that education and training are imperative to ICTs adoption, but the user's perception on the ease of use or relative easy-to-remember is vital to adoption. This variable has been investigated by researchers who argued that perceived ease of use is the extent to which a person accepts using a technology will be at no-cost to that individual (Brown, 2002 and Brown & Licker, 2003). Nadim and Noorjahan (2007) affirmed that perceived ease of use is the term that represents the degree to which an innovation is perceived not to be difficult to understand, learn or operate. This was examined by Fasan (2007) and Alam and Mohammad (2009) stated that perceived ease of use is the degree to which consumers perceive a new product or service as better than its substitutes as evident in the work of Kotler and Armstrong (2009).

According to Nadim and Noorjahan (2007) the perceived ease of use is the consumer's perception that banking on the internet involves a minimum effort. This supports the findings of Abor (2005) and Agboola (2006) which noted that perceived ease of use refers to the ability of consumers to experiment with a new innovation and evaluate its benefits easily. Adekunle, Abiodun and Mark (2007), Abor (2005), and Brown (2002) also affirmed that the drivers of growth in electronic banking are determined by the perceived ease of use which is a combination of convenience provided to those with easy internet access, the availability of secure, high standard electronic banking functionality, and the necessity of banking services.

The dimension of innovation compatibility was integrated into the analysis which denotes the degree to which an innovation is perceived as being consistent with existing values, past experience, and the needs of potential adopters (Agboola, 2006; Lau, 2002; Fasan, 2007 and Lee 2004). Research on technological innovations, e.g. computer adoption (Alam and Nilufar, 2007), demonstrates that compatibility (Walker, 2005) has a significant impact on adoption behavior. In the study of home computer adoption, Dickerson and Gentry (2007) found adopters to have more experience with a variety of technical products than non-adopters which sustained Rogers (2003).

Saaksjarvi (2003) clearly indicates that employees who feel that the new product or technology is not intact with their past experience; lifestyle, values and needs are likely to reject the product or the technology before it enters their consideration sets. Bankur and Pang (2010) indicate that consumers with extensive technical knowledge are assumed to be more innovative than novices. Collectively, these scholars indicate that consumer's knowledge is based on two elements: familiarity, which is the number of product-related experiences that has been accumulated by the consumer, expertise (Basdeo, 2006; Bhawan, 2005 and Begum, 2008), and the ability to perform product related tasks successfully.

Saaksjarvi (2003) states that individuals avoid messages that are conceived to be in conflict with the existing needs, beliefs (Christensen, 1997), and attitudes (Kotler, 2009 and Afuah, 2003), and the employees do not see the innovation even if they would be exposed to it. This indicates that in situations where employees, are clearly shown an innovation either by a friend, salesperson, at exhibitions and trade shows, perceived compatibility or incompatibility is likely to have an immediate effect. In Ozaygen (2005) experiment, the work provides support for this effect; which finds that consumers experiencing incompatibility with an innovation reject it without hesitation and without assessing its advantages and usability.

Dual aspects of compatibility exists as noted by Kamal (2006); technological and organizational compatibility. The fit of the available technology with the organizations existing technologies play an important role in the technology adoption decision. Incompatibility of software, hardware and telecommunication networks negatively impacts inter-organizational information sharing or inter-dependency. Organizational compatibility is thought as the organizational fit (Hannan and Freeman, 1989) of the system required for effective information sharing among departments. Kamal (2006) thus, points out that another important aspect of compatibility is the compatibility of the systems with the existing needs of the organization relative to the envisaged future direction.

## RESEARCH METHODOLOGY

The theoretical architecture was bridged with methodological design towards deepening the scientific or philosophical undertone of the research. The research employed and utilized descriptive and correctional research design. The choice of these designs was informed by the ability of descriptive method to profile respondents categorically (Greener, 2008) and the correlation was to examine the relationship between variables (Wallace and Wray, 2006). Collectively, these designs formed the background upon which the statistical analysis is based. Evidence from Adams, Khan, Raeside and White (2007), Remenyi (2002 & 2005), and Pallant (2005) have demonstrated that survey-based research which required grouping is best organized and analyzed with descriptive approach.

Primary data was used for the research. This was collected through a self-constructed questionnaire. The questionnaire was constructed on a likert-scale. The face, content, and construct validity (Greener, 2008) were established through experts' intervention from the field of management. The statistical reliability with Cronbach's alpha for perceived ease of use is 0.64 (64%) and ICT compatibility 0.63 (63%) respectively which Strauss and Corbin (1998), Oppenheim (1992), Diaz de Rada (2005), and Bryman and Bell (2003) have demonstrated to be of acceptable standard. The questionnaire was administered to 353 employees in the chosen five commercial banks' headquarters in Kigali using a stratified random sampling technique. Of the three hundred and fifty three (353) questionnaires distributed, 274 were retrieved and considered usable for the research. The respondents' participation was solicited through a consent letter and the data gather are for academic purpose only.

## DATA ANALYSIS, INTERPRETATIONS AND DISCUSSIONS

The profile of the respondents was analyzed through descriptive statistics as presented in Table 1.1 and it indicates that a total of 200 male group representing (73%) and 74 female, representing (27%) of the total 274 respondents used in the study. This proportional difference only reflects the number of respondents

surveyed. However, the research of Castel, Salvador, and Sanz (2010) indicates that the male gender tends to adopt new technologies faster than the female counterpart both at home and at work place. Also, Esteves, Bohorquez, & Souza, (2008) in their paper indicate that female have more negative attitudes towards computers and internet than men. It is not this paper submission that gender impact adoption rather a categorization of the respondents.

**TABLE 1.1: DISTRIBUTION OF THE RESPONDENTS BY DEMOGRAPHIC FACTORS**

Demographic Variables	Categories	Frequency	Percentage
Gender	Male	200	73%
	Female	74	27%
Educational Level	Diploma / Certificate	87	31.8%
	Bachelors	178	65.0%
	Masters	3	1.1%
	PhD	0	0%
	Others	2	0.7%
Terms of Employment	Permanent	241	88.0
	Temporary	17	6.2
	Part Time	9	3.3
Work Experience	Less than 1Year	96	35.0
	1 to 3 Years	124	45.3
	4 to 6 Years	40	14.6
	7 to 10 Years	11	4.0
	Above 10 Years	3	1.1

Table 1.1 further indicates that out of the 274 respondents, 87 represented (31.8%) has a certificate or Diploma, 178 respondents (65%) has Bachelors Degree, 3 respondents (1.1%) with Masters Degree, PhD has 0 (0%) respondents, and 2 respondents hold other academic qualifications represented by 0.7% of the total respondents. However, four of the respondents representing 1.5% did not indicate their academic qualifications. Table 1.1 also indicates the term of employment. Of the total 274 respondents, 241 (88%) are permanently employed, 17 respondents (6.2%) are temporary employed, 9 respondents (3.3%) are part time workers and 7 respondents (2.6%) did not indicate their employment category. From the statistical results, permanent employees had the highest percentage, followed by temporary and part-time respectively. Further, this indicates that 96 respondents (35%) have worked with the banks for less than one year, 124 respondents (45.3%) have worked with the bank between one and three years, 40 respondents (14.6%) have worked with the bank between 4 and 6 years, 11 respondents (4%) have worked with the bank between 7 and 10 years, and 3 respondents (1.1%) have worked for more than 10 years.

From the categorization of the respondents, it becomes explicit that work experience, educational qualification and terms of employment appeared robust to authenticate the quality of the information provided by the respondents. As such, the perception of the respondents with reference to ease of use on the adoption/usage of ICT was investigated. This aspect was approached with descriptive statistics. Table 1.2 below indicates that ICT complexity, cognitive dissonance, familiarity, and ambiguity affected the respondents' decision to adopt/use. The perceived ease of use was investigated through three questions requiring the respondents to assert to the degree to which they subscribed to a question.

From the statistical reports, training was instrumental to adoption/usage with a Mean 3.39 (SD, 0.99). This implies that adopting/using new technology is subject to a prior operational knowledge and training on the ICT. It was followed up with a corresponding question on usage and perceived difficulty. The statistical result Mean 3.23 (SD, 1.13) indicates that complexity hinders the decision to adopt/use a particular new technology among the surveyed respondents. The final question on perceived ease of use examined intension to adopt/use if informed that the technology is hard. The respondents demonstrated that technology hardness awareness militates against adoption/usage decision with a statistical Mean of 3.47 (SD, 1.03). The statistical findings support and sustain the existing literature on perceived ease of use to adoption as documented by Young (2007), Lau (2002), Fasan (2006), and Brown (2002). These studies were conducted in different countries, but the results indicated that ICTs consumers' perception on the perceived ease of use is instrumental to adoption/usage.

**TABLE 1.2: RESPONDENT'S PERCEPTION ON THE PERCEIVED EASE OF USE TO ICTS' ADOPTION**

Questions	Respondents	Minimum	Maximum	Mean	Std. D
<i>I feel free to adopt and use a new technology if I have some training on how to use it</i>	274	1	4	3.39	.993
<i>I don't like adopting &amp; using any technology if I think it's difficult</i>	274	1	4	3.23	1.127
<i>If informed that the technology is hard, I will not want to adopt and use it</i>	268	1	4	3.47	1.033
<b>Perceived Ease of Use</b>	<b>274</b>	<b>1.00</b>	<b>4.00</b>	<b>3.3552</b>	<b>.70504</b>

From the foregoing statistical evidences, it becomes explicit that the respondents' perception on ICT adoption/usage decision is subject to perceived training, complexity, ambiguity, and cognitive dissonance. This observation was further investigated with the extent to which innovation compatibility was associated with adoption/usage. The analysis was anchored on standards/traditional compatibility, functional/operational compatibility and similarity compatibility. From the statistical results presented in Table 1.3, a Mean value of 3.32 (SD, 1.04) was discovered for standards/traditional compatibility, operational/functional compatibility had a Mean of 3.35 (SD, 1.00), similarity compatibility with a Mean value of 3.31 (SD, 1.04) and a cumulative Mean value of 3.32.

**TABLE 1.3: SUMMARY OF THE RESPONDENTS' PERCEPTION ON INNOVATION COMPATIBILITY TO ADOPTION & USAGE**

Questions	Respondents	Minimum	Maximum	Mean	Std. Dev
<i>I accept to adopt and use the new technology if its compatible with the existing technologies in the organization</i>	274	1	4	3.32	1.038
<i>I accept to adopt and use the new technology if it's compatible with the operations of the organization.</i>	274	1	4	3.35	1.006
<i>I accept to adopt &amp; use the new technology if it's similar with the old technology that is being replaced.</i>	274	1	4	3.31	1.042
<b>Innovation Compatibility</b>	<b>274</b>	<b>1.00</b>	<b>4.00</b>	<b>3.3260</b>	<b>.68410</b>

The table summary indicates that innovation adoption/usage is constrained by users' perception of its traditional compatibility, operational/functional compatibility and the degree of similarity to the replaced technology. The findings are not in isolation since the research of Begum (2008) and Bhawan (2005) revealed that perceived ICT's complexity deters adoption/usage in their respective studies. Further, Ion and Andrea (2008), Young (2007), and Rogers (2003) demonstrated that compatibility and familiarity strongly determine ICT adoption/usage decision.

The depth of relationship between each principal factor to ICTs adoption/usage was established to substantiate the documented perception of the surveyed respondents. In light of this, the correlation analysis was conducted to authenticate the presumed proposition of a relationship. As evident in Table 1.4, a strong positive statistical significant relationship between ICTs adoption/usage and perceived ease of use was found with a Pearson Correlation Coefficient of 0.373 at 1% (0.000) level of significant. This implies that ICTs adoption/usage is dependent on consumers' depth of technical and operational complexity, knowledge and skills capabilities, and self-efficacy on the new technology.



TABLE 1.4: SUMMARY OF THE CORRELATION MATRIX BETWEEN ICT ADOPTION/USAGE AND EASE OF USE AND COMPATIBILITY

Variables	Significant Level	Pearson Correlation Coefficient
Perceived ease of use	0.000	0.373**
Innovation compatibility	0.000	0.395**

Based on the statistical relationship approach, this finding, thus, provides a robust and in-depth insight to support existing literature (Brown and Licker, 2003; Zappala and Gray, 2006; Gibbs et al., 2007; and Manuelli et al., 2007) which demonstrate that perceived ease of use inhibited/determined ICT adoption/usage. Hence, the usefulness of this research is that it provides statistical evidence to support the ICT adoption/usage debate framework in Rwanda.

In addition, to the perceived ease of use, compatibility is assumed to have a significant influence on ICT adoption/usage decisions. Compatibility in this context connotes the depth of perceived consistency with the entrenched standards and accumulated experiences. This component was statistically investigated and the result indicates as reflected in Table 1.4 that a positive, strong and significant statistical relationship exists between innovation compatibility and adoption/usage decisions with Pearson correlation at 0.395 and significant at 0.000 (1%). The result indicates that ICTs' compatibility has a positive and significant relationship with adoption/usage among the surveyed commercial banks in Rwanda. The finding add credence to the work of scholars (Lau, 2002; Davis and Riemenschneider, 2003; Darch and Caltabiano, 2004; Fasan, 2007; and Agboola, 2007) that compatibility components (values, norm and standards) determine ICTs' adoption/usage decision.

Based on these findings, this research is an added value to existing knowledge on the debate about the depths to which ICT perceived ease of use and compatibility influence adoption/usage decisions. Therefore, the respondents from the commercial banks in Rwanda assert that ICTs' perceived ease of use/complexity and compatibility do influence the adoption/usage of ICT. Hence, the paper suggests that users' computer literacy, training and development, self-efficacy and ICT orientation become integral components of the commercial banks' capacity building programs.

## CONCLUSION

Although existing researches have identified ICTs' adoption/usage determinants, the Rwandan commercial banks framework has remained a neglected component. This research contributes to the wealth of existing documentation through the identification of dual factors that determines ICTs' adoption/usage in the Rwandan commercial bank platforms. The research is perceptual and relationship based. Determinants identified are perceived ease of use and compatibility. These variables are behavioral factors which were considered imperative to users' decision-making. Although the factors were statistically significant, the insight they provided enhances competitive capabilities in the banking sector and has managerial implications within and without Rwanda.

The suggested policy has implications for banks and managers which can be used as a basis to plan efforts towards increasing workers' work performance and enhancement. ICT literacy and self-confidence are factors impacting users' perceptions and the overwhelming effect could compound a bank's adoption/usage potential which has instrumental influence on competitiveness and profitability/survival. By improving the staff related aspects on ICTs adoption/usage, the commercial banks may increase banks' performance. This implies that staff must be trained in such a way that their soft and hard skills are ICT enhanced.

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## A STUDY ON IDENTIFICATION OF CONTEXTUAL KEY FACTORS IN PERFORMANCE APPRAISAL IN PUBLIC SECTOR ENTERPRISES IN INDIA

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### ABSTRACT

*Performance appraisal is the process through which an organisation enhances human efficiency and productivity. In a global economy today human resource is available in abundance, and has become accessible across the world. Organisations aiming at gaining competitive advantage in dynamic domestic and international markets need to harness this vital resource through continuous and rigorous appraisal systems. Performance Appraisal helps to assess individual's/group's performance. An individual's/ group's performance is influenced by different factors- organisational, individual and environmental, all working together on such individual/group. Identification of such key factors would help to strengthen and update the prevailing appraisal systems for full utilisation of human resources in an organisation. Such a measure becomes more imperative in Public Sector Enterprises where there is large deployment of human resources. This research is a presentation of the findings of a study is conducted by the author in a Public Sector Unit. The study aimed at finding out the correlation between individual/group performance and other organisations factors, to analyse the prevailing system of performance appraisal in that organisation. Based on such analysis, the author suggests a few measures for improvements.*

### KEYWORDS

Performance appraisal, Competitive advantage, domestic and international markets, performance.

### INTRODUCTION

An organisation is judged by its performance. Organisations can perform well or poorly due to many reasons. However, the majority of economists and commentators agree that the biggest influence on organisational performance is the quality of the labour force at all levels of the business. As human resources have become viewed as more critical to organisational success, many organisations have realized that it is the *people* in an organisation that can provide a competitive advantage.<sup>1</sup>

Teams of highly skilled, trained and motivated employees will nearly always overcome most of the difficulties created by external forces while a poorly motivated, untrained and unskilled labour force will nearly always fail to take advantage of favourable external opportunities.<sup>2</sup> Given this situation, it could be argued that the most important role for human resources (HR) is to raise the performance of employees in the organisation. To do this, employees' performance has to be managed and this is not an easy job. Employees' job performance is an important issue for all employers. However, satisfactory performance does not happen automatically; therefore, it is more likely with a good performance management system.

Performance management is a continuous process of management that clarifies mutual expectations, emphasizes the support role of managers who are expected to act as coaches rather than judges, and focuses on the future.<sup>3</sup> Performance appraisal is an integral and important component of performance management. Performance appraisal and Performance management are different and need clarity. The former is a much wider, more comprehensive and more natural process of management.

Performance appraisal (PA) is the process of evaluating how well employees perform their jobs when compared to a set of standards, and then communicating that information to those employees.<sup>4</sup> Performance appraisal can be defined as the formal assessment and rating of individuals by their managers at, usually, an annual review meeting. In contrast Performance appraisal is a component of Performance management.

People differ in their abilities and their aptitudes. There is always some difference between the quality and quantity of the same work on the same job being done by two different people. Performance appraisals of Employees are necessary to understand each employee's abilities, competencies and relative merit and worth for the organisation. Performance appraisal rates the employees in terms of their performance. Performance appraisals are widely used in the society. The history of performance appraisal can be dated back to the 20th century and then to the second world war when the merit rating was used for the first time. An employer evaluating their employees is a very old concept. Performance appraisals are an indispensable part of performance management.

Performance appraisal is necessary to measure the performance of the employees and the organisation to check the progress towards the desired goals and aims. The latest mantra being followed by organisations across the world is to focus on performance management and specifically to individual performance. Performance appraisal helps to rate the performance of the employees and evaluate their contribution towards the organisational goals. If the process of performance appraisals is formal and properly structured, it helps the employees to clearly understand their roles and responsibilities and give direction to the individual's performance. It helps to align the individual performances with the organisational goals and also review their performance.

Performance appraisal is one of the most widely researched areas in industrial/organizational psychology.<sup>5</sup> Researchers have developed and practitioners have implemented various changes to the evaluation criteria, rating instruments, and appraisal procedures in an effort to improve the accuracy and perceived fairness of the process.<sup>6</sup> The results of a major survey distributed to members of the International Personnel Management Association (IPMA) and American Society for Public Administration suggested that the current and future importance of performance appraisal in the public sector will not diminish. The intent of the survey was to gauge the respondent's perceptions on the relative importance of various personnel techniques, activities and values. Respondents predicted that the widespread use of performance appraisal will continue, ranking it first in importance among human resource management issues at the time of the survey and in future years.<sup>7</sup>

The widespread use of performance appraisal can be attributed to the belief by many managers and human resource professionals that performance appraisal is a critically needed tool for effective human resource management and performance improvement.<sup>8</sup> The assumption appears to be that an effectively designed, implemented, and administered performance appraisal system can provide the organization, the manager, and the employee with a plethora of benefits.<sup>9</sup> Performance appraisal takes into account the past performance of the employees and focuses on the improvement of the future performance of the employees. Performance appraisal measures the qualitative and quantitative aspects of job performance. An appraisal evaluates not only the employee's performance but

also his potential for development. The primary objectives of an appraisal are – to assess past performance, to identify training needs, to set and agree on future objectives and standards, and to facilitate the achievement of these goals.

There are at least six common reasons for having a formal appraisal system:

1. To validate selection methods.
2. To identify candidates for promotion.
3. To validate appraisal methods.
4. To provide evaluative feedback on individual performance.
5. To determine training needs.
6. To allocate rewards

Appraisals can also serve to document performance for legal purposes, should employees later decide to sue their employer.<sup>10</sup>

Performance appraisal has two general uses in organizations, and these roles often are potential conflicts. One role is to measure performance for the purpose of rewarding or otherwise making *administrative* decisions about employees. Promotions or layoffs might hinge on these ratings, often making them difficult for managers to do. Another role is *development* of individual potential. In that role, the manager is featured more as a counsellor than as a judge, and the atmosphere is often different. Emphasis is on identifying potential and planning employees' growth opportunities and direction. Performance appraisal can be a primary source of information and feedback for employees, which is key to their future development. When supervisors identify the weaknesses, potentials, and training needs of employees through performance appraisal feedback, they can inform employees about their progress, discuss what skills they need to develop, and work out development plans.

In many situations, the appraiser is the supervisor of the person who is to be rated. However, companies may also use multiple raters to evaluate performances. Peer and self-evaluations are on the increase, as are customer or client evaluations. Some appraisal systems use subordinate or reverse appraisals and team rating techniques. Full-circle, multi-rater assessment is practiced widely now in Fortune 500 companies. They generally use competencies for the job category or department as the basis for the rating.<sup>11</sup> This all sounds good. The trouble is that an employee appraisal system cannot be all things to all people. Maintaining the appraisal system is often considered an HR responsibility, and it is difficult to do successfully in the long term.<sup>12</sup>

In fact, if not handled well, the annual employee appraisal can actually lead to poorer rather than better performance. The reason is that appraisal interviews, where supervisors discuss the appraisal, contain either too much criticism or none of it. In addition, appraisals tend to focus on *past* performance, prompting arguments between appraisers and employees about interpretations and causes of past events.<sup>13</sup> However, in spite of the attention and resources applied to the practice, dissatisfaction with the process still abounds and systems are often viewed by employees as inaccurate and unfair.<sup>14</sup>

### PERFORMANCE APPRAISAL AND DEVELOPMENTAL GOALS

The need for multiple assessments ranges from shorter project cycles to continuous stress on ROI. Bonnie Singh, executive director-human resources, Techspan India, explains, "Performance measurement and management has to be a dynamic process. A once-a-year appraisal offers no scope for mid-course correction to either the average-performer or the organization." The yearly system is not only archaic and bureaucratic, it also precludes the ability for employees to track their "personal performance scorecard" real-time. With the rampant flux in business environment and widespread acknowledgement that employees must align and realign themselves, many organizations will be compelled to measure performance in increasing frequencies. Adds M L Taneja, vice president-human resources, HCL Infosystems, "Assessment tools are very important in assessing that a company's business is going as per plan and if some anomalies are found, corrective action is taken immediately. If at the end of a year, we tell an employee that he has not performed up to the mark, he does not accept it, reasoning that he should have been given the feedback on his performance during the year so that he had a chance to improve. For an organization also, the annual system is not suitable as it loses one year of performance from the employee appraisal system." According to him, a multiple assessment system helps in clarifying what an employee is expected to deliver.

As a result of changing organizational demands, most companies are opting for a comprehensive in-house customized performance management lifecycle. With companies like Tata Telecom, IT&T, Techspan, Cap Gemini Ernst & Young, framing their own processes, the stress on matured systems is only going to increase. Take the case of Techspan India, which has formed an Individual Performance and Development Review (IPDR), a six-monthly performance management initiative. According to Singh, the purpose is to prevent disorientation and non-alignment of employees and their organizations and track performance on real-time basis. For this, the company has instituted several sub-processes. IPDR is a twin-set process comprising the Individual Performance Review (IPR) and the Individual Development Review (IDR). These are done sequentially since the IPR directly influences performance bonus payouts and increments, while the IDR impacts career advancement. The company also has a "Mini-IPR", done mid-cycle, which serves as a "spot-check" for individuals and managers.

### FACTORS AFFECTING PERFORMANCE APPRAISAL

Performance appraisals are supposed to evaluate the performance of a worker, reward good performance with promotions and pay raises and set goals to help employees continue to improve. In reality, however, performance appraisals are affected by a wide range of psychological factors. Even when supervisors are working with a well-defined guideline to evaluate workplace performance, they can easily fall off track with results disadvantageous to both the worker and the company.

The appraisal of an employee is directly dependent on the performance that he has shown over a period of time. Every business wants to maximize its profits and depends upon the collective effort of its employees to achieve it. If certain employees perform up and above the expectations and help the company to achieve better results, the organization would appreciate their efforts and give them a raise in their salary. However, employees who have not performed to their full potential and have not led to any major contribution to the company may not find any such favours from the organization.

The way you behave in your office also has a huge impact on the appraisal process. If you are known as a team player and help your colleagues to improve their performance, it is highly likely that the organization would recognize your efforts and reward you handsomely. This is one of the prime reasons that some employees whose performance has not been exceptional still manage to have a healthy raise in their appraisals. On the other hand, if you are someone who spreads rumours and negativity in the workplace, there is a possibility that you would have a tough time during your appraisals.

Assertiveness and motivation are important characteristics that every organization looks forward to in their employees. Employees who go about their jobs with vigour and excitement, take initiatives and show a desire to perform exceptionally are looked upon highly by the managers. Employees with a positive attitude and self-belief are respected by the organization and are likely to be rewarded for their efforts. Organizational skills reflect to your managers that you know how to prioritize your more important tasks. A well-organized employee is always ready for any additional responsibilities and the managers can trust him for his ability to get something done.

Halo and Horn effect factors are disadvantageous for an organization and promote ill-will and negativity in an organization. Managers sometimes show bias towards employees with whom they have a friendly relationship as compared to those who are just acquaintances. This creates nepotism and negativity in the workplace and hampers the morale of hard-working employees. These were some factors that affect an appraisal process. It is important for an employee to ensure that he puts in an effort to contribute effectively to the organization and managers have the added responsibility of ensuring that they are able to carry out the appraisal in an effective and transparent way.

### STUDY OF KEY FACTORS AFFECTING PERFORMANCE APPRAISAL SYSTEMS IN DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION (DRDO) AT HYDERABAD

In consonance with the Industrial Policy Resolution 1948, and the Second Five-Year Plan, 1956; and to meet the demands for defence R&D, Defence Research and Development Organisation (DRDO) was formed in 1958. Over a period of time, it grew into 50 laboratories, spread across the country<sup>1</sup>.



Apart from Ordnance factories, and various defence, science and technology establishments, the Indian government also created a number of production establishments to take care of various productions in the field of defence. These, like others, were under the exclusive control of the government although they were created as corporations, commonly known as "Defence Public Sector Units" (DPSUs). Both DPSUs and OFs, are administered by the Department of Defence Production under the Ministry of Defence. Both sets of industries have their own research and development units although the overall R&D activities are met by DRDO.

Government of India under Ministry of Defence incorporated the Public Sector Undertaking in 1973 to achieve self reliance in areas of Super-alloys, Titanium alloys and Special Purpose Steels required for strategic sectors like Aeronautics, Space, Armaments and Atomic Energy as well as for special products like Molybdenum wires and plates, Titanium and Stainless Steel tubes, alloys for electrical and electronic application like Soft Magnetic alloys, Controlled expansion alloys and Resistance alloys. India now finds place in the select group of countries which have the capability to manufacture super alloys, Titanium and its alloys, specially steels etc. conforming to international standards & specifications.

The integrated production commenced from December 1982 and commercial production in July 1983, the initial investment of the company was about Rs.123 crores and the sales turnover till date is around Rs.150 crores per annum. The enterprise made a significant contribution towards meeting the twin objectives of self-reliance and self-sufficiency in the field of metallurgy. By setting up of most modern and integrated metallurgical installations of its kind in the world for the manufacture of a wide range of super – alloys, special metals and other special grade alloys required by aerospace, electronics instrumentation, power generation and other critical industries, a very critical gap in the indigenous availability of raw materials required by these strategic and sophisticated industries has been bridged.

## NEED OF THE STUDY

A study of the issues relating to Performance Appraisal and its applications in defence production organisations context has rarely been undertaken in Indian context. Due to the fast changing industrial world on account of 'globalisation' and 'market driven economy', improving the performance of an organisation has become paramount. As a result, undertaking an academic research on 'Evaluation of Performance Appraisal System' is considered to be significant. It is believed that in the long run this study could also be a blue-print of how to proceed further in attempting to institutionalise the appraisal system in the light of its various interconnections, in achieving a comprehensive success.

## OBJECTIVES

To study the Performance Appraisal practices and to identify the existence of relationship between the influencing factors and the Performance Appraisal system in a defence PSU to make out the important contributors for the better performance of the members of the organization.

## RESEARCH MEHODOLOGY

The present study is a survey-cum-analytical and empirical one. To elicit the primary data for the proposed study, a well-designed and structured questionnaire is used for executive and non-executive respondents. The questions covering the aspect of Performance Appraisal from the perspective of Motivation, Training, Human Resource Planning, Career Planning and Development; Performance Review, Reward Management, Quality of Work Life are incorporated in the questionnaire. There are eight levels in Executive cadre, leaving Directors and C&MD. At the time of the study, there were 334 executives and 985 non-executives across eleven wage bands. Study was carried out taking sample of 77 Executives and 297 non-executives. For the purpose of analysis of the data, the following time tested statistical tools are applied for arriving at precise inferences.

- Basic statistical technique of Percentages
- Analysis of Variance (ANOVA)
- Pareto Analysis
- Stepwise regression analysis
- Correlation matrix

## ANALAYSIS

With the application of basic statistical technique of percentages, the aspects – Workforce related factors of Career Planning and Development, Human Resource Planning, Quality of Work Life, and Reward Management are found to be significant issues in the minds of both Executives and Non-Executives. Among the listed factors, Career Planning and Development followed by Human Resources Planning attains high importance for both Executives and Non-Executives.

A comprehensive study was carried out both in respect of Executives and Non-Executives, identifying the very few important Statements responsible for knowing the Performance Appraisal system. Analysis of Variance (ANOVA) technique is applied to verify whether there was any significance of the awareness levels of the listed issues. ANOVA test conducted for Executives reveals that they are quite aware of existence of Performance Appraisal in a defence PSU through which their performance is rated. The test also revealed that the Performance Appraisal effect on employee motivation was not significant. On the other hand, ANOVA test for Non-Executives revealed that no issue is significant for them and expressed their ignorance of the very concept of Performance Appraisal in industry and its effectiveness.

Having identified the fact that Executives have better knowledge of Performance Appraisal Systems, and Non-Executives have poor knowledge, the probe was extended to know which significant factors were contributing to such 'knowledge' of Performance Appraisal in case of Executives and contributing to absence of Performance Appraisal for Non-Executives.

The Pareto analysis is carried out to identify the vital few statements responsible for the level of awareness on performance related issues for both Executives and Non-Executives. Pareto *effect* or Pareto's law says – frequently a vital few causes may need special attention while the trivial many may warrant very little. This analysis was carried out to know the fewer number of statements which were responsible for overall knowledge of Performance Appraisal system, simultaneously identifying these statements that do belong to the different groups. This examination was parallely studied by making Group wise Pareto analysis that of the 20 groups, the vital few were identified and the validity of the entire examination was tested by the concurrence of the common statements falling in Statement wise analysis to that of the Group wise analysis.

TABLE 1

causes/groups for Executive	causes/groups for Non-Executives.
Career Planning and Development.	Career Planning and Development.
Human Resources Planning.	Human Resources Planning.
Quality of Work Life	Reward Management
Reward Management	Quality of Work Life

The groups categorised as 'A' class establish the concurrency between Pareto analysis carried out at individual statements and at group level. From the application of Pareto technique it was found that (TABLE 1) Workforce related factors of – Career Planning and Development, Human Resources planning are identified as very important groups. Post-appraisal review process, reward management, Quality of Work Life aspects are also found to be important in the view of Executives respondents. For Non-Executives also the same factors are found to be important though the knowledge of Performance Appraisal is proved to be minimum.

The Pareto analysis was applied with a view to identify the vital few statements and its corresponding groups which helps to enhance the Performance Appraisal system. Effective Human Resources Planning ensures the much needed life blood for the Organisation. Career Planning and Development helps the Organisation



to retain talent and achieve the dream of 'Human Resources Development', which is the crux of Human Resources Management. Effective Reward Management helps to contribute good Organisational culture and climate. Finally, the Quality of Work Life reflects the total effort of the Organisation in terms of employee perceptions and morale. The Pareto analysis was matching with the results derived at the beginning of the analysis made through basic statistical technique of percentages, for both Executives and Non-Executives.

The Pareto analysis has thrown enough light and it was established that all the seven factors have interrelationships and act as a system; which are affecting the Performance Appraisal System positively and in turn getting affected. To study the existence of relationship among seven factors and Performance Appraisal System beyond doubt and also to find out the extent of association between the seven factors, and their impact on Performance Appraisal system, the study was further extended.

To study this concept, the very popular statistical technique, namely Stepwise Regression Analysis was applied. This is considered as an appropriate tool to apply for the present problem scenario so as to assess the Performance Appraisal System concerned, with reference to all seven characters, six characters, five characters and so on. This type of analysis will be very handy for the management to know the status of existing Performance Appraisal System with reference to different Performance Appraisal characters under consideration. The corresponding calculated  $R^2$  values will explain the nature and extent contribution of the Performance appraisal characters on Performance Appraisal System.

## FINDINGS & DISCUSSIONS

Performance Appraisal mechanism is taken as dependent factor and the other seven factors are taken as independent factor. X1 to X7 represent Human Resources Planning, Career Planning & Development, Motivation, Training, Rewards Systems, Post Appraisal Performance Review, and Quality of Work Life respectively. Y denotes the Performance Appraisal System.

### REGRESSION EQUATIONS FOR EXECUTIVES

For 7 variables:

$$P.A = 0.0273 X_1 + 0.0911 X_2 - 0.029 X_3 + 0.19935 X_4 + 0.06456 X_5 + 0.25123 X_6 + 0.28226 X_7$$

$$R^2 = 0.46904$$

For 6 variables:

$$P.A = 0.0938 X_2 - 0.032 X_3 + 0.19395 X_4 + 0.06874 X_5 + 0.25468 X_6 + 0.28008 X_7$$

$$R^2 = 0.46885$$

For 5 variables:

$$P.A = 0.0899 X_3 + 0.19816 X_4 + 0.0625 X_5 + 0.25317 X_6 + 0.28015 X_7$$

$$R^2 = 0.46861$$

For 4 variables:

$$P.A = 0.0869 X_4 + 0.2267 X_5 + 0.2671 X_6 + 0.28529 X_7$$

$$R^2 = 0.46753$$

For 3 variables:

$$P.A = 0.24555 X_5 + 0.29681 X_6 + 0.26773 X_7$$

$$R^2 = 0.45814$$

For 2 variables:

$$P.A = 0.33444 X_6 + 0.37444 X_7$$

$$R^2 = 0.42934$$

For 1 variable:

$$P.A = 0.54245 X_7$$

$$R^2 = 0.36627$$

The  $R^2$  values as calculated and presented above for Executives reflect the strength of relationship among the attributes. For the present problem analysis and study,  $R^2$  values are highly significant, as they reveal the nature and extent of contribution of the given factors. When all seven factors- Employee Motivation, Training, Human Resources Planning, Career Planning & Development, Performance Review, Reward Management, and Quality of Work Life are considered, they all put together contribute to around 47% of awareness. It can be observed that when each factor is kept distant from the Performance Appraisal system, the strength of association is reduced.

An effort it made to correlate at this stage the results of Stepwise Regression analysis to that of Pareto analysis, which in principle were in agreement for Executives. In Stepwise Regression analysis, when all seven variables were under consideration, the value of  $R^2$  is proved to be high when compared to other regression equations, which clearly indicates that these seven characters were accounting for nearly 47% of Performance Appraisal awareness.

### REGRESSION EQUATIONS FOR NON-EXECUTIVES

For 7 variables:

$$P.A = -0.151 X_1 + 0.02311 X_2 + 0.10691 X_3 - 0.098 X_4 - 0.0287 X_5 + 0.07404 X_6 + 0.12648 X_7$$

$$R^2 = 0.04737$$

For 6 variables:

$$P.A = -0.1508 X_2 + 0.0228 X_3 + 0.10279 X_4 - 0.0995 X_5 + 0.0745 X_6 + 0.12219 X_7$$

$$R^2 = 0.04672$$

For 5 variables:

$$P.A = -0.1521 X_3 + 0.10072 X_4 - 0.1006 X_5 + 0.0751 X_6 + 0.12244 X_7$$

$$R^2 = 0.04583$$

For 4 variables:

$$P.A = -0.1502 X_4 + 0.10618 X_5 - 0.0697 X_6 + 0.1297 X_7$$

$$R^2 = 0.03849$$

For 3 variables:

$$P.A = -0.1418 X_5 + 0.098 X_6 + 0.09265 X_7$$

$$R^2 = 0.03411$$

For 2 variables:

$$P.A = -0.1403 X_6 + 0.07107 X_7$$

$$R^2 = 0.0250$$

**For 1 variable:**

P.A = 0.54245 X7  
 R<sup>2</sup> = 0.01702

The application of Stepwise Regression Analysis technique for Non-Executives reveals that when all seven factors- Employee Motivation, Training, Human Resources Planning, Career Planning & Development, Performance Review, Reward Management, and Quality of Work Life were considered, they all put together contribute insignificantly to a meagre 5% of awareness. This was startling to note that in case of Non-Executives all these factors jointly have an insignificant influence.

**CORRELATION MATRIX**

While calculating the Stepwise Regression Analysis, the correlation between the dependent variables and to that of Performance Appraisal was calculated and presented in the following table for Executives.

**TABLE 2: CORRELATION MATRIX OF ASSOCIATION AMONG PERFORMANCE VARIABLES – EXECUTIVES**

	X1	X2	X3	X4	X5	X6	X7	Y
X1	1							
X2	0.2564	1						
X3	0.3562	0.2736	1					
X4	0.0789	0.2123	0.0863	1				
X5	0.0839	0.1034	0.2061	0.7228	1			
X6	0.1045	0.2236	0.1756	0.6216	0.6188	1		
X7	-0.0544	0.0781	0.1032	0.5981	0.5790	0.6795	1	
Y	0.0298	0.2208	0.1100	0.5632	0.5079	0.5945	0.6052	1

The values clearly reveal that the characters of Career Planning & Development, Performance Review, and Reward Management were accounting more than 50% to Performance Appraisal (TABLE 2).

**TABLE 3: CORRELATION MATRIX OF ASSOCIATION AMONG PERFORMANCE VARIABLES – NON-EXECUTIVES**

	X1	X2	X3	X4	X5	X6	X7	Y
X1	1							
X2	-0.0348	1						
X3	-0.0342	-0.0684	1					
X4	-0.0836	-0.0276	0.0666	1				
X5	-0.0130	0.0019	0.1421	0.1495	1			
X6	-0.0100	0.0063	0.0740	0.4049	0.0590	1		
X7	0.0399	-0.0009	-0.0831	0.4896	0.1823	0.2549	1	
Y	-0.1305	0.0314	0.0932	0.0078	0.0038	0.0904	0.0832	1

The Correlation Matrix table values reveal that the characters of Career Planning & Development, Performance Review, Reward Management have insignificant contribution to Performance Appraisal for Non-Executives, inferring the fact that the Non-Executives have better awareness of only few characters (TABLE 3).

**CONCLUSION**

The study on the evaluation of Performance Appraisal System in a defence Public Sector Unit comprises of respondent perceptions and comparing it with management’s philosophy, policy, and environmental realities. In this process few important aspects which were considered having interrelationships with Performance Appraisal are identified. Effort is made to bring out the logical and meaningful interpretation of how they are influencing the Performance Appraisal system. This study can be considered as a model while analysing the performance related issues in the organisation. This can help in widening the ambit of performance appraisal, by considering various issues found valid in the study, thereby making the analysis more meaningful and effective.

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## GROWTH AND PERFORMANCE OF HOUSING FINANCE COMPANIES IN INDIA: A CASE STUDY WITH REFERENCE TO HOUSING DEVELOPMENT FINANCE CORPORATION

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### ABSTRACT

*Housing is important for the development of the society both in economic and welfare terms. The Government has been allocating large funds to this sector. But the efforts of the Government in providing shelter to the people are far from satisfactory. The Government could make financial provision for providing low-cost housing to a small segment of the vast masses of the society. Therefore, the burden of providing housing to the people is largely on the shoulders of the corporate sector. It is in this context, a good number of corporatist have come into existence, providing finance at different terms to the people, particularly those in the lower-middle income groups and above. The housing finance companies may be grouped as those private sector housing finance companies, public sector housing finance companies, banks and co-operative sector. The present study is on the growth and performance of Housing Development Finance Corporation. The objectives of the study are: to examine the dwelling units assisted and growth of the network offices of HDFC; to assess the profitability performance; to analyze the various sources and applications of funds; to compare the interest expenditure and interest income and to study the housing loan operations of HDFC. The study is case study and also the present study is mainly based on secondary data. The overall conclusion of this study shows a positive growth and performance of the corporation even though there were an up and down trends regarding to the performance.*

### KEYWORDS

Corporation, Development, Growth, Hosing Finance, Performance.

### INTRODUCTION

Housing finance is a term which covers financing at all stages of the development of housing. Finance is required at three stages viz., purchase of land, construction of house and repayment of loan amount. Making provision of adequate funds at cheaper cost and at right time is one of the most difficult tasks faced by all those concerned with housing - the individuals, organizations, and governments at local, regional and national level.

The Government of India on the recommendations of the High Level Group set up in June 1986 under the Chairmanship of Dr. C. Rangarajan, the then Deputy Governor of Reserve Bank of India, established a National Housing Bank as an apex finance institution with its share capital being fully contributed by Reserve Bank of India. Accordingly, National Housing Bank (NHB) as a statutory corporation came into being on 23<sup>rd</sup> December 1987 to "operate as a principal agency to promote housing finance institutions both at local and regional level and to provide financial and other support to such institutions".

A housing finance company means a company incorporated under the Companies Act 1956 which primarily transacts or has one of the principle objects of transacting business of providing finance for housing sector directly or indirectly. The National Housing Bank is responsible for supervision and regulations of housing finance companies. It is also responsible for registration or canceling of registration of housing finance companies. As a part of its supervisory duties the National Housing Bank collects information with the help of prescribe statutory returns and other information from time to time from housing finance companies.

National Housing Bank has also powers to regulate funds raising activity, by public deposits, of housing finance companies. National Housing Bank issued the housing finance companies (NHB) directives in 1989 which deals with the conditions for accepting deposits. The National Housing Bank issued an advertisement on 19-10-2000 indicating that certification of registration will be compulsory for housing finance companies, without which they will not be able to carry the business of housing finance. This condition is applicable to those housing finance companies which have net worth of Rs. 25 lakhs or more and those which will be incorporated after 12<sup>th</sup> June 2002. If the given housing finance company is already in existence on 12<sup>th</sup> June 2000 and has net worth less than Rs. 25 lakhs, then the same Housing Finance Company will have to attain the level of Rs. 25 lakhs before 12<sup>th</sup> June 2003. The new companies, incorporated after 12<sup>th</sup> June 2000, will have to take the certification of registration from National Housing Bank without which they can not commence business. These are some of the efforts of National Housing Bank to regulate the functioning of housing finance companies.

Since housing in India is a state subject, the Central government formulates the plans and schemes and the state governments implement them.

A noticeable and significant turn took place in housing finance with the development of housing finance institutions in the country in the last decades. In other words, a host of institutions have come up to cater to the housing finance needs of the people. At national level the Housing and Urban Development Corporation (HUDCO) has come up to cater to the needs of weaker sections and low-income groups of the population. Likewise the institutions like Housing Development Finance Corporation (HDFC) have been established under private sector. The Life Insurance Corporation of India (LIC), General Insurance Corporation (GIC), Co-operative Housing Societies, Commercial Banks, etc., has also formulated schemes to participate in housing finance.

After more than five decades of Independence, the vital housing finance industry is coming into its own. The government has realized the role of housing sector in the national economy. The industry virtually monopolized by one company all these years, has been attracting new players in the recent years from banks, insurance companies and others.

Thus the Governments under constraints of resources are playing a catalytic role in encouraging and promoting the development of housing finance institutions. Mobilization of savings and their optimal development in house construction programmes form the important objectives of all housing finance institutions.

### NEED FOR THE STUDY

Housing is important for the development of the society both in economic and welfare terms. It is observed that 'a man's house is his castle' and plays a significant role in the overall development of the individual. The effect of bad housing is the demoralization and consequent lowering in the productive power of a great proportion of the individuals. Further, housing generates employment in all service industries.

Basing on this backdrop, the Government has been allocating large funds to this sector. But the efforts of the Government in providing shelter to the people are far from satisfactory. The Government could make financial provision for providing low-cost housing to a small segment of the vast masses of the society. Therefore, the burden of providing housing to the people is largely on the shoulders of the corporate sector. It is in this context, a good number of corporatist have come into existence, providing finance at different terms to the people, particularly those in the lower-middle income groups and above.

The housing finance companies may be grouped as those private sector housing finance companies, public sector housing finance companies, banks and co-operative sector.

The main sources of funds to the housing finance companies are owned funds, borrowed funds and deposits from the public. Since the main business of these companies is financing housing activity, the major part of the applications of funds is providing different kinds of housing loans to the needy. Incidentally, the housing finance companies also make other investments by participating in the capital market.

The present study on the "Growth and Performance of Housing Development Finance Corporation" is apt and there is a greater need for such studies as the studies conducted earlier did not make much focus on the effective utilization of the resources by the finance companies whose business is primarily housing finance. It is also utmost important to have this systematic introspection of the growth and performance of this corporation, especially in the present juncture of cut-throat competition thrown up by many private sector organizations having entered into this industry.

### OBJECTIVES OF THE STUDY

1. To examine the dwelling units assisted and growth of the network offices of HDFC
2. To assess the profitability performance
3. To analyze the various sources and applications of funds
4. To compare the interest expenditure and interest income
5. To study the housing loan operations of HDFC.

### METHODOLOGY

The present study is a case study. The major objective of HDFC is to provide finance to individuals, co-operatives and corporate bodies for housing development by channelising house-hold savings as well as funds from the capital market into the housing sector. It aims at promoting 'home ownership'.

The present study is mainly based on secondary data. The source of data includes the unpublished data from internal records of the HDFC. The data have also been taken from the annual reports of the Housing Development Finance Corporation, Reserve Bank of India, and National Housing Bank, etc. The data was analyzed by simple statistical tools like compound growth rates, ratios, and percentages, etc.

### PERIOD OF THE STUDY

This study covers a period of ten years from 1991-92 to 2000-2001.

### SCOPE OF THE STUDY

The study was confined to the growth and performance of Housing Development Finance Corporation.

### PROFILE OF HDFC

In India a number of financial institutions have been established to cater to the needs of industries for their long term financial requirements. But the long term financial needs of individuals for house construction had not been fulfilled by any financial institution till 1971. Even though HUDCO entered into financing of house construction, the limitations of its resources, forced it to give priority to housing of the poor. The needs of others, particularly the middle class, were not met by any institution including the commercial banks. It was in this backdrop; the Industrial Credit and Investment Corporation of India (ICICI) took the lead and promoted the Housing Development Finance Corporation (HDFC) in June, 1978. The ICICI also influenced the International Finance Corporation (IFC), an affiliate of the World Bank, to subscribe to the equity of HDFC to the extent of 5 per cent. The IFC also provided a loan of US \$ 4 million in the beginning to HDFC. And through public issue it could collect Rs. 10 crores in the beginning.

The major objective of HDFC is to provide finance to individuals, co-operatives and corporate bodies for housing development by channelising house-hold savings as well as funds from the capital market into the housing sector. It aims at promoting 'home ownership'. The loan amount to be sanctioned by HDFC is determined with regard to the repayment capacity of the borrower as determined by HDFC. Repayment capacity is fixed by taking into consideration factors such as age, income, qualifications, mostly family expenditure, spouse's income and savings. Initially loans were normally restricted to 70 per cent of the cost of property. For all practical purposes HDFC is synonymous with the domestic housing finance industry. HDFC was established to perform a similar task as that of Building Societies in U.K and Savings and Loan Associations of USA. These institutions accept deposits from the public and lend their funds mainly to individuals to acquire house for self-occupation. But HDFC plays the additional role of developing financial institutions in the field of housing. Thus, HDFC finances individuals and co-operative housing societies and to a less extent companies, and complements HUDCO's activities in the provision of housing finance.

### ORGANISATIONAL GOALS

- (i) The organizational goals of HDFC are stated as follows:
- (ii) To develop close relationship with individual households,
- (iii) To maintain its position as the premier housing finance institution in the country,
- (iv) To transform ideas into viable and creative solutions,
- (v) To provide consistently high return to shareholders,
- (vi) To grow through diversification by leveraging of the existing client base.

### ORGANISATION AND MANAGEMENT

HDFC is a public limited company with a board of directors consisting of eminent persons representing various professions including finance, taxation, construction and urban policy & development. The board of directors supports the basic trends of corporate governance with equal emphasis on transparency, accountability and integrity. The practices prevalent on corporate governance at HDFC are reflected in the composition, tenure, responsibilities of the board of directors with reference to the board meetings, board committees, etc.

HDFC operates through number of branch offices located throughout the country with its corporate headquarters in Mumbai. HDFC also has an international office in Dubai, U.A.E., with service associates in Kuwait, Oman and Qatar.

### DATA ANALYSIS AND INTERPRETATION

#### DWELLING UNITS ASSISTED BY HDFC

The dwelling units assisted by HDFC are shown in Table-IV. 1. As it can be observed from the table that the number of units assisted by HDFC has increased from 95,327 units in 1991-92 to 180,000 units in 2000-2001, registering a compound growth rate of 7.38 per cent.

It can be further observed from the table that the number of units assisted is not uniform year by year. The fluctuations in number of units assisted might be due to new housing finance companies entering into the market with a number of new schemes with fixed and floating interest rates.



TABLE – IV 1: DWELLING UNITS ASSISTED BY HDFC (Number of Units)

Year	No. of Dwelling Units	% Increase over Preceding Year
1991-92	95,327	-
1992-93	1,09,382	14.74
1993-94	81,542	-25.00
1994-95	1,09,000	33.67
1995-96	1,06,306	-2.47
1996-97	95,000	-10.63
1997-98	1,31,000	37.89
1998-99	1,26,000	-3.82
1999-00	1,78,000	41.26
2000-01	1,80,000	1.12
CGR	7.38	

Source: Annual Reports of HDFC (Relevant Issues)

**SHAREHOLDERS' FUNDS OF HDFC**

Shareholders' funds of HDFC consist of share capital, special reserves, general reserves, debentures redemption reserves, share premium, employee stock option outstanding, capital redemption reserves, shelter assistance reserves, and capital reserves. This is broadly classified into share capital and reserves and surplus which put together is called networth of the organization. The details and composition of shareholders' funds of HDFC are shown in Table - IV.2.

The total shareholders' funds of the HDFC increased from Rs.187.98 crores in 1991-92 to Rs.2371.94 crores in 2000-01 indicating an increase of 1262 per cent or 12.62 times over a period of ten years, registering a compound growth rate of 31.30 per cent. The shareholders' funds constantly increased from year to year. Share capital comprises equity share capital and preference share capital of the organizations. A decrease in share capital indicates redemption of preference shares by the companies. HDFC had Rs.44.96 crores of share capital in 1991-92 and after increase to Rs.169.11 crores in 1995-96 and remaining the same for 1996-97, it showed a declining trend and it was Rs.120.08 crores for 2000-2001, registering a compound growth rate of 9.16 per cent over the ten year period.

The Special Reserves increased from Rs.82.14 crores in 1991-92 to Rs.700.30 crores in 2000-2001. Similarly, the General reserves being another major part of shareholders' funds increased from Rs. 38.33 crores in 1991-92 to Rs. 619.98 crores in 2000-2001. The share premium during the same period increased from Rs. 20.17 crores to Rs. 850.60 crores in 2000-2001. The share shelter assistance reserve being smaller component of shareholders' funds increased from Rs.2.34 crores in 1991-92 to Rs. 8.25 crores in 2000-01. The capital reserves amount has been negligible which remained same at Rs. 0.04 crores throughout the decade. The share premium has increased at a highest compound growth rate of 43.25 per cent over the period, followed by general reserve 37.31 per cent, special reserve 26.95 per cent and shelter assistance reserve 16.13 per cent.

TABLE – IV 2: SHAREHOLDERS' FUNDS OF HDFC (Amount in Rs.Crores)

Year	Share Capital	Reserves & Surplus							T.R &S@	T.S.F @@	
		Special Reserves	General Reserves	D.R.R**	Share Premium	E.S.O#	C.R.R ##	Shelter Assistance Reserve			Capital Reserves
1991-92	44.96 (23.92)	82.14	38.33	-	20.17	-	-	2.34	0.04	143.02 (76.08)	187.98 (100.00)
1992-93	68.62 (21.08)	113.63	49.56	-	91.07	-	-	2.66	0.04	256.96 (78.92)	325.58 (100.00)
1993-94	92.24 (18.44)	161.64	81.74	-	161.94	-	-	2.68	0.04	408.04 (81.56)	500.28 (100.00)
1994-95	101.24 (11.57)	202.49	154.62	-	413.95	-	-	2.51	0.04	773.61 (88.43)	874.85 (100.00)
1995-96	169.11* (11.26)	280.49	225.33	-	824.82	-	-	2.03	0.04	1332.71 (88.74)	1501.82 (100.00)
1996-97	169.11* (10.17)	368.49	297.01	-	824.82	-	-	3.28	0.04	1493.64 (89.83)	1662.75 (100.00)
1997-98	119.11 (6.70)	445.49	333.47	-	824.82	-	50.00	4.31	0.04	1658.13 (93.30)	1777.24 (100.00)
1998-99	119.11 (6.04)	520.49	450.98	-	824.82	-	50.00	6.40	0.04	1852.73 (93.96)	1971.84 (100.00)
1999-00	119.11 (5.68)	595.49	497.58	-	824.82	1.83	50.00	7.10	0.04	1976.85 (94.32)	2095.96 (100.00)
2000-01	120.08 (5.06)	700.30	619.98	20.00	850.60	2.69	50.00	8.25	0.04	2251.86 (94.94)	2371.94 (100.00)
CGR	9.16	26.95	37.31		43.25			16.13	0.00	34.62	31.30

Source: Annual Reports of HDFC (Relevant Issues)

**NOTE:**

- Figures in brackets indicate the percentage
- \* Indicates equity share capital and preference share capital
- \*\* Debenture Redemption Reserve
- # Employee Stock Option out- standing
- ## Capital Redemption Reserves
- @ Total Reserves & Surplus
- @@ Total Shareholders' Funds

**SOURCES OF BORROWED FUNDS OF HDFC**

HDFC mobilizes funds from domestic and international financial institutions. The borrowed funds are classified into direct loans from institutions, funds from bonds, debentures and public deposits. The structure of borrowed funds is presented in table - IV.3. As it can be observed from the table that the total borrowed funds of the corporation increased from Rs. 2417.73 crores in 1991-92 to Rs. 15469.77 crores in 2000-2001 showing an increase of 640 per cent, that is 6.4 times over a period of ten years at a compound growth rate of 22.90 per cent. The year to year increase in the borrowed funds reveals that the corporation stepped up its borrowings quite significantly in 1999-2000, Rs. 12988.54 crores as against Rs.9823.58 in the immediate preceding year. The corporation further increased its borrowed funds in 2000-2001, amounting to Rs. 15469.77 crores.

It can be further observed that the direct loans constituted more than 51 per cent of the borrowed funds in 1991-92. But over a period of time, the proportion of direct loans has come down, reaching to 37.04 per cent in 2000-2001. This might be due to increase in the proportion of deposits over time. The deposits which formed about 36 per cent of the total borrowed funds in 1991-92, increased to 46.87 per cent in 2000-2001. The corporation has also mobilized funds by increasing bonds and debentures. In 1991-92 the corporation issued bonds for Rs. 296.39 crores, which constituted about 12.76 per cent of the total borrowed funds. But in the recent past the corporation could mobilize a substantial amount of funds. It mobilized about Rs. 856.78 crores in 1997-98, which was the largest amount being mobilized in a year. As it can be seen from the table, the proportion of funds mobilized by issuing bonds has come down over the period and it stood at 4.55 per cent in 2000-2001. In the recent years the corporation mobilized a large sum of funds, Rs. 995.38 crores in 1999-2000 and Rs. 1785.50 crores in 2000-2001.

On an overall assessment of the borrowed funds, it may be stated that the corporation has been increasingly depending on the direct sources of funds, particularly deposits, which is a health trend.

TABLE –IV 3: SOURCES OF BORROWED FUNDS OF HDFC (Amount in Rs. Crores)

Year	Direct loans	Bonds	Debentures	Deposits	Total Borrowed Funds	% Increase
1991-92	1250.04 (51.70)	296.39 (12.26)	-	871.30 (36.04)	2417.73 (100.00)	-
1992-93	1504.50 (49.52)	409.74 (13.49)	94.50 (3.11)	1029.33 (33.88)	3038.07 (100.00)	25.66
1993-94	1571.42 (44.14)	530.14 (14.89)	-	1458.18 (40.96)	3559.74 (100.00)	17.17
1994-95	1832.69 (41.31)	750.41 (16.92)	-	1853.24 (41.77)	4436.34 (100.00)	24.62
1995-96	1888.73 (37.29)	663.61 (13.10)	-	2512.69 (49.61)	5065.03 (100.00)	14.17
1996-97	2239.20 (34.25)	796.27 (12.18)	-	3502.19 (53.57)	6537.66 (100.00)	29.07
1997-98	2867.88 (35.20)	856.78 (10.52)	-	4423.79 (54.28)	8148.45 (100.00)	24.64
1998-99	3548.73 (36.12)	777.07 (7.91)	245.38 (2.50)	5252.40 (53.47)	9823.58 (100.00)	20.56
1999-00	5017.90 (38.63)	751.41 (5.79)	995.38 (7.66)	6223.85 (47.92)	12988.54 (100.00)	32.22
2000-01	5730.26 (37.04)	704.18 (4.55)	1785.50 (11.54)	7249.83 (46.87)	15469.77 (100.00)	19.10
CGR	18.29	9.20		28.22	22.90	

Source: Annual Reports of HDFC (Relevant Issues)

Note: Figures in brackets indicate the percentage

#### SOURCES OF OPERATING INCOME AND TOTAL INCOME OF HDFC

The earning of HDFC comes from different sources. Its total income consists of operating income and other income. Again the total operating income comprises interest on housing loans, dividends, lease rental income and other operating income.

TABLE-IV 4: SOURCES OF OPERATING INCOME AND TOTAL INCOME OF HDFC (Amount in Rs. Crores)

Year	Interest on Housing Loans	Dividends	Lease Rental Income	Other Operating Income	Total Operating Income	Other Income	Total Income
1991-92	281.24 (75.55)	12.10 (3.25)	5.19 (1.39)	59.68 (16.04)	358.21 (96.23)	14.05 (3.77)	372.26 (100.00)
1992-93	342.34 (72.30)	15.54 (3.28)	8.68 (1.84)	88.74 (18.74)	455.30 (96.16)	18.19 (3.84)	473.49 (100.00)
1993-94	420.71 (69.17)	39.07 (6.43)	12.54 (2.06)	108.49 (17.84)	580.80 (95.50)	27.35 (4.50)	608.15 (100.00)
1994-95	505.52 (64.77)	44.95 (5.77)	15.15 (1.94)	172.10 (22.06)	737.72 (94.54)	42.62 (5.46)	780.34 (100.00)
1995-96	652.17 (66.40)	40.57 (4.13)	23.45 (2.39)	212.26 (21.61)	928.45 (94.53)	53.73 (5.47)	982.18 (100.00)
1996-97	825.55 (65.24)	30.15 (2.38)	50.33 (3.98)	310.28 (24.52)	1216.31 (96.12)	49.02 (3.88)	1265.33 (100.00)
1997-98	976.58 (67.58)	61.78 (4.28)	67.55 (4.68)	281.12 (19.46)	1387.03 (96.00)	57.65 (4.00)	1444.68 (100.00)
1998-99	1155.14 (65.90)	96.90 (5.53)	64.12 (3.66)	361.74 (20.64)	1677.90 (95.73)	74.83 (4.27)	1752.73 (100.00)
1999-00	1328.55 (65.90)	148.52 (7.37)	44.69 (2.23)	415.89 (20.63)	1937.65 (96.13)	77.91 (3.87)	2015.56 (100.00)
2000-01	1626.28 (68.27)	121.74 (5.11)	47.49 (1.99)	478.20 (20.07)	2273.71 (95.44)	108.64 (4.56)	2382.35 (100.00)
CGR	21.81	28.81	31.20	25.45	23.06	23.21	23.06

Source: Annual Reports of HDFC (Relevant Issues)

Note: Figures in brackets indicate the percentage

Table IV. 4 show details of different components in the total income of HDFC. As it can be observed from the table that the total income of HDFC increased from Rs. 372.26 crores in 1991-92 to Rs.2382.35 crores in 2000-2001 showing an increase of 640 per cent or 6.4 times over ten year period with compound growth rate of 23.06 per cent.

It can be further noticed from the table, that the income from interest on housing loans for 1991-92 constituted about 75 per cent in the total income. But, over a period of time, the proportion of interest on housing loans has come down, reaching to 68.27 per cent in 2000-01, at a compound growth rate of 21.81 per cent. Income from dividends increased from Rs. 12.10 crores in 1991-92 to Rs. 44.95 crores in 1994-95. But, it decreased to Rs. 30.15 crores in 1996-97.

Thereafter the dividends income increased to Rs. 148.52 crores in 1999-2000. And again it has decreased to Rs. 121.74 crores in 2000-2001. Thus, it shows that dividend income was not stable, but fluctuating.

The lease rental income increased from Rs. 5.19 crores in 1991-92 to Rs.67.55 crores in 1997-98, and then it decreased, reaching to Rs. 47.49 crores in 2000-2001. The other operating income also increased from Rs. 59.68 crores in 1991-92 to Rs. 478.20 crores in 2000-2001, accounting a compound growth rate of 25.45 per cent. It may be further observed that the other operating income constituted about 16.04 per cent of the total income in 1991-92 and it increased to 20.07 per cent in 2000-2001. Thus, the fluctuation seen in case of dividend income and lease rental income is not present in case of the other operating income.

In 1991-92 the total operating income was Rs. 358.21 crores and it increased to Rs. 2273.71 crores in 2000-2001 indicating an increase of 6.35 times over a period of ten years with a compound growth rate of 23.06 per cent. But, it can be observed from the table that the proportion of total operating income remains at the same level during the period. It was 96.23 per cent in 1991-92 and 95.44 per cent in 2000-2001.

The other income of HDFC was Rs. 14.05 crores in 1991-92 and it increased to Rs. 108.64 crores in 2000-2001, registering a compound growth rate of 23.21 per cent during the ten year period under study. This income increased from year to year except in 1996-97 when it decreased to Rs. 49.02 crores from Rs. 53.73 crores in the preceding year.

The analysis of sources of operating income of HDFC reveals that there is decline in income from interest on housing loans and it has been made good by increase in income from all other sources.

## NETWORK OF HDFC

The details of growth of the network of offices are given in Table-IV.5. As per the table, the HDFC had just 25 branches in 1991-92. The growth in number of branches till 1995-96 has been very insignificant. It was from 1996-97 only it started establishing more and more number of branches. The number of branches increased by 22.22 per cent to reach 33 branches in 1996-97. The number of branches increased to 42 in 1997-98, further increased to 50 in 1998-99. In 1999-2000 it witnessed an impressive growth of 38 per cent with the number of branches increasing to 69 and finally in 2000-2001, the branch number reached to 88, registering a compound growth rate of 15.20 per cent over a period of ten years. Thus, the overall analysis of branch expansion in HDFC reveals that the growth rate which was very normal during the first half of a decade gained momentum during the later part of the decade.

TABLE -IV 5: GROWTH OF THE NETWORK OFFICES OF HDFC (Number)

Year	Branches	% Increase
1991-92	25	-
1992-93	25	0.00
1993-94	26	4.00
1994-95	26	0.00
1995-96	27	3.85
1996-97	33	22.22
1997-98	42	27.27
1998-99	50	19.05
1999-00	69	38.00
2000-01	88	27.54
CGR	15.20	

Source: Annual Reports of HDFC (Relevant Issues)

## FINANCIAL PERFORMANCE OF HDFC

An analysis of financial performance of a company helps in understanding the financial soundness of the company. In the process of this analysis, the total income, total expenditure, profit before tax and profit after tax were analyzed for HDFC for a period of ten years starting from 1991-92 to 2000-2001 as shown in Table-IV.6.

TABLE-IV 6: FINANCIAL PERFORMANCE OF HDFC (Amount in Rs. Crores)

Year	Total Income	Total Expenditure	PBT	Tax	PAT
1991-92	372.26 (100.00)	321.48 (83.94)	59.78 (16.06)	14.00 (3.76)	45.78 (12.30)
1992-93	473.49 (100.00)	400.44 (84.57)	73.05 (15.43)	17.50 (3.70)	55.55 (11.73)
1993-94	608.15 (100.00)	477.79 (78.57)	130.35 (21.43)	25.00 (4.11)	105.36 (17.32)
1994-95	780.34 (100.00)	595.94 (76.37)	184.40 (23.63)	38.25 (4.90)	146.15 (18.73)
1995-96	982.18 (100.00)	736.49 (74.99)	245.69 (25.01)	50.00 (5.09)	195.69 (19.92)
1996-97	1265.33 (100.00)	952.44 (75.27)	312.89 (24.73)	65.00 (5.14)	247.89 (19.59)
1997-98	1444.68 (100.00)	1093.32 (75.68)	351.36 (24.32)	58.00 (4.01)	293.36 (20.31)
1998-99	1752.73 (100.00)	1363.83 (77.81)	388.90 (22.19)	55.00 (3.14)	333.90 (19.05)
1999-00	2015.56 (100.00)	1554.75 (77.14)	460.81 (22.86)	59.00 (2.93)	401.81 (19.93)
2000-01	2382.35 (100.00)	1826.70 (76.68)	555.65 (23.32)	82.00 (3.44)	473.65 (19.88)
CGR	23.06	21.93	27.90	19.85	29.75

Source: Annual Reports of HDFC (Relevant Issues)

Note: Figures in brackets indicate the percentage

During 1991-92 HDFC had a total income of Rs. 372.26 crores as against its total expenditure of Rs. 321.48 crores thus leaving a profit of Rs.59.78 crores before tax and a profit of Rs. 45.78 crores after tax. Year after year these figures gradually increased and ultimately in 2000-2001, the total income raised to Rs. 2382.35 crores as against the total expenditure of Rs.1826.70 crores thereby leaving a profit of Rs. 555.65 crores before tax and a profit of Rs. 473.65 crores after tax. It can be noticed from the table that the total expenditure constituted more than 83 per cent of the total income in 1991-92. Thereafter, the proportion of total expenditure came down, reaching to 76.68 per cent. The profit before tax and profit after tax constituted more than 16.06 per cent and 12.30 per cent of the

total income in 1991-92. But over a period of time, the proportion of profit before tax and profit after tax increased significantly to 23.32 per cent and 19.88 per cent in 2000-2001.

The profit after tax has increased at an impressive compound growth rate of 29.75 per cent over the period, followed by profit before tax 27.90 per cent, total income 23.06 per cent, total expenditure 21.93 per cent and tax 19.85 per cent respectively. The table indicates that the favourable trend in profit after tax has not only been due to increase amount of total income but also due to reduced proportion of expenditure. Thus, the overall analysis of profit and expenditure structure in HDFC reveals that the operating efficiency of the company has been progressively increasing during the period between 1991-92 and 2000-2001.

### INTEREST EXPENDITURE AND INTEREST INCOME OF HDFC

'Interest' has always been a major item of both income and expenditure of any financial institutions. Interest expenditure and interest income of HDFC are shown in Table - IV.7.

The interest expenditure as a percentage of interest income in 1991-92 was 98.57 per cent and reached slightly higher level at 102.48 per cent after having gone through marginal fluctuations.

As it can be further observed from the table that the interest paid increased gradually from Rs. 277.22 crores in 1991-92 to Rs. 1666.67 crores in 2000-2001 indicating an increase of 601 per cent or 6.01 times. However, the year-to-year percentage of increase in the amount of interest expenditure ranges from 15.35 per cent to 28.53 per cent registering a compound growth rate of 22.08 per cent over the ten year period.

The interest income has also witnessed an upward trend throughout the ten year period starting with Rs. 281.24 crores in 1991-92 to Rs. 1626.28 crores in 2000-2001 showing an increase of 5.78 times over ten year period. With year to-year percentage of increase ranging from 15.01 per cent to 29.01 per cent and compound growth rate being 21.81 per cent.

TABLE – IV 7: INTEREST EXPENDITURE AND INTEREST INCOME OF HDFC (Amount in Rs. crores)

Year	Interest Expenditure	% Increase	Interest Income	% Increase	Interest Expenditure as a % of Interest Income
1991-92	277.22	-	281.24	-	98.57
1992-93	356.31	28.53	342.34	21.73	104.08
1993-94	426.72	19.76	420.71	22.89	101.43
1994-95	532.72	24.84	505.52	20.16	105.38
1995-96	643.61	20.82	652.17	29.01	98.69
1996-97	826.07	28.35	825.56	26.59	100.06
1997-98	958.44	16.02	976.57	18.29	98.14
1998-99	1209.58	26.20	1155.14	18.29	104.71
1999-00	1395.26	15.35	1328.55	15.01	105.02
2000-01	1666.67	19.45	1626.28	22.41	102.48
CGR	22.08		21.81		

Source: Annual Reports of HDFC (Relevant Issues)

### COMPONENT OF EXPENDITURE AND CHARGES OF HDFC

Expenditure and charges comprise interest and other charges, staff expenditure, establishment, other expenditure, depreciation and contingencies, etc. The structure of expenditure and charges of HDFC are shown in Table - IV.8.

TABLE – IV 8: COMPONENT OF EXPENDITURE AND CHARGES OF HDFC (Amount in Rs. Crores)

Year	Interest and Other Charges	Staff Expenditure	Establishment	Other Expenditure	Depreciation	Contingencies	Total Expenditure and Charges
1991-92	284.14 (90.93)	5.42 (1.73)	3.32 (1.06)	7.11 (2.28)	6.49 (2.08)	6.00 (1.92)	312.48 (100.00)
1992-93	364.78 (91.09)	6.28 (1.57)	3.10 (0.77)	11.97 (2.99)	7.31 (1.83)	7.00 (1.75)	400.44 (100.00)
1993-94	435.45 (91.14)	7.74 (1.62)	3.91 (0.82)	11.92 (2.50)	9.77 (2.04)	9.00 (1.88)	477.79 (100.00)
1994-95	542.84 (91.09)	9.57 (1.61)	4.31 (0.72)	17.63 (2.96)	12.59 (2.11)	9.00 (1.51)	595.94 (100.00)
1995-96	662.96 (90.02)	13.34 (1.81)	5.58 (0.76)	19.31 (2.62)	22.80 (3.10)	12.50 (1.69)	736.49 (100.00)
1996-97	856.26 (89.90)	15.78 (1.66)	7.09 (0.74)	24.49 (2.57)	40.82 (4.29)	8.00 (0.84)	952.44 (100.00)
1997-98	982.80 (89.89)	17.98 (1.64)	7.55 (0.69)	26.43 (2.42)	50.56 (4.63)	8.00 (0.73)	1093.32 (100.00)
1998-99	1250.47 (91.69)	21.60 (1.58)	9.40 (0.69)	24.59 (1.80)	49.77 (3.65)	8.00 (0.59)	1363.83 (100.00)
1999-00	1436.95 (92.42)	27.32 (1.76)	11.03 (0.71)	27.87 (1.79)	43.58 (2.80)	8.00 (0.52)	1554.75 (100.00)
2000-01	1689.61 (92.50)	34.61 (1.89)	12.46 (0.68)	36.34 (1.99)	45.68 (2.50)	8.00 (0.44)	1826.70 (100.00)
CGR	22.11	23.01	17.85	16.83	29.74	1.30	21.93

Source: Annual Reports of HDFC (Relevant Issues)

Note: Figures in brackets indicates the percentage

As it can be seen from the table that the total expenditure and charges of HDFC increased from Rs. 312.48 crores in 1991-92 to Rs. 1826.70 crores in 2000-2001 indicating an increase of 585 per cent or 5.85 times over a period of ten years, registering a compound growth rate of 21.93 per cent. The total expenditure and charges constantly increased from year to year.

It can be further noticed that the interest and other charges amount increased from Rs.284.14 crores in 1991-92 to Rs. 1689.61 crores in 2000-2001. It constituted more than 90 per cent of the total expenditure and charges in 1991-92. Thereafter, the proportion of interest and other charges increased to just 92.50 per cent in 2000-2001. The staff expenditure amount significantly increased from Rs. 5.42 crores in 1991-92 to Rs. 34.61 crores in 2000-2001. The staff expenditure which formed about 1.73 per cent of total expenditure and charges in 1991-92 increased to 1.89 per cent in 2000-2001. The establishment expenditure amount increased from Rs.3.32 crores in 1991-92 to Rs. 12.46 crores for 2000-2001. It constituted more than 1 per cent of the total expenditure and charges in 1991-92. But over a period of time, the proportion of establishment expenditure has come down, reaching to 0.68 per cent in 2000-2001. The



other expenditure also increased from Rs. 7.11 crores in 1991-92 to Rs. 36.34 crores in 2000-2001. The other expenditure formed about 2.28 per cent in 1991-92, decreased to 1.99 per cent in 2000-2001. The Depreciation increased from Rs. 6.49 crores in 1991-92 to Rs. 50.56 crores in 1997-98, then it decreased, reaching to Rs.45.68 crores in 2000-2001. It constituted more than 2 per cent of the total expenditure and charges in 1991-92, increased to 2.50 per cent in 2000-2001. The contingencies which formed about 1 per cent of the total expenditure and charges in 1991-92. But over a period of time, the proportion of contingencies has come down, reaching to 0.44 per cent in 2000-2001.

The depreciation has increased at an imperative compound growth rate of 29.74 per cent over the period, followed by staff expenditure with 23.01 per cent, interest and other charges 22.11 per cent, establishment 17.85 per cent, other expenditure 16.83 per cent and contingencies 1.30 per cent.

### APPLICATION OF FUNDS OF HDFC

The asset side of the balance sheet in the convention method indicates the application of funds in the present system of preparing the Balance sheet of any company. The application of funds by any company could be in (i) fixed assets, (ii) short-term investment, and (iii) current assets. In the case of housing finance companies one more category is added i.e., investment in the form of housing loans. The difference between current assets, loans and advances on the other hand and current liability and provisions is the working capital or net current assets. Therefore, the total application of funds in housing finance companies will be indicated under the heads: housing loans, investments, working capital, fixed assets.

TABLE-IV 9: APPLICATION OF FUNDS OF HDFC (Amount in Rs.Crores)

Year	Housing Loans	Investments	Current Assets, Loans & Advances	Current Liabilities & Provisions	Working Capital	Fixed Assets	Total Application of Funds
1991-92	2129.86 (81.78)	322.48 (12.38)	239.82 (9.21)	133.31 (5.12)	106.51 (4.08)	46.87 (1.79)	2605.71 (100.00)
1992-93	2516.71 (76.09)	307.95 (9.15)	595.90 (17.70)	158.75 (4.71)	437.16 (13.00)	56.84 (1.69)	3363.66 (100.00)
1993-94	3071.19 (75.59)	532.88 (13.19)	613.25 (15.08)	223.47 (5.50)	389.77 (9.59)	66.18 (1.62)	4060.02 (100.00)
1994-95	3747.54 (70.50)	964.36 (18.15)	741.17 (13.93)	271.17 (5.10)	470.01 (8.84)	129.28 (2.43)	5311.19 (100.00)
1995-96	4740.67 (72.10)	1028.93 (15.69)	970.05 (14.74)	369.26 (5.61)	600.80 (9.19)	196.45 (3.00)	6566.85 (100.00)
1996-97	5709.32 (69.65)	1270.88 (15.50)	1460.39 (17.81)	507.72 (6.19)	952.68 (11.62)	267.53 (3.26)	8200.41 (100.00)
1997-98	6944.07 (70.09)	1823.07 (18.36)	1523.36 (15.38)	645.99 (6.52)	877.37 (8.85)	281.18 (2.81)	9925.69 (100.00)
1998-99	8219.26 (69.79)	2453.93 (20.80)	1677.44 (14.25)	811.39 (6.89)	866.05 (7.31)	256.18 (2.15)	11795.42 (100.00)
1999-00	10063.00 (66.56)	3318.59 (22.00)	2548.58 (16.82)	1058.66 (6.99)	1489.92 (9.90)	212.99 (1.49)	15084.50 (100.00)
2000-01	13224.67 (74.05)	3043.05 (17.04)	2525.25 (14.14)	1272.79 (7.13)	1252.45 (7.10)	321.55 (1.81)	17841.72 (100.00)
CGR	22.12	32.63	26.63	29.74	25.21	24.37	23.82

Source: Annual Reports of HDFC (Relevant Issues)

Note: Figures in brackets indicate the percentage

The Table-IV.9 shows the applicable of funds of HDFC for the ten year period. During 1991-92 the total funds applied or deployed was Rs.2605.71 crores and it increased to Rs. 17,841.72 crores showing an increase of 685 per cent or 6.85 times over the ten year period. The growth was gradual and steady. During 1991-92, out of the total funds applied i.e., Rs. 2605.71 crores, housing loan comprised Rs.2129.86 crores accounting for 81.78 per cent of the total applied. The funds invested in the form of short term investment accounted for 12.38 per cent. The working capital accounted for just 4.08 per cent of the total funds. The ratio of current assets to current liabilities stood at 4.08:1. The investment is low proportion of total application of funds it was just 1.79 per cent.

The same trend has been observed for the remaining nine years except that there was almost a declining trend in the funds applied in the form of housing loan. It was 81.76 per cent in 1991-92 and decreased to 76.09 per cent for 1992-93. Further, it shows a declining trend and it stood at 66.56 per cent for 1999-2000. For 2000-2001 there was a slight improvement with 74.05 per cent. The decline was compensated in the form of increased short term investments. The investment which was 12.38 per cent in 1991-92 shows a continuous increase and it was 22 per cent for 1999-2000 and later at decreased to 17.04 per cent for 2000-2001.

The current assets show a sudden increase for 1992-93. But later, for the remaining nine years it has remained in the range of 13.93 and 17.81 per cent. The current liabilities show around two per cent growth for the ten year period. The investment in fixed assets ranged between a low of 1.49 per cent and a high of 3.26 per cent.

The comparative analysis of growth rates as measured by compound growth rate reveals that funds invested in the form of short term investments had growth at a higher rate with a compound growth rate of 32.63. This was followed by growth in current liabilities and provisions with a compound growth rate of 29.74. Lowest growth was seen in the case of core activity of the organization namely funds applied in the form of housing loan. It shows a compound growth of 22.12 per cent. This is not a good indication and needs corrections.

### HOUSING LOAN OPERATIONS OF HDFC

The structure of housing loan operations of HDFC is presented in Table -IV.10. The total housing loans during 1991-92 was Rs. 2129.86 crores and it increased to 13224.66 crores in 2000-2001 showing an increase of 6.21 times. The year-to-year percentage of increase in the amount of total housing loans ranges from 18.36 per cent to 31.42 per cent, registering an overall compound growth rate of 22.12 per cent over a ten year period.

TABLE – IV 10: HOUSING LOAN OPERATIONS OF HDFC (Amount in Rs. Crores)

Year	Individuals	% Increase	Corporate Bodies	% Increase	Others	% Increase	Total Housing Loans	% Increase
1991-92	1746.21 (81.98)	-	307.71 (14.41)	-	75.94 (3.56)	-	2129.86 (100.00)	-
1992-93	2008.98 (78.45)	15.05	523.17 (20.43)	70.02	29.56 (1.15)	-61.07	2561.71 (100.00)	20.28
1993-94	2320.79 (75.57)	15.52	700.71 (22.79)	33.94	49.69 (1.62)	68.10	3071.19 (100.00)	19.89
1994-95	2674.61 (71.37)	15.25	1003.51 (26.77)	43.21	69.42 (1.86)	39.71	3747.54 (100.00)	22.02
1995-96	3240.76 (68.37)	21.17	1407.50 (29.68)	40.26	92.41 (1.95)	33.12	4740.67 (100.00)	26.50
1996-97	3819.17 (66.88)	17.85	1816.47 (31.72)	29.05	73.68 (1.30)	-20.27	5709.32 (100.00)	20.43
1997-98	4663.11 (67.15)	22.10	2221.45 (31.99)	22.29	59.51 (0.85)	-19.23	6944.07 (100.00)	21.63
1998-99	5631.46 (68.58)	20.77	2503.24 (30.41)	12.68	84.55 (1.03)	40.08	8219.25 (100.00)	18.36
1999-00	7239.42 (71.94)	28.55	2712.90 (26.96)	8.38	110.68 (1.10)	30.90	10063.00 (100.00)	22.43
2000-01	9585.03 (72.48)	32.40	3556.06 (26.89)	31.08	83.57 (0.63)	-24.49	13224.66 (100.00)	31.42
CGR	20.35		29.42		7.59		22.12	

Source: Annual Reports of HDFC (Relevant Issues)

Note: Figures in brackets indicate the percentage.

It may be observed further that the housing loans to individuals increased from Rs. 1746.21 crores in 1991-92 to 9585.03 crores in 2000-2001 showing an increase of 5.49 times over the ten year period. With year-to-year percentage of increase ranging from 15.05 per cent to 32.40 per cent it accounted a compound growth rate of 20.35 per cent. The housing loans to corporate bodies also increased from Rs. 307.71 crores in 1991-92 to Rs. 3556.06 crores in 2000-2001 indicating an increase of 11.56 times over the period of ten years. The year to year percentage of increase ranged from 8.38 per cent to 70.02 per cent, registering a compound growth rate of 29.42 per cent. The housing loans to others Rs. 75.94 crores in 1991-92 decreased to Rs.59.51 crores in 1997-98, thereafter it increased to Rs. 84.55 crores in 1998-99 and again decreased to 83.57 crores in 2000-2001. From year to year the percentage of increase ranged from (-) 61.07 to 68.10, registering a compound growth rate of 7.59 per cent over the ten year period.

### INTEREST ON HOUSING LOANS OF HDFC

Interest received on housing loans and linking with principal amount on which interest is received is found to be very difficult. Hence, an attempt has been made to study loans outstanding during the beginning of the year, loans disbursed during the year and total loans outstanding at the end of the year. These details are shown in Table-IV.11.

The loans outstanding in the beginning of the year excluding interest for 1991-92 amounted to Rs. 1726.94 crores and it increased to Rs. 10063 crores indicating an increase of 583 per cent or 5.83 times of its value in 1991-1992 with a compound growth rate of 21.69 per cent over the ten year period. The loans disbursed during 1991-92 was Rs.627.78 crores and it increased to Rs.5803.01 crores for 2000-2001, thereby registering a compound growth rate of 29.19 per cent. The total outstanding loans including interest was Rs.2354.72 crores in 1991-92 and it increased to Rs.15866.01 crores in 2000-2001 showing an increase of 6.74 times over the period of ten years with compound growth rate of 23.94 per cent. The interest received was Rs.281.24 crores in 1991-92 and it increased to Rs.1626.28 crores for 2000-2001 showing an increase of 578 per cent over the ten year period accounted a compound growth rate of 21.81 per cent. The percentage of average interest on housing loans ranges from 10.25 per cent to 12.19 per cent. This indicates that though the declared interest rate is high the effective rate of interest is lower and this influences the profit earning capacity of the organization.

TABLE – IV 11: INTEREST ON HOUSING LOANS OF HDFC (Amount in Rs. Crores)

Year	Housing Loans O/s in the Beginning of the Year Excluding Interest	Loans Disbursed During the Year	Total Outstanding Including Interest	Interest Received During the Year	% of Average Interest on Housing Loans
1991-92	1726.94	627.78	2354.72	281.24	11.94
1992-93	2129.85	719.89	2849.74	342.34	12.01
1993-94	2561.71	889.07	3450.78	420.71	12.19
1994-95	3071.19	1211.66	4282.85	505.52	11.80
1995-96	3747.55	1683.55	5431.10	652.16	12.01
1996-97	4740.68	2100.78	6841.46	825.56	12.07
1997-98	5709.32	2753.61	8462.93	976.57	11.54
1998-99	6944.07	3424.27	10368.34	1155.14	11.14
1999-00	8219.26	4492.74	12712.00	1328.55	10.45
2000-01	10063.00	5803.01	15866.01	1626.28	10.25
CGR	21.69	29.19	23.94	21.81	

Source: Annual Reports of HDFC (Relevant Issues)

### CONCLUSIONS

The number of dwelling units assisted by HDFC has increased from 95,327 units in 1991-92 to 180,000 units in 2000-2001, registering a compound growth rate of 7.38 per cent. Shareholders' funds of HDFC are broadly classified into share capital and reserves and surplus which put together is called network of the organization. The total shareholders' funds of the HDFC increased from Rs.187.98 crores in 1991-92 to Rs.2371.94 crores in 2000-2001 at a compound growth rate of 31.31 per cent. HDFC had Rs.44.96 crores of share capital in 1991-92 and after increase to Rs.169.11 crores in 1995-96 and remaining the same for 1996-97, it showed a declining trend and it was Rs.120.08 crores for 2000-2001, registering a compound growth rate of 9.16 percent over the ten year period. The total Reserves & surpluses increased from Rs.143.02 crores in 1991-92 to Rs.2251.86 crores in 2000-2001 at a compound growth rate of 34.62. The borrowed funds of HDFC are classified into direct loans from institutions, funds from bonds, debentures and public deposits. The total borrowed funds of HDFC increased from Rs.2417.73 crores in 1991-92 to Rs.15469.77 crores in 2000-2001 showing an increase of 6.4 times over a period of ten years at a compound growth rate of 22.90 per cent. On an overall assessment of the borrowed funds of HDFC, it may be stated that the corporation has been increasingly depending on the direct sources of funds, particularly deposits, which is a healthy trend.

The earnings of HDFC come from interest on housing loans, dividends, lease rental income, other income. The total income of HDFC increased from Rs.372.26 crores in 1991-92 to Rs.2382.35 crores in 2000-2001 showing an increase of 6.4 times over the ten year period with compound growth rate of 23.06 per cent. The analysis of sources of operating income of HDFC reveals that there is a decline in income from interest on housing loans and it has been made good by increase in income from all other sources. The HDFC had just 25 branches in 1991-92 and increased to 88 branches in 2000-2001 registering a compound growth rate of 15.20 per cent.

During 1991-92 HDFC had a total income of Rs.372.26 crores as against its total expenditure of Rs.312.48 crores thus leaving a profit of Rs.59.78 crores before tax and a profit of Rs.45.78 crores after tax. Year after year these figures gradually increased and ultimately in 2000-2001, the total income had risen to Rs.2382.35 crores as against the total expenditure of Rs.1826.70 crores thereby leaving a profit of Rs.555.65 crores before tax and a profit of Rs.473.65 crores after tax. The overall analysis of financial performance in HDFC reveals that the operating efficiency of the company had been progressively increasing during the period between 1991-92 and 2000-2001. The interest expenditure of HDFC increased gradually from Rs.277.22 crores in 1991-92 to Rs.1666.67 crores in 2000-2001 at a compound growth rate of 22.08 per cent. The interest income of HDFC also witnessed an upward trend throughout the ten year period starting with Rs.281.24 crores in 1991-92 to Rs.1626.28 crores in 2000-2001, registering a compound growth rate of 21.81 per cent.

The expenditure and charges of HDFC comprise interest and other charges, staff expenditure, establishment, other expenditure, depreciation and contingencies, etc. The total expenditure and charges of HDFC increased from Rs.312.48 crores in 1991-92 to Rs.1826.70 crores in 2000-2001 registering a compound growth rate of 21.93 per cent. Interest and other charges were the major portion in total expenditure and charges, it was Rs.284.11 crores in 1991-92 and increased to Rs.1689.61 crores in 2000-2001 with a compound growth rate of 22.11 percent over the ten year period.

The total application of funds of HDFC consists of housing loans, investments, current assets, loans and advances, current liabilities and provisions, fixed assets, etc. The total applications of funds of HDFC for the ten year period are as follows: During 1991-1992 the total funds applied or deployed was Rs.2605-71 crores and it increased to Rs.17841.72 crores showing an increase of 6.85 times. The investment has increased at a high compound growth rate of 32.63 percent over the period, followed by current liabilities and provisions 29.74 percent, current assets, loans and advances 26.63 per cent, fixed assets 24.37 percent and housing loans 22.12 percent.

The per cent of average interest on housing loans of HDFC ranges from 10.25 per cent to 12.19 per cent. This indicates that though the declared interest rate is high the effective rate of interest is lower and this influences the profit earning capacity of the organization.

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## TRAVEL MOTIVATIONS AND DESTINATION SELECTION: A CRITIQUE

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### ABSTRACT

*Tourists' motivation is studied by researchers to understand their behavior and the decision-making process. It is noted that behavior of tourists is mainly influenced by various factors such as cultural backgrounds, social influences, perception, personality, economic situations, education etc. Travel motive is the starting points of the decision making process (Crompton and McKay, 1997). When planning a trip, it is necessary to answer the questions such as "why do we/they travel?", "where to go?", "which is the most suitable...?", "when to go?", and "how?" etc. Various theories and concepts have been developed and tested to reveal the travel motives, but yet there are contradictions. Objective of this study is to critically review and discuss the theories and concepts in general and tourist motivations in particular. Further, this study develops a research framework for Sri Lanka on tourist motivation and elaborates implication on future researches on consumer motivation in tourism and hospitality. The study categorized the theories found on tourism motivation into push and pull motives, escaping and seeking and need theories etc. Finally, the emphasis placed on fundamental facts behind behavior and decision making in line with assessment of perception and satisfaction aspects on post purchasing and potential behavior.*

### KEYWORDS

Destination Selection, Motivational Theories and Concepts, Tourism, Travel Motives.

### INTRODUCTION

Tourists' motivation has been studied by researchers to understand their behavior and the decision-making process. Tourists' behavior is influenced by a variety of factors i.e. cultural backgrounds, social influences, perception, personality, economic situations, education etc. Travel motives are the starting points of the decision making process (Crompton and McKay, 1997). Dellaert et al. (1998) highlighted that the tourists' decisions are complex, multi-faceted and different elements are interrelated. The tourists' decision making process is influenced by a variety of factors. Also, the process consists of different stages in which an individual has to go through a sequence of decisions and actions. The researchers have discussed the diverse factors that affect for the destination choice i.e. travel motives (purpose of the travel), age, gender, personality, education, family life-cycle, income, cost, travel distance etc. Among these factors, travel motivation has been considered as the most important and the starting point of the destination choice process. Uysal & Hagan, (1993) emphasized that the motivation is a dynamic concept; it may vary from one person to another, from one segment to another, from one destination to another, as well as from one decision-making process to the next.

The researchers have defined the term motivation in many different ways and among them Murray (1964) is considered to be the greatest. According to Murray (1964) motive is an internal factor that arouses, directs, and integrates a person's behavior. Further, he stated that a motive is not observed directly but inferred from his/her behavior or simply assumed to exist in order to explain his/her behavior. Geen, Beatty and Arkin (1984) defined motivation as the operation of inferred intrapersonal processes that direct, activate, and maintain behavior. According to Ryan and Deci, (2000) motivation moves the individual to something. Dann (1981) defined tourist motivation is a meaningful state of mind which adequately disposes and actors to travel, and which is subsequently interpretable by others as a valid explanation for such a decision. Later, Crompton and McKay (1997) tourism motivation conceptualized as a dynamic process of internal psychological factors (needs and wants) that generate a state of tense or disequilibrium within individuals. This is considered as a more complete and specific definition for the tourism motivation.

Harmer (2001) defined motives as a kind of internal drives that push someone to do things in order to achieve something. Dornyei (2001) highlighted that motivation is the reason for; why people decide to do something, how long they are willing to sustain the activity and how hard they are going to pursue it. Pizam et al. (1979) described the travel motivation as a set of needs, which predispose a person to participate in a tourist activity. According to these definitions motivation reflects the diverse needs of individuals which affect the destination selection and subsequent travel behaviors.

Individuals travel in different destinations for many motives and engage in a range of activities. The both push and pull motives influence the travel decisions of individuals. When travel motives are arisen, the individuals' needs to select the best holiday destinations based on their attitudes and perceptions. The researchers have identified that most of the tourists travel for either leisure or business motives (Uysal et al. (2008). Travel motives greatly affect for the decision of traveller as well as for the destination selection. After arising the travel needs an individual has to take many decisions. Motivation highly deals with the destination selection process and it also greatly affects for the perception and satisfaction which lead to the behavioral intention of the tourists.

Lawrence and Nohria (2002) developed four distinct drives to explain the individuals' motivation to describe their behaviors i.e. the drive to acquire, the drive to bond, the drive to learn and the drive to defend. The drive to acquire includes strives to survive by performing better than others. The drive to bond directs individuals to make social contacts and relationships with others. It includes love, friendships, trust, empathy and belonging. The drive to learn involves the individuals' needs to understand, satisfy the curiosity and value the environment and oneself through a reflective process. The drive to defend indicates the individuals' behavior to avoid the feeling of danger and often related to other three drives.

Even though the motivation and the destination selection are interrelated the destination selection process depends on a variety of factors, therefore, the process is somewhat complex. Oliver (1997) described that the individuals purchase products, for example, tourism and hospitality, due to two major reasons i.e. to remove a deficit and to add something value for life. Finally, an individual select the most suitable destination and travel for the holiday. During the stay at the destination he/she will engage in numerous activities i.e. wildlife safaris, beach activities, photographing, shopping, sightseeing etc. Therefore, we can assume that the tourist with similar motives select similar destination and engage in similar activities.

When the motives are transformed into motivations, they strongly influence the behavior of the individuals and the destination selection process begins. In this stage an individual has to answer for several important questions i.e. "why do we/they travel?", "where to go?", "with whom to travel?", "which is the most suitable...?", "when to go?", and "how?" etc. According to Gnanapala (2008) the answers to the questions are highly influenced by the nature and the level of the travel motives of the individuals. Various theories and concepts have been developed and employed to reveal the travel motives, yet there are contradictions.

### OBJECTIVE

The objective of this study is to critically review and discuss the theories and concepts in general and tourist motivations in particular. Further, this study develops conceptual research framework for Sri Lanka on tourist motivation and discuss implication on future research on consumer motivation in travel, tourism & hospitality.



## MOTIVATIONAL THEORIES

The proceeding section of the study discusses the motivational theories and concepts under three categories i.e. push and pull motives, escaping and seeking, needs theories (McClelland's & Maslow's) etc.

### PUSH & PULL FACTORS

Dann (1977) first identifies the dichotomy of push and pull factors as a simple and intuitive approach to discuss the travel motivations of the tourists. Push and pull factors motivate the people to take two different decisions at two different times i.e. "whether to go" and "where to go". The push motives described the socio-psychological forces which influence an individual to make a holiday. Pull factors represent the product and services attributes that attract a person towards a holiday destination. Dann (1977) investigated two push factors such as anomie and ego enhancement. Anomie is associated with the social interaction with family and friends and a search for meaning. Ego enhancement is associated with the individuals need for social recognition. For example, if people are denied status at home or work place or people perceived themselves as having a low status; the travel offers the opportunity to play a new role to receive more recognition and power.

Crompton (1979) identified push motives as escape, self-exploration and evaluation, relaxation, prestige, regression, enhancement of kinship relationships and social interactions push motives as novelty and education. Yuan and McDonald (1990) concluded push and pull factors as escape, novelty, prestige, enhancement of kinship relationships, relaxation and hobbies pull factors as budget, culture and history, wilderness, ease of travel, cosmopolitan environment, facilities and hunting. Gutman (1982) discussed the push and pull factors somewhat differently as the means-end theory. The means-end theory provides a practical framework to identify and discuss the relationship between the push and pull motives of the destination, the means, and the motivational forces of the individuals that influence and press them to travel to a holiday destination, the ends.

The empirical studies identified many different push and pull factors. Snepenger et al. (2006) argued that an individual was pushed to engage in tourism and recreational activities from the internal psychological imbalances and the motives to search for optimal level of stimulation. Also, the individuals are pulled by the products and offerings of the destination. Uysal and Hegan (1993) describe how individuals are pushed by motivation variables into making travel decisions and how they are pulled by destination attributes. In other words, the push motivations are related to the tourists' internal or emotional aspects like desire to escape, rest and relaxation, health and fitness, social interaction etc. while pull motivations are associated with the attributes of the destination choices related to the external situation or cognitive aspects like attractions, culture, climate, low cost, proximity etc. (Yoon & Uysal, 2003).

Fodness (1994) identified several pull factors through the scale development such as ego-defense, knowledge, reward maximization, punishment avoidance, vale expression, and social adjustive. Similarly, Uysal and Jurowski (1994) introduced re-experiencing family togetherness, sports, and cultural experiences as the push factors while entertainment/resort, outdoors/nature, heritage/culture, rural/inexpensive as pull factors. According to Turnbull and Uysal (1995) the push factors are cultural experiences, escape, re-experiencing family, sports and prestige. Also, they introduced the pull factors such as heritage/culture, city enclave, comfort/relaxation, beach resorts, outdoor resources, rural and inexpensive. Oh, Uysal, and Weaver (1995) investigated knowledge/intellectual, kinship/social interaction, novelty/adventure, entertainment/prestige, sports, escape/rest as the push motives while historical/cultural, sports/activity, safety/upscale, nature/outdoor, inexpensive/budget as the destination related pull motives.

Cha, McCleary, and Weaver (1995) discovered the relaxation, knowledge, adventure, travel bragging, family and sports as the push factors. Later, Baloglu and Uysal (1996) identified push and pull factors sport/activity seekers, novelty seekers, urban life seekers, and beach/resort seekers. Sirakaya and McClellan (1997) identified several destination related pull motives i.e. local hospitality and services, trip cost and convenience, perceptions of a safe/secure/ environment, change in daily life environment, recreation and sporting activities, entertainment and drinking opportunities, personal and historical link, cultural and shopping services, unusual and distant vacation spot.

Gnanapala (2008) identified the pull and push motives of European and Japanese tourists through his empirical study. The push factors/motives of the Europeans are the desire to escape, achievement and curiosity, social interactions/romantics, prestige and status, and rest and relaxations. The same push factors have motivated the Japanese tourists to have their holidays, but the priority list has deviated from the Europeans. The push motives are desire to escape, rest and relaxation, achievement and curiosity, social interactions/ romantics, prestige and status. According to Gnanapala (2008) pull motives of the Europeans are safety of the destination, easy access, entertainment and nightlife, cost of airfare, local prices, reputation of the destination, quality of the attractions, quality of the facilities and hygienic, ability to deals with the nature, quality of the climate and rest and relaxation. The same pull factors have motivated the Japanese tourists to have their holidays but again the priority list has deviated from the Europeans. The motives are safety of the destination, reputation of the destination, quality of the attractions, easy access, quality of the climate, quality of the facilities and hygienic, rest and relaxation, cost of airfare, local prices, to deals with the nature, and entertainment and nightlife.

Ryan (1991) studied about the motivational needs of Cohen (1972), Crompton (1979) and Matthieson and Wall (1982) and identified eleven travel motivators (Mason, 2003). The travel motivators were escape, relaxation, strengthening family bonds, prestige, social interaction, sexual opportunity, education, self-fulfillment, wish fulfillment and shopping. These factors consisted of both push and pull motivators. According to Ryan (1991) the selection process of the potential holiday destination depends on the motivators that are on the priority list at the time. Further, he emphasized that the priority travel motivators may change over time depending on the specific needs and wants. Chadwick (1987) categorized the travel motivators into three categories such as pleasure (i.e. leisure, culture, active sports, visiting friends and relatives, etc.), professional (i.e. meetings, missions, business, etc.), other purposes (i.e. study, health transit, etc.).

### ESCAPING AND SEEKING MOTIVATION OF ISO-AHOLA

Iso-Ahola's (1982) escaping and seeking motivation model is considered as highly practicable concept and later applied by different researchers. Iso-Ahola (1982) defined the motivation related to the socio psychological perspective. The theory consists of personal escape & personal seeking and interpersonal escape & interpersonal seeking motives. He stated that individuals perceive tourism and leisure related activities as a potential satisfaction producer for two major reasons i.e. seeking (the desire to intrinsic psychological rewards through traveling) and escaping (the desire to leave the everyday monotonous environment). The activity may provide certain intrinsic rewards, such as a feeling of mastery and competence, and it may provide and escape from the routine environment. For example, an individual may like to be away from the working environment and home due to the work related stress/problem and reasons. On the other hand, an individual would travel to a particular destination to seek/get something that he/she likes/lacks such as knowledge, learning, status, family togetherness, entertainment and night life and family togetherness etc. Similarly, Krippendorf (1987) found that tourists are motivated by going away from rather than going towards something and the tourist motivation is self oriented.

Snepenger et al. (2006) retested the work of Iso-Ahola's and stated that the tourism experiences shows higher levels of motivation especially for the person seeking and personal escape dimensions. Kozak (2002) identified four types of tourist motivations such as culture, pleasure seeking/fantasy, relaxation and physical and emphasized that the relaxation and pleasure motivations were the most significant motives in deciding a holiday spending at a tourist destination. Also, Kozak (2002) highlighted that German tourists traveled Turkey to have cultural and physical experiences i.e. to see historical and cultural sites, increase the knowledge about new places, meeting local peoples, be closer to the nature, sports, and being active and seeking adventure.

### MASLOW'S HIERARCHY OF NEEDS THEORY

Maslow's (1943) hierarchy of needs theory is considered as one of the most important literature support to discuss the interrelationship between the travel motives and the needs of the individuals. Goodall (1988) mentioned the human needs and motives are interrelated. Abram Maslow's physiological needs in tourism are food and beverages, hotels and accommodation, health and fitness, comfortable climate, sex etc. Safety plays a major role in the travel decisions of

the individuals. The factors related to the home country such as severe and bad weather conditions, spreading of diseases, economic problems like inflation and taxes force the people to escape from the present environment. If these factors are favorable in the destination (host) country they act as pull motives.

The social needs of Maslow's motivate the tourists to have the holidays. These include needs for belonging, love and affection. Relationships such as friendships, romantic attachments, visiting friends and relatives, enhance kinship relationships, festivals and events, love and sexual gratifications help to fulfill the need for companionship and acceptance.

Maslow's higher order needs such as social, esteem and self actualization fulfill the psychological aspects of the travelers. The psychological needs can be divided into two such as cognitive and aesthetic needs and the aesthetic need includes the human needs for beauty, harmony, balance, symmetry and order. The cognitive needs include the needs to know, understand and explore. It is very easier to apply each and every steps of this theory to explain the motivational process of tourists i.e. to find the answer to the question why people travel? The people are motivated to travel to meet different people, enjoy with friends and relatives, night life entertainments, romantic experiences, stay in luxury and expensive hotels, visit unusual and new tourist destinations (Gnanapala, 2008; Crompton, 1979; Chon, 1989; Pyo, Mihalik and Uysal, 1989; Cha, McCleary and Uysal, 1995; Jang and Cai, 2002).

Maslow's theory has been used by various researchers to develop many other theories with many travel motives. Among them the Leisure Motivation Scale (LMS) developed by Beared and Ragheb (1983) and The Travel Career Ladder (TCL) by Pearce (1988) are considered as the most important and popular motivation theories.

Beared and Ragheb (1983) developed the Leisure Motivation Scale (LMS) theory by modifying the Maslow's needs theory and it consists of five major needs/motives such as intellectual, social, competency mastery (including health and fitness) and stimulus avoidance. According to Beared and Ragheb (1983) intellectual motives measure the motivation that is based on learning and exploring. The social motives are related to the need for friendship or esteems of others. The competence mastery assessed the motives of achievement and competition and the stimulus avoidance category includes the motives to relax. Lousbury and Franz (1990) analyzed the Beared and Ragheb's LMS to study about the vacation motivation and have extended the original LMS up to seven motives by adding another two needs such as thrill seeking and work advantage. The thrill seeking includes the ride and adventurous and work advantages include the items such as thinking about a project at work.

The Travel Career Ladder (TCL) was developed by Pearce (1988) partly based on Maslow's (1943) hierarchy of need. The travel career ladder categorized the tourists' needs into a hierarchy as follows. The lowest is the relaxation need while the highest is the self actualization/fulfillment needs. The needs are relaxation needs, safety/security needs, relationship needs, self-esteem and development needs, and self actualization/fulfillment needs.

### McCLELLAND'S NEEDS THEORY

McClelland's (1965) needs theory, which draws on Murray's model (1938), proposed that an individual's specific needs are acquired over time and shaped by one's early life experiences. These needs can be classified as achievement, affiliation and power. According to the theory, a person's motivation and effectiveness in behavioral functions are highly influenced by these three needs. Later works indicated that motives are actually quite stable over long periods of time. When apply the McClelland's needs in tourism, an individual with high need for achievement tend to travel for new and exciting places to engage in such activities. They also, like to enhance their knowledge through learning and experiences. The peoples with higher need for affiliation like to maintain good and healthy relationships with others (both host and guests) also like the acceptance of others. They like to achieve social experiences and like to meet new people. Also, like to make more friends with new cultural experiences. The need for power is the desire to have dominance, impact on others, prestige, position, and influence over others. A traveler with a high need for power will prefer to do activities which can influence others, win the situations etc. Based on the above discussions we have developed the following three prepositions.

**P1:** Motivation affects the decision making process of the tourists. First, push motives generate the travel needs while pull motives influence the holiday destination selection of the tourists.

**P2:** The unsatisfied needs, both physiological and psychological, press the individuals to travel in different destinations for their gratifications.

**P3:** Tourists differently evaluate the suitability, expected benefits and other destination attributes and they highly affect for their destination selection process.

### FINDINGS: THE MOST IMPORTANT FACTORS TO REVEAL THE TRAVEL MOTIVES RELATED TO THE SRI LANKAN CONTEXT

Based on the literature review on tourists' motivation, we have identified and proposed the following factors, which are the most important and valuable factors to identify and discuss the travel motives related to the Sri Lankan context. The identified factors are;

#### PUSH TRAVEL MOTIVES OF THE TOURISTS

##### PSYCHOLOGICAL RELIEF

Escape from the Busy Job

Rest & Relaxation

Be away from Monotonous Life

##### FAMILY TOGETHERNESS

Have Enjoyable time with Family

Experience the Traditional Cultures for the Kids

Be together as a Family

Increase the Family Relationships

Visiting Friends & Relatives

##### EDUCATION & KNOWLEDGE

Explore new Places

Experience Different Lifestyles

Learn New Things

Search for New Knowledge

##### CULTURAL EXPLORE

Trying Different Foods

Learn different Customs & Traditions

Meet Different People

Learn Different Cultures

##### SOCIAL & FUN

Meet Opposite Sex

Nightlife

Fun & Enjoyment

Make Friendships

Feeling Thrills & Excitements

To take Pictures & Films

##### ESTEEM & ACHIEVEMENT

To Show my Social Status

To Show my Experiences

To Show my Achievements

Visit Places others not Visited

### **PULL TRAVEL MOTIVES OF SRI LANKA**

#### **CULTURE & HISTORY**

Sri Lankan Culture

Buddhism

Historical Monuments/Buildings

Museums

Customs and Traditions

#### **DIVERSITY OF ATTRACTION & NATURAL BEAUTY**

Natural Beauty

Diversity of Attractions

Diversity of Flora & Fauna

Sandy Beaches

National Parks

Wildlife

Quality of the Climate

#### **FOOD & BEVERAGES**

Food & Beverages

Eco Friendly Hotels

Quality Accommodation

Quality Services

Night Life & Entertainment

#### **SAFETY & SECURITY**

Friendly Locals

Safety of the Destination

Peaceful Environment

Free from Natural Disasters

Free from Natural Hazards

Cleanliness of the Destination

#### **CONVENIENCE EASY ACCESS**

Easy Access

Availability of Different Flights

Easy to get Visa

Friendly Government Policies

Reputation of the Destination

#### **PRICES & SHOPPING**

Low Cost/Product Prices

Low Air Fares

Budget Accommodation

Shopping Facilities

Trade Fairs & Exhibitions

#### **HEALTH**

Medical Treatments

Ayurvedic Treatments

Be Physically Active

Be away from the Bad Weather

### **CONCLUSIONS**

The main objective of this study was to critically review the theories and concepts about the consumer motivation generally, and then tourists' motivation specifically. We have identified a range of factors and forces that motivated the tourists to take their travel decisions. Further, we categorized the theories of motivational research in tourism into push and pull motives, escaping and seeking, needs theories (McClelland's & Maslow's) etc. In addition, the study has identified most important factors and forces that can be utilized for the motivation research in the Sri Lankan context.

The study communicates practical implications for the destination managers to identify the real psychological makeup and the expectations of the destination. The understand of the factors that influenced the tourists to visit a particular destination and why other tourists visit competitors' destinations help the destination managers to prepare effective marketing and promotional activities. Motivation literature proved that the tourists motivation differ on factors such as individual or group needs, attributes of the destinations, culture, nationality, time, age and family life cycle. Clear understanding of the tourists motivation helps to develop the customer profiles, effective positioning and marketing segmentation strategies.

Most of the motivation and behavioral researches are carried out in Western countries. Therefore, when applying these theories in different countries (especially in the East) and cultures, the validity and reliability of the findings are questionable. Hence, it is necessary and important carryout specific researches in different contextual situations.

The psychologists, marketing researchers and scholars have extensively studies the concepts of consumer motivation/travel motivation. The researchers have emphasized the travel motivations are: the most basic and fundamental basis for the potential behaviors, essential to diagnose the travel decision making process, base for assessing the perceptions and satisfaction about the holiday consumption, and foundation and milestones to evaluate post purchasing/potential behaviors.

The revealed information of this study has significant managerial implications for the destination marketers. Findings highlighted that the destination managers need to consider the practical important of the motivation factors, since they are the major determinants of satisfaction with destination products and services and enhancing the customer loyalty. There are many similarities and differences among the available motivational concepts, therefore, it necessary to conduct further investigations of travel motives using different tourist groups. The tourists may be differently motivated and react differently. Therefore, the destination managers should pay much attention to tourists' travel motives and needs in order to appeal to tourists' internal motives to travel.

The review of literature highlighted that for the success of marketing destinations the destination managers must consider the pull motivators or the destination attributes in order to improve the tourists satisfaction with positive travel experiences. Since the destinations offer the similar travel products and services the destination managers have to consider the important of push motivators and their relationships with the destination loyalty in order to enhance destination competitiveness.

It is highlighted that the tourist motivation, satisfaction and destination loyalty are interrelated. Therefore, the destinations managers need to take steps to improve the tourist satisfaction which leads to attract the favorable post-purchasing tourist in order improve the destination competitiveness.

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**ROLE OF INFORMATION TECHNOLOGY IN BUSINESS****DR. R. KARUPPASAMY****DIRECTOR****DEPARTMENT OF MANAGEMENT STUDIES AND RESEARCH****SNS COLLEGE OF TECHNOLOGY****COIMBATORE****C. ARUL VENKADESH****ASST. PROFESSOR****DEPARTMENT OF M.B.A.****COIMBATORE INSTITUTE OF ENGINEERING & TECHNOLOGY****VELLIMALAIPATTINAM, NARASIPURAM (POST)****ABSTRACT**

It is widely acknowledged today that new technologies, in particular access to the Internet, tend to modify communication between the different players in the professional world, notably: relationships between the enterprise and its clients, the internal functioning of the enterprise, including enterprise-employee relationships, the relationship of the enterprise with its different partners and suppliers. The term "e-Business" therefore refers to the integration, within the company, of tools based on information and communication technologies (generally referred to as business software) to improve their functioning in order to create value for the enterprise, its clients, and its partners. E-Business no longer only applies to virtual companies (called click and mortar) all of whose activities are based on the Net, but also to traditional companies (called brick and mortar). The term e-Commerce (also called Electronic commerce), which is frequently mixed up with the term e-Business, as a matter of fact, only covers one aspect of e-Business, i.e. the use of an electronic support for the commercial relationship between a company and individuals. The purpose of this document is to present the different underlying "technologies" (in reality, organizational modes based on information and communication technologies) and their associated acronyms. Some common security concerns for e-Businesses include keeping business and customer information private and confidential, authenticity of data, and data integrity. Some of the methods of protecting e-business security and keeping information secure include physical security measures as well as data storage, data transmission, anti-virus software, firewalls, and encryption to list a few. While some use e-commerce and e-business interchangeably, they are distinct concepts. In e-commerce, information and communications technology (ICT) is used in inter-business or inter-organizational transactions (transactions between and among firms/organizations) and in business-to-consumer transactions (transactions between firms/organizations and individuals). In IT business world, ICT is used to enhance one's business. It includes any process that a business organization (either a for-profit, governmental or non-profit entity) conducts over a computer-mediated network. A more comprehensive definition of e-business is: "The transformation of an organization's processes to deliver additional customer value through the application of technologies, philosophies and computing paradigm of the new economy."

**KEYWORDS**

Internet, Communication technologies, Information, Information communication technologies, e-Commerce.

**INTRODUCTION**

Information And Communication Technologies business commonly referred to as "eBusiness" or "e-business", or an internet business, may be defined as the application of information and communication technologies (ICT) in support of all the activities of business. Commerce constitutes the exchange of products and services between businesses, groups and individuals and can be seen as one of the essential activities of any business. Electronic commerce focuses on the use of ICT to enable the external activities and relationships of the business with individuals, groups and other businesses. Louis Gerstner, the former CEO of IBM, in his book, Who Says Elephants Can't Dance? Attributes the term "e-Business" to IBM's marketing and Internet teams in 1996. Electronic business methods enable companies to link their internal and external data processing systems more efficiently and flexibly, to work more closely with suppliers and partners, and to better satisfy the needs and expectations of their customers.

In practice, e-business is more than just e-commerce. While e-business refers to more strategic focus with an emphasis on the functions that occur using electronic capabilities, e-commerce is a subset of an overall e-business strategy. E-commerce seeks to add revenue streams using the World Wide Web or the Internet to build and enhance relationships with clients and partners and to improve efficiency using the Empty Vessel strategy. Often, e-commerce involves the application of knowledge management systems.

E-business involves business processes spanning the entire value chain: electronic purchasing and supply chain management, processing orders electronically, handling customer service, and cooperating with business partners. Special technical standards for e-business facilitate the exchange of data between companies. E-business software solutions allow the integration of intra and inter firm business processes. E-business can be conducted using the Web, the Internet, intranets, extranets, or some combination of these.

Basically, electronic commerce (EC) is the process of buying, transferring, or exchanging products, services, and/or information via computer networks, including the internet. EC can also be benefited from many perspective including business process, service, learning, collaborative, community. EC is often confused with e-business.

**FOCUS OF INFORMATION TECHNOLOGY**

Three primary processes are enhanced in IT:

- 1. Production processes**, which include procurement, ordering and replenishment of stocks; processing of payments; electronic links with suppliers; and production control processes, among others;
- 2. Customer-focused processes**, which include promotional and marketing efforts, selling over the Internet, processing of customers' purchase orders and Payments, and customer support, among others; and
- 3. Internal management processes**, which include employee services, training, internal information-sharing, video-conferencing, and recruiting. Electronic Applications enhance information flow between production and sales forces To improve sales force productivity. Workgroup communications and electronic publishing of internal business information are likewise made more efficient.

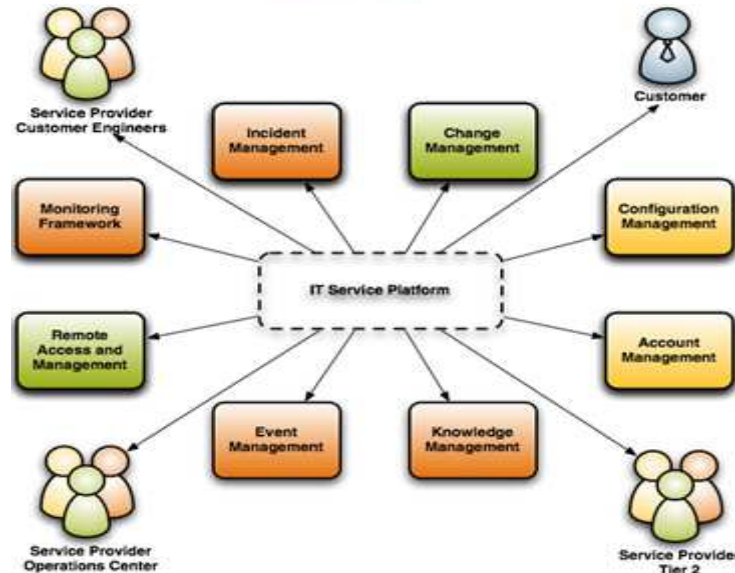
**THE ROLE OF IT IN BUSINESS-LED DATA GOVERNANCE**

Despite companies now recognizing the importance of their enterprise data, they still have a difficult time effectively managing it as an asset. Some of those challenges arise from a lack of business involvement and sponsorship, an inability to identify data owners and encourage accountability, or a reluctance to share

data. Although it is imperative for business to lead and sponsor data governance, it is equally important to align business and IT for organizations to fully benefit in a significant and persistent way from data management.

The importance of aligning business and IT is compounded by the trend to centralize information systems, resources and integration points. Many organizations are moving to centralize IT and with that recognize that data can also be managed centrally to achieve economies of scale, improve productivity, and effectively manage information. Consequently, the IT organization sees issues that span lines of business and geography, including enterprise data issues. As such, IT may be the first to recognize and often are the initial advocates of the need for data governance before the business. For example, IT can identify where data issues start in a source system and the changes that are made as data flows through different systems. However, the impact of the changes to the data is not always obvious to IT, nor is IT in a position to recommend changes to business processes to improve data quality either at the source or over its lifecycle. Challenges arise when it is time to assign resources to be accountable for data quality and fix data issues, which is precisely when IT needs to transfer ownership of data governance to the business while continuing with oversight and the essential role IT plays in data governance success.

FIG. 1.1: ROLE OF IT IN BUSINESS



This places these questions into context: What is the role of IT in business-led data governance? How can the IT organization work with the business to ensure their needs are being met and the data governance initiative is a success? In order to understand the role of the IT organization in data governance, let's first look at the goals and objectives of the data governance organization.

### DATA GOVERNANCE ORGANIZATION GOALS

The overarching goals of a data governance organization are to provide direction on the capture, collection, security, transfer, quality and management of data within the organization to:

1. Ensure the integrity of information
2. Ensure information is secure while facilitating access
3. Support decision-making
4. Enhance services provided to customers and partners
5. Assist in information collaboration
6. Eliminate business and technical obstacles to achieving business goals
7. Standardize corporate data definitions, policies and processes so the data can be more readily shared, interpreted and used
8. Manage data as a corporate asset
9. Reduce costs and increase effectiveness through coordination of efforts

### ENSURE TRANSPARENCY

Organizations go about achieving these goals and measuring and reporting results in different ways based on their unique approach to data governance. What is evident is that the business cannot achieve these goals without relying on and involving IT to deploy and manage the enabling technology and tools. At the same time, business needs to own the data governance program and the decisions concerning managing data as a corporate asset. IT and business must both play their requisite roles in data governance to avoid antagonistic or competitive impediments. Operating principles should be developed that define how the business and IT should work together in order to support collaboration. Moreover, the written guidelines should be agreed upon and communicated across and made available throughout the organization. While there are many ways to implement a data governance organization, some common roles include the Steering Committee, Data Governance Lead and the Data Governance Working Group – each comprised of representatives from both business and IT. For example, as a cross-functional business and IT team, the Data Governance Working Group are the subject matter experts who drive data management and data quality strategy, and execution for their respective subject and line of business areas.

### THE ROLE OF IT IN DATA GOVERNANCE

The IT organization's mandate is to ensure that the future state of information and application architectures meet the needs of the data governance organization and are aligned to business goals and objectives. It ensures that the organization's information technologies sustain and extend the data governance organization's strategies and objectives while providing a consistent view of the end-to-end business processes. To meet its mandate, the IT organization must provide leadership, technical infrastructure and resources that collaborate with the business to identify data issues, provide alternatives and implement solutions. At a minimum, the IT organization should provide the following resources to the data governance organization in order to meet business stakeholder needs:

1. IT leadership at the Steering Committee level to provide leadership, vision and oversight
2. An IT Partner who is a peer to the data governance lead and is responsible for development and ownership of the data governance technical roadmap
3. A Data Quality Lead who works collaboratively with data stewards from the business to gain an understanding of business needs related to the quality of information and ensures that best practices regarding data quality incidents are being followed
4. A Metadata Lead who creates and maintains the metadata repository and defines the content of the business

5. An Enterprise Architect who works with the data governance lead to provide architecture and data integration oversight
6. A Data Architect who is responsible and accountable for the creation and maintenance of the Enterprise Data Model

Data Custodians who work closely with the data stewards and data owners to implement data governance policies and data owner requirements, and who carry out the data delivery function The IT organization is also responsible and accountable for providing technology and technical infrastructure for the management, storage, access, security, navigation, movement and transformation of data. In this way, it implements the necessary systems to support and measure data governance requirements and data business processes. It also ensures that the data governance strategy aligns with the IT design methodology, development process methodology and best practices. By working together with business data stewards, the IT organization plays an important role in root cause analysis on data issues and building remediation plans. It is the role of the IT organization to measure, monitor and report on data quality and deliver stakeholder service based on service level agreements.

In order to successfully provision these services and support, the IT organization needs to understand why data governance is important to each business stakeholder, what the benefits are and how best to work together with the business. When the IT organization can clearly articulate the benefits for each business function, sponsorship and ownership is more easily achieved. The trend to centralize IT compounds the importance of articulating the role of IT in business-led data governance. Although IT may be the first to recognize and advocate for data governance, challenges arise when ownership transfers to the business. A comprehensive data governance strategy not only aligns business and IT to address data issues but also defines data ownership and policies, data quality processes, decision rights and escalation procedures. The IT organization plays a critical role in enabling data governance and contributes key resources to the data governance organization. The proper combination and collaboration of business and IT resources, skill sets and leadership is required to effectively carry out the data governance agenda.

**IT SUBSETS AND MODELS**

**SUBSETS**

Applications can be divided into three categories:

**INTERNAL BUSINESS SYSTEMS**

1. Customer relationship management
2. Enterprise resource planning
3. Document management systems
4. Human resources management

**ENTERPRISE COMMUNICATION AND COLLABORATION**

1. Content management system
2. E-mail
3. Voice mail
4. Web conferencing
5. Digital work flows (or business process management)
6. VoIP

**ELECTRONIC COMMERCE - BUSINESS-TO-BUSINESS ELECTRONIC COMMERCE (B2B) OR BUSINESS-TO-CONSUMER ELECTRONIC COMMERCE (b2c)**

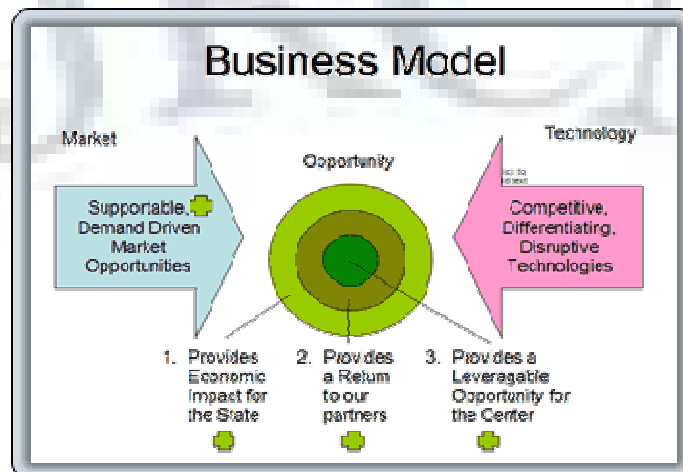
1. Internet shop
2. Supply chain management
3. Online marketing
4. Offline marketing

**MODELS**

When organizations go online, they have to decide which e-business models best suit their goals. [2] A business model is defined as the organization of product, service and information flows, and the source of revenues and benefits for suppliers and customers. The concept of e-business model is the same but used in the online presence. The following is a list of the currently most adopted e-business models such as:

1. E-shops
2. E-commerce
3. E-procurement
4. E-mails
5. E-auctions
6. Virtual Communities
7. Collaboration Platforms
8. Third-party Marketplaces
9. Value-chain Integrators
10. Value-chain Service Providers
11. Information Brokerage
12. Telecommunication
13. Customer relationship

**FIG. 1.2: eBUSINESS DEVELOPMENT OPTIONS**



**KEY SECURITY CONCERNS WITHIN E-BUSINESS**

1. Privacy and confidentiality
2. Authenticity
3. Data integrity
4. Non-repudiation
5. Access control
6. Availability

**COMMON SECURITY MEASURES FOR E-BUSINESS SYSTEMS**

1. Physical security
2. Data storage
3. Data transmission and application development
4. System administration

**CONCLUSION**

The most common implementation of e business is as an additional, or in some cases primary, storefront. By selling products and services online, an e business is able to reach a much wider consumer base than any traditional brick-and-mortar store could ever hope for. This function of e business is referred to as ecommerce, and the terms are occasionally used interchangeably. An e business may also use the Internet to acquire wholesale products or supplies for in-house production. This facet of e business is sometimes referred to as eprocurement, and may offer businesses the opportunity to cut their costs dramatically. Even many ebusinesses which operate without an electronic storefront now use eprocurement as a way to better track and manage their purchasing. E-business modeling is a concept that has several components and can be designed based on different combinations of them. Furthermore, it is a concept that is vulnerable to changes as it is associated with technology, which is developing rapidly day by day. By conducting this research on 1) how the companies are managing changes in a competitive environments by means of adjusting their e-business models, and 2) if there are any component(s) of e-business model(s) that has more importance than the others for the competitiveness of the company, the thesis intends to define the change management procedures that the organizations involved in e-business are using, and to compare the components of the e-business models in order to find out if there is any component that is more important than the others for the competitiveness of the organization.

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**ASSESSMENT OF SERVICES OF TEACHING HOSPITALS IN THE CHANGING GLOBAL SCENARIO**

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**ABSTRACT**

*In the era of globalization, when all the businesses are converting into profitability model, it is comparatively challenging for service industries like hospitals to modify their product i.e. services as per the expectations of consumers as hospitals are very complex with respect to their human resource, procedures and the outcomes. Indian Health care system is fragmented with public, private and semi private hospitals. Among these various kinds of hospitals, Teaching hospitals (private or public) are those, whose role is not only to cater to the need of patients but also to provide learning opportunities to medical students by treating patients. It's worth mentioning that for them, it is more challenging to sustain with these two objectives together. So, an enquiry is made in a Teaching Hospital in Mumbai to assess its existing practices for patient centered standards and Management centered standards. The study is based on NABH guidelines i.e. Care of patient, Patient education, Infection control, Quality policies, Facility management and Human resource management. The study suggests that the hospital has very low scorings for Quality of services and Care of Patients. It is realized that the hospital has smooth routine care as required but the efforts which needs to be taken for specialized care, safety measures, training for practicing quality standards is not as per the global norms. To sustain in the changing business world, these hospitals have to ensure proper documentation of standard policies and monitoring over these standards and indicators. The study also advocates certain alternatives and concludes with necessary course of actions for the same.*

**KEYWORDS**

Global standards (NABH), Quality Management, Patient Care, Teaching Hospital.

**BACKGROUND**

Indian health care system is consisting of: Public Hospitals (Government, Semi-Government / Municipal Corporation), Public Undertaking Hospitals (Industrial Units, Railways, Port Trusts), Armed Forces Hospitals, C G H S Hospital / E S I S Hospitals and Private Hospitals (Corporate hospitals, Academic/teaching hospitals).

Out of total 13692 odd hospitals in the country, 1/3rd hospitals are in rural areas and 2/3rd are located in urban areas. The government owns 2/3rd of all such hospitals comprising 35% of country total bed component. Private sector which includes corporate and teaching hospitals owns only 1/3rd of hospitals (Dr. R.K. Sarma, 2010). Therefore, the role of government hospitals and teaching hospitals in India is very significant. Medical Council of India has registered more than 300 Hospitals for under graduate medical studies and some of these hospitals are offering post graduate and super specialties studies also. About 750-800 millions in rural India and lower & lower middle class of urban population is totally dependent on healthcare services from Government sectors Hospitals or private teaching hospitals (Satish Kini, 2011).

**THE CHANGING GLOBAL SCENARIO AND INDIAN HEALTH CARE SYSTEM**

Globalization influenced service sector i.e. healthcare systems in the creation of integrated world markets. "Hospitals are open systems, strongly influenced by the environment in which they operate" (McKee and Healy 2002a). Their regulations and activities are influenced by factors related to the target population, incidents and prevalence of diseases in the community, public expectations and in broader terms socio-economic & political environment (Andrea A. Cortinosis, Sarah Downey et al., 2003)

The changes in the global scenario have deeply influenced the Indian health care providers. As per statistics: "The growth in Indian Health care sector is projected at 23 percent per annum to touch US\$ 77 billion by 2012 from the current estimated size of US\$ 35 billion (ASSOCHAM-Yes bank-2010). "Emerging Trends in Domestic Medical Tourism Sector," by a leading industry body it was stated that an estimated 3.2 million medical tourists would arrive in India by 2015. A US\$ 36 billion industry today and growing at 15 per cent compound annual growth rate (CAGR), the Indian healthcare industry will reach the market value of US\$ 280 billion by 2022 (Healthcare-2011)".

India has become a popular destination for Medical Tourists due to world-class technologies, global standard services and cost effective treatment. The matter of concern is also the global exposure of Indians middle and lower class due to job, holiday tours, exposure to Internet and large amount of available literature.

**GLOBAL STANDARDS FOR INDIAN TEACHING HOSPITALS**

The Indian private/corporate hospitals are adopting National and International accreditations. These hospitals will not only attract Indian population but also the global customers, who visit India in search of global standard health care. To sustain in this competitive world even teaching hospitals have to change the perception of the Indian population about the health care delivery systems in their premises (Linda T. Kohn, 2004). "Teaching Hospital can be defined as a hospital which provides clinical education and training to future health professionals i.e. doctors, Nurses and in addition cater to health care need of population in the region. Affiliated to a medical college or university, it may be a part of wider regional or national health system" (Wikipedia). The question arise, how these hospitals are functioning and what will they do to sustain in competition with these two objectives, when the expectation from them is to change old outdated, inefficient and wasteful methods from the existing systems.

**LITERATURE REVIEW**

A global survey in the 6 regions of the World Health Organization reveals Public sector hospitals in developing countries like India lacks funds, understaffed, and poorly managed (Dr. Uton Muchtar Rafei, 2000)". Human Resource Management in areas like skill development, competencies and accountability are far from satisfactory and so government is looking for PPP Model in U.P. India (IHF Newsletter, 2010). Another study says that these hospitals are facing several resources constraints like Non-availability of staff, Poor referral system, Lack of funds' Secondly, management Inefficiencies, what patients experience in these hospitals are long waiting time for almost all the procedures, lack of privacy in health care delivery, mechanized behavior and lack of promptness by health care providers (Dr. Paras K. Pokharal, Prof. J.N. Pande, et.al, 2003).

The study suggest a better model to meet the expectations of modern patients with special reference to financial and manpower planning for Indian hospitals (K. C. Ojha, 1983). Sustainability for large teaching and research institutions in the era of globalization is very critical especially because of its multiple functions (Andrea A. Cortinosis, Sarah Downey et al., 2003). Importance should be given to define the roles and responsibilities of various stakeholders of the institutions for building health systems that should be responsive to the community needs (Ramani KV, Mavalankar Dileep, 2006). There is a study suggest the Technological, Demographic, Social & Economic model for 21<sup>st</sup> century (Linda T. Kohn, 2004) but more applicable to American context. There are various studies to assess and define the role of health institutions to cope up with the global changes but there is still lack of knowledge about the assessment of existing practices and critical analysis in terms of global norms in any Indian Teaching Hospitals (private, trust and government units).

**RESEARCH GOALS**

The study is designed to assess the existing management Practices in teaching hospitals. The assessment is based on NABH (National Accreditations of Hospital and health care organizations) Guidelines.

**RESEARCH OBJECTIVES**

**SPECIFIC OBJECTIVES**

1. Assessment of **Patient Rights and Education (PRE)** practices in Teaching Hospital.
2. Assessment of **Hospital Infection Control (HIC)** measures in Teaching Hospital.
3. Assessment of practices of **Care of Patients (COP)** in Teaching Hospital.
4. Assessment of **Continuous Quality Improvement (CQI)** in Teaching Hospital.
5. Assessment of **Facility Management and Safety (FMS)** in Teaching hospital.
6. Assessment of **Human Resource Management (HRM)** in Teaching Hospital.

**BROAD OBJECTIVES**

1. Assessment of **Patient Centered Standards** in Teaching Hospital.
2. Assessment of **Management Centered Standards** in Teaching Hospital.

**METHODOLOGIES**

**Study is based on Private Teaching Hospital in Mumbai.**

Questionnaires for staff Nurses (No: 120) with minimum 2-3 years experience in the present hospital: To check their Awareness and Practices for **Patient Centered (COP, PRE, and HIC) and Management Centered (CQI, FMS, and HRM) standards.**

Each standard has its indicators (5 – 8 questions).

The response as **No** or **Do not know** (lack of knowledge = No implementation) is considered as non compliance to the respective indicators.

**FINDINGS**

The responses of the Nurses for Documentations, Policy and Practices under each standard are taken. Table-1 shows the awareness among the employees about the required global standards.

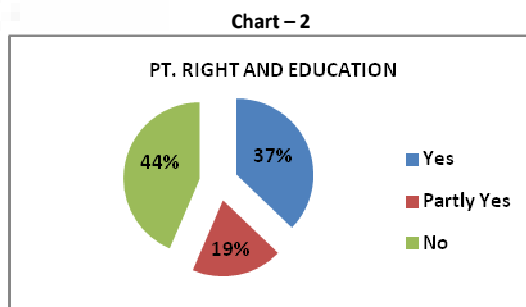
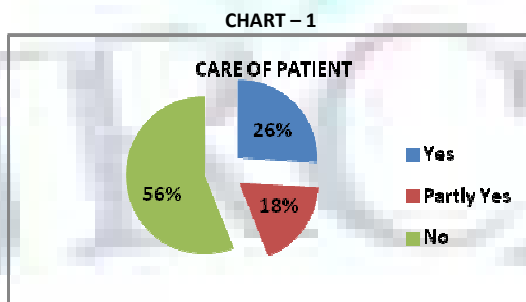
**TABLE - 1: EMPLOYEES RESPONSES (AVG.) FOR PATIENT AND MANAGEMENT CENTRED STANDARDS**

Patient centred standards	Yes	Partly Yes	No/Do not Know
Care of Patients (COP)	31	21.6	67
Patient Rights and Education (PRE)	45	23.2	52
Hospital Infection Control (HIC)	47	25.8	47
Management centered standards			
Continuous Quality Improvement (CQI)	27	34.3	59
Facility Management and Safety (FMS)	57	30	34
Human Resource Management (HRM)	43	30.3	47

**DATA ANALYSIS**

**THE RESPONSES OF THE HOSPITAL EMPLOYEES ARE PRESENTED (%) FOR EACH STANDARD BELOW**

56% Nurses believe that there are no proper Documentations/ policies and monitoring indicators for care of patients (Chart-1). About 44 % believe, there is lack of proper policies/practices of patient education and information in the hospital (Chart-2).



Almost 40 % Nurses denied that they adhere to proper infection control practices, whereas 39% Nurses strongly accepted the same (Chart-3). 49% denied the proper Quality control practices in the hospital or accepted that they are not aware about the same. Quality policies for clinical and managerial outcomes were mostly not known to the staff. Activities to ensure safety like sentinel events and their reporting were majorly got negative responses (Chart-4).

CHART - 3

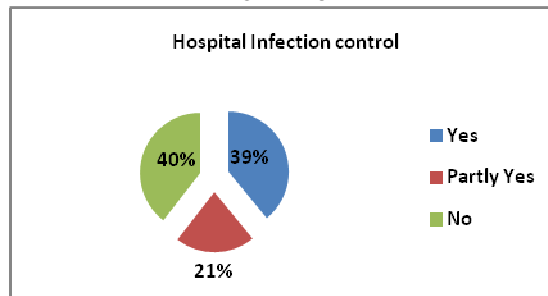
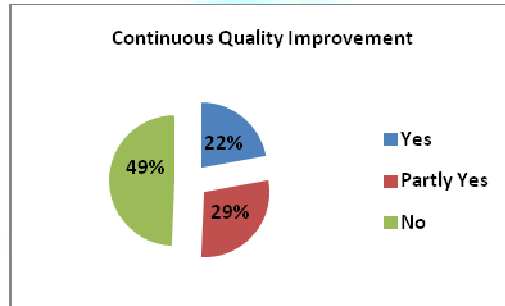


CHART - 4



47% Nurses accepted that organisation adheres to the statutory rules and regulations and is safe for patients as well as employees, whereas 28 % replied negatively (Chart-5). 39 % denied the efforts for Human resources practices as effective as it should be but almost 36% believes that it is good (Chart-6).

CHART - 5

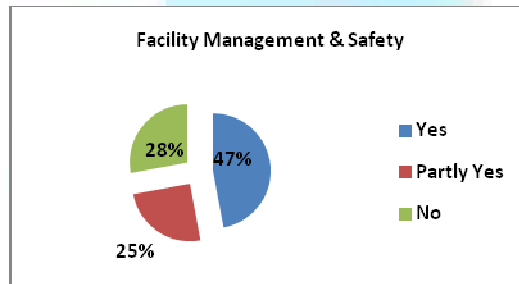
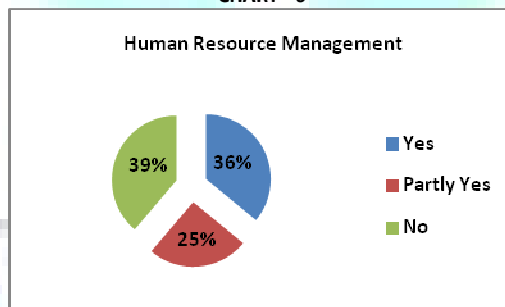


CHART - 6



Overall analysis (Chart-7) shows that 35 % Nurses are aware about the global standards but a major population i.e. 42 % replied negatively.

CHART-7: OVERALL COMPLIANCE TO THE STANDARDS

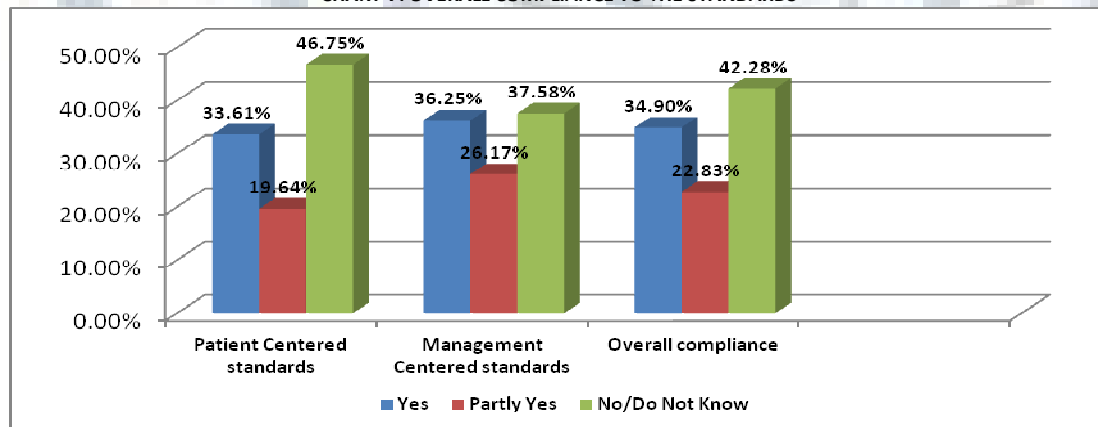


TABLE-2: HIGHEST SCORING (↑) AND LOWEST SCORING INDICATORS (↓)

PATIENT CENTERED STANDARD	Yes (%)	Remark
(COP) Policies and procedures for ICU & High Dependency Units.	49.16	↑
(COP) Policies and procedures for end of life care.	12.50	↓
(PRE) Patient and family's involvement in decision-making processes.	24.17	↓
(PRE) Information provided about expected costs to Patient and families.	42.50	↑
(HIC) Policies and procedures for infection control programme	53.33	↑
(HIC) Policies and procedures for Sterilization activities	25.83	↓
<b>MANAGEMENT CENTERED STANDARD</b>		
(CQI) Structured Quality Improvement and Continuous Monitoring Programme.	35	↑
(CQI) Key indicators to monitor the clinical structures, processes and outcomes	12.5	↓
(FMS) Provisions for safe water, electricity, medical gases and vacuum systems.	30.83	↓
(FMS) Smoking limitation policy.	70.83	↑
(HRM) Human resource planning.	17.5	↓
(HRM) Employees are trained on specific job duties or responsibilities related to safety.	60	↑

**DISCUSSIONS**

**LEVEL OF IGNORANCE IN SERVICES**

STANDARDS	IGNORANCE LEVEL
<b>COP</b>	<ul style="list-style-type: none"> <li>Uniformity of care: 57 % Nurses could not answer or answered negatively.</li> <li>Emergency services: 56% were not sure about the documentations for the same.</li> <li>Cardio-pulmonary resuscitation: 65% Nurses could not reply about the policies of the hospital or statutory bodies.</li> <li>Rational use of blood and its product: 54% Nurses are not aware about the policies.</li> <li>Elderly and vulnerable patient care: 54 % could not reply or replied negatively for existence of the policies.</li> <li>End of life care: 78% were not aware about the policies or not able to reply.</li> </ul>
<b>PRE</b>	<ul style="list-style-type: none"> <li>Decision-making: 56 % Nurses are not aware about the policies or denied the existence of the same.</li> </ul>
<b>HIC</b>	<ul style="list-style-type: none"> <li>Sterilization Policies: When asked 56 % were not aware about any rule for the same.</li> <li>Bio-medical waste management: about 50 % Nurses accepted that they adhere to the rules and policies.</li> </ul>
<b>CQI</b>	<ul style="list-style-type: none"> <li>Clinical outcome: 49% responses were negative for any indicator or Monitoring policies are being complied with.</li> <li>Managerial Outcome: 53% responses were negative.</li> <li>Auditing of patient care services: 51% denied for periodically monitoring of the same.</li> <li>Sentinel event recordings: 62% are agreed for non compliance in their ward.</li> </ul>
<b>FMS</b>	<ul style="list-style-type: none"> <li>Rules &amp; regulations for facility Equipment management: 43% agreed for non compliance of the periodic monitoring.</li> </ul>
<b>HRM</b>	<ul style="list-style-type: none"> <li>Human Resource Planning: 62 % accepted that there is a serious lack in professional Human Resource Planning in the hospital.</li> <li>Appraisal system: 51% Nurse believe that there should be proper Appraisal system in the hospital.</li> </ul>

**FUTURE COURSE OF ACTION**

With the increase in life expectancy in population due to various supporting factor, the demographical shift in the age group is seen (Linda T. Kohn, 2004) . The coming years will see more elderly population and subsequently the demand for geriatric care will be inevitable. The hospital should be prepared for these clients. It is also important that the Vulnerable patients i.e. patients below16 and above 65 age group, critically ill, surgery patients or patients in pain should be taken care with extra precaution. The care should include fall prevention by training staff to ensure the railings of the bed should be up, strong monitoring for their needs and one attendant to be allowed with the patients always.

Uniformity in the care delivery is very important and the special attention should be given to all the patients. There should not be any discrimination (K. C. Ojha, 1983).

Documentation for critical parameters like Emergency services, Cardio-pulmonary resuscitation and rational use of blood and its product should be done and staff should be oriented for the activities. There should be special codes in the hospital for handling emergencies and when the code is announced, the staff like medical emergencies team should be active to handle such situations.

One of the most important areas is the End of life care in the hospital. The relatives of patients, who die should be counselled. Hospital should have professional counsellors and prayer places inside the hospital for all religions. This is the time which can also be utilised for organ donation like eye and in case of brain death multiple organs can be donated, if the relatives are counselled in right manner.

Many corporate hospitals have already defined the patients' right (like right of information about treatment, cost, hospital formalities etc) and education (pertaining to hospital activities like registration, admission, discharge etc) for the care plan. Teaching hospital should also focus on the patients' education by defining the guidelines and providing training to employees at all levels of the care. The Pamphlets, Help desk counter and Guest relation officer for each department may help. The most important aspect is the Informed and Implied consents from the patients will keep hospital free from all legal consequences and also help patients to be informed about the care plan. He will also be involved in decision making for his/her treatment process.

Sterilisation procedure should be documented and informed to all the Nurses to ensure infection control (WHO, 2009). There should be proper monitoring for Waste Management by putting posters at each Nursing counter, training employees and having monitoring on the practices. Attention should be given for the Hand hygiene to minimise the Hospital Acquired Infection (HAI) (Pittet D, Hugonnet S, Harbarth S et al,2000).



It is studied that the hospital did not define the Quality policies or it is not implemented properly. The role of each hospital employee in the care plan should be realised and conveyed to the employees. Hospital Administrators should define, document and implement the quality standards, indicators and periodical monitoring activities with proper training schedule for all the hospital staff. The NABH Guidelines and JCI Guidelines can be referred. Hospital consultants have a very important profile to help the hospital to successfully implement these guidelines. Focus should be given for Clinical outcomes, Managerial outcomes, Auditing etc.

The sentinel events are most likely to take place in Hospital. The events which may be life threatening to patients like fall of beds etc can be avoided with little training to health care professionals.

Equipment management is very important these days. The preventive and breakdown maintenance contract should be done to avoid any mis-happenings. Routine inspections, Auditing and Inventory management should be in place. Employees should be also trained to take day-to-day care of their departmental equipment and oriented for proper conduct in case of any wrong occurrence.

Human resource planning for the entire hospital should be defined, documented and implemented along with proper Appraisal system. With proper documentations, policies and periodical training activities for staff to ensure practices will help the hospital to stand ahead and sustain in this competitive world.

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WORLD

## PROVOCATIVE SELLING TECHNIQUE AT THE BOTTOM OF THE PYRAMID IN A RECESSIONARY SITUATION: STUDY ON UNIFORM MANUFACTURING INDUSTRY - IN AND AROUND KOLKATA

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### ABSTRACT

*There have been a lot of research in innovative selling- techniques for different products/services in different challenging situations, but in an unprecedented recession in US/EUROPE, when the Buyer – resistance grew manifold, Marketers had to resort to innovative selling techniques. A few Marketers wanted to focus on a large market segment, existing at the Bottom of Pyramid in Emerging Markets. A billion people as customers in India at BOP segment, should be a large enough allurements for any Marketer of a multinational corporation. The technique of Provocative Selling can well be applied to a Bottom of the Pyramid segment in emerging markets like India, where a billion people can be converted into customers as shown by C.K. Prahalad. The Researcher therefore emphatically believes that there is a huge scope for research to be undertaken at this segment of Emerging Economies, particularly India, to explore the potentiality that exists in different sectors of Industries. In the midst of hard-times, of course, Indian Economy did not face the real brunt of recession, a company whose Sales Curve is either on Maturity or Decline stage, then the company must adopt some Precision Selling Strategy to prevent the same from sliding into decline phase. To overcome the buying resistance, which is highest in the BOP segment, the present Research would pointedly prove that there are Marketing strategies and Techniques available to succeed. This has been shown in the following research.*

### KEYWORDS

Bottom of pyramid (BOP), Decline, Maturity.

### OVER VIEW OF THE PROJECT

There have been a lot of research in innovative selling- techniques for different products/services in different challenging situations, but in an unprecedented recession in US/EUROPE, when the Buyer – resistance grew manifold, Marketers had to resort to innovative selling techniques. A few Marketers wanted to focus on a large market segment, existing at the Bottom of Pyramid in Emerging Markets. A billion people as customers in India at BOP segment, should be a large enough allurements for any Marketer of a multinational corporation.

They finally found out some innovative skills and techniques to succeed in such trying situations and termed that technique as Provocative Selling Technique. Here the customers are supposed to see their competitive challenges in a new light that made firms to address Customer – Problem and Need, hitherto unheard of and unattended, even unnoticed. Consumers at the BOP segment, during such hard time, usually restricted their consumption a great deal, but still had some problem areas not assessed but needed to be addressed

One must divide a large market into smaller homogeneous segments on the basis of a few relevant Variables, such as Geographic, Demographic, Psychographic, Behavioral and Situational factors. Choosing the right and relevant variable is therefore very important. Firms were finding it very difficult to expand and even retain their market- share in such recessionary situation. In recessionary situation, this technique has been proved to be a highly effective method, which is based on the concept that the Seller has to be able to provoke the Buyer to buy. When the discretionary spending has dried up, the Vendor is even expected to find the Investment fund for the Buyer.

The Seller has to prove that the business-model, the Firm so long pursuing, is headed towards jeopardy, and to survive, he has to think out of the Box. He must do something differently. The conventional way would meet with failure and therefore he must approach on the platform of “Solution – Selling.”

The Seller must appreciate, understand the “Pain – Points” of the Customer, and must be in a position to identify the critical issues, to be able to offer his Product or Service as - Solutions of Buyer’s Needs.

#### TO PLAN AN EFFECTIVE PROVOCATIVE SELLING MECHANISM AT THE BOP SEGMENT, ONE MUST ADOPT THE FOLLOWING STEPS:

- An Expert team of Marketers have to be entrusted with a target Firm or Industry.
- Advance and genuine data of the target enterprise must be collected.
- Area of specific interest of the Buyer/Seller must be identified very carefully and necessary Data to be collected beforehand.
- The team must be capable of innovating a product / service.
- The team approaches the target Buyer with a well laid-out plan and meets the right authority to convince them about the proposed value in their offer.

C.K. Prahalad conceptualized and vehemently propagated Bottom of the Pyramid concept and stated that there lies a huge market of billions of people in Emerging Markets as potential customer, who earns less than \$ 2 a day. Prof. Prahalad also advocated as “we must stop thinking that these billion people are a drag on our economy, rather they are resilient and value-conscious consumers and an unforeseen door of opportunity may be opened.”

In view of the above concepts, the Researcher believes that there should be research oriented efforts, as to how Provocative Selling techniques can be successfully employed at the Bottom of the Pyramid, where such a huge opportunity really exists.

### CONTEMPORARY RESEARCH ON THE TOPIC

The concept of Provocative selling was originally propagated by three eminent Marketers, Philip Lay, Todd Hewlin, Geoffrey Moore and was published in the 2008, March Edition of HBR, with the objective of developing a Unique selling model to succeed in a recessionary situation. The model is different from the usual concept of Transactional or Relationship. Prof. David Brook through a publication on 21<sup>st</sup> August, 09, disagreed with the model published by David Moore and argued that:

- A. It created a Hype / Crisis situation and captured attention through gimmick.
  - B. It only could be considered as an Wake-up Call for the complacent companies as “ every successful company must have been Provocative in its selling approach at some point of time.”
- Niall Davitt in his research in March, 09 argued if “Provocative Selling is a new kind of Selling Eloquence?” He argued that “academicians should be able to help the companies to help their customers, which requires a combination of Knowledge, Skill and Expertise.”

- Keith Eades, CEO, Sales & Performance International, disagreed through his paper and stated Provocative Selling is based on the same platform of Solution Selling ( he claimed as his own concept).
- Bill Gates while explaining about Creative Capitalism said "Profit is not possible, when Business wants to only serve the Poor, as there should be an incentive for the Business and that is - Recognition, which would enhance a Firm's reputation and appeal to its customers".

Consumers at the BOP level also have a Class Culture in Consumption as "Consumption continues to serve as a potent site for Re-production of social class." as stated by Holt, while defining the Consumer Culture. Pierre Bourdieu in 1984 in his Theory of Test, showed how consumption of Food, Clothing etc. have been impacted in the US by such cultural factors. He also showed that Low & High Cultural Capital has an impact in purchase decision.

### DIAGRAM OF THE PROVOCATIVE SELLING VISE A VISE NORMAL SELLING

- Provocative Selling Curve starts at a much higher Point on X – AXIS, when considered as SALES-QUANTITY and Y-AXIS as SALES- EXPENSE.
- The curve grows at a much faster rate also with lesser degree of expenses.
- The curve in another way, speaks about high level of expense at the starting point.
- Risk of failure is very high compared to the normal curve.
- Rate of success is very high.

### VIEWS OF THE RESEARCHER

The technique of Provocative Selling can well be applied to a Bottom of the Pyramid segment in emerging markets like India, where a billion people can be converted into customers as shown by C.K.Prahalad. He argued through his revolutionary book, "Fortune at the Bottom Pyramid" and that "Framework of BOP would be an impetus for active involvement of Privet-Sector in building the Marketing-economic system to transform the BOP market." It would change the long-held belief and assumption about the BOP that it always remains a drag and cannot participate into any profitable association.

He also emphatically stated that these 4 billion people would form the next round of Platform of Global Trade.

The Researcher therefore emphatically believes that there is a huge scope for research to be undertaken at this segment of Emerging Economies, particularly India, to explore the potentiality that exists in different sectors of Industries.

Extensive research by C.K. Prahalad also showed that though the potential market is huge, success may not be so easy, if not backed by clear strategy and precise study. Researchers undertook a number of studies to prove that MNCs took easy ways to tap the BOP segment and did not succeed.

Extensive Research by A.Karmachari, Mikekbzanky, Nishant & Lalwani (HBR- March, 2011) showed that only a minority of MNCs have engaged with poor population and created business with 100,000 customers in Africa, 1 million customers in India. P&G invested more than \$ 10 million in its PUR water Purification for the BOP segment but eventually had to shift it to its Philanthropic arm, as sales struggled to reach 5% of the target. Sourcing from BOP products is not easy.

But they have concluded that the solution lies in Creating New Business Model, who can surmount multiple Business Barriers at a same time. Salient features of the theory are:

- A. It would provide clues to develop such products/services for the BOP segment.
- B. Inclusive in an emerging Economy like India, can easily be achieved through BOP marketing.
- C. Empowering BOP consumers remain a challenge for the BOP marketing success.

### ALTERNATIVE PERSPECTIVE & ARGUMENTS OF THE BOP CONCEPT

Prof. A.K. Jaiswal of IIM-A in 2005 stated that in 2002, CK.Prahalad and Stuart Hurt erroneously contended that big MNC's only targeted high – end (upper-end of the Pyramid) customers ignoring the BOP segment. His major contention was:

- A. We must avoid undesirable Inclusion and Exclusion in the BOP segment. Inclusion: Products who satisfy the basic needs: health, nutrition, education etc., which can enhance the well-being of the BOP consumers. Exclusion: Products of mere consumption purpose which do not contribute to the well being of the BOP consumers.
- B. Failure to provide goods/services which enhance their well-being.
- C. Estimate of the World Bank that in 2001, nearly 1 billion people earned less than \$1 daily, and can not be a part of any profitable market segment of a large company.

Therefore he argued that Fortune exists only at the Lower Middle and Middle of the Pyramid and not at the Bottom.

Prof. Karnani (2007) argues that if the objective is to reduce Poverty than the BOP people should not be regarded as Consumers but Producers, as he said that we need to facilitate production by Poor and support them to selective consumption for their well being.

He argued that consumption of welfare goods also helps raise their income.

Example: Health insurance reduces the risk and cost of medical treatment reducing the loss of productivity.

- Dr. Siamanis in his research in 2009 stated that "Companies should start by getting communities involved in creating, implementing and shaping the business itself. The sense of ownership brings thus, will help ensure that interest created through these company's products would be wide-spread and sustained."
- Prof. Cris went a step further and stated that "the sense of ownership across the spectrum of Education, Business and Environment is the key to consistent upward growth of an Economy."

### OBJECTIVE OF THE RESEARCH

In the midst of hard-times, of course, Indian Economy did not face the real brunt of recession, a company whose Sales Curve is either on Maturity or Decline stage, then the company must adopt some Precision Selling Strategy to prevent the same from sliding into decline phase. To overcome the buying resistance, which is highest in the BOP segment, the present Research would pointedly prove that there are Marketing strategies and Techniques available to succeed. This has been shown in the following research.

The present study of a sector, comparatively neglected and not as big to lure the big corporations, would further prove that there are many such small but high potential segments exists. Further researches are called for in larger markets with products and services of varied nature.

### CASE AND SCOPE OF THE RESEARCH

The Uniform manufacturing Industry in and around Kolkata , which has been witnessing a robust growth till 2006-07, is finding it difficult to maintain the momentum and needed an out of the box selling strategy, which in this case is : Provocative Selling.

This Research would be able to lay down a Road – Map and a Model for similar Industries in India/Emerging markets to accept the help of the Provocative Selling Technique, when their sales – curve is on the decline under a recession like situation.

Provocative Selling Technique, in spite of the criticism and controversy, stand out to be a very effective tool for success under such condition, in view of the Researcher.

We further intend to focus our Research on the BOP segment of Educational Institute, since the sample would constitute of Institutes, where the total cost of 2 year program is not more than Rs.3 lacs. In actual terms, it can be considered as the Middle of the Pyramid.

We intend to undertake a study on a number of students of a sample of Professional Institutes in and around Kolkata. We would like to measure the Influence of Uniform on - A) Student - Discipline and B) Loyalty, two most problem areas of the Institutes.

Study would be conducted for Pre – Uniform and Post - Uniform periods.

We would like to take help of PVASS – Pennsylvania Value Added System (Tribune Business News, Washington – Feb’2011. A statistical Method of measuring Influence of School Program on Academic growth of each or a group of students)

**PERSPECTIVE OF THE RESEARCH STUDY**

Though the proposed Research has Retrospective elements in nature, its Findings have all the Prospective and Long term potentiality for the recession hit Industries in India.

There is extensive research by A.Karmachari, Mikekbzanky and Nishant on MNCs, engaged with poor population and created business with 100,000 customers in Africa, 1 million customers in India. P&G invested more than \$ 10 million in its PUR water Purification for the BOP segment but eventually had to shift it to its Philanthropic arm, as sales struggled to reach 5% of the target. Sourcing from BOP products is not easy.

BOP clearly is not for every company even if it is highly motivated.

Researchers came up with the following questions:

1. Can we manage Large no of Low margin, Low value transactions
2. Can we work with Informal Markets?
3. Do leaders have a long – term mind set?
4. Can we keep out legacy and Over head Costs?
5. Will Organizational Culture stifle a BOP innovation

But they have concluded that the solution lies in Creating New Business Model.

**POPULATION AND SAMPLE SIZE**

The industry under reference in its organized sector is not large in and around Kolkata.

The size of the organized sector is approximately - 36.

To arrive at a reasonable level of Significance, we would undertake the research on a sample of - 6 Firms, selected randomly. Population size of Professional Institute (Mgt & Tech) is approx. - 188.

In view of various constraints and following the concept of - Resource Equation Method. We would take a Sample of - 10 Institutes.

Sample Size of Respondents - 50 Students & 50 Parents (Randomly selected) from each Institute

**RESEARCH METHODOLOGY**

The Researcher decided to undertake a Market – Research Analysis under the concept of MAXIMUM DIFFERENTIAL SCALLING TECHNIQUE (MAX-DIFF). This popular and very handy technique was first practiced by Jordan Louviere in 1987 with very simple 6 steps such as:

- Select Attributes
- Show it to potential customer
- Plan the sample Survey
- Respondents to Choose MOST - LEAST
- Find out the SCORE
- Analyze the DATA to arrive at conclusion

We would take the help of basic concept of Conjoint Analysis to obtain estimates of the Main Effects of the Variables. The terminology of describing such conjoint importance in determining the Weights, is in terms of - SCORE/UTILITY.

We also intend to analyze the Data on the basis of Percentage and Rank Findings.

**ASSUMPTION**

- A. Random Sample Distribution is Normal.
- B. Sample values are sufficiently close to Population Values.

**DATA SOURCE**

Collected from Primary source through Questionnaire in English / Hindi

**DATA ANALYSIS**

Data were collected through Questionnaires and therefore are Primary in nature. Collected data have been tabulated and analyzed in the following way to arrive at conclusive evidence with reasonable significant value.

(POST UNIFORM PERIOD)

TABLE -- 1

ATTRIBUTES	MOST	LEAST
1. Uniform gives a good look	+	--
2. It makes no difference	--	+
3. It gives schools Culture	--	+
4. Brings sense of Discipline	+	--

TABLE -- 2

ATTRIBUTES	MOST	LEAST
1. Looks Un Smart	--	+
2. Restrict Choice	+	--
3. Brings Loyalty to the Institute	+	--
4. Relates Disciplinary activities	+	--

TABLE – 3

ATTRIBUTES	MOST	LEAST
1. Unnecessary	--	+
2. Creates Disciplinary Environment	+	--
3. Most Institute conform to Uniform	+	--
4. Expensive	+	--

(+ = Affirmative: -- = Negative)



## ANALYSIS

Utility Function Score of each of the Attribute was calculated on the simple Weighted Average Method. The Software in vogue, which also calculates the Scores on the basis of Hierarchical Bayesian Model was also used in the present context, both the methods were applied and the result converged as under.

Data thus collected, were put to two types of Quantity as well as Quality - analysis and tabulated as under.

The present study has been restricted to the observation / opinion of the concerned students and their parents to some extent, in view of certain constrains.

Due to such constrains as time and man-power, the present research has restricted its study on the Post – Uniform era, which would be a fair indicator and serve the objective of the study to a large extent, in view of the Researchers.

The Researchers would like to extend the study further as and when the said constrains eases out.

**TABLE – 4: WEIGHTED AVERAGE SCORE OF THE ATTRIBUTE**

Attributes	Wt. – Av - Score
1. Uniform gives good Looks	10
2. Makes no Difference	1
3. Brings Schools Culture	5
4. Brings sense of Discipline	25
5. Looks Un smart	1
6. Restrict Dress Choice	5
7. Brings sense of Loyalty	33
8. Unnecessary	2
9. Expensive	8
10. Most Institutes Conform to Uniform	10

## FINDINGS & CONCLUSION

The final scores/ findings unambiguously predict that Student – Uniform actually associates with two most Problem areas – Discipline and Loyalty and there can be the distinct solution to the problems, the Institutes have been searching all the time.

The 4<sup>th</sup> and the 7<sup>th</sup> attribute securing 25 and 33 respectively with highest scores clearly proved that Discipline and Loyalty are closely related to Institutional Uniform.

The Institutions could be impressed upon that when the said Attribute/Perception (4<sup>th</sup> & 7<sup>th</sup>) of Parents and Students has been clearly associated with the Uniform, they should implement uniform dress-code to bring Discipline and Loyalty in the Institute.

## RANKING AND TEST OF SIGNIFICANCE (2<sup>ND</sup> APPROACH)

The attributes have been broadly classified into 4 categories (securing higher scores) for precision and simplification and as follows:

1. Uniform gives good-look.
2. Considered as Expensive.
3. Brings sense of Discipline.
4. Brings sense of Loyalty.

To test the significant difference in the ranking of different perception of students and parents on the Utility / Value of Uniform in Professional Institutes, Chi-Square analysis and Friedman Two-way ANOVA study were undertaken to arrive and calculate Mean – Ranks.

The Null and Alternative Hypothesis have been framed as under:

Ho: There is No Difference in Student / Parent perception on Uniform.

H1: There is Significant Difference in Student / Parent perception on Uniform.

**TABLE – 5: RANKINGS ON DIFFERENT ATTRIBUTES**

SL. No.	Attributes	Mean Ranks(N= 1001)	Chi Square at 5%
1.	Uniform gives good – Look	2.65	
2.	Considered Expensive	2.64	59.75 ( 0.000)
3.	Brings Discipline	2.47	
4.	Brings Loyalty towards Institute	2.25	

Table 5, once again implies that Loyalty through Uniform is the most significant Attribute (Mean Rank = 2.25) whereas Good – Look through Uniform has been relegated to the Most insignificant attribute, as per the prevailing perception of the existing students and their parents.

Analysis of the results on Test of Significance also leads to the Chi-Square value of 59.75, which is quite significant (  $p = 0.000$  ) at 5% Level, thereby rejecting the Ho Hypothesis and accepting H1 at 5% level, clearly implying variation in perception of the respondents.

## IMPLICATION OF THE RESEARCH

BOP segment in the emerging economies, remained an area of special interest for the marketers all over the globe for a long time.

The present research may be a benign study which has endeavored to apply Provocative Selling Technique to offer solutions in the BOP segment of a relatively small/medium scale Industry and particularly where the Pain – Points of the Customers are unique.

Similar studies, if undertaken in the BOP segments of products/services of large scale Industries, may open new vistas for MNCs, who are looking for such opportunities in emerging market economies, like India.

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**CONSUMER BEHAVIOUR TOWARDS SMALL CARS - A CASE STUDY OF NALGONDA DISTRICT IN A. P.**

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**ABSTRACT**

Indian automobile industry has grown leaps and bounds since 1898, a time when a car had touched the Indian streets for the first time. At present it holds a promising tenth position in the entire world with being # 2 in two wheelers and # 4 in commercial vehicles. Withstanding a growth rate of 18% per annum and an annual production of more than 2 million units, it may not be an exaggeration to say that this industry in the coming years will soon touch a figure of 10 million units per year. Interestingly, after the liberalization of India's economy, the market place is flooded with many new players including the host of MNCs resulting the availability of more number of brands in every segment of the market. Now, the customer has started being choicy about what to buy. Thus all firms are becoming not only customer focus but are also trying to build relationship with them. This is done by continuously updating knowledge, information and understanding of the customer needs and expectations, which is the study of consumer behaviour. Such a study will help to gauge into the consumer's mind and understand the various consumption related aspects of consumers. And will also help to learn about various internal and external influences, which impel the consumer to behave as they do.

**KEYWORDS**

Consumer behavior towards Small cars in Nalgonda, Consumer behavior towards Small cars, Consumer behavior in Nalgonda, Small cars in Nalgonda, Small cars.

**INTRODUCTION**

Indian automobile industry has grown leaps and bounds since 1898, a time when a car had touched the Indian streets for the first time. At present it holds a promising tenth position in the entire world with being # 2 in two wheelers and # 4 in commercial vehicles. Withstanding a growth rate of 18% per annum and an annual production of more than 2 million units, it may not be an exaggeration to say that this industry in the coming years will soon touch a figure of 10 million units per year.

Automobile industry is one of the fastest growing industries of the world. With more than 2 million new automobiles rolling out each year, on roads of India, the industry is set to grow further. Automobile industry made its silent entry in India in the nineteenth century. Since the launch of the first car in 1897, India automobile industry has come a long way. Today India is the largest three wheeler market in the world and is expected to take over China as the second largest automobile market, in the coming years.

Indian automobile industry; manufacturing cars, buses, three wheelers, two wheelers, commercial vehicles, heavy vehicles, provides employment to a large number of workforce. The abolition of license in 1991 opened the doors for international automobile manufacturers. A number of leading global automotive companies entered into joint ventures with domestic manufacturers of India and thus started the large-scale production of automobiles in India. Some of the well-known players of Indian automobile industry include: Hindustan Motors, Maruti Udyog, Fiat India Private Ltd, Ford India Ltd., General Motors India Pvt Ltd, Toyota Kirloskar Motor Ltd among others. The production of automobiles in India is mainly for the domestic customers. Cars with 79% of automobiles in India, dominate the automobile industry in India.

**SOME FACTS ON AUTOMOBILE INDUSTRY IN INDIA**

- India has the fourth largest car market in the world
- India has the largest three wheeler market in India
- India is the second largest producer of two wheelers in the world
- India ranks fifth in the production of commercial vehicles.

**SIGNIFICANCE OF THE STUDY**

All the firms have started considering 'customer' as the 'king' or 'queen'. Interestingly, after the liberalization of India's economy, the market place is flooded with many new players including the host of MNCs resulting the availability of more number of brands in every segment of the market. On account of this, the customer has started being choicy about what to buy. Thus all firms are becoming not only customer focus but are also trying to build relationship with them. This is done by continuously updating knowledge, information and understanding of the customer needs and expectations, which is the study of consumer

behaviour. Such a study will help to gauge into the consumer's mind and understand the various consumption related aspects of consumers. And will also help to learn about various internal and external influences, which impel the consumer to behave as they do.

## REVIEW OF LITERATURE

Effective policy formulation always needs a thorough and continuous search into the nature of the reasons for, and the consequences of organisation. In line with this, some related earlier studies conducted by individuals and institutions are reviewed to have an in-depth insight into the issues of consumers behaviour. An overall view of a few studies is presented below.

Neelamegham (1969) conducted a study on, 'Consumer Behaviour in Relation to Marketing of Man-made Fibre Fabrics in India', the study was conducted by drawing a sample of 1,170 households in Delhi. It was found that consumer's preferences for man-made fibre-fabrics were significantly influenced by several socio-economic factors including, age, income and occupational characteristics. Among the different occupational groups, man-made fibre fabrics were found to be most popular with business executives, and professional men and individual proprietors, while they were least popular with factory workers. The percentage of workingwomen who owned garments made by man-made fibre fabrics was larger than that of house-wives. It is also found that purchasing of clothes was a joint activity of both husband and wife, though husband played a dominant advisory role.

Ramakrishna Rao, Rama Raju, and Ram Prasad (1987) conducted a survey on "Husband-wife Involvement in Buying Decision-Making". One of the major findings of the study is, husband who are young, highly educated and belongs to high income group are relatively less dominated than their older, less educated and low-income group counterparts.

A study was conducted by doctoral students of IIM Ahmedabad (Anirban Ghosh, Avinandan Mukherji and V.V.P.Badrinath) to identify the emerging the need of typical Indian consumers in three product categories of a) Automobiles b) Televisions and c) Credit cards. It was observed in the above study that in terms of occupation and education and income the credit card penetration level was found to be the highest among post- graduates, professional and individual drawing income more than Rs.2 lakhs per annum. In case of the television market it was observed that television owners were mainly graduates and postgraduates, though among diploma holders there was the highest proportion of people intending to purchasing a television. This is an indication to the industry to tap this new emerging market segment. The study indicates the behaviour patterns of a particular social class.

Janardhan Rajini (1997) in his study on "Store avoidance behavior – An Exploratory study" is to explore the concept of store avoidance behavior related to apparel purchases. Three factors – consumer characteristics, situational characteristics and retail characteristics / store attributes were postulated to influence store avoidance behavior. The results indicated that situational influences were likely to affect the avoidance of stores. consumers avoided stores under different physical and social context. Location, presence of friends and family and the number of fellow shopper in the stores affected the avoidance of stores. Consumers avoidance of stores was influenced by time pressured situations. It was also influenced by peak holiday, gift giving and weekend periods. The influence of retail attributes on avoidance behavior were significant. The reasons for avoidance were multiple, consistent and unchanging. Consumers appeared to be influenced by not one significant attribute but rather a multiplicity of attributes. The shoppers avoided stores if they consistently encountered the same problem in the same stores. The reasons for avoiding stores remained stable and unchanging overtime.

Sanjaya S Gaur & K.Abdul Waheed (2002) conducted a study on "Buying behavior of branded fine Rice" to understand the factors for brand preference and satisfaction in the purchase of branded fine rice. A sample of 200 households from Chennai city and 200 household from Coimbatore city were selected for the study by simple random sampling method with replacement. The data was collected by personal interview through a schedule.

Jacqui Daly; Stuart Gronow; Dave Jenkins; Frances Plimmer, (2003) in their study on "Consumer behaviour in the valuation of residential property: A comparative study in the UK, Ireland and Australia. This paper reports the results of empirical investigations that examine behavioural aspects of residential property valuations. Rajesh Kumar, (2007) has conducted a study entitled "Consumer behaviour with reference to selected durables in Kurnool District of Andhra Pradesh". This study reveals the purchase potential and consumer decision making with regard to durables. Chakravarthy N.S., (2008) has conducted a study entitled "Consumer behaviour with reference to two wheelers in Kurnool District of Andhra Pradesh". This study reveals the expectations and satisfaction levels of customers towards durables.

## NEED FOR THE STUDY

The most important area of marketing is Consumer Behaviour. The essence of marketing concept is the satisfaction of the consumer. This requires a thorough understanding of consumer behaviour and their buying decision making process. Consumer behaviour is a fundamental ingredient in the marketing process. Consumer research plays an important role in new product introduction and overall increase in marketing expenditure and growing concern for improving productivity. Marketing producers, sellers and consumers are the integral partners in the market. The state of affairs and the status of any market situation depend on how the partners act, react and interact.

Though several studies on the subject of consumer behaviour have been conducted the explorations on the subject have been meager. Automobiles is particularly small cars market is growing at a rapid speed and is gaining importance during the last decade. The usage of small car for easy family transportation in both rural and urban areas has increased.

During the last decade, a number of new brands and models were introduced and the people have wide variety of options before them. It was, therefore, considered meaningful to explore whether the Indian consumers displayed similar pattern of consistent brand consumption or differed significantly. It is relevant to study the effect of certain market variable on subsequent buyer behaviour in the usage of small cars. The consumers purchase process and their buying habits are of vital importance and is relevant to the present day problems and needs of the consumer in general. In view of the above studies and the importance of consumer behaviour the present study is targeted at understanding consumer behaviour with reference to small cars users of Nalgonda district.

## OBJECTIVES OF THE STUDY

The objective of this study is to assess the consumer behaviour with reference to small car users in Nalgonda district of Andhra Pradesh.

1. To analyse the socio-economic profiles of consumers in Nalgonda district.
2. To study the history and evolution of four wheelers market in India.
3. To examine the ownership pattern, longevity of usage and switching of brands, mode of payment and reasons for buying.
4. To assess the level of satisfaction, and impact of marketing mix on consumers while buying Small cars.
5. To find out the expectation levels and post purchase opinion with regard to various parameters of small car.

## METHODOLOGY

### AREA SELECTION

Nalgonda district became part of Andhra Pradesh w.e.f. 1<sup>st</sup> November, 1956 i.e., after reorganization of states. It was formerly known as Neelagiri (Blue Hill). The district is in the Southern part of the Telangana Region between 16-25' and 17-50' of the Northern Latitude and 78-40' and 80-05' of Eastern longitude covering an area of 14,240 Sq. Kms. The District is bounded by Medak and Warangal districts in the North, Guntur and Mahaboobnagar districts in the South, Khammam and Krishna districts in the East and Mahabubnagar and Rangareddy district in the West.

The Geographical area of the district is 14,217 Sq. Km accounting to 5.18% of the total area of the state of A.P. The total population of the district is 34.5 lakhs and density of population is 242 per Sq. Km as per 2001 census. For Administrative purposes the district is divided into 4 Revenue divisions namely Nalgonda, Miryalaguda, Bhongir and Suryapet.

The area selected for the present study has been confined to Nalgonda district of Andhra Pradesh only as it constitute almost 5% of the state and 35 lakhs of population with various walks of people. So, it would be useful to study the behavioural patterns of consumers. The district is divided into four revenue

divisions viz Nalgonda, Miryalaguda, Bhongir and Suryapet for administrative purpose. The sub classification of consumers has been selected on the basis of these four revenue divisions.

#### SAMPLING

The study has been based on convenient sampling technique and a sample size of 200 small car users of Nalgonda district. A sample of 50 small car users have been considered in each of the four revenue divisions of the district. After eliminating partially unfilled questionnaires, the resultant sample size is 171. The sample covers various socio-economic backgrounds of the population.

#### DATA COLLECTION

The data collected for the present study comprises of both primary and secondary sources. The primary data has been collected through questionnaire. The respondents were interviewed and asked to fill the questionnaire. The first part deals with their behaviour towards two wheelers and factors influencing in making decisions. The second part of the questionnaire contains the questions concern to the respondents profile in terms of their age, sex, occupation, educational background and income.

#### SECONDARY DATA

In order to fulfill the objectives of the study, secondary data were collected. The secondary data pertaining to Nalgonda district were collected from various government publications and records ; the major source of secondary data being Census of India 1991, 2001 (provisional results), District Statistical Centre and Collectorate. The secondary data has been collected from various magazines, journals, daily newspapers, survey reports and reference books etc.,

#### TOOLS OF ANALYSIS

The data collected through primary sources has been analysed with the help of simple statistical tools namely percentages and charts.

### DATA ANALYSIS AND INTERPRETATION

The primary and secondary data collected from different sources have been tabulated and interpreted meaningfully. The information has been represented in a simple way for better understanding.

#### OWNER / USER OF CAR

**TABLE 1: DETAILS OF OWNER / USER OF CAR**

S.No	Particulars	Sample Size	Percentage
1	Owner	137	80.12
2	User	34	19.88
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be inferred from the above table that, an overwhelming majority of 80.12% of the respondents are owners followed by 19.88% of the respondents are users of the car.

#### BRAND NAME OF THE CAR

**TABLE 2: DETAILS OF CAR BRANDS**

S.No	Name of the Brand	Sample Size	Percentage
1	Ambassador	12	7.02
2	Maruthi	96	56.14
3	Matiz	13	7.60
4	Santro	15	8.77
5	Tata Indica / Indigo	41	23.98
6	Others	4	2.34
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be analysed from the above table that, majority of the respondents 56.14% are having Maruthi, followed by 23.98% are having Tata Indica / Indigo, 8.77% are having Santro, 7.60% are having Matiz, 7.02% are having Ambassador and a small segment of 2.34% of the respondents are having other cars like Spark, Fiat etc.,

#### PURPOSE OF CAR

**TABLE 3: DETAILS OF PURPOSE OF CAR**

S.No	Purpose of Car	Sample Size	Percentage
1	Personal use	92	53.80
2	Commercial purpose	53	30.99
3	Provided by office	26	15.20
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be examined from the above table that, majority of the respondents 53.80% are having car for personal use, followed by 30.99% are having car for commercial purposes and for 15.20% of the respondents, car is being provided by the office.

#### WHO DRIVES THE CAR

**TABLE 4: DETAILS OF CAR DRIVER**

S.No	Purpose of Car	Sample Size	Percentage
1	Owner	81	47.37
2	Personal Driver	64	37.43
3	Driver provided by office	26	15.20
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be seen from the above table that, 47.37% of the respondents said that, the owner will drive the car, followed by 37.43% of the respondents said that, they have a personal driver and for 15.20% of the respondents, driver is being provided by the office.

#### PURCHASED PREFERRED CAR

**TABLE 5: DETAILS ABOUT PURCHASE OF PREFERRED CAR**

S.No	Purchase of Preferred Car	Sample Size	Percentage
1	Yes	126	73.68
2	No	19	11.11
3	Car provided by the office.	26	15.20
	Total	171	100.00

Source: Field Survey



**INFERENCE:** It can be observed from the above table that, majority of 73.68% of the respondents said that, they have purchased the car they preferred, followed by 11.11% of the respondents said that, they have not purchased the car they preferred and for 15.20% respondents, car is being provided by the office.

**MODE OF AWARENESS**

**TABLE 6: DETAILS OF MODE OF AWARENESS ABOUT CAR BRANDS**

S.No	Mode of Awareness about the Brand	Sample Size	Percentage
1	News Papers	21	12.28
2	Magazines / Journals	29	16.96
3	Television Promos	38	22.22
4	Internet	2	1.17
5	Mass Media / Hoardings	34	19.88
6	Family / Friends	47	27.49
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be interpreted from the above table that, 27.49% of the respondents said that, they are aware of their brand through family / friends, followed by 22.22% through television promos, 19.88% through mass media / hoardings, 16.96% through magazines / journals, followed by 12.28% through news papers and a very small segment of 1.17% of the respondents through internet.

**MODE OF PAYMENT FOR PURCHASED CAR**

**TABLE 7: DETAILS ABOUT MODE OF PAYMENT FOR PURCHASED CAR**

S.No	Mode of Payment for Purchased Car	Sample Size	Percentage
1	One Time Payment	53	36.55
2	Installment Basis	92	63.45
	Total	145	100.00

Source: Field Survey

**INFERENCE:** It can be evaluated from the above table that, majority of 63.45% of the respondents said that, they have purchased the car on installment basis and 36.55% of the respondents said that, they have purchased by paying total amount at one time.

**SOURCE OF FINANCE FOR PURCHASED CAR**

**TABLE 8: DETAILS ABOUT SOURCE OF FINANCE FOR PURCHASED CAR**

S.No	Source of Finance for Purchased Car	Sample Size	Percentage
1	Bank Loan	40	43.48
2	Private Finance	18	19.56
3	Dealer Finance	23	25.00
4	Loan from Employer	11	11.96
	Total	92	100.00

Source: Field Survey

**INFERENCE:** It can be visualized from the above table that, out of the respondents who purchased car by installment method, for 43.48% of them, the source of finance is bank loan, followed by dealer finance for 25.00%, followed by private finance for 19.56% and for 11.96% of the respondents, loan is from the employer.

**DURATION OF VEHICLE USAGE**

**TABLE 9: DETAILS ABOUT THE DURATION OF VEHICLE USAGE**

S.No	Duration of the Vehicle Usage	Sample Size	Percentage
1	Up to 2 years	21	12.28
2	2 to 4 years	43	25.15
3	4 to 6 years	72	42.11
4	Above 6 years	35	20.47
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be evident from the above table that, 42.11% of the respondents longevity of usage has been 4 to 6 years, followed by 2 to 4 years for 25.15% of the respondents, followed by above 6 years for 20.47% and up to 2 years for 12.28%.

**REASONS FOR BUYING A CAR**

**TABLE 10: REASONS FOR BUYING A CAR**

S.No	Reasons for Buying a Car	Sample Size	Percentage
1	Need / Want	30	17.54
2	Family Travel	39	22.81
3	Lack of Public Transport	11	6.43
4	Time Saving	42	24.56
5	Position in the Society	43	25.15
6	Others like Lottery / Gift etc.	6	3.51
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be inferred from the above table that, 25.15% of the respondents said that, they are using car because of their position in the society, followed by 24.56% for time saving, followed by 22.81% for family travel, 17.54% for need / want satisfaction, 6.43% for lack of public transport and a small segment of 3.51% of respondents said that, they are using car because they got it either by lottery / gift.

**PREPURCHASE BEHAVIOUR**

**EXPECTATION TOWARDS MAINTENANCE COST**

**TABLE 11: EXPECTATION TOWARDS MAINTENANCE COST**

S.No	Expectation Levels	Sample Size	Percentage
1	High	33	19.30
2	Moderate	57	33.33
3	Low	81	47.37
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be analysed from the above table that, 47.37% of the respondents rated their pre purchase expectation towards maintenance cost as low, followed by 33.33% as moderate and 19.30% rated as high.

**EXPECTATION TOWARDS AFTER SALES SERVICE**

**TABLE 12: EXPECTATION TOWARDS AFTER SALES SERVICE**

S.No	Expectation Levels	Sample Size	Percentage
1	High	89	52.05
2	Moderate	47	27.49
3	Low	35	20.47
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be examined from the above table that, 52.05% of the respondents rated their pre purchase expectation towards after sales service as high, followed by 27.493% as moderate and 20.47% rated as low.

**EXPECTATION TOWARDS RESALE VALUE**

**TABLE 13: EXPECTATION TOWARDS RESALE VALUE**

S.No	Expectation Levels	Sample Size	Percentage
1	High	98	57.31
2	Moderate	51	29.82
3	Low	22	12.87
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be seen from the above table that, 57.31% of the respondents rated their pre purchase expectation towards resale value as high, followed by 29.82% as moderate and 12.87% rated as low.

**EXPECTATION TOWARDS DURABILITY OF THE VEHICLE**

**TABLE 14: EXPECTATION TOWARDS THE DURABILITY OF THE VEHICLE**

S.No	Expectation Levels	Sample Size	Percentage
1	High	94	54.97
2	Moderate	47	27.49
3	Low	30	17.54
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be observed from the above table that, 54.97% of the respondents rated their pre purchase expectation towards durability of the vehicle as high, followed by 27.49% as moderate and 17.54% rated as low.

**EXPECTATION TOWARDS THE PRICE OF THE VEHICLE**

**TABLE 15: EXPECTATION TOWARDS THE PRICE OF THE VEHICLE**

S.No	Expectation Levels	Sample Size	Percentage
1	High	40	23.39
2	Moderate	102	59.65
3	Low	29	16.96
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be interpreted from the above table that, 59.65% of the respondents rated their pre purchase expectation towards price of the vehicle as moderate, followed by 23.39% as high and 16.96% rated as low.

**EXPECTATION TOWARDS MILEAGE OF THE VEHICLE**

**TABLE 16: EXPECTATION TOWARDS THE MILEAGE OF THE VEHICLE**

S.No	Expectation Levels	Sample Size	Percentage
1	High	78	45.61
2	Moderate	65	38.01
3	Low	28	16.37
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be evaluated from the above table that, 45.61% of the respondents rated their pre purchase expectation towards mileage of the vehicle as high, followed by 38.01% as moderate and 16.37% rated as low.

**EXPECTATION TOWARDS PERFORMANCE / QUALITY OF THE VEHICLE**

**TABLE 17: EXPECTATION TOWARDS PERFORMANCE / QUALITY OF THE VEHICLE**

S.No	Expectation Levels	Sample Size	Percentage
1	High	88	51.46
2	Moderate	59	34.50
3	Low	24	14.04
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be visualized from the above table that, 51.46% of the respondents rated their pre purchase expectation towards performance / quality of the vehicle as high, followed by 34.50% as moderate and 14.04% rated as low.

**EXPECTATION TOWARDS AVAILABILITY OF SPARES**

**TABLE 18: EXPECTATION TOWARDS AVAILABILITY OF SPARES**

S.No	Expectation Levels	Sample Size	Percentage
1	High	93	54.39
2	Moderate	67	39.18
3	Low	21	12.28
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be evident from the above table that, 54.39% of the respondents rated their pre purchase expectation towards availability of spares for their vehicle as high, followed by 39.18% as moderate and 12.28% rated as low.

EXPECTATION TOWARDS OTHER ASPECTS OF VEHICLE

TABLE 19: EXPECTATION TOWARDS OTHER ASPECTS OF VEHICLE

S.No	Expectation Levels	Sample Size	Percentage
1	High	91	53.22
2	Moderate	47	27.49
3	Low	33	19.30
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be inferred from the above table that, 53.22% of the respondents rated their pre purchase expectation towards other aspects of the vehicle as high, followed by 27.49% as moderate and 19.30% rated as low.

POSTPURCHASE BEHAVIOUR

OPINION TOWARDS MAINTENANCE COST

TABLE 20: OPINION TOWARDS MAINTENANCE COST

S.No	Opinion	Sample Size	Percentage
1	High	73	42.69
2	Moderate	58	33.92
3	Low	40	23.39
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be analysed from the above table that, 42.69% of the respondents rated their post purchase opinion towards maintenance cost of the vehicle as high, followed by 33.92% as moderate and 23.39% rated as low.

OPINION TOWARDS AFTER SALES SERVICE

TABLE 21: OPINION TOWARDS AFTER SALES SERVICE

S.No	Opinion	Sample Size	Percentage
1	High	38	22.22
2	Moderate	46	26.90
3	Low	87	50.88
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be examined from the above table that, 50.88% of the respondents rated their post purchase opinion towards after sales service of the vehicle as low, followed by 26.90% as moderate and 22.22% rated as low.

OPINION TOWARDS RESALE VALUE

TABLE 22: OPINION TOWARDS RESALE VALUE

S.No	Opinion	Sample Size	Percentage
1	High	67	39.17
2	Moderate	51	29.82
3	Low	53	30.99
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be seen from the above table that, 39.19% of the respondents rated their post purchase opinion towards resale value of the vehicle as high, followed by 30.99% as low and 29.82% rated as moderate.

OPINION TOWARDS DURABILITY OF THE VEHICLE

TABLE 23: OPINION TOWARDS THE DURABILITY OF THE VEHICLE

S.No	Opinion	Sample Size	Percentage
1	High	59	34.50
2	Moderate	65	38.01
3	Low	47	27.49
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be observed from the above table that, 38.01% of the respondents rated their post purchase opinion towards durability of the vehicle as moderate, followed by 34.50% as high and 27.49% rated as low.

OPINION TOWARDS THE PRICE OF THE VEHICLE

TABLE 24: OPINION TOWARDS THE PRICE OF THE VEHICLE

S.No	Opinion	Sample Size	Percentage
1	High	81	47.37
2	Moderate	74	43.27
3	Low	16	9.36
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be interpreted from the above table that, 47.37% of the respondents rated their post purchase opinion towards price of the vehicle as high, followed by 43.27% as moderate and 9.36% rated as low.

OPINION TOWARDS MILEAGE OF THE VEHICLE

TABLE 25: OPINION TOWARDS THE MILEAGE OF THE VEHICLE

S.No	Opinion	Sample Size	Percentage
1	High	39	22.81
2	Moderate	78	45.61
3	Low	54	31.58
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be evaluated from the above table that, 45.61% of the respondents rated their post purchase opinion towards mileage of the vehicle as moderate, followed by 31.58% as low and 22.81% rated as moderate.

OPINION TOWARDS PERFORMANCE / QUALITY OF THE VEHICLE

TABLE 26: OPINION TOWARDS PERFORMANCE / QUALITY OF THE VEHICLE

S.No	Opinion	Sample Size	Percentage
1	High	79	46.20
2	Moderate	57	33.33
3	Low	35	20.47
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be visualized from the above table that, 46.20% of the respondents rated their post purchase opinion towards performance / quality of the vehicle as high, followed by 33.33% as moderate and 20.47% rated as low.

OPINION TOWARDS AVAILABILITY OF SPARES

TABLE 27: OPINION TOWARDS AVAILABILITY OF SPARES

S.No	Opinion	Sample Size	Percentage
1	High	103	60.23
2	Moderate	32	18.71
3	Low	36	21.05
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be evident from the above table that, 60.23% of the respondents rated their post purchase opinion towards availability of spares of the vehicle as high, followed by 21.05% as low and 18.71% rated as moderate.

OPINION TOWARDS OTHER ASPECTS OF VEHICLE

TABLE 28: OPINION TOWARDS OTHER ASPECTS OF VEHICLE

S.No	Opinion	Sample Size	Percentage
1	High	69	40.35
2	Moderate	75	43.86
3	Low	27	15.79
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be inferred from the above table that, 43.86% of the respondents rated their post purchase opinion towards other aspects of the vehicle as moderate, followed by 40.35% as high and 15.79% rated as low.

FIRST VEHICLE

TABLE 29: DETAILS OF ABOUT FIRST VEHICLE

S.No	Particulars	Sample Size	Percentage
1	Yes	113	66.08
2	No	58	33.92
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be analysed from the above table that, majority of 66.08% of the respondents said that, this is their first vehicle and for 33.92% of the respondents, it is not their first vehicle.

BRAND NAME OF THE FIRST CAR

TABLE 30: DETAILS OF FIRST CAR BRAND

S.No	Name of the Brand	Sample Size	Percentage
1	Ambassador	9	15.25
2	Maruthi	17	28.81
3	Matiz	13	22.03
4	Santro	6	10.17
5	Tata Indica / Indigo	11	18.64
6	Others	3	5.08
	Total	59	100.00

Source: Field Survey

**INFERENCE:** It can be examined from the above table that, among the people for whom this is not a first car, with regard to their earlier car, 28.81% said that their earlier car was Maruthi, followed by 22.03% had Matiz, 18.64% had Tata Indica / Indigo, 15.25% had Ambassador, 10.17% has Santro and other cars constitute 5.08%.

SATISFACTION LEVEL TOWARDS PRODUCT ASPECTS

TABLE 31: SATISFACTION LEVEL TOWARDS PRODUCT ASPECTS OF VEHICLE

S.No	Satisfaction Level	Sample Size	Percentage
1	High Satisfied	64	37.43
2	Moderate Satisfied	97	56.73
3	Dissatisfied	10	5.85
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be seen from the above table that, with regard to satisfaction level of respondents towards product aspects of vehicle, majority of 56.73% rated as moderately satisfied, followed by 37.43% rated as highly satisfied and a small segment of respondents 5.85% rated as dissatisfied.

SATISFACTION LEVEL TOWARDS PRICE ASPECTS

TABLE 32: SATISFACTION LEVEL TOWARDS PRICE ASPECTS OF VEHICLE

S.No	Satisfaction Level	Sample Size	Percentage
1	High Satisfied	59	34.50
2	Moderate Satisfied	85	49.71
3	Dissatisfied	27	15.79
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be observed from the above table that, with regard to satisfaction level of respondents towards price aspects of vehicle, 49.71% rated as moderately satisfied, followed by 34.50% rated as highly satisfied and 15.79% of the respondents rated as dissatisfied.



**SATISFACTION LEVEL TOWARDS PLACE / DISTRIBUTION ASPECTS**

**TABLE 33: SATISFACTION LEVEL TOWARDS PLACE / DISTRIBUTION ASPECTS OF VEHICLE**

S.No	Satisfaction Level	Sample Size	Percentage
1	High Satisfied	67	39.18
2	Moderate Satisfied	86	50.29
3	Dissatisfied	18	10.53
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be interpreted from the above table that, with regard to satisfaction level of respondents towards place / distribution aspects of vehicle, majority of 50.29% rated as moderately satisfied, followed by 39.18% rated as highly satisfied and 10.53% of the respondents rated as dissatisfied.

**SATISFACTION LEVEL TOWARDS PROMOTIONAL ASPECTS**

**TABLE 34: SATISFACTION LEVEL TOWARDS PROMOTIONAL ASPECTS OF VEHICLE**

S.No	Satisfaction Level	Sample Size	Percentage
1	High Satisfied	71	41.52
2	Moderate Satisfied	78	45.61
3	Dissatisfied	22	12.87
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be evaluated from the above table that, with regard to satisfaction level of respondents towards promotional aspects of vehicle, 45.61% rated as moderately satisfied, followed by 41.52% rated as highly satisfied and 12.87% of the respondents rated as dissatisfied.

**SATISFACTION LEVEL TOWARDS PEOPLE (SERVICE PERSONNEL) ASPECTS**

**TABLE 35: SATISFACTION LEVEL TOWARDS PEOPLE (SERVICE PERSONNEL) ASPECTS OF VEHICLE**

S.No	Satisfaction Level	Sample Size	Percentage
1	High Satisfied	56	32.75
2	Moderate Satisfied	48	28.07
3	Dissatisfied	67	39.18
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be visualized from the above table that, with regard to satisfaction level of respondents towards people (service personnel) aspects of vehicle, 39.18% rated as dissatisfied, followed by 32.75% rated as highly satisfied and 28.07% of the respondents rated as moderately satisfied.

**SATISFACTION LEVEL TOWARDS PROCESS (SERVICE PROCESS) ASPECTS**

**TABLE 36: SATISFACTION LEVEL TOWARDS PROCESS (SERVICE PROCESS) ASPECTS OF VEHICLE**

S.No	Satisfaction Level	Sample Size	Percentage
1	High Satisfied	48	28.07
2	Moderate Satisfied	52	30.41
3	Dissatisfied	73	42.69
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be evident from the above table that, with regard to satisfaction level of respondents towards process (service process) aspects of vehicle, 42.69% rated as dissatisfied, followed by 30.41% rated as moderately satisfied and 28.07% of the respondents rated as highly satisfied.

**SATISFACTION LEVEL TOWARDS PHYSICAL EVIDENCE ASPECTS**

**TABLE 37: SATISFACTION LEVEL TOWARDS PHYSICAL EVIDENCE (SHOWROOM & SERVICE CENTRE) ASPECTS OF VEHICLE**

S.No	Satisfaction Level	Sample Size	Percentage
1	High Satisfied	45	26.32
2	Moderate Satisfied	52	30.41
3	Dissatisfied	74	43.27
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be inferred from the above table that, with regard to satisfaction level of respondents towards physical evidence aspects of vehicle, 43.27% rated as dissatisfied, followed by 30.41% rated as moderately satisfied and 26.32% of the respondents rated as highly satisfied.

**OVERALL SATISFACTION LEVEL TOWARDS THE CAR**

**TABLE 38: OVERALL SATISFACTION LEVEL TOWARDS THE CAR**

S.No	Satisfaction Level	Sample Size	Percentage
1	High Satisfied	58	33.92
2	Moderate Satisfied	63	36.84
3	Dissatisfied	50	29.24
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be analysed from the above table that, with regard to overall satisfaction level of respondents towards their vehicle, 36.84% rated as moderately satisfied, followed by 33.92% rated as highly satisfied and 29.24% of the respondents rated as dissatisfied.

**SOCIOECONOMIC PROFILE OF RESPONDENTS**

**AGE**

**TABLE 39: DETAILS ABOUT AGE OF RESPONDENTS**

S.No	Age group of respondents	Sample Size	Percentage
1	Up to 35	34	19.88
2	35 to 55	97	56.73
3	Above 55	40	23.39
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be examined from the above table that, with regard to socioeconomic profile and in particular age group of respondents, majority of 56.73% of the respondents are in the age group of 35 to 55 years, followed by 23.39% in the age group of above 55 years and 19.88% of the respondents in the age group less than 35 years.

**GENDER**

**TABLE 40: DETAILS ABOUT GENDER OF RESPONDENTS**

S.No	Gender of respondents	Sample Size	Percentage
1	Male	155	90.64
2	Female	16	9.36
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be seen from the above table that, with regard to socioeconomic profile and in particular gender of respondents, an overwhelming majority of 90.64% of the respondents are male and a small segment of 9.36% of the respondents are female.

**MARITAL STATUS**

**TABLE 41: DETAILS ABOUT MARITAL STATUS OF RESPONDENTS**

S.No	Marital Status of respondents	Sample Size	Percentage
1	Unmarried	13	7.60
2	Married	158	92.40
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be observed from the above table that, with regard to socioeconomic profile and in particular marital status of respondents, an overwhelming majority of 92.40% of the respondents are married and a small segment of 7.60% of the respondents are unmarried.

**EDUCATIONAL BACKGROUND**

**TABLE 42: DETAILS OF EDUCATIONAL BACKGROUND OF RESPONDENTS**

S.No	Educational Qualification	Sample Size	Percentage
1	Up to S.S.C.,	26	15.20
2	S.S.C., and +2	35	20.47
3	Diploma	13	7.60
4	Graduation	39	22.81
5	Post Graduation	11	6.43
6	Professional Qualification	47	27.49
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be interpreted from the above table that, with regard to socioeconomic profile and in particular educational qualifications of respondents, 27.49% of the respondents are having professional qualification, followed by 22.81% are graduates, followed by 20.47% belong to S.S.C., and Intermediate group, followed by 15.20% up to S.S.C., followed by 7.60% belong to diploma level and 6.43% of the respondents are post graduates.

**OCCUPATION**

**TABLE 43: DETAILS OF OCCUPATIONAL BACKGROUND OF RESPONDENTS**

S.No	Occupation	Sample Size	Percentage
1	Employee	51	29.82
2	Business	32	18.71
3	Professional	49	28.65
4	Agriculture	26	15.20
5	Student	5	3.51
6	Others	8	4.68
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be evaluated from the above table that, with regard to socioeconomic profile and in particular occupation of respondents, 29.82% of the respondents are employees, followed by 28.65% are professionals, followed by 18.71% belong to business group, followed by 15.20% belong to agriculture segment, followed by 4.68% belong to other occupations (house wives etc) and 3.51% of the respondents are students.

**FAMILY SIZE**

**TABLE 44: DETAILS OF FAMILY SIZE OF RESPONDENTS**

S.No	Number of Family Members	Sample Size	Percentage
1	Up to 3	23	13.45
2	Above 3 and up to 5	137	80.12
3	Above 5	11	6.43
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be visualized from the above table that, with regard to socioeconomic profile and in particular family size of respondents, majority of 80.12% of the respondents family size is 3 to 5 members, followed by 13.45% of the respondents family size is up to 3 and a small segment of 6.43% of the respondents family size is above 5.

**FAMILY MONTHLY INCOME**

**TABLE 45: DETAILS OF FAMILY MONTHLY INCOME OF RESPONDENTS**

S.No	Family Income per Month	Sample Size	Percentage
1	Up to Rs. 10,000/-	13	7.60
2	Above Rs. 10,000/- and up to Rs. 20,000/-	38	22.22
3	Above Rs. 20,000/- and up to Rs. 30,000/-	49	28.65
4	Above Rs. 30,000/-	71	41.52
	Total	171	100.00

Source: Field Survey

**INFERENCE:** It can be evident from the above table that, with regard to socioeconomic profile and in particular family monthly income of respondents, 41.52% of the respondents are having family monthly income above Rs. 30,000/-, followed by 28.65% of the respondents are having family monthly income above Rs. 20,000/- and below Rs. 30,000/-, followed by 22.22% of the respondents are having family monthly income above Rs. 10,000/- and below Rs. 20,000/-, and a small segment of respondents 7.60% are having family monthly income less than Rs. 10,000/-

**SUGGESTIONS**

It is suggested to take up following measures for further improvement of Four wheeler market in Nalgonda District of A.P.:

- There is a large gap between pre purchase expectation and post purchase opinion for various aspects of the vehicle. This leads to cognitive dissonance. Marketers should take up measures to reduce this gap.
- Manufacturers should take measures to increase mileage of their cars.
- Strategy should be formulated to reduce the prices and make the car available to the major segment of the society.
- Steps should be taken to make the spares parts available to the customers on time.
- Measures to be taken to speed up the after sales service because customers are highly dissatisfied in this aspect.
- Service personnel should be trained properly in treating and responding to the requirements of the customers.
- Expedite the Service process there by meeting the urgencies of the customers.
- Physical evidence should be maintained both in the sales and service aspects making the sense felt by the customers.
- It is suggested that the manufacturers should run driving schools and extend service to the prospective customers.

### LIMITATIONS OF THE STUDY

In a study of this magnitude though, meticulous care has been taken in each and every aspect of study. Certain limitations are likely to be there in the study.

1. Some respondents were not aware of certain procedures and aspects.
2. A few respondents were hesitant to give details.
3. There might be a sense of bias crept in answers given by the respondents.

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**A STUDY ON THE BARRIERS AFFECTING THE GROWTH OF SMALL AND MEDIUM ENTERPRISES IN INDIA**

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**ABSTRACT**

*Small businesses are considered as a means for accelerating the economic growth of the Indian economy. The contribution of Small and Medium Enterprises (SMEs) towards the nation's economic progress is generally acknowledged but these firms face several barriers which affect their growth. In this present study an attempt has been made to reveal the barriers affecting the growth of small and medium enterprises involved in the manufacture of Servo stabilizers. A structural equation model was developed using Partial Least Square technique, to estimate the influence of barriers on the growth of firms. A sample comprising of 150 SMEs manufacturing Servo stabilizers in 12 states/union territories of India was taken for the study. The impediments caused by the external forces of the business are taken as the barriers affecting the growth of firms. The results indicate that there is a significant influence of the insufficient structural support and planning, credit constraints and competitiveness constraints on the growth of firms. The findings of the study provide necessary suggestions for SMEs to respond quickly to identify and effectively tackle their issues in order to achieve desired growth, profitability and longevity. Further the study pinpoints the required support from government, banks and policy-makers.*

**KEYWORDS**

Barriers, Growth of firms, Partial least squares, Servo stabilizers, Small and Medium enterprises (SMEs).

**INTRODUCTION**

 Small and medium enterprises are a dynamic sector and it occupies a prominent place in the Indian economy due to its significant contribution in terms of output, exports and employment. According to the 'Annual Report of Micro, Small and Medium Enterprises' (2009-10), it is estimated that in terms of value, the sector accounts for about 45 per cent of the manufacturing output and 40 per cent of the total exports of the country. The sector is estimated to employ about 59 million persons in over 26 million units throughout the country. Further, this sector has consistently registered a higher growth rate than the rest of the industrial sector. There are over 6000 products ranging from traditional to high-tech items, which are being manufactured by the Micro, Small and Medium Enterprises (MSMEs) in India. It is well known that the MSME sector provides the maximum opportunities for both self-employment and jobs after agriculture sector. Hence the survival and growth of SME firms is very essential for the Indian economy. In this perspective, there is a need for research on the barriers that affect the growth of SME firms.

The survey conducted by International Finance Corporation in 80 countries covering more than 10000 firms, uncovers major obstacles for business development for small, medium and large enterprises which include issues like financing, infrastructure, stability in policies, taxes and regulation. These firms face more or less common type of barriers across the world and there are reasons to believe that the firm size is inversely related to the severity of obstacles they face. In terms of ranking, one-third of the firms indicated that financing appears to be the top problem. This figure was slightly lower for large firms. After financing were the issues like inflation, policy instability and taxes and regulations. Ranking obstacles by worldwide, notably taxes and regulations emerged as the number one problem in place of financing. In financing area, the study reveals that the bias against small firms was quite pronounced as a number of large units in Latin American countries including Argentina, Brazil, Columbia reported significantly less barriers with financing than medium and small firms. The same pattern emerged in South Africa and Thailand. This also was the case in many countries, particularly in transition economies. In sum the major findings of the study indicate that small firms report more barriers than medium size firms, which in turn face more obstacles than large firms. Assuming that such a bias in the size of distribution of firms is indeed not in favor of economic development and poverty alleviation, these findings call for process of support for small and medium size enterprises by policy makers (Schiffer and Weder, 2001).

There is no universal definition of small and medium enterprises. Each country follows certain standards like number of employees or annual turnover to classify a unit as micro, small or medium enterprise; in some countries a combination of both is followed. According to the Micro, Small and Medium Enterprises Development (MSMED) Act of India 2006, a small scale enterprise is defined in terms of investment in plant & machinery up to ₹50 million and a medium scale enterprise to have investment in the range of ₹50 million to ₹100 million. Thus SMEs would cover all enterprises having investment in plant & machinery up to ₹100 million (Report of MSME, 2007).

**LITERATURE REVIEW ON BARRIERS HINDERING THE GROWTH OF FIRMS**

There are factors that generally facilitate firm growth but there are also factors which hinder potential growth. Such factors are titled as growth barriers. The growth barriers for small businesses are classified as institutional barriers and financial barriers. Institutional barriers are mainly discussed with the focus on firms' interaction with government, including legalization, taxation, and government support amongst others. Financial barriers represent lack of financial resources (Davidsson, 1989). Furthermore; SMEs could also face external barriers, internal organizational barriers and social barriers which cover aspects of market position of a firm, access to qualified human capital, and access to network (Bartlett & Bukvic, 2001). However, growth can happen only if there are no barriers. The barriers taken for the study are the impediments caused mainly by the external forces of the business. The growth barriers collected through review of literature shows that, they broadly fall into categories of insufficient structural support and planning, credit constraint and competitiveness constraints are presented hereunder.

**CREDIT CONSTRAINT**

Firms depend on a variety of sources of financing, both internal and external. In the case of SMEs, bank loans and trade credit are the main two alternative sources of external funding. Bank lending may be the cheapest source of external funding (Petersen and Rajan 1994). It has been argued that credit constraints, lack of external debt, and equity capital are the main obstacles to the growth of SMEs (Beccchetti and Trovato, 2002; Pissarides, 1998; Riding and Haines, 1998). Banks show their reluctance to extend credit to small enterprises because of the high administrative costs of small-scale lending; asymmetric information; high risk perception and lack of collateral (Ghatak, 2009). Evidence suggests that banks are more conservative when they provide loans to SMEs. Due to the information asymmetries, SMEs are more likely to be charged relatively high interest rates and asked for high collateral and loan guarantees (Stiglitz and Weiss,



1981). In addition to sourcing the finance, the cumbersome procedure for registering and commencing business are key issues often cited. According to Doing Business Report (2006) indicated that India is ranked 133 out of 183 economies in the ease of doing business and it requires 13 procedures, takes 30 days, and costs 66.06 % GNI per capita to start business and India is ranked 30 overall for getting credit out of 183 economies. Firms in developing countries suffered from frequent changes in rules and regulations, laws, administrative procedures and the resulting in uncertainty and raised the information and compliance costs for businesses. SMEs in particular were disproportionately affected by these changes as the compliance cost bears more heavily on smaller firms (Hoshi, et al., 2003; Storey, 1994).

### COMPETITIVENESS CONSTRAINTS

Barriers and challenges facing SMEs are many and varied. Due to their size, individual SMEs are constrained from achieving economies of scale in the purchase of inputs such as equipment, raw materials, finance, and consulting services; are often unable to identify potential markets; and unable to take advantage of market opportunities that require large volumes, homogenous standards, and regular supply. Improvements in product, process, technology, and organizational functions such as design, logistics, and marketing have become the critical success factors in firm competitiveness in a globalizing economy. Firms compete more and more not only on the basis of prices, but on the basis of their abilities to innovate, or upgrade. SMEs are thus under pressure to innovate and to upgrade their operations in order to participate in international markets. Small size is also a constraint on accessing such functions as training, market intelligence, logistics and technology. These constraints make it difficult for SMEs to access global markets; and also limit their performance in increasingly open, competitive domestic markets (Abonyi, 2003). The constraints of SMEs to be export competitive include product reservations, regulatory hassles in the entry and exit stages, insufficient finance at affordable prices, inflexible labor markets and infrastructure related barriers like power tariff and insufficient export infrastructure (Das et.al, 2007).

Previously insulated from international competition, many SMEs are now faced with greater external competition and the need to expand market share. However, their limited international marketing experience, poor quality control and product standardization, and little access to international partners, continue to impede SMEs' expansion into international markets (Aryeetey et al., 1994). SMEs need to understand the realities. Competition has been heightened and there is consistent and continuous need to become efficient, quality focused and innovative. Further, law or policy of a State can help or protect only up to a limit and beyond that SMEs have to navigate themselves. SMEs should not to forget that they have distinct advantage over large firms in terms of flexibility, cost effectiveness and replicable approach by locally available resources (Bhatia, 2008). Asian Development Bank (2001) reports, SMEs often operate under difficult circumstances and feel the brunt of weak infrastructure. Faced with erratic power supply they are less likely to be able to purchase their own generators.

### INSUFFICIENT STRUCTURAL SUPPORT AND PLANNING

The government policy towards SMEs may either encourage or discourage further expansion. India offers attractive incentives to small enterprises, but by some accounts, these measures backfire because growth beyond a specified level entails losing valued benefits (Little et.al, 1987; Mitra and Pingali, 1999). The manufacture of certain products in India is reserved for small firms, which reduces incentives for firm expansion (World Bank, 2005). Some owners even split up their business into several enterprises, in an effort to make them look smaller (Kashyap, 1988). Similarly, a recent study in Brazil showed that the "Simples" program, which offers tax benefits only up to a certain size of firm, induces formalization but causes firms to shrink (De Paula and Scheinkman, 2007). Micro and small firms in developing countries generally do not correspond to the most efficient scale of production, yet they allow people to be independent and make a living (Little et.al, 1987). Firms that enter small often remain small, because they face formidable barriers to growth. It has even been suggested that it is more common to find the entry of large firms than smaller firms growing large (Van Biesebroeck, 2005). Several authors have commented on the "missing middle" in the firm size distribution that arises when large firms grow larger but small firms rarely grow themselves into the next size category (Tybout, 2000; Sleuwaegen and Goedhuys, 2002). These enterprises remain small for a whole host of reasons such as continuing financial constraints, transport costs, limited infrastructure, lack of suitable management resources, and also the desire to stay small and informal so as to avoid taxes. An econometric analysis of firm-level data in 54 countries suggests that financial, legal and corruption challenges disproportionately constrain the growth of smaller firms (Beck et.al, 2005). For instance, strict regulations and high taxes may keep firms small and informal (De Soto, 1989). Regulatory and institutional challenges may deter small business owners from making growth enabling investments, while special subsidies and trade protection offer greater benefits to larger firms, who are often more capable of lobbying (Tybout, 2000).

Based on the literature review, the barriers faced by the firms are classified into three categories or constructs namely, 1) Insufficient structural support and planning 2) Credit constraints and 3) Competitiveness constraint.

The first construct 'Insufficient structural support and planning constraints' includes four indicators namely i) Government must provide adequate support to SME firms ii) Manufacturers must build abilities to develop new technology in order to reduce the production cost iii) Establishment of appropriate regulatory competitive policy is necessary and iv) Future plans for expansion of the firm is necessary.

The second construct 'Credit constraint' has four indicators namely, i) Money and time needed for business registration and government procedures ii) Insufficient capital iii) Difficulty in generating external finance and iv) Too many formalities restricts, getting bank loans

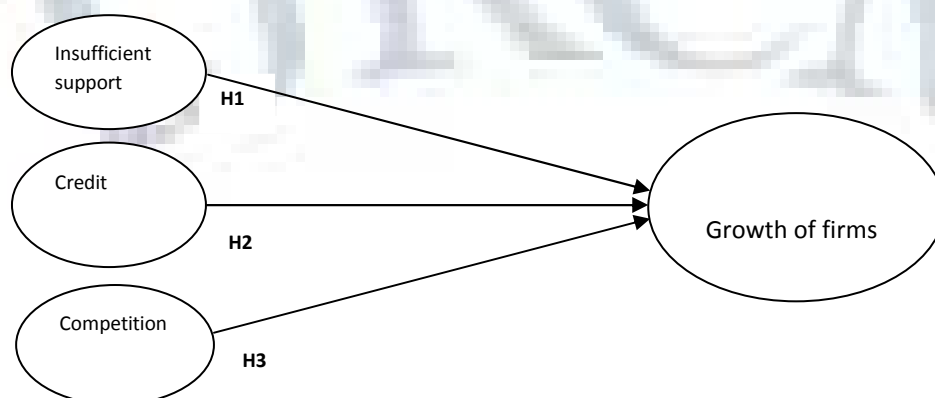
The last construct 'Competitiveness constraint' has three indicators namely, i) There is a need for skilled workforce ii) Assistance needed to compete in the world market iii) Shortage of power restricts the production efficiencies.

### OBJECTIVES OF THE STUDY

The objective of the present study is to assess the relationship of 'Insufficient structural support and planning', 'credit constraint' and 'competitiveness constraints' on the business growth of SMEs in India. The study is based on servo stabilizer manufacturing sector which has a predominance of SME units.

### CONCEPTUAL MODEL AND RESEARCH HYPOTHESES

FIGURE 1: BARRIERS AFFECTING GROWTH OF FIRMS



(Insufficient support denotes – Insufficient structural support and planning, Credit denotes – Credit constraint, Competition denotes – Competitiveness constraint)

The structural model has three constructs and three hypotheses have been generated from the relations of these three constructs (H1, H2 and H3). The hypotheses, for the barriers affecting the growth of firms is stated as follows:

**Hypothesis 1:** The Insufficient structural support and planning has an influence on the growth of firms.

**Hypothesis 2:** The credit constraint has an influence on the growth of firms.

**Hypothesis 3:** The competitiveness constraint has an influence on the growth of firms.

## METHODOLOGY

The firms manufacturing servo stabilizers were identified through various sources like District Industrial Centre, Raw material suppliers, telephone and online directories. Literature review and the feed back from the panel of experts provided inputs for the development of the research questions. The pilot study further refined the questionnaire before finalizing it. The variables under barriers were measured using four point Likert-type scale ranging from 1- "strongly disagree" to 4- "strongly agree". Subjective measures were used for the dependent variable "growth" ranging from 1- "least important" to 4 - "most important". The growth of sales for the past five years has been taken to measure the business growth of firms. For data collection, personal interviews and postal questionnaires were considered as an appropriate methodological option. The data were obtained from owners/managers of the respondent firms. The sample consisted of 150 manufacturing firms in India. The primary data collected from the firms were analyzed using the Visual Partial Least Square software.

## RESEARCH MODEL

In order to study the barriers affecting the growth of manufacturing firms, a structural equation modeling technique was applied to examine the model and hypotheses. The software used to apply Partial Least Squares (PLS) to the model was Visual PLS. PLS is well suited to explaining complex relationships, such as causal-predictive analysis in situations of low theoretical information (Fornell & Bookstein, 1982; Fornell, Lorange, & Roos, 1990; Joreskog & Wold, 1982). PLS can be used for, theory confirmation and developing propositions for further testing (Chin & Newsted, 1999). A two-step approach will be used to interpret the PLS model, first the construct validity and reliability of the multi-item variables will be assessed in PLS prior to estimating the final PLS structural model, and secondly the refined structural model will be assessed. These two steps are used to ensure that reliable and valid measures of constructs are used before drawing any conclusions about the nature of the relationships (Hulland, 1999) PLS was chosen as the most appropriate statistical technique for this study for two reasons. The first of these reasons is due to the sample size. PLS is particularly well suited to small sample sizes. The second reason is that PLS can be used where the data is multivariate non-normal. The first step of the PLS measurement model involves examining the construct reliability and validity of the multi-item variables.

## RESULTS AND DISCUSSIONS

Reliability of the individual items can be determined by examining the composite reliability statistics for each of the variables. Composite reliability (also termed convergent validity) is important when multiple measures are used for an individual construct. Cronbach's alpha is also often used to measure reliability. For each of these, the closer the statistic is to one the better, and a modest threshold is 0.70. The composite reliability statistics generated in PLS were all greater than the threshold of 0.70, indicating satisfactory composite reliability for each of the constructs.

TABLE 1: CONVERGENT VALIDITY

Construct	Cronbach's Alpha	Composite reliability	Average Variance Extracted
Structural support and planning	0.800240	0.847191	0.583906
Credit	0.702913	0.820989	0.535124
Competitiveness	0.752523	0.855546	0.663934
Business Growth	0.000000	1.000000	1.000000

The individual reliability of each item is given by loadings or correlation between the item and the construct. The convergent validity represents the common variance between the indicators and their construct is measured by Average Variance Extracted (AVE) and the acceptable threshold should be superior to 50% (Fornell and Larcker, 1981). Two tests were conducted to examine convergent validity. First the item reliability by factor loading on the construct was taken. All items had a loading above the suggested 0.55 (Falk and Miller, 1992). Only the items complying with the prerequisite have been incorporated. Second the construct's AVE was examined, the AVE values for all constructs were above the limit of 0.50. In summary, convergent validity was supported.

## DISCRIMINANT VALIDITY

The next table shows correlations between constructs and in diagonal are the square roots of the AVE.

TABLE 2: DISCRIMINANT VALIDITY

Construct	Plan	Credit	Competition	Growth
Structural support and planning	<b>0.583</b>			
Credit	0.249	<b>0.731</b>		
Competitiveness	0.176	-0.327	<b>0.814</b>	
Business Growth	0.246	-0.060	0.417	1.000

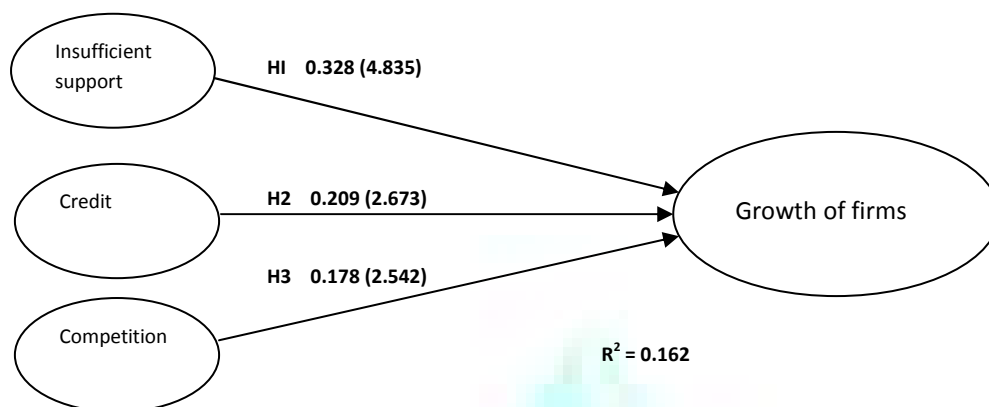
Discriminant validity indicates the extent to which a given construct is different from other constructs. Discriminant validity is assessed both at the item level and at the construct level. With respect to item, an inspection of indicator cross-loadings reveals that all indicators are loading at their highest with their respective construct and that no indicator loads higher on other constructs than on its intended construct. Therefore it is safe to assume item discriminant validity. At the construct level, to evaluate any presence of discriminant validity among constructs, it is necessary that the AVE square root be superior to the correlation between constructs (Fornell and Larcker 1981). Overall, the evaluation of the reflective measurement models reveals that all constructs are of satisfactory reliability and validity for the purposes of this analysis.

TABLE 3: ASSESSMENT OF THE STRUCTURAL MODEL

Hypothesis	Path		Path co-efficient	t values	Supporting Hypothesis Yes/No
	From	To			
H1	Structural support and planning	Business Growth	0.328	4.835	Yes
H2	Credit	Business Growth	0.209	2.673	Yes
H3	Competitiveness	Business Growth	0.178	2.542	Yes

A standard bootstrapping procedure (Yung and Bentler 1996) with 500 re-samples consisting of the same number of cases as in the original sample (that is, 150) was applied in order to determine the significance of each estimated path. To be significant the 't' value should be greater than 1.96 or smaller to -1.96 or probability (1-alpha) or = 0.05.

FIGURE 2: PLS MODEL ON GROWTH BARRIERS



(Insufficient support denotes – Insufficient structural support and planning, Credit denotes – Credit constraint, Competition denotes – Competitiveness constraint)

From the Figure 2, the hypothesis with the t value, path co-efficient (values in the parentheses) and  $R^2$  illustrates the structural model estimation. The model portrays the impact of barrier's variables (insufficient structural support and planning, credit constraint and competitiveness constraint) on the growth of firms.

### DISCUSSION ON HYPOTHESES ACCEPTANCE

't' value has been calculated after conducting a boot strap, in order to validate all the model items, all the referred items are significant at 0.05 level. The summary is given below:

- 't' value for the path 'insufficient structural support and planning' is 4.8348 implying that, there is a significant influence of insufficient structural support and planning on the growth of firms. Hence Hypothesis 1 is supported. This finding concur with those in the previous studies of Glas et al. (2000) found that the most important barriers faced by new entrepreneurs in Slovenia and Croatia is the lack of entrepreneurial spirit, unsupportive government regulations, weak financial support and an increasing gray economy.
- 't' value for the path 'credit constraint' is 2.6732 implying that, there is a significant influence of credit constraint on the growth of firms. Hence Hypothesis 2 is supported. Small businesses are under-capitalized and tend to depend upon their own or family savings and access to capital remains a challenge. Most of them cannot meet the requirements for commercial loans, and those who do find such loans expensive (Gray, Cooley, and Lutabingwa, 1997; Trulsson, 1997; Van Dijk, 1995).
- 't' value for the path 'competitiveness constraint' is 2.5422 implying that, there is a significant impact of competitiveness constraint on the growth of firms. Hence Hypothesis 3 is supported. Hoshi, et al. (2003) states that growth barriers were caused by restrictions determined by authorities, barriers in obtaining a skilled workforce, and the small number or lack of potential cooperation partners in the area.

### SUGGESTIONS

The results of the study suggest the following:

#### INSUFFICIENT STRUCTURAL SUPPORT AND PLANNING

- The SME supporting institutions can extend their assistance to Servo Stabilizer manufacturing firms without much cumbersome procedures.
- A training programme for the entrepreneurs will enhance the manufacturers to be aware of the technology, new methods of business transaction and available support given to SMEs.
- A regulatory pricing policy will control the reduction of prices among competing firms. These will eventually help every single manufacturer involved in the manufacturing Servo Stabilizers.
- Through proper networking the firms can improve their businesses drastically. Each manufacturer will have knowledge of the current market demand, customer requirements, pricing policy and problems faced by firms.

#### CREDIT CONSTRAINT

- Firms not interested in doing this business in the long run have not registered their firms. Hence firms need to know the advantages of registering their firms to avail facilities like, external credit, government orders and other services offered by the SME supporting institutions.
- Firms can change their legal form to partnership or private limited companies; this will generate more funds and more hands to work.
- Initially the funds can be generated through relatives and friends, as the business improves they can easily avail bank loans.
- By improving the sales activities, efficiently limiting the credit period and utilizing the production capacity to the maximum level, the financial position will improve substantially.

#### COMPETITIVENESS CONSTRAINTS

- The government must come forward to encourage the SMEs to export their products, by way of standardizing the product and helping them to fulfill the procedures for international business for a reasonable fee.
- Though the power shortage restricts the production activities, on the contrary the power shortage brings more new orders and service contracts for Servo stabilizer manufacturing firms.

### TO SUM UP

Growth barriers occur beyond the control of the firms. In this study also, there exist many barriers limiting the growth of firms but not in an alarming rate. Hence the firms are required to act quickly to respond to the business changes. The Government of India must provide adequate support to SME firms by establishing appropriate regulatory competitive policy, adequate power and other infrastructure facilities to increase their competitiveness. The banks should provide the needed access to finance and also revamp their formalities and procedures for credit. The SMEs are the strategic thrusts for the future and hence nurturing them is vital for economic growth of India.

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## A MEDICAL IMAGE COMPRESSION TECHNIQUE

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### ABSTRACT

*This paper addresses the area of the image compression of medical images. An approach to compress the medical set of images is presented here. The proposed work aimed at the compression of DICOM images. DICOM is a standard for handling, storing, printing and transmitting information in Medical Imaging. These medical images are volumetric consisting of a series of sequence of slices through a given part of the body. In the proposed algorithm, DICOM (Digital Imaging and Communications in Medicine) Images are decomposed using Haar Wavelet transform, the wavelet co-efficient are encoded using SPIHT (Set Partitioning In Hierarchical Trees). The quality of the images are evaluated by various quality measures at various bit rates and decomposition levels.*

### KEYWORDS

Medical Images, DICOM (Digital Imaging and Communications in Medicine, HAAR Wavelet, Set Partitioning in Hierarchical Trees(SPIHT), DICOM Previewer, X-ray Images.

### INTRODUCTION

Visual Communication plays a vital role in today's environment in several areas such as Communication, Multimedia, Transmission, Storage of remote sensing images, Education and Business Documents, and Medical Images etc. In Medical environment, storing and retrieval of large set of images (e.g the factors of Volumetric data sets, Sequence of images, image databases) makes the Compression essential.

Image Compression is the changing field with different kinds of methods. Images can be compressed by using two different kinds of compression techniques, Lossy (or) Lossless Compression Techniques. Lossy Compression technique doesnot give the exact recovery of the images whereas Lossless Compression gives the exact replication of images.

In Compression of images, JPEG and Wavelet Compression methods are most popular methods recommended by Medial Community. In Lossless Compression, JPEG Image Compression is the Standard Method. Wavelet Compression has been proved to be very effective in the field of Medical Imaging.

Two Component algorithm, CDF and SPIHT combination is used to compress the MRI images very effectively. This paper brings out the compression of images using Haar Wavelet and SPIHT. A set of X-ray images are used for experiments. The Discrete Wavelet Tranform of the image is calculated by Haar Wavelet Transform. The decomposed wavelets are encoded by SPIHT. This method gives the better compression ration compared with other standard methods.

The various picture quality measures, Mean Squared Error (MSE), Peak Signal to Noise Ration (PSNR), Average Difference (AD), Structural Content (SC) are used to study the performance of the compression in this method.

This paper is organized as follows: Section 2 discuss brief review of medical image compression. In Section 3, Overview of wavelets is discussed. Section 4 gives Haar Wavelet Transform. Section 5 describes about SPIHT Coder. Section 6 presents the proposed coding method for a set of DICOM images, X-Ray images. Section 7 shows the experimental results of the proposed methods. Section 8 discusses the performance of compression by this method using various X-ray images. Section 9 gives the Conclusion.

### DICOM IMAGES

DICOM (Digital Imaging and Communications in Medicine) is a standard for handling, storing, printing, and transmitting information in medical imaging. DICOM differs from some, but not all, data formats in that it groups information into data sets. That means that a file of a chest X-Ray image, for example, actually contains the patient ID within the file, so that the image can never be separated from this information by mistake. This is similar to the way that image formats such as JPEG can also have embedded tags to identify and otherwise describe the image.

A DICOM data object consists of a number of attributes, including items such as name, ID, etc., and also one special attribute containing the image pixel data (i.e. logically, the main object has no "header" as such: merely a list of attributes, including the pixel data). A single DICOM object can only contain one attribute containing pixel data. For many modalities, this corresponds to a single image. But note that the attribute may contain multiple "frames", allowing storage of cine loops or other multi-frame data.

### MEDICAL IMAGE COMPRESSION

Medical Image Compression plays a vital role in the hospitals in many applications. It helps PACS to reduce the file Sizes on their Storage and Retrieving Process. A typical 16 bit mammogram image may be 4500 pixels by 4500 pixels in dimension for a file size of 40 megabytes. This makes larger storage space, finds difficult in transmitting the images over the network (i.e from one hospital to another to get the diagnostic procedure). The combination of improvement in technology and suitable image compression techniques makes the process easier and safer in the Medical Imaging. The 3-D Medical data sets needs efficient image compression, solving the transmission problems.

Most of the algorithms exist are focused on the lossless methods as the medical community is reluctant to adopt lossy techniques owing to the legal and regulatory issues that are raised. The existing compression algorithms focused on the medical image are JPEG and Wavelets. The JPEG is adopted by the DICOM group in DICOM image File Format, but wavelet compression algorithm is getting popular. The different wavelet compression algorithms are, Said and A. Pearlman developed a SPIHT coding algorithm, a refined version of embedded zero tree wavelet coder(EZW), A. R. Golderbank, Ingrid Daubechies, Wim Sweldens and Boon-Lock Yeo developed Lossless Image Compression using Integer to Integer wavelet transforms, K. Vidhya and S. Shenbagadevi developed two component medical image compression algorithm using CDF and SPIHT.

**HAAR WAVELET**

It is the simplest orthonormal wavelet which is best in terms of memory consumption and despite other wavelets without any influence of edge, is completely recursive. Haar wavelet does not possess overlap windows and only reflects the changes between two adjacent pixels.

It uses just two functions as scale and wavelet; it calculates average and difference of a pair. Each step in the forward haar transform calculates a set of wavelet coefficients and a set of averages. If a data set contains n elements, there are n/2 averages and n/ 2 coefficient values. Scaling and Wavelet functions for haar wavelet are given in (1) & (2) respectively. Where So to Sn\_1 are image data, a is averaging, d is differencing.

$$a = (S_i + S_{i+1}) / 2 \text{ -----(1)}$$

$$d = (S_i - S_{i+1}) / 2 \text{ -----(2)}$$

Haar average is calculated by the scaling function and coefficient is calculated by the wavelet function. Haar wavelet operates first on adjacent horizontal elements and then on adjacent vertical elements. As each transform is computed the energy in the data is relocated to the top left hand corner. After each transformation the dimensions of resulted image cut into two halves.

**SPIHT CODER**

SPIHT technique is based on a wavelet transform and differs from conventional wavelet compression only in how it encodes the wavelet coefficients. SPIHT is based on three concepts:

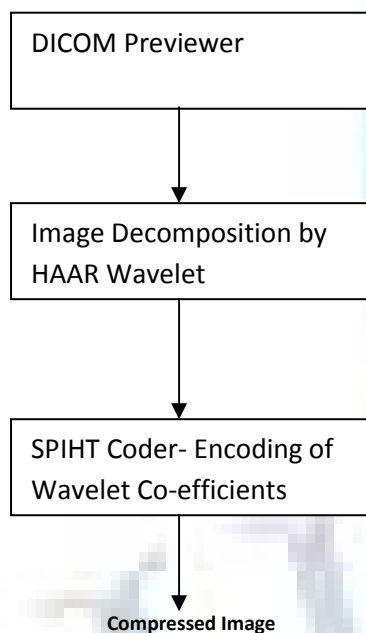
- (1) Exploitation of the hierarchical structure of the wavelet transform by using tree-based organization of the coefficients,
- (2) Partial ordering of the transformed coefficients by magnitude,
- (3) Ordered bit plane transmission of refinement bits for the coefficient values.

**PROPOSED ALGORITHM**

The previewer gives a list of files from a selected directory. These medical images are volumetric consisting of a series of sequences of slices through a given part of the body. To maintain uniform quality for all sequences of slices a single slice is encoded and compressed bitstream is sent to the decoder. After the encoder and decoder finish all the slices in a sequence, it shifts to process the next sequence of slices. The block diagram of proposed method is shown in below. DICOM Images (X-ray) images are decomposed using Haar Wavelet Transform. The algorithm starts at the coarsest sub band in the sub band pyramid. SPIHT captures the current bitplane information of all the DWT coefficients and organizes them into three subsets:

- (1) List of Significant Pixels (LSP),
- (2) List of Insignificant Pixels (LIP) and
- (3) List of Insignificant Sets of Pixels (LIS).

LSP constitutes the coordinates of all coefficients that are significant. LIS contains the roots of insignificant sets of coefficient. Finally, LIP contains a list of all coefficients that do not belong to either LIS or LSP and are insignificant. During the encoding process these subsets are examined and labeled significant if any of its coefficients has a magnitude larger than a given threshold. The significance map encoding (set partitioning and ordering pass) is followed by a refinement pass, in which the representation of significant coefficients is refined. These thresholds used to test significance are powers of two, so in its essence, the SPIHT algorithm sends the binary representation of the integer value of wavelet coefficients.



**SIMULATION RESULTS**

Medical Image compression is both a popular research problem in image compression and an important application in its own right. 8-bit 512x512 images were tested to evaluate the performance of the COMBINED TECHNIQUE OF Haar Wavelet and SPIHT. Fig1 and Fig 2 gives the input and the compressed image.

**FIG 1: CT BRAIN AND MRI BRAIN**



Haar Wavelet is used to decompose the image and SPIHT is used to compress the decomposed image. The standard objective measure of image quality PSNR is used to discuss the performance of the compression of medical images using this techniques. The PSNR value for the CT and MRI image is listed in the table.

S.No	PSNR
CT	39.2
MRI	36.1

## CONCLUSION

A wavelet based compression with set partitioning in hierarchical trees brings out good performance in DICOM series of images for medical image compression. The statistical data shows that proposed algorithm brings better performance than standard compression algorithms. To study the performance, subjective measures PSNR is taken. The Proposed algorithm appears to give extremely good performance for medical image compression, and may be very useful in practical implementations of teleradiology and digital picture archiving and communications (PACS) systems.

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**HIGH ENGAGEMENT & LOW ATTRITION – A STUDY OF THE TELECOM INDUSTRY IN INDIA**

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**ABSTRACT**

The Indian Telecommunications network is the third largest in the world and the second largest among the emerging economies of Asia. The telecom sector has been one of the fastest growing sectors in the Indian economy in the past 4 years. This has been witnessed due to strong competition that has brought down tariffs as well as simplification of policy environment that has promoted healthy competition among various players. The growth of the industry prompted the government to allow more players on the field leading to an intense price war in an attempt to garner market share. This ultimately led to dwindling revenues per user and dented the balance sheets of most players. The increased number of market players also led to large scale migration of intellectual capital between organizations. Managing employee turnover has thus become a major challenge for the Telecom industry, especially in India. This has led organizations to focus on methods and techniques to increase employee engagement and reduce attrition. It is now well understood by organizations that employee engagement is the force that drives performance outcomes. Employee engagement is a human resources initiative that lays the strategic foundation for the way organizations do business. Employee Engagement is a measurable degree of an employee's emotional attachment to their job environment. It profoundly influences their willingness to learn and perform at work. Employee engagement is distinctively different from employee satisfaction, motivation and organizational culture. The purpose of this paper is to investigate employee engagement and its relationship to employee attrition using a mixed method research design. The first phase of the research involved a survey on a sample of 280 employees in various telecom companies using questionnaires, focused group interviews and group discussions. Focused group interviews and discussions were based on identifying the primary reasons for attrition and addressing the unique problem of employee engagement. In the second phase a sample was chosen at random and the exit interview data of an organization, spanning a period of three years, for further analysis (factor & content).

**KEYWORDS**

Human Resource Management, Employee Engagement, Retention, Attrition, Telecom in India, Employees.

**INTRODUCTION**

The Indian telecom industry has witnessed tremendous growth in the last 10 years due to the liberal policies of the government and the extensive need for communication. The conducive business environment, favorable demographic outlook and the political stability enjoyed by the country have contributed to the growth of the industry. The number of telephone subscribers in India increased from 787.28 million in December 2010 to 846.32 million at the end of March 2011. This amounts to a sequential growth of 7.50% over the previous quarter. This reflects year-on-year (Y-O-Y) growth of 36.22% over the same quarter of last year. The overall Teledensity in India has reached 70.89 as on 31st March 2011. Subscription in Urban Areas grew from 527.50 million at the end of Dec-10 to 564.08 million at the end of Mar-11, taking the Urban Teledensity from 147.88 to 157.32. Rural subscription increased from 259.78 million to 282.23 million, and the Rural Teledensity increased from 31.18 to 33.79. The share of rural subscribers has increased to 33.35% in the total subscription from 33% at the end of December 2010.<sup>1</sup>

**RESEARCH PROBLEM**

The telecom industry in India (as well as global) outlook has been diminishing over the last one year, after being in the lime light over a decade. The high capital expenses due to spectrum license fees, 3G service launch, higher number of players and the resultant price wars and lower revenues per customers have all contributed to this decline.

The Average Revenue per User (ARPU) for GSM service declined by 4.52%, from INR 105 in the quarter ending December 2010 to INR 100 in QE Mar-11, with Y-O-Y decrease of 23.7%. 10. This corresponds in a drop in Minutes of Use (MOU) MOU per subscriber for GSM as well as CDMA services. The ARPU for CDMA service declined by 3.79%, from INR 68 in quarter ending December 2010 to INR 66 in the quarter ending march 2011. ARPU for CDMA has declined by 13.81% on Y-O-Y basis. The access service, which has been steadily growing, has contributed 74.87% of the total revenue of telecom services. This has also been due to the increase in license fees for these services. The table 1 below provides a current snapshot of the Indian Telecom Industry.

**TABLE – 1 TELECOM INDUSTRY IN INDIA – A SNAPSHOT<sup>2</sup>**

S.N	Parameters	Value (%)
1	<b>Subscribers</b>	
	Urban	66.65
	Rural	33.35
	% change over the previous quarter	7
2	<b>Operators Market Share</b>	
	Private	85.11
	PSU	14.89
3	<b>Urban Teledensity</b>	157.32
	Rural Teledensity	33.79
	Overall Teledensity	70.89

<sup>1</sup> TRAI Report – Quarter Ending March 2011

<sup>2</sup> Source - The Indian Telecom Services Performance Indicators – TRAI Report, July 2011



One of the primary areas of concern for the telecom sector is the spiraling attrition rate that is currently hovering around the 25% mark. Employee turnover (ET) is often utilized as an indicator of corporate performance and can easily be observed negatively towards the organizations efficiency & effectiveness. Talent shortages, high levels of mobility are thus key challenges in the telecom industry.

Employee engagement is thus today a leading agenda and top priority for telecom companies in India. "In a world that is changing both in terms of the global nature of work and the diversity of the workforce, engaged employees may be a key to competitive advantage." Companies that understand the conditions that enhance employee engagement will have accomplished something that competitors will find very difficult to imitate. In fast-changing environments, it becomes all the more difficult to precisely specify roles and responsibilities. To the extent that employees are likely to be faced more frequently with unanticipated and ambiguous decision-making situations, organizations must increasingly count on employees to act in ways that are consistent with organizational objectives. In addition, many employees are looking for environments where they can be engaged and feel that they are contributing in a positive way to something larger than themselves.<sup>3</sup>

## LITERATURE SURVEY

An extensive literature survey was undertaken to study the subject in hand. The key works that were highly pertinent to the research problem have been reproduced in this section. The study of literature validated the research problem and the fact that employee engagement has an impact on overall organizational productivity.

### JOURNAL

**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. 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. 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.

### RESEARCH PAPERS

**Hamdia Mudor & Phadett Tooksoon, Conceptual framework on the relationship between human resource management practices, job satisfaction, and turnover, Journal of Economics and Behavioral Studies, Vol. 2, No. 2, pp.41-49, Feb 2011**

This paper proposes a conceptual framework consisting of three human resources management (HRM) practice (supervision, job training, and pay practices), job satisfaction, and turnover, and to explain the relationships among these variables. Job satisfaction played an important role in employee turnover because it would lead employee exit when their job satisfaction is low. The results indicate HRM practice a positively and significantly correlated with job satisfaction. On the other hand HRM practice and job satisfaction are negatively and significantly correlated with turnover. However, the results of HRM practice and job satisfaction are strong predictors of turnover.

### ONLINE SOURCES

**Pierce, Hazel, and Mion (1996), Professional practice model (PPM), WWW Document, PDF, Accessed Nov 20, 2011**

Job satisfaction is in regard to one's feelings or state-of-mind regarding the nature of their work. Job satisfaction can be influenced by a variety of factors, for example pay practice, quality of one's relationship with their supervisor, quality of the physical environment in which they work whereby turnover refers to the characteristic of a given company or industry, relative to rate at which an employer gains and loses staff. For example, if an employer is said to have a high turnover, it means that employees of that company have a shorter tenure than those of other companies in that same industry. Job satisfaction and turnover are basically related by which job satisfaction has direct effect on the turnover. Vast literatures exist on the relationships between two variables as mentioned. Pierce, Hazel, and Mion (1996) examine the effect of a professional practice model (PPM) on job satisfaction and turnover. They employ the implementation of a PPM as the characteristics of participative decision making; control over work practices; organizational supportiveness; collegial relationships; open, multilevel communication; and rewards linked to clinical proficiency. The results of their study affirm the significantly correlated with increased job satisfaction and lower turnover rates among organizational employees. In fact, as a result of their study give an idea about the existent relationship between job satisfaction and turnover.

Moreover, high job satisfaction is generally believed to be associated with increased productivity, lower absenteeism, and lower employee turnover (Hackman & Oldham, 1975). Wong (1989) explores the impact of job satisfaction on intention to change jobs among secondary school teachers in Hong Kong. His study affirms that teachers with low job satisfaction tend to have low level of commitment and productivity. Moreover, teachers prepared to leave teaching if a job alternative of offering a higher salary became available. In other words, lower the teachers' job satisfaction was a significant predictor of teachers' intention to leave the teaching profession. There is a longstanding interest in the relationship between job satisfaction and turnover, Griffeth, Hom and Gaertner (2000) gave precisely a negative association between job satisfaction and staff turnover. In addition, Glance, Hogg and Huberman (1997) mentioned the relationship between turnover and productivity asserted that the lower turnover is positively correlated with productivity. Amah (2009) stressed that job satisfaction was found to have a direct negative relationship with turnover intention. These results indicate that the effect of job satisfaction on turnover can be enhanced in two ways; namely, when employees find congruence between their job and their self identity, and when involvement in such jobs enhances their overall life satisfaction. On the other hand, turnover can be considered as cost of running a business. As mentioned by Khilji and Wang (2007) reported that the impacts of labor turnover on a hotel's bottom line could be classified into direct costs and indirect costs. Direct costs are essentially financial consequences that include administrative costs as a result of increased recruitment and training expenditure of new employees.

**Sheppeck and Militello (2000), Human Resource Management Practice, WWW Document (2000), Accessed Nov 19, 2011**

In the organizations or firms, human resource management (HRM) practices are a mediator between HRM strategy and HRM outcome. Sheppeck and Militello (2000) focus HRM strategy into four groups: employment skill and work policies, supportive environment, performance measurement and reinforcement and market organization whereby Guest (1997) divides in to three categories: differentiated on innovation, focus on quality and cost-reduction. However, there are many definitions in previous research material on HRM strategy, but all strategies used to achieve the same organizational goal through HRM practices. Sivasubramanian and Kroeck (1995) verify the various perspective of human resource management as a concept of fit or integration. Based on Guest (1997) the various types of human resource management can be classified in two dimensions as internal and external fit. External fit explain HRM as strategic integration whereby internal fit as an ideal practice. Several researchers try to examine which fit is appropriate. Youndt et al., (1996) who observed that the external fit, as their result shows more particular fit between high performance HRM practices and quality strategy. Stavrou-Costea (2005) also argued that the effective human resource management can be the main factor for the success of a firm. As supported by Lee and Lee (2007) HRM practices on business performance, namely training and development, teamwork, compensation/incentive, HR planning, performance appraisal, and employee security help improve firms' business performance including employee's productivity, product quality and firm's flexibility.

Ruwan (2007) empirically evaluated six human resource (HR) practices (realistic job, information, job analysis, work family balance, career development, compensation and supervisor support) and their likely impact on the Marketing Executive Turnover. Results of regression showed that the HR practices on job

<sup>3</sup> William G Castellano – Rutgers – Centre for Human Resource Strategy

analysis are strong predictors of Marketing Executive Turnover. Along the same line, Abang, May-Chiun and Maw (2009) two components of human resource (HR) practices namely, training and information technology have direct impact on organizational performance. In addition, Zaini, Nilufar and Syed (2009) four HRM practices showed that training and development, team work, HR planning, and performance appraisal have positive and significant influence on business performance. Altarawmneh and al-Kilani (2010) examine the impact of human resource management (HRM) practices on employees' turnover intentions. The results showed that job analysis had a significant effect on employees' turnover. However, no statistical evidence was found regarding the effects of other HRM practices on employees' turnover intentions. The study suggests that incentive plans based on rewards, bonuses, salaries enhancement, and performance appraisal reports could be useful strategies to be reconsidered in the survey. This paper utilizes HRM practices in specific internal fit as an ideal set of practices which identify three variables; supervision, job training, and pay practices believed to influence job satisfaction and turnover of the employees.

**Combs et al (2006), "How Much Do High-Performance Work Practices Matter? A Meta-Analysis of their Effects on Organizational Performance"**

**Liu, et al (2007), "The value of human resource management for organizational performance."**

The above two papers are based on the same research but were intended for different audience profiles. The second is an excellent summary for a practitioner audience. In aggregate, the above research includes data from more than 19,000 organizations. The impact of vertical alignment of HR practices and their support to strategic business objectives and work context were studied. The specific practices studied include the following:

- 1) Selection
- 2) Compensation Level
- 3) Training
- 4) Incentive Compensation
- 5) Internal Promotion
- 6) Participation (Employees can influence decisions)
- 7) Flextime
- 8) Grievance procedures
- 9) Employment Security
- 10) Teams
- 11) Performance Appraisal
- 12) Information Sharing
- 13) HR Planning

The studies concluded that organizations with high employee engagement reported significantly lower employee turnover and higher level of productivity.

**Harris, et al (2007, The impact of people management on organisational performance, focusing on how and why the relationship exists", NHS Acue Trust, p. 454.**

The study found "marked changes in employee attitudes in response to changes in people management practices and policies." A number of HR practices have shown to affect staff commitment, satisfaction and motivation: practices related to "career opportunities, job influence, job challenge, training, performance appraisal, team working, involvement in decision making, work life balance and having managers who are good at leadership and who show respect.

## EMPLOYEE ENGAGEMENT

Employee Engagement is a measurable degree of an employee's emotional attachment to their job environment. It profoundly influences their willingness to learn and perform at work. Employee engagement is distinctively different from employee satisfaction, motivation and organizational culture. Employee engagement is today a leading agenda and a top priority for telecom companies in India. Talent shortage, high levels of mobility and skill shortage are key challenges. Employee engagement is the level of commitment and involvement an employee has towards their organization and its values. An engaged employee is aware of business context, and works with colleagues to improve performance within the job for the benefit of the organization. It is a positive attitude held by the employees towards the organization and its values.

Engagement is important for line managers to cultivate, given that disengagement or alienation is central to the problem of workers' lack of commitment and motivation (Aktouf). Meaningless work is often associated with apathy and detachment from ones work (Thomas and Velthouse). In such conditions, individuals are thought to be estranged from their selves (Seeman, 1972). Research studies have established that employing varied resource of engagement (involvement and enthusiasm) has a positive linkage to multiple variables including employee turnover, customer satisfaction productivity and profitability criteria (Harter, Schmidt & Hayes, 2002). An organization's capacity to manage employee engagement is closely related to its ability to achieve high performance levels and superior business results. Some of the advantages of Engaged employees are high levels of employee retention, commitment to the organizational products and services besides contribution to the bottom line business success. Some of the major advantages are as listed below:

1. Enhanced performance
2. Higher motivation levels
3. Higher productivity
4. Emotional bonding with the organization
5. Enhanced customer satisfaction
6. Passion, commitment and alignment with the organization's strategies and goals
7. Higher levels of employees trust in the organization
8. Creates a sense of loyalty in a competitive environment
9. Provides a high-energy working environment
10. Boosts business growth
11. Makes the employees effective brand ambassadors for the company

Highly engaged employees will consistently deliver beyond expectations. In the workplace research on employee engagement (Harter, Schmidt & Hayes, 2002) have repeatedly asked employees 'whether they have the opportunity to do what they do best everyday'. Only one in five employees strongly agreed with the statement. Those work units scoring higher on this perception have substantially higher performance. Thus employee engagement is critical to any organization that seeks to retain valued employees. The Watson Wyatt consulting company has proved that there is an intrinsic link between employee engagement, customer loyalty, and profitability. As organizations globalize and become more dependent on technology in a virtual working environment, there is a greater need to connect and engage with employees to provide them with an organizational 'identity.'

Engagement at work was conceptualized by Kahn, (1990) as the 'harnessing of organizational members' to their work roles. In engagement, people employ and express themselves physically, cognitively, and emotionally during role performances. The second related construct to engagement in organizational behavior is the notion of flow advanced by Csikszentmihalyi (1975, 1990). Csikszentmihalyi (1975) defines flow as the 'holistic sensation' that, people feel when they act with total involvement. Flow is the state in which there is little distinction between the self and environment. When individuals are in Flow State little conscious control is necessary for their actions.

Employee engagement is thus the level of commitment and involvement an employee has towards their organization and its values. An engaged employee is aware of business context, and works with colleagues to improve performance within the job for the benefit of the organization. The organization must work to develop and nurture engagement, which requires a two-way relationship between employer and employee. This implies that employee engagement is akin to a barometer that determines the association of a person with the organization. Engagement is most closely associated with the existing construction of job involvement (Brown 1996) and flow (Csikszentmihalyi, 1990). Job involvement is defined as 'the degree to which the job situation is central to the person and his or her identity (Lawler & Hall, 1970). Kanungo (1982) maintained that job involvement is a 'Cognitive or belief state of Psychological identification. Job

involvement is thought to depend on both need saliency and the potential of a job to satisfy these needs. Thus job involvement results, form a cognitive judgment about the needs satisfying abilities of the job. Jobs in this view are tied to one's self image. Engagement differs from job in as it is concerned more with how the individual employees deal with their self during the execution of their job. Engagement entails the active use of emotions and may be thought of as an antecedent to job involvement. Individuals with deep levels of engagement in their roles identify themselves with their jobs. Employee engagement has three major dimensions – physical, cognitive and emotional (Kahn – 1990). Job satisfaction involves the cognitive dimension only.

## RESEARCH DESIGN

### RESEARCH OBJECTIVE

The purpose of this co-relational research is to investigate the relationship between organizational employee engagement and attritional levels using a structured approach, in the context of the Indian Telecom Industry. This research is based on primary data collected over a period of three years from various private sector Telecom players in India.

### HYPOTHESIS

There exists a positive co-relation between organizational employee engagement levels and attrition. An organization with high levels of employee engagement will have low attrition rates.

### SAMPLING

The data collection was completed in two phases. The first phase comprises a population of 280 individuals from the telecom industry chosen, based on stratified random sampling. This data was used to analyze the areas of organizational employee engagement. The second phase included a random sample of 180 chosen from primary exit interview data of a telecom organization. For most purposes  $n=30$  is sufficient, provided the universe is not exceedingly asymmetrical" (Boyd et. al., 2005). 100 is a medium sized sample and 400 is a larger sample (Boyd et. al., 2005). More than 5% sample size is an appreciable proportion of the sample universe (Boyd et. al., 2005).

### DATA COLLECTION

This paper is based on primary research data collected internally at the workplace in a phased manner. These include analysis of recruitment trends as well as employee attrition studies over a time span of three years. The first phase comprised of a survey on a sample of 280 employees in various telecom companies using a questionnaire, focused group interviews and group discussions. Focused group interviews and discussions were based on ascertaining the primary causes for attrition and the unique problem of employee engagement. In the second phase a sample was chosen at random and exit interview data for three years from one organization was chosen for further analysis (factor & content). The research instrument used in this study employs the standardized Likert scale.

In order to ensure a wider spectral coverage the paper also refers to published secondary research data. This includes data and studies by commercial vendors in the IT & Telecom space, in the form of syndicated reports, as well as public and quasi-public information available from diverse sources. The data sources include both print and online media including survey reports published by commercial and non-profit organizations.

The data collection instrument is included in the Appendix.

### RESEARCH LIMITATIONS

A sample size of 280 employees was the primary limitation of the study. The strength of the study is based on the data triangulation using the mixed approach – using a structured questionnaire & interviews. There are implications (theoretical) for the construct of employee engagement. Also there seems to construct contributions on employee commitment involvement, strategization, job experience which is beyond the scope of the study.

## KEY FINDINGS

The key findings are based on the analysis of the questionnaire (listed in the appendix) used for data collection. The study has established conclusively that employee engagement has a direct relationship with organizational attrition and productivity. An organization with high levels of employee engagement will have low employee turnover and high levels of employee productivity. The research hypothesis thus stands validated on the basis of the t-test of the data collected. The study also reaffirmed Gallup's findings about the three different classes of employees within an organization as listed below:

### 1. ENGAGED

"Engaged" employees are the organizational builders. They understand the desired expectations for their role and can meet and exceed them. They perform at consistently high levels and use their talents and strengths at work every day. They bring passion to the work place, drive innovation and help the organization progress.

### 2. NOT ENGAGED

"Not-engaged" employees tend to concentrate on tasks rather than the goals and outcomes they are expected to accomplish. They need handholding to complete their tasks. The employees under this class are focused on accomplishing tasks vs. achieving an outcome. Employees who are *not-engaged* tend to feel their contributions are being overlooked, and their potential is not being tapped. This is primarily due to the fact that they rarely harbor productive relationships with their managers or with their coworkers.

### 3. ACTIVELY DISENGAGED

The "*actively disengaged*" employees are generally referred to as the "cave dwellers." They're "Consistently against everything." The employees under this class are the unhappiest lot and also act out their unhappiness before others. This results in seeds of negativity sown at every opportunity and undermines the efforts of what the engaged co-workers accomplish. As workers increasingly rely on each other to generate products and services, the problems and tensions that are fostered by *actively disengaged* workers can cause great damage to an organization's functioning.

Gallup's engagement ratio is a macro level indicator of an organization's health that can be used by HR personnel to track the proportion of engaged to actively disengaged employees. The study found that the **engagement ratio in Indian Telecom organizations is 1.5: 1** (the ratio of engaged to actively disengaged employees). The eight primary factors that enhance Employee Engagement are as listed below:

- |                                 |   |                |
|---------------------------------|---|----------------|
| 1. Relationship with Supervisor | - | Question 5, 11 |
| 2. Communication                | - | Question 17    |
| 3. Recognition                  | - | Question 4     |
| 4. Work Environment             | - | Question 17    |
| 5. Work Relationship            | - | Question 3     |
| 6. Learning                     | - | Question 2     |
| 7. Employee Development         | - | Question 2     |
| 8. Career Planning              | - | Question 2     |

This study has corroborated the commonly mentioned critical factors which lead to Employee engagement. Four of these primary factors that have been validated as are listed below:

### 1. CAREER DEVELOPMENT- OPPORTUNITIES FOR PERSONAL DEVELOPMENT

Organizations with high levels of engagement provide employees with opportunities to develop their abilities, learn new skills, acquire new knowledge and realize their potential. When companies plan for the career paths of their employees and invest in them, the employees in turn reciprocate by staying longer and contributing to the success of the organisation.

TABLE – 2: PERSONAL DEVELOPMENT & ATTRITION (QUESTION – 3)

Influence of personal development on employee longevity	No. of Respondents (%)
Considerable	54.90
Little	10.80
Not at all	2.60
To some extent	31.70

**2. CAREER DEVELOPMENT – EFFECTIVE MANAGEMENT OF TALENT**

Career development influences engagement for employees and retaining the most talented employees and providing opportunities for personal development.

TABLE – 3: TALENT MANAGEMENT & ATTRITION (QUESTION 10)

Influence of career prospects on employee longevity	No. of Respondents (%)
Very Committed - Would have definitely stayed longer	55.78
Quite Committed	12.24
No Response	18.37
Not at all committed	6.80
Would not have left the organization at all	6.80

**3. FEELING VALUED & INVOLVED**

Organizations need to evolve a mechanism for involving employees across levels in operational decision making. This also involves soliciting, evaluating and acting on employee feedback. The most successful organizations are the ones with high levels of employee engagement and whose employees feel the valued by the organizations.

TABLE – 4: EMPLOYEE VALUE & ATTRITION (QUESTION 4)

Feeling valued and wanted by the organization	No. of Respondents (%)
High	65.0
Little	5.1
No	1.9
To Some extent	28.0

**4. LEADERSHIP- SUCCESSION PLANNING**

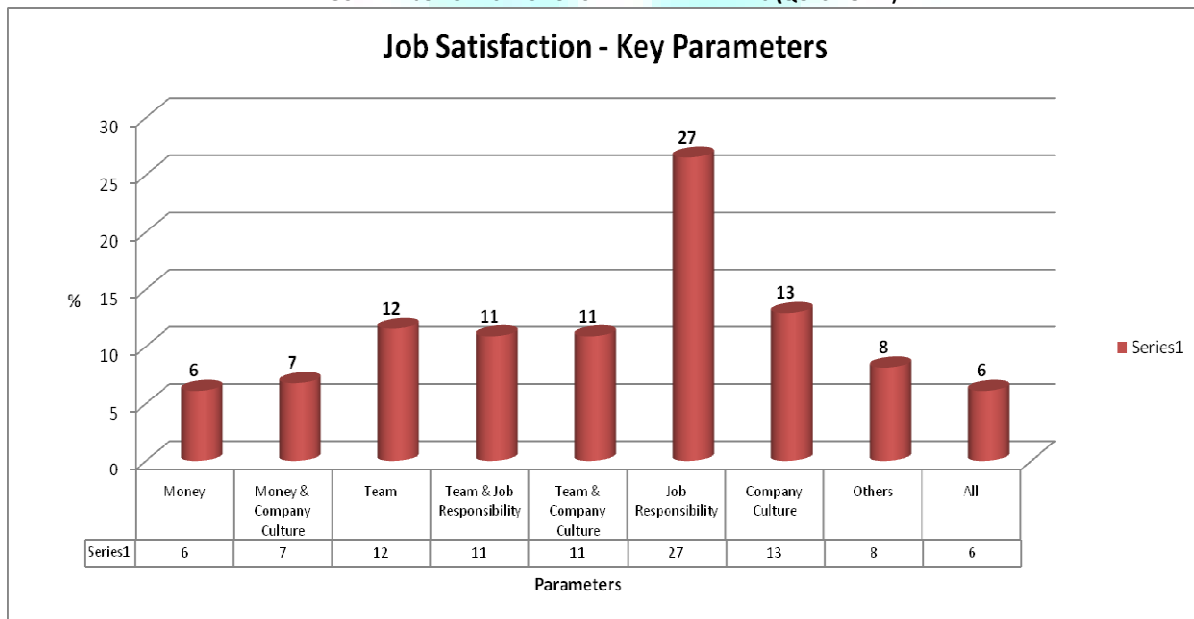
Succession Planning is a process for identifying and developing internal people with the potential to fill key business leadership positions in the company. Succession planning increases the availability of experienced and capable employees that are prepared to assume these roles as they become available. The availability of a clear succession plan has a positive influence on employee engagement especially at the top and senior management levels.

TABLE – 5: ORGANIZATIONAL SUCCESSION PLANNING & ATTRITION (QUESTION 10)

Career Planning & Employee Longevity	No. of Respondents (%)
Considerable	55.8
Little	8.5
Not at all	2.0
To Some extent	33.7

The study reinforced the premise that low levels of employee engagement results in higher employee turnover. The average longevity of employees in organizations with low employee engagement levels was twelve to eighteen months. The figure1 below presents contributory factors leading to enhanced job satisfaction among organizational employees, derived from the analysis of Question 2 of the survey questionnaire.

FIGURE –1: JOB SATISFACTIONS – KEY PARAMETERS (QUESTION 2)



The key parameters resulting in higher attrition include Managers/Supervisor style of functioning, organization culture, employee commitment, employee’s skill development and job enrichment and performance based variable pay. The study seems to suggest that organizations investing on high levels of employee engagement will result in low attrition. The figure 2 below, based on the analysis of Question 22 of the survey questionnaire, provides the primary factors responsible for organizational turnover along with their weightages. It is evident from the data connected that employee engagement is the single largest



contributor to reduced organizational attrition. The trigger points for employee attrition, derived from the analysis of Question 24 & 25 of the survey questionnaire, are as listed in figure 3 below.

FIGURE –2: EMPLOYEE TURNOVER – PRIMARY FACTORS (QUESTION 22)

Employee Turnover - Primary Factors

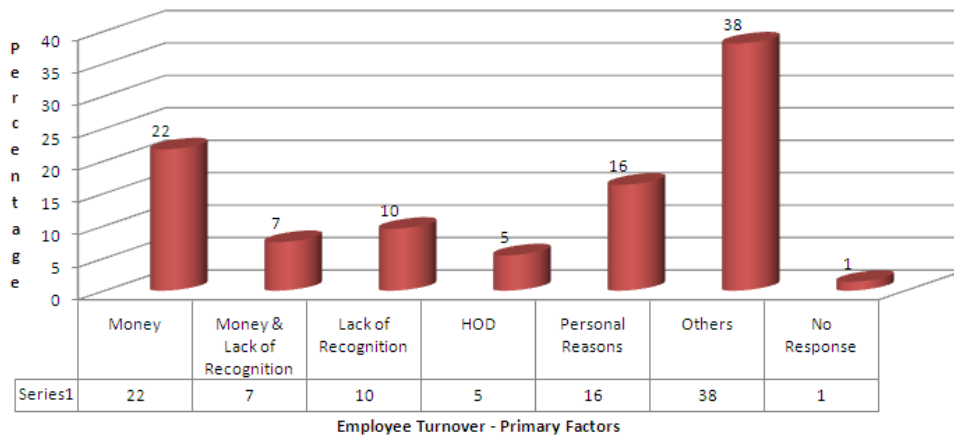
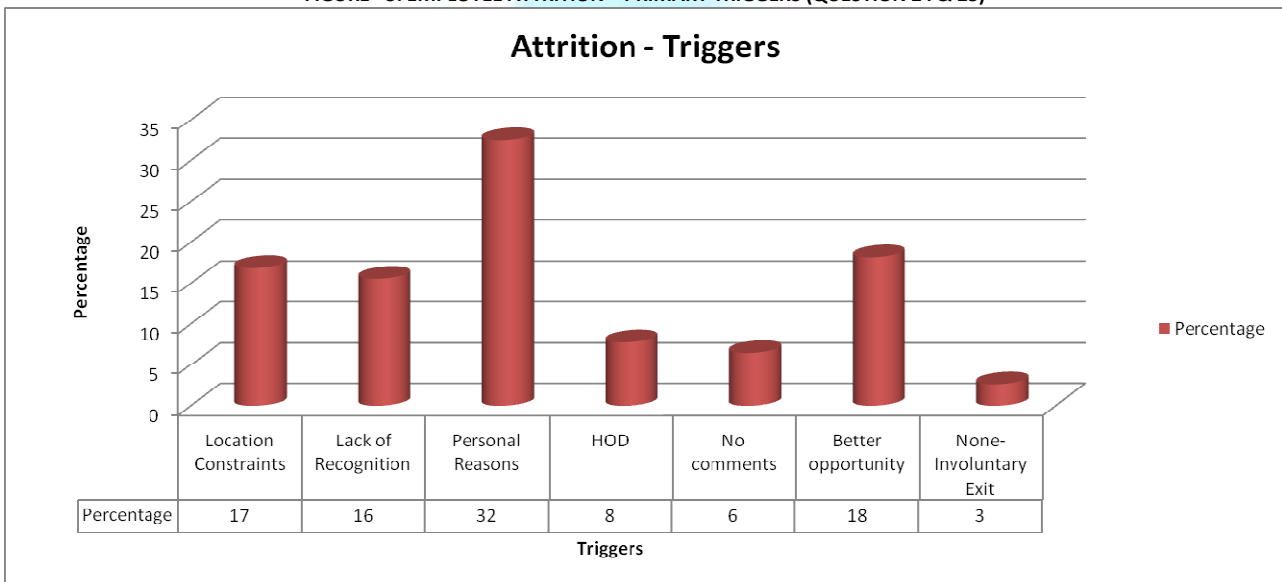


FIGURE –3: EMPLOYEE ATTRITION – PRIMARY TRIGGERS (QUESTION 24 & 25)

Attrition - Triggers



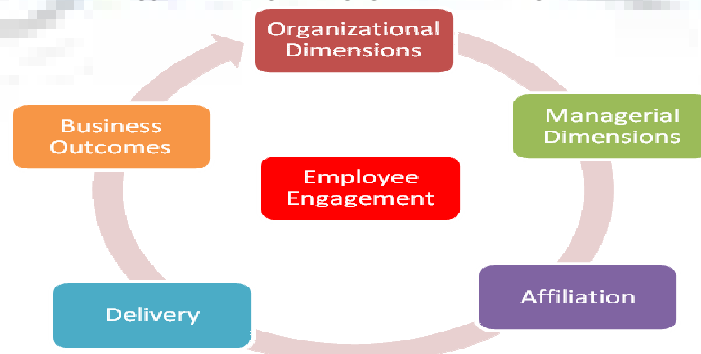
PROPOSED EMPLOYEE ENGAGEMENT FRAMEWORK

Employee engagement is the force that drives business outcomes. This research has validated the hypothesis that engaged employees are more productive employees. They are more profitable, more customers focused, safer and more likely to stay. Employee engagement is a strategic approach supported by tactics for delivering improvements and organizational change. Developing an employee engagement strategy and linking it to the achievement of corporate goals is an important precursor to success in the marketplace. The three basic aspects of employee engagement are as listed below:

1. The employees and their own unique psychological makeup and experience
2. The employers and their ability to create the conditions that promote employee engagement
3. Interaction between employees at all levels

It is therefore the organization’s responsibility to create an environment and culture conducive to this partnership and ensure a win-win for all the stakeholders. The figure 4 below presents the key dimensions and a framework for organizational employee engagement. This proposed framework is based on the basis of the analysis of the present research as well as the study of the commonly employed industry models. The key elements of the proposed framework as detailed below:

FIGURE 4: EMPLOYEE ENGAGEMENT FRAMEWORK



**1. ORGANIZATIONAL DIMENSIONS**

Organizational dimensions include organizational culture as well as processes and procedures. Organizational culture is the workplace environment formulated from the interaction of the employees in the workplace. Organizational culture is defined by all of the life experiences, strengths, weaknesses, education, upbringing, and so forth of the employees. While executive leaders play a large role in defining organizational culture by their actions and leadership, all employees contribute to the organizational culture. The organizational processes and procedures should foster effective employee engagement.

**2. MANAGERIAL DIMENSIONS**

Management dimensions encompass communicating, directing, motivating, strategic planning, and aligning the employee workforce to achieve organizational goals. Managers help create a positive work environment that encourages employee input and collaboration. This helps foster relationships across organizational structures. Internal and external complexities in organizations directly affect management styles and effectiveness. A successful manager is flexible, adaptable, and is constantly developing in order to suit the specific needs of the organization.

**3. AFFILIATION**

Affiliation reflects the extent of employee loyalty and commitment to an organization. The three major components of organizational commitment are a strong belief in and acceptance of the organization's goals, a willingness to exert considerable effort on behalf of the organization and a desire to be a part of the organization. Employee commitment serves as a positive evaluation of the organization and the organization's goals. Three types of commitment can normally exist within any organization; affective commitment, continuance commitment, and normative commitment. Normative commitment is an organizational commitment while affective commitment is defined as the emotional attachment, identification, and involvement that an employee has with its organization and goals. High levels of organizational employee engagement has a strong positive impact on the employee affiliation which in turn leads to a highly motivated workforce and superior organizational business performance.

**4. DELIVERY**

There are a lot of factors integral to the operation and success of any business enterprise. Key organizational functions and areas must operate efficiently and effectively. The success or failure of most organizations can be categorized into two primary areas: employee productivity and employee performance. These two factors are pivotal to the success of any organization. In today's competitive world, the productivity and performance of the workforce, along with their ability and willingness to be creative and innovative is everything. It is important to understand that employees are at choice to give their organization their very best, or something less, everyday they come to work. <sup>4</sup> Employee discretionary effort is about the choice each employee has for giving his best, or just the "minimum acceptable standard"

**5. BUSINESS OUTCOMES**

The level of employee engagement affects key results such as sales, customer satisfaction, innovation and employee turnover. An engaged workforce is capable of delivering sustained differentiation and a significant competitive advantage.

**CONCLUSION**

The purpose of this paper is to investigate employee engagement and its relationship to employee attrition using a mixed method research design. The hypothesis was that organizations with high levels of employee engagement will have significantly reduced employee turnover, higher levels of employee productivity and superior organizational performance. The research result findings were fulfilled and were in the direction as expected. The areas of the study were met. The study concludes that employees with high levels of engagement are generally high performers and exhibit a strong rational and emotional commitment. The organization initiatives for enhanced employee engagement include the following:

1. Managers providing day-to-day feedback on employee performance
2. Addressing poor performance
3. Providing spectrum & targeted feedback
4. Discussing performance problems
5. Focusing on expectation rather than on system
6. Amplify the good, filter the bad
7. Connect employees with the organization and success
8. Install a performance culture, communication flexibility and innovation and risk taking
9. Connect employees with talented co-workers
10. Demonstrate a credible commitment to employee development

**THEORETICAL & EMPIRICAL CONTRIBUTIONS**

This study makes a paradigm shift from an individualistic view of employee engagement to an organizational view. This organizational view is to be understood in the context of external environment as well as the internal environment of the organization. Bontis et al (2002) in their Canadian study observed from their results that organizational level learning is more closely related than either individual or group level learning to organizational performance. The present study corroborates the results of Mobley (1977) model which illustrates the relationship between job dissatisfaction and employee turnover. This study also extends the Mobley model by examining whether the theory also applies to organizational commitment & job involvement.

This research finds an empirical correlation between high levels of employee engagement and low employee turnover in Indian telecom organizations. This study finds a positive correlation between employee engagement and low attrition levels. This research concluded that a high level of employee engagement is the key to organizational success.

**PRACTICAL IMPLICATIONS**

The research explored the existence of employee engagement dimensions within telecom organizations and their impact on employee turnover. The study may be used to build an organizational framework for employee engagement. The study can also be used to derive measures for drivers, facilitating conditions and outcomes of employee engagement.

**ACKNOWLEDGEMENT**

Our sincere thanks to Mr. Sudhir Warriar (Lead Trainer- Network Learning Centre, RCOM) for his efforts in helping me in the analysis of data collected through primary sources and in supporting me in reviewing data from secondary sources.

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<sup>4</sup> Source: Discretionary Effort – Steve Reed – Source URL < [http://www.creatinglegaciesllc.com/html/discretionary\\_effort.html](http://www.creatinglegaciesllc.com/html/discretionary_effort.html) >

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#### APPENDIX

##### RESEARCH QUESTIONNAIRE

##### QUESTIONNAIRE – SURVEY ON JOB HOPPING & EMPLOYEE TURNOVER IN TELECOM - TAMILNADU

OBJECTIVE: I solicit your free & fair response in confidentiality on the possible triggers for your/employees exit from an organization.

1. What was your experience on the Hiring & Induction Process?
  - Fairly Good - Could have been better
  - Good - Elaborate Induction Process & satisfied
  - Needs to be Improved – Lacks the personal touch

- Very Bad- Chaotic, No Induction, improperly planned & hostile
  - No Response
2. Which of the following did your Organization Offer?
- Fun at Work
  - Training & Development
  - Job content & scope for innovation
  - 5 Day Week & adequate holidays
  - Informal Culture & Flexi timings
  - Location of choice
  - Profit sharing & ESOPs, other perks & benefits
3. Were the Organization Goals and your Goals Compatible?
- Yes
  - No
  - To Some extent
  - Irrelevant
4. Do you feel valued and recognized for your contribution in the organization?
- Yes
  - No
  - To Some extent
  - Not at all
5. Did your Manager influence your Decision to stay and pursue your career at the current workplace?
- Strongly Agree
  - Agree
  - Neutral
  - Disagree
  - Strongly Disagree
6. Did you feel that your Organization Rewarded Seniority or Merit?
- Seniority
  - Merit
  - Both
  - None
7. Were you satisfied with the Company's merit review process?
- Strongly Agree
  - Agree
  - Neutral
  - Disagree
  - Strongly Disagree
8. Did you receive adequate support from your Superiors & Peers to do your job?
- Yes
  - No
  - To Some extent
  - Not at all
9. Do you find your job repetitive and monotonous?
- Strongly Agree
  - Agree
  - Neutral
  - Disagree
  - Strongly Disagree
10. With such large amounts of money at stake as compensation, how much stress would you put on your career priorities such as Role, Freedom, Organization Culture, Investment on your Training and Development?
- Very High
  - High
  - Medium
  - Low
11. If not for the Boss, would you have stayed longer in the Company?
- Strongly Agree
  - Agree
  - Neutral
  - Disagree
  - Strongly Disagree
12. How often have you engaged in Innovation at the Work Place?
- Very Often
  - Often
  - Sometimes



- Never
13. What are the different Retention programs running currently in the Organization?
- Job Enrichments & Training Programs
  - Monetary Benefits and Deferred Bonus Plan
  - Promotions and Salary Rationalization
  - Training & Development
  - All of the above
14. What job /role you aspired that was not offered?
- Exposure to Cutting Edge Technology & Flexibility
  - Better Projects, Role Enhancements & Growth
  - Location of my choice
  - Scope for skill development and training on the job
  - Better pay & benefits vis-à-vis competition
15. Did Company HR Policies or Procedures make your job difficult?
- Strongly Agree
  - Agree
  - Neutral
  - Disagree
  - Strongly Disagree
16. Focus of leadership team members in your organisation were on the following areas?
- People
  - Financial
  - Technology
  - Customer Service
  - Sales
  - All of the above
17. How would you describe the Culture of the Organization?
- Employee Friendly, Supportive & Good HR Practices
  - Family Business, Autocratic, Unprofessional, ill treatment to Subordinates
  - Fun at work, Open, Employee centric, Approachable & flexible
  - No systems & processes at place, no business ethics, not employee friendly
  - Systems & Policies driven, Professional & progressive
18. Were you attracted at the time of joining the organization for a long term career?
- Strongly agree
  - Agree
  - Neutral
  - Disagree
  - Strongly Disagree
19. What were the challenges in the Work Environment?
- High work Pressure & long hours at work
  - Technology and Infrastructure Related
  - No investment on training & self development
  - Poor HR policies & work culture
  - Low Compensation
  - No empowerment or Innovation at the work place
20. Would you prefer to stay in your home location rather than grow and move to smaller towns or rural areas?
- Strongly Agree
  - Agree
  - Neutral
  - Disagree
  - Strongly disagree
21. Moving to a smaller town or to a rural area on a bigger assignment motivated you to stay in the Organization?
- Strongly Agree
  - Agree
  - Neutral
  - Disagree
  - Strongly Disagree
22. Primary Reason for Leaving?
- Low salary
  - Lack of Recognition & career advancement
  - Role / Job responsibility / Job content
  - Reporting Manager/Boss
  - Location preference
  - Organisation Culture, work environment & HR policies
  - Lack of training & self development

23. Competition companies constantly poach or contact your critical resources or highly potential employees?

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

24. Least Satisfying about the Job?

- Pay & Benefits
- Location & work environment
- Job Responsibility & Content
- Company Culture & HR policies
- Reporting Manager/Boss
- Company brand & image
- Lack of training & self development
- Lack of growth

25. What was the General Feedback when employees left the Organization?

- Leaving for Better Prospects & Growth
- Personal Reasons, Location constraints
- Poor Culture & work relationships
- Lack of recognition and rewards for superior performance
- Poor HR policies & Organization brand
- Lack of investment in Training and Self Development
- Job dissatisfaction



## ANALYTICAL STUDY ON EMPLOYEE SATISFACTION [CASE STUDY OF GAMMON INDIA LTD. (T & D BUSINESS), MIDC, BUTIBORI, NAGPUR]

**DR. SHINEY CHIB**

**PROFESSOR**

**DATTA MEGHE INSTITUTE OF MANAGEMENT STUDIES  
NAGPUR**

### ABSTRACT

*Human resources are the most valuable assets of an organization. The successful management of an organization's human resources is an interesting and challenging task especially at the time when the world has become a global village. The lack of resources and the growing expectations of the modern day worker have further increased the difficulty of the human resource function. Particular human resource functions or activities are the responsibility of the human resource department, the actual management of human resources is the responsibility of all the managers in an organization. Therefore, it is necessary for all managers to understand and give due importance to the different human resource policies and activities in the organization. The maintaining of job satisfaction and employee self-esteem are very important components of the corporate system. Satisfaction is directly related to performance and efficiency which, from an organizational standpoint, have to be maximized.*

### KEYWORDS

Employee Satisfaction, HRM, Gammon India Ltd.

### INTRODUCTION

The study of employee satisfaction survey provides better information about the satisfaction of the employees, which is the essential part of the HR department. Through this study we can implement better strategies for the employees which are helpful for increasing productivity of the company. The results of this type of feedback process provide an understanding how the employee perceives the organization along different dimensions. This process helps the organization (Human Resource Department) understand how the employee perceives them. The scope of the study is limited to all the employees of the Gammon India Ltd. The survey is carried out from the sample representatives amongst employees of GIL of various locations. Forms are circulated to Corporate Office, Plants and various Sites of GIL.

### LITERATURE REVIEW

Several innovative studies have shown the influences of a person's disposition on job satisfaction. One of the first studies in this area (Staw & Ross, 1985) demonstrated that a person's job satisfaction scores have stability over time, even when he or she changes jobs or companies. In a related study, childhood temperament was found to be statistically related to adult job satisfaction up to 40 years later (Staw, Bell, & Clausen, 1986). Evidence even indicates that the job satisfaction of identical twins reared apart is statistically similar (Arvey, Bouchard, Segal, & Abraham, 1989). Although this literature has had its critics (Davis-Blake & Pfeffer, 1989), an accumulating body of evidence indicates that differences in job satisfaction across employees can be traced, in part, to differences in their disposition or temperament (House, Shane, & Herold, 1996). Despite its contributions to our understanding of the causes of job satisfaction, one of the limitations in this literature is that it is not yet informative as to how exactly dispositions affect job satisfaction (Erez, 1994). Therefore, researchers have begun to explore the psychological processes that underlie dispositional causes of job satisfaction. For example, Weiss and Cropanzano (1996) suggest that disposition may influence the experience of emotionally significant events at work, which in turn influences job satisfaction. Similarly, Brief (1998) and Motowidlo (1996) have developed theoretical models in an attempt to better understand the relationship between dispositions and job satisfaction. Continuing this theoretical development, Judge and his colleagues (Judge & Bono, 2001; Judge, Locke, Durham, & Kluger, 1998) found that a key personality trait, core self-evaluation, correlates with employee job satisfaction. They also found that one of the primary causes of the relationship was through the perception of the job itself. Thus, it appears that the most important situational effect on job satisfaction—the job itself—is linked to what may be the most important personality trait to predict job satisfaction—core self-evaluation. Evidence also indicates that some other personality traits, such as extraversion and conscientiousness, can also influence job satisfaction (Judge, Heller, & Mount, 2002). These various research findings indicate that there is in fact a relationship between disposition or personality and job satisfaction. Evidence even indicates that the job satisfaction of identical twins reared apart is statistically similar.

Job satisfaction plays a very important role in organization due to following reasons:

1. **Rapidly growing organization:** When an organization is growing quickly, it is critical to find out how employees feel about their jobs, the organization, and their fit and future within it.
2. **High or growing turnover rate:** While some industries have a naturally high turnover, growing turnover is a problem for any organization. If your absolute level of turnover exceeds the industry average, you have a problem that an employee satisfaction survey is the first step to solving.
3. **Excessive rumors:** A strong rumor mill is symptomatic of other problems in the organization. These can include communications, trust, and fear. Only a survey can uncover the extent to which any of these issues exists.
4. **Planned or recent organizational changes, including change of leadership:** Change can be difficult for many people. If not handled properly, productivity and profits can decline.
5. **Highly competitive industry:** In a highly competitive industry, turnover minimization and productivity and creativity maximization are keys to success. Staying in touch with employees is necessary to facilitate continued competitiveness.
6. **Contemplated changes in pay and benefits:** You must know what needs to be "fixed" and how much "fixing" it needs to maximize return on invested money and people resources.

### RATIONALE OF THE STUDY

1. It is essential for facilitating developmental and organizational change.
2. Allows the organization to focus on needs and leverage its strength.
3. Informs the organization on which actions will create problems for the employees.
4. Provides management with employee feedback (both positive and negative) on the internal health of the organization.
5. Measure the impact of current programs, policies and procedures.
6. Can be used to motivate employees and improve job satisfaction.

The organizations are becoming aware of the factors for employee satisfaction. In such a scenario, it is utmost important for organizations to satisfy their employees to achieve the organization goals and to maintain good industrial relations. There are various factors like Motivation and Morale, Work Environment, Level of Stress, Power and Politics, Organizational Structure, Safety and Security, Performance Appraisal; which can be looked after for satisfaction of employees. Along with these factors one more aspect is very much important is Job Satisfaction. Some other factors which can be Indicators of Employee Satisfaction Level are;

- Salaries, Incentives and Benefits
- Opportunities and Appraisals
- Rewards and Recognitions
- Training and Development
- Policies and Norms
- And many others like Job Rotation, Job Enrichment, Counseling, etc.

## COMPANY PROFILE

**Gammon India** is not only the largest civil engineering construction company in India, but can lay claim for the largest number of bridges built in the whole of Commonwealth. With over seventy years of tradition in the field of construction. Gammon is a name that is inextricably woven into the fabric of India. As builders to the nation, Gammon has made concrete contributions by designing and constructing bridges, ports, harbours, thermal and nuclear power stations, dams, high-rise structures, chemical and fertilizer complexes environmental structures, cross country water, oil and gas pipelines. Gammon has accomplished this by fusing tremendous engineering knowledge with innovative skills, harnessing men and materials to build structures. Structures that stand out as living testimonies to the victory of man over nature. Structures conceived and built by minds in constant search of new methods, ideas, applications and solutions. Because Gammon believes that today's solutions will not be adequate tomorrow.

It is one of the leading companies in the execution of extra high voltage Transmission lines on turnkey basis. Its constant endeavor is to make itself updated and constant improvements make it pioneers in commitment, technology, quality, facility and resources. As an EPC contractor, its scope of work includes design, testing, fabrication, galvanizing of towers and construction activities right from survey, civil works/ foundation, erection to stringing and commissioning of lines, besides procurement of items such as conductors, insulators, hardware & accessories, etc.

### CERTIFICATIONS

- ✓ Full Member of Furniture Industry Research Association - FIRA
- ✓ BV Certification for ISO 9001:2000
- ✓ FIRA International Limited Test Certificate (Connect)
- ✓ FIRA, UK (Furniture Industries Research Association) Certificate
- ✓ In-House lab for performance & Life cycle testing of products based on BIFMA , USA standards
- ✓ Tolerances maintained on each component
- ✓ ISO 14000 certification for environment management system and ISO 18000 certification is under way.

### PRIMARY DETAILS

- Strength Total – 1022

Sr. No.	Particulars	No. of Employees
1.	Corporate Office	105
2.	Sites	502
3.	Butibori + Hingna + Deoli Plant	195
4.	Baroda + Silvasa + Vadadla	195
5.	Transrail Lighting Plant	4
6.	Contractual	21

### SHIFTS:

- |                        |   |                    |
|------------------------|---|--------------------|
| 1. Batch A (Morning)   | - | 7 am to 3.30 pm    |
| 2. Batch G (General)   | - | 9.30 am to 5.30 pm |
| 3. Batch B (Afternoon) | - | 3.30 pm to 12 am   |
| 4. Batch C (Night)     | - | 12 am to 7 am      |

### DEPARTMENTS

- 1) Accounts
- 2) Commercial
- 3) Construction
- 4) RE (Rural Electrification)
- 5) Stores
- 6) Finance
- 7) Marketing & Tenders
- 8) Engineering
- 9) Procurement
- 10) Substation
- 11) Contracts Monitoring
- 12) Legal

**Technical** – Engineering, Construction, Rural Electrification, Contract monitoring, Marketing & Tenders, Substation.

**Non-technical** – Finance, Accounts, Personnel, Commercial, Procurement, Legal, Stores.

### OBJECTIVE

The main objective of the study is:

- To know the general Satisfaction of Employees at GIL.
- Are the employees of the company satisfied with their Job, Management and Organization?
- To study how Employee Satisfaction can be attained
- Role of various factors contributing to Employee Satisfaction
- What strategies can be utilized to achieve Employee Satisfaction

### HYPOTHESIS

Any Organization is made up of basic 4 factors of production i.e. Man, Machine, Money and Material. These, in other words, are the 4 pillars that bear and balance the load and sustainability of such organization. But the common factor that binds all these factors is Man i.e. the Human Resource. Similarly, for huge organizations like Gammon India Ltd (T & D Business) it becomes a matter of extreme importance and responsibility to keep track of its Human Resource in terms of maintaining its Satisfaction Level at each corner of its operation. Thus, it is believed that in such organization, the level of Employee Satisfaction is at par or above the benchmark of the general Satisfaction level. So our hypothesis states that the employees of Gammon India Ltd (T & D Business) are happy with their Job and other related factors with their job.

*In short hypotheses state that;*

- 1) There is high level of Employee Satisfaction in the Organization



- 2) There is a good level of rapport between the employees and the management
- 3) Concern about Employee Satisfaction is a continuous process in the organization
- 4) People all over India (world at large) feel that GIL (T & D Business) is a good organization to work with

**SAMPLE SIZE**

• **SAMPLE DESIGN**

**UNIVERSE**

Total Employees of “Gammon India Ltd (T & D Business), MIDC, Butibori, Nagpur”

**SAMPLE UNIT**

Higher Level Managers, Middle Level Managers and Lower Level Employees working in different Departments of the company, at different Shifts, Grades and Experience Levels.

**SAMPLE SIZE**

20% of the Total Sample Unit : 1022 x 20% = 204

**SAMPLING DATA**

**LOCATION WISE REPRESENTATIVES:**

Corporate Office	:	105 x 20%	=	021
Sites	:	502 x 20%	=	100
Butibori + Hingna + Deoli Plant	:	195 x 20%	=	039
Baroda + Silvasa + Vadadla	:	195 x 20%	=	039
<b>Total</b>	:	<b>997 x 20%</b>	=	<b>199</b>

**THEORIES APPLIED**

The whole survey is based mostly on 2 theories i.e;

- 1) Maslow’s Hierarchy of Needs
- 2) Herzberg’s – Hygiene and Motivation Theory

Hygiene Factors	Motivation Factors
<ul style="list-style-type: none"> <li>• Salary</li> <li>• Working Conditions</li> <li>• Company Policy</li> <li>• Supervision</li> <li>• Work Group</li> <li>• Success</li> <li>• Inclusion</li> <li>• Relevance</li> <li>• Impacting</li> <li>• Order</li> <li>• Growth</li> </ul>	<ul style="list-style-type: none"> <li>• Advancement</li> <li>• Development</li> <li>• Responsibility</li> <li>• Recognition</li> <li>• Achievement</li> <li>• Work Itself</li> <li>• Affiliation</li> <li>• Extension</li> <li>• Influence</li> <li>• Control</li> <li>• Dependency</li> <li>• Exclusion</li> <li>• Failure</li> <li>• Irrelevance</li> <li>• Importance</li> <li>• Chaos</li> <li>• Loneliness</li> </ul>

Factors leading to Dissatisfaction:	Factors leading to Satisfaction:
<ul style="list-style-type: none"> <li>• Poor Company Policy</li> <li>• Too much Supervision</li> <li>• Poor Relationship with boss</li> <li>• Poor Working Conditions</li> <li>• Less Salary</li> <li>• Poor Relationship with peers</li> </ul>	<ul style="list-style-type: none"> <li>• Achievement</li> <li>• Recognition</li> <li>• Work Itself</li> <li>• Responsibility</li> <li>• Advancement</li> <li>• Growth</li> </ul>

So the questions are divided into two Sections – Hygiene and Motivation. All the questions are positive in tone (affirmative sentences). The choice for each question is given as;

The Satisfaction Level is analyzed as under:

- |                      |   |                     |
|----------------------|---|---------------------|
| 1. Strongly Agree    | - | Highly Satisfied    |
| 2. Agree             | - | Satisfied           |
| 3. Somewhat Agree    | - | Less Satisfied      |
| 4. Disagree          | - | Dissatisfied        |
| 5. Strongly Disagree | - | Highly Dissatisfied |

Thus based upon the theories, we have used different forms for the Employee Satisfaction Survey for the following three levels at Gammon India Ltd. – T and D Business, they are;

- |  |   |          |
|--|---|----------|
| 1) Higher Level (Managers and Above)                               | : | FORM – A |
| 2) Middle Level (Asst. Officers or Jr. Engineers till Dy. Manager) | : | FORM – B |
| 3) Lower Level (Below Asst. Officers)                              | : | FORM – C |

FORM -A

Questions	1 & 2	3	4&5
Career growth opportunities are provided to high performers.	100%	0%	0%
Company maintains the compensation structure in accordance with the performance of the employee.	100%	0%	0%
“Politics” at this company are kept to a minimum.	75%	25%	0%
The ambience in the organization is directed towards higher efficiency.	50%	50%	0%
Performance appraisal system in our organization is the best way for motivation and morale boost.	33%	67%	0%
Company policy is in line with its vision and mission.	75%	25%	0%
There is a high degree of Professionalism followed in our organization.	25%	75%	0%
Employee policies of the company are administered fairly in all the departments.	0%	50%	50%
My work has a unique place of importance in my department and my organization.	100%	0%	0%
Management is supportive in times of personal crisis.	100%	0%	0%
The work I perform is enriched in challenges and opportunities.	100%	0%	0%
Management truly believes in Team Work.	100%	0%	0%
Empowerment and Implementation procedure of work is a key aspect of the management.	100%	0%	0%
Any kind of Suggestions/Inputs by me is considerably accepted for making decisions.	67%	33%	0%
I am confident that the company is taking steps to maintain its comparative edge.	100%	0%	0%
The work performed by me relevantly describes my position in the organization.	75%	25%	0%
Company is concerned with the overall growth of the employees.	100%	0%	0%

FORM: B

Questions	1 & 2	3	4&5
There are various challenges and opportunities for learning, growth and advancement.	100%	0%	0%
Company has fair and equitable compensation structure/policy	50%	50%	0%
Employee’s ideas and views are duly considered and acted upon.	50%	50%	0%
There is a good work culture in our organization.	75%	25%	0%
I feel I can voice my opinion without fear.	50%	50%	0%
Employee policies of the company are administered fairly in all the departments	50%	25%	25%
The targets given to me are easily achievable in due time.	75%	25%	0%
The policies of the company are fair for all the employees	50%	25%	25%
Performance appraisal system in our organization is one of the best ways for motivation and morale boosting.	50%	50%	0%
I am happy with the amount and frequency of informal praise and appreciation I receive from my supervisor.	50%	50%	0%
Management gives me authority to make valuable decisions.	50%	50%	0%
I share a good rapport and I’m happy working with my supervisor/s.	100 %	0%	0%
Senior Management is competent and inspires confidence.	75%	25%	0%
Management truly believes in Team Work.	75%	25%	0%
The working of my department is incomplete without my inputs into the work.	50 %	50%	0%
My department always welcomes any kind of Suggestion/Inputs from employees for decision making	100 %	0%	0%
The overall operating procedures of the department in which I work are very important to the company.	100 %	0%	0%
My qualification is at par with the job I do.	100 %	0%	0%
I am given new responsibilities in my work.	100 %	0%	0%
Various opportunities are available in the company for career growth.	100 %	0%	0%
Good work is always appreciated and recognized at our company.	100 %	0%	0%
I would recommend others to work for this company.	100 %	0%	0%
My work gives me a feeling of personal accomplishment and satisfaction.	100 %	0%	0%
I’ve a clear path for career growth and advancement.	75%	25%	0%
Training programs provided by my department and division is appropriate.	50%	50%	0%
Various programs are implemented for the development of the employees in the company.	25%	50%	25%

FORM: C

Questions	1 & 2	3	4&5
I have all the materials and equipment I need to do my job well.	100%	0%	0%
I feel the amount of compensation I receive is in accordance with my performance.	67%	0%	33%
There are various challenges and opportunities for learning, growth and advancement.	67%	33%	0%
I get the facilities of general amenities at the work place.	100%	0%	0%
I feel I can voice my opinion in front of the management without fear.	67%	33%	0%
Company is concerned with long term welfare of the employees.	67%	0%	33%
The work targets given to me are achievable.	100%	0%	0%
My supervisor is considerate, cooperative and supportive.	100%	0%	0%
My productivity increases when I work with my team.	100%	0%	0%
Company has ample opportunities for the growth of the employees.	67%	33%	0%
Management truly empathizes and is considerate towards its employees.	67%	0%	33%
I feel I’ve a secured future working with this company	100%	0%	0%
I don’t feel any kind of interference in my job.	100%	0%	0%
The company treats all its employees fairly.	67%	0%	33%
My organization is incomplete without me.	33%	33%	34%
Various programs are implemented for the development of the employees in the company.	33%	33%	34%
My company trusts me for responsible works.	67%	33%	0%
I’ve received proper guidance from my superior.	100%	0%	0%
I’m happy with the guidance that I’ve received to do my job properly.	100%	0%	0%
There is always recognition and appreciation for good work.	67%	37%	0%

**FINDINGS**

Separate analysis is made, that of employees working in the CORPORATE and that working in SITE/PLANTS.

**1. ANALYSIS – CORPORATE (AGGREGATE)****FORM A**

- 100% of employees here are satisfied with their Job.
- 73% employees are satisfied with salary/ compensation.
- 82% employees are satisfied with the communication/ relationship in the organization
- 100% employees are satisfied with the working conditions of the company.
- 73% employees are satisfied with the performance appraisal system.
- 100% employees are satisfied with the policies of the company.
- 55% employees are satisfied with leadership and management in the company.
- 73% employees are satisfied with employee policies of the company.
- 100% employees are satisfied with their work which has a place of importance in the company.
- 91% employees are satisfied with the supervision of the management.
- 100% employees are satisfied with the recognition given to them.
- 91% employees are satisfied with the management which believes in team work.
- 91% employees are satisfied with their work.
- 82% employees agree that their suggestion/inputs are accepted for making decisions.
- 100% employees agree that organization is maintaining its comparative edge.
- 82% employees are satisfied with their work as it describes their position in the organization.
- 64% employees are satisfied with the growth of the company.

**FORM- B**

- 97% employees are satisfied with their job.
- 72% employees are satisfied with their salary.
- 69% are satisfied with the communication/ relationship in the company.
- 83% employees are satisfied with the working conditions in the organization.
- 79% employees feel that they can voice their opinion without fear.
- 55% employees are satisfied with fair administration of the company.
- 89% employees are satisfied as the targets given to them are achievable in time.
- 61% employees are satisfied with the company policies.
- 81% employees are satisfied with the performance appraisal system.
- 86% employees are satisfied with the supervision they receive from their supervisor.
- 89% employees are satisfied with the leadership and management in the organization.
- 100% employees are satisfied the rapport they share with their supervisor.
- 85% employees are satisfied with leadership of senior management.
- 89% employees are satisfied with their work group.
- 56% employees agree that working of their department is incomplete without their inputs to the work.
- 89% employees agree that their suggestions/ inputs are accepted for making decision.
- 93% employees are satisfied as their work is important to the company.
- 93% employees agree that their qualification is at par with their job.
- 100% employees are satisfied with the responsibilities given to them.
- 89% employees are satisfied with the career growth opportunities available in the company.
- 83% employees agree that good work is always appreciated and recognized in the company.
- 86% employees would recommend others to work for this company.
- 86% employees are satisfied with their work which gives them a feeling of personal accomplishment and satisfaction.
- 86% employees are satisfied with the clear path available for career growth and advancement.
- 76% employees are satisfied with the training programs provided by their department for career development.
- 69% employees are satisfied with the developmental programs provided by the company.

**FORM – C**

- 100% employees are satisfied with the materials and equipments required to do the job.
- 57% employees are satisfied with the compensation they receive.
- 91% employees are satisfied with various challenges and opportunities available for learning, growth and advancement in their job.
- 74% employees are satisfied with the working conditions/environment of the company.
- 86% employees can voice their opinion in front of the management without fear.
- 87% employees agree that the company is concerned with long term welfare of the employees.
- 100% employees say that the work targets given to them are achievable.
- 100% employees are satisfied with the supervision.
- 100% employees are satisfied with the work group.
- 87% employees are satisfied with the growth opportunities available in the company.
- 78% employees are satisfied with the leadership and management in the company.
- 91% employees feel that they have secured future working with this company.
- 83% employees don't feel any kind of interference in their job.
- 61% employees say that the company treats all its employees fairly.
- 35% employees disagree that the organization is incomplete without them.
- 61% employees are satisfied with the developmental programs in the company.
- 96% employees say that the company trusts them for responsible work.
- 96% employees are satisfied with the guidance they have received from their superior.
- 100% employees are happy with the guidance they received to do their job properly.
- 83% employees agree that there is always recognition and appreciation for good work.

**2. ANALYSIS – SITES (AGGREGATE)****FORM – A (Managers & above):-**

- 79% of employees here are satisfied with their Job.
- 68% employees are satisfied with salary/ compensation.
- 58% employees are satisfied with the communication/ relationship in the organization.
- 100% employees are satisfied with the working conditions of the company.
- 95% employees are satisfied with the performance appraisal system.
- 89% employees are satisfied with the policies of the company.
- 63% employees are satisfied with leadership and management in the company.
- 63% employees are satisfied with employee policies of the company.
- 84% employees are satisfied with their work which has a place of importance in the company.
- 84% employees are satisfied with the supervision of the management.
- 100% employees are satisfied with the recognition given to them.
- 89% employees are satisfied with the management which believes in team work.
- 95% employees are satisfied with their work.
- 79% employees agree that their suggestion/inputs are accepted for making decisions.
- 100% employees agree that organization is maintaining its comparative edge.
- 84% employees are satisfied with their work as it describes their position in the organization.
- 100% employees are satisfied with the growth of the company.

**FORM – B (Asst. Officer/ Jr. Engg. Till Dy. Manager):-**

- 92% employees are satisfied with their job.
- 56% employees are satisfied with their salary.
- 64% are satisfied with the communication/ relationship in the company.
- 88% employees are satisfied with the working conditions in the organization.
- 82% employees feel that they can voice their opinion without fear.
- 62% employees are satisfied with fair administration of the company.
- 86% employees are satisfied as the targets given to them are achievable in time.
- 67% employees are satisfied with the company policies.
- 83% employees are satisfied with the performance appraisal system.
- 73% employees are satisfied with the supervision they receive from their supervisor.
- 69% employees are satisfied with the leadership and management in the organization.
- 91% employees are satisfied the rapport they share with their supervisor.
- 85% employees are satisfied with leadership of senior management.
- 94% employees are satisfied with their work group.
- 75% employees agree that working of their department is incomplete without their inputs to the work.
- 75% employees agree that their suggestions/ inputs are accepted for making decision.
- 91% employees are satisfied as their work is important to the company.
- 77% employees agree that their qualification is at par with their job.
- 87% employees are satisfied with the responsibilities given to them.
- 84% employees are satisfied with the career growth opportunities available in the company.
- 79% employees agree that good work is always appreciated and recognized in the company.
- 87% employees would recommend others to work for this company.
- 85% employees are satisfied with their work which gives them a feeling of personal accomplishment and satisfaction.
- 89% employees are satisfied with the clear path available for career growth and advancement.
- 54% employees are satisfied with the training programs provided by their department for career development.
- 62% employees are satisfied with the developmental programs provided by the company.

**FORM – C (Below Asst. Officer):-**

- 81% employees are satisfied with the materials and equipments required to do the job.
- 36% employees are satisfied with the compensation they receive.
- 54% employees are satisfied with various challenges and opportunities available for learning, growth and advancement in their job.
- 57% employees are satisfied with the working conditions/ working environment of the company.
- 85% employees can voice their opinion in front of the management without fear.
- 72% employees agree that the company is concerned with long term welfare of the employees.
- 90% employees say that the work targets given to them are achievable.
- 93% employees are satisfied with the supervision.
- 99% employees are satisfied with the work group.
- 65% employees are satisfied with the growth opportunities available in the company.
- 65% employees are satisfied with the leadership and management in the company.
- 77% employees feel that they have secured future working with this company.
- 85% employees don't feel any kind of interference in their job.
- 65% employees say that the company treats all its employees fairly.
- 43% employees disagree that the organization is incomplete without them.
- 42% employees are satisfied with the developmental programs in the company.
- 94% employees say that the company trusts them for responsible work.
- 93% employees are satisfied with the guidance they have received from their superior.
- 92% employees are happy with the guidance they have received to do their job properly.
- 88% employees are of the opinion that there is always recognition and appreciation for good work.



**CONCLUSIONS****CONCLUSION FOR FORM A (MANAGERS AND ABOVE)**

From the Data Analysis and Interpretation, we can conclude that for Higher Level Employees of GIL (T & D Business), following factors are found to be satisfactory; Job, Salary/Financial/Compensation, Working Conditions, Performance Appraisal, Importance, Supervision, Recognition, Work Group, Work Itself, Inclusion, Organization/ Company, Relevance, Growth. Only the Company Policy is found to be a dissatisfying factor.

**CONCLUSION FOR FORM B (ASST. OFFICERS/ JR. ENGG TILL DY. MANAGERS)**

From the Data Analysis and Interpretation, we can conclude that for Middle Level Employees of GIL (T & D Business), following factors are found to be satisfactory; Job, Salary/ Financial/ Compensation, Communication/ Relationship, Working Conditions, Company Policy, Goals, Performance Appraisal, Supervision, Leadership & Management, Work Group, Exclusion, Inclusion, Importance, Relevance, Responsibility, Growth, Recognition, Organization/ Company, Work Itself, Advancement, Career Development/ Planning.

**CONCLUSION FOR FORM C (BELOW ASST. OFFICER)**

From the Data Analysis and Interpretation, we can conclude that for Lower Level Employees of GIL (T & D Business), following factors are found to be satisfactory; Job, Salary/ Financial/ Compensation, Working Conditions/ Environment, Communication/ Relationship, Company Policy, Goals, Supervision, Work Group, Growth, Leadership & Management, Exclusion, Organization/ Company, Responsibility, Development, Recognition.

**CONCLUSION FOR FORM A (MANAGERS AND ABOVE)**

From the Data Analysis and Interpretation, we can conclude that for Higher Level Employees of GIL (T & D Business), following factors are found to be satisfactory; Job, Salary/Financial/Compensation, Communication/ Relationship, Working Conditions, Performance Appraisal, Company Policy, Leadership & Management, Importance, Supervision, Recognition, Work Group, Work Itself, Inclusion, Organization/ Company, Relevance, Growth.

**CONCLUSION FOR FORM B (ASST. OFFICERS/ JR. ENGG TILL DY. MANAGERS)**

From the Data Analysis and Interpretation, we can conclude that for Middle Level Employees of GIL (T & D Business), following factors are found to be satisfactory; Job, Salary/ Financial/ Compensation, Communication/ Relationship, Working Conditions, Company Policy, Goals, Performance Appraisal, Supervision, Leadership & Management, Work Group, Exclusion, Inclusion, Importance, Relevance, Responsibility, Growth, Recognition, Organization/ Company, Work Itself, Advancement, Career Development/ Planning, Development.

**CONCLUSION FOR FORM C (BELOW ASST. OFFICER)**

From the Data Analysis and Interpretation, we can conclude that for Lower Level Employees of GIL (T & D Business), following factors are found to be satisfactory; Job, Salary/ Financial/ Compensation, Working Conditions/ Environment, Communication/ Relationship, Company Policy, Goals, Supervision, Work Group, Growth, Leadership & Management, Exclusion, Organization/ Company, Responsibility, Development, Recognition. Only dissatisfying factor is Importance.

**CONCLUSION FOR FORM A (MANAGERS AND ABOVE)**

From the Data Analysis and Interpretation, we can conclude that for Higher Level Employees of GIL (T & D Business), following factors are found to be satisfactory; Job, Salary/Financial/Compensation, Communication/ Relationship, Working Conditions, Performance Appraisal, Company Policy, Leadership & Management, Importance, Supervision, Recognition, Work Group, Work Itself, Inclusion, Organization/ Company, Relevance, Growth.

**CONCLUSION FOR FORM B (ASST. OFFICERS/ JR. ENGG TILL DY. MANAGERS)**

From the Data Analysis and Interpretation, we can conclude that for Middle Level Employees of GIL (T & D Business), following factors are found to be satisfactory; Job, Salary/ Financial/ Compensation, Communication/ Relationship, Working Conditions, Company Policy, Goals, Performance Appraisal, Supervision, Leadership & Management, Work Group, Exclusion, Inclusion, Importance, Relevance, Responsibility, Growth, Recognition, Organization/ Company, Work Itself, Advancement, Career Development/ Planning, Development.

**CONCLUSION FOR FORM C (BELOW ASST. OFFICER)**

From the Data Analysis and Interpretation, we can conclude that for Lower Level Employees of GIL (T & D Business), following factors are found to be satisfactory; Job, Working Conditions/ Environment, Communication/ Relationship, Company Policy, Goals, Supervision, Work Group, Growth, Leadership & Management, Exclusion, Organization/ Company, Responsibility, Development, Recognition. Only dissatisfying factor is Importance.

From the Conclusions drawn above and looking at the general nature of Lacunas which exists, besides enormous attention given to the particulars of Employee Satisfaction, we would like to **suggest** that;

- Keeping in mind the Higher Level Managers, attention should be given to the Hygiene Factor i.e. Company Policy especially that encompasses the interests of the employees and accordingly it should be amended in joint views with them, to improve their satisfaction level. For example, policies related to ESOPs and positions.
- Keeping in mind the Lower Level Employees, attention should be given to the Motivation Factor i.e. Importance and accordingly they should be treated in a more dignified way. A sense of importance should be imparted to them and they should be given Importance in their daily jobs, for example, by delegating them more responsible work.
- Keeping in mind the Lower Level Employees, attention should be given to the Motivation Factor i.e. Importance and accordingly they should be treated in more dignified way. Since lower level employees are more in need of Hygiene Factors, importance should be given in the similar way, for example, by paying attention to their petty needs.
- Consideration should also be given to the Errors that have been received while answering the questionnaire. Errors show that there are lacunas in the understanding between the company and its employees. Company must strive to develop and build a relationship of trust and belief amongst all its employees in all Levels of management throughout the Organization.
- This will enable the Organization to rise above the level of all other organizations and beyond the limits of Corporate Culture to stand as a mark of excellence and establish a benchmark of its own for all its future accomplishments.

**LIMITATIONS OF THE STUDY**

Limitations of the study are as follows:

1. The study is limited to the responses received from the respondents (i.e. employees of GIL).
2. Since satisfaction is an emotional state or mental condition, a level can only be estimated.
3. Since the management did not want to reveal to the employees that it is a satisfaction survey, many direct questions/ subjective questions could not be asked.
4. The percentage range for the estimation of error in the responses given by the respondents has been justified by the mentor of this project, on the basis of his personal experience in the field of HR being with this company and as per the subject matter of the topic.

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## INNOVATION IN HIGHER EDUCATION ADMINISTRATION THROUGH ICT

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### ABSTRACT

*Higher Education is a complex, distributed system. Innovations in higher education administrative systems have been evolving over a period of time with the adoption of different methods and techniques to enhance efficiency. Technology can enable and drive innovation. The 21<sup>st</sup> century has witnessed rapid advancements in technology which has led to developments in the educational administrative system. The educational administration system of the present era is greatly influenced by ICT (Information and Communication Technology). ICT helps in performing various administrative tasks with ease through the usage of electronic media. This paper highlights the need for integration of ICT into various aspects of higher education administration and also depicts the current status of ICT integration in higher education administration.*

### KEYWORDS

Higher education administration, ICT.

### INTRODUCTION

Universities are compelled to be innovative and lead by example in using cutting edge technology to meet these expectations (UNESCO 2011). Innovation is the need of the day and it is required to improve practices and quality to respond according to changing needs of the users, adapt to changing environment, and to respond to new opportunities. Information and Communication Technology (ICT) plays a central role in bringing innovation and transforming higher education by offering unimaginable opportunities and demanding unforeseen responses (Koester 2011). ICT has become a vital component for the success of the entire educational enterprise. Information and Communication Technology is an amalgam of some wonderful inventions of the 20th century in electronics and communication. During a very short span of time it has acquired an important place in almost all aspects of human life and particularly in the field of education.

The purposes of ICT-based administration in universities were aimed to reduce labour, cost and time towards repetitive tasks, to promote the administrative efficiency, and to promote the quality of university management (P. Y. Chu, and Z. L. Wang, 2000). Unlike a traditional environment, an ICT-based system is not bound by rigid timeframes and location, but facilitates continuous improvement and brings a lot of flexibility into the system. ICT systems provide powerful tools to help in all aspects of the administrative work of educational institutions. Ralph Lombreglia in the technology quotes mentioned that "The proper response to digital technology is to embrace it as a new window on everything that's eternally human and to use it with passion wisdom fearlessness and joy". The administrative challenges inherent in an educational institution can be handled more effectively through ICT-based administration.

### INTEGRATION OF ICT IN EDUCATION ADMINISTRATION

Technology has changed the face of higher education (Appana 2008). At present, Information and Communication Technology (ICT) has become an indispensable tool for education administration. It is mainly intended to improve education access, so as to provide education for all. Some of the major benefits of ICT-based education system include the following: ICT helps in integrating all the activities of an education institution which includes admission, registration, payments, hostel, transport, library, human resource management (Chickering et.al, 1996). According to Means et.al (2001), ICT facilitates usage by multiple and heterogeneous set of people to disseminate and accumulate information.

ICT thrives to achieve transparency in the entire system and also provides reliable and relevant information irrespective of the geographical barriers. Education administration includes both teaching-learning process and also the various administrative tasks pertaining to this process. The various areas where ICT is integrated in the educational systems are presented below.

### VIRTUAL LEARNING (E-LEARNING)

It is a transition from the traditional mode of learning to a virtual learning environment, enabling reduction in the barriers to knowledge acquisition. In an e-learning scenario, the pace of learning can be tuned to the individual's needs. The content can be accessed irrespective of time or location. Another benefit of e-learning is the standardization in the delivery of course content. Hence, if e-learning is effectively implemented, the delivery of knowledge can be efficiently done across widely distributed locations. The evaluation for the quality of online teaching methods for a particular course or entire curriculum includes the following: Interactivity, modularity, collaboration, learning styles, faculty involvement, support services, libraries, student services, assessment of learning etc.

### VIRTUAL LIBRARY

In this era of information explosion, newer challenges are faced in having access to vast information that is widely distributed. This has led to the development of a Virtual Library or e-library. It is a transition from the traditional mode of laborious searching and gathering of information to a quick online access to storehouses of knowledge. This has been facilitated by the development of technology for obtaining information in a networked environment. The key benefits of a Virtual Library (e-Library) include availability of access to books irrespective of location or time.

### TEACHING –LEARNING PROCESS

ICT-based teaching-learning process was mainly introduced to enhance the delivery of contents and to improve the skills of learners and prepare them for the global economy and information society (Haddad and Draxler 2002, Kozma and Wagner 2005, McNamara 2003, UNESCO 2002). Teaching-Learning is a life-long process which can be significantly enhanced through the appropriate use of emerging ICTs (Bureau of Public Information, NESCO 2008).

According to Whitworth and Berson (2003), ICT-enabled education has the potential to promote the development of students' decision-making and problem solving skills, data processing skills, and communication capabilities. ICT plays a major role for dealing with information and its transformation into knowledge, which is a basic requirement for citizens to become effective participants in this new scenario (Venezky and Davis 2002). Jarvis et al (2007) concluded that ICT-based learning encourages a wider range of learning styles through visual and kinesthetic approaches to learning thereby facilitating personalized learning and assessment. According to Kozma and Johnson (1992) educational problems seem to be responsive to technological innovation, faculty role, and organizational arrangements that facilitate adoption to new technologies and maximize impact.

ICT can be integrated into various activities of knowledge delivery, knowledge accumulation and evaluation. Some of the areas of ICT integration include the following: Using power point slides for delivery of lectures, Clarification to queries of students through e-mail, Usage of computers for explaining better in the classroom, Usage of technology for increasing creativity in teaching, Encouragement to students to send their doubts / queries by e-mail or post into discussion boards, Conduct of on-line tests and on-line quizzes, Electronic processing of results and performance analysis of students, and Internet browsing to supplement book information.

**GENERAL ADMINISTRATION**

The integration of ICT into general administration has brought increased efficiency and optimal resource utilization (Hasan et al 2007). Information and communication technology (ICT) helps in processing of voluminous records in a quick, meticulous, and impeccable manner thereby making data retrieval easier (Thomas Kwaku Obeng 2004). The various aspects of ICT integration into general administration are presented below.

Information Kiosks (e-Kiosks) can be used to disseminate information to the public on various aspects. Details about an educational institution, course information, administrative policies and procedures, etc. could be displayed on the e-Kiosks. Communication with staff using e-media, Electronic Circulars (e-Circulars) is an important aspect of e-administration and can be used to establish a paperless office in an educational institution. The activities of creation of a circular, review of the contents, storage in a secured repository, dissemination of information, and acknowledgment can be achieved using e-circulars.

Electronic bulletin boards (e-bulletin boards) can be used and its function is similar to that of a physical bulletin board available in an office, or university. In the case of information sharing through e-bulletin boards, messages are sent by users through e-mail. These messages get displayed on the electronic bulletin board for view by other users. An electronic newsgroup (e-newsgroup) is the Internet equivalent of a bulletin board. It facilitates exchange of information, ideas, and views, ideally regarding a specific subject area. Since people can interact in real time on a topic that is mutually interesting, it can be considered to be the electronic equivalent of a radio chat show. The availability of a private bulletin board across the intranet in an organization / institution can be used to facilitate intra-office communication. It can enable sharing of views and ideas on multiple company-related aspects among the employees belonging to the various departments. When data or information is exchanged electronically, the reliability of exchange of such information is higher, and is also more efficient and cost-effective.

An electronic identification mechanism to capture information electronically like ID cards with barcode can be used and lot of data entry on every day basis can be avoided. It can also be linked to an attendance recording system, to enable employees to swipe in the cards at the time of entry and exit. Electronic identification is getting more evolved by means of usage of fingerprint, voice, and signature identification techniques. An electronic identification mechanism reduces labour costs, and increases the accuracy of information as well as efficiency in usage of personnel, time and materials.

Automation of attendance and leave management of staff members in the institution, Usage of computers for student registration / enrolment, Usage of computers for maintenance of attendance of students, Communication of academic details of students to their parents / guardians through e-media, Facility for students to make fee payments electronically can be achieved so as to enhance the flexibility and transparency of the overall system.

**RESEARCH METHODOLOGY**

The methodology comprises instrument development and validation, sampling, data collection, and data analysis. Literature review was done to know the various areas of ICT integration in education administration. A questionnaire was prepared and administered based on the identified areas to know the extent of current integration. The Questionnaire consisted of two parts namely Part-A and Part-B. The Part-A questionnaire was administered to Faculties and Part-B to staff and administrative personnel. The sample size comprises 51% of the total population.

**ICT INTEGRATION – PRESENT SCENARIO**

The key objective of this paper is to highlight the present scenario of ICT integration in the above mentioned areas of higher education administration. A survey was done to know the extent and areas of ICT integration in AICTE approved institutions in Karnataka. Region-wise comparative analysis was also done.

**ANALYSIS AND INFERENCES**

The various demographic factors considered for this study includes age, gender, institution type, years of existence of the institution, name of the university, region in which it is located, designation of the respondents, years of experience and the approximate number of students. An analysis was done to measure the impact of demographic factors and it is observed that most of the demographic factors did not have any statistically significant difference with the areas of ICT integration. However, there was some statistically significant difference observed in only two of the demographic factors, namely, years of experience of the individual and type of institution. Even in these cases, the statistically significant difference was observed only in the functional area of general administration.

The largest extent of usage of technology was found to be in the area of Virtual learning (75.8%) followed by usage of ICT in teaching –learning process (65.1 %). This reveals that technology has been deployed to a large extent in the delivery and evaluation of knowledge and also in the acquisition of knowledge. The study also revealed that ICT integration into library services, mainly Virtual library systems has a large scope for enhancement since the current utilization is only 54.2%.

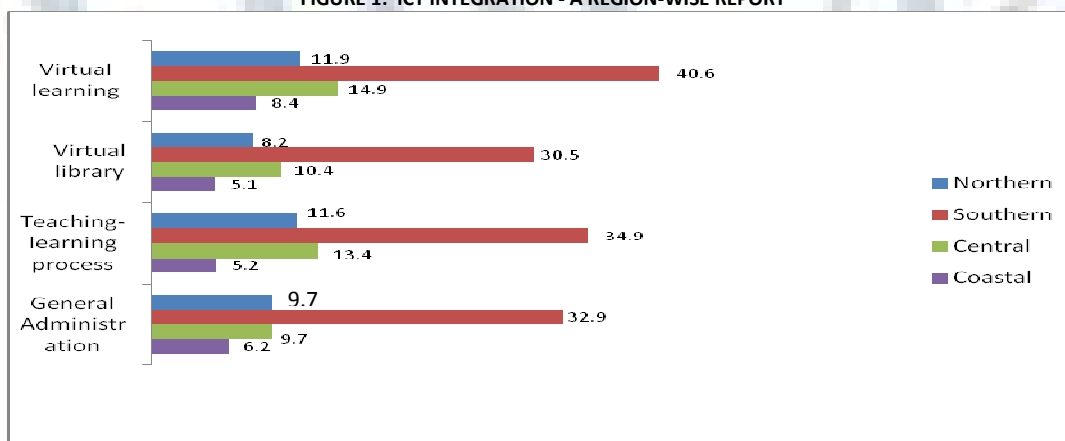
The current utilization of ICT into general administration is found to be 58.5%. The study also revealed that the ICT integration is more into the sub-functional areas like admission process rather than regular administrative tasks.

The region-wise report depicted below (Table1) depicts the present utilization in the four regions of Karnataka state. The analysis reveals that Southern region records the highest utilization of ICT in all the functional areas and the Coastal region recording the least.

**TABLE 1: ICT INTEGRATION - A REGION-WISE REPORT**

	Northern	Southern	Central	Coastal	Total
<b>Virtual learning</b>	11.9	40.6	14.9	8.4	75.8
<b>Virtual library</b>	8.2	30.5	10.4	5.1	54.2
<b>Teaching-learning process</b>	11.6	34.9	13.4	5.2	65.1
<b>General Administration</b>	9.7	32.9	9.7	6.2	58.5

**FIGURE 1: ICT INTEGRATION - A REGION-WISE REPORT**





This analysis reveals that the usage of ICT in the southern region is relatively more in all the functional areas. This is mainly due to the presence of major IT cities in this region. The awareness, technological availability and access to these facilities are interpreted as probable reasons for the more usage. The Central and Northern regions follow next in the extent of usage respectively. Usage of ICT is low in the Coastal region in almost all the functional areas. There is a large scope for improvement in this region wherein more awareness needs to be created by highlighting the benefits of ICT integration.

## CONCLUSION

The above applications indicate how ICT is being adopted for enhancing effectiveness and efficiency of the higher education system. This study clearly reveals that there exists extensive scope for complete transformation of the processes to an ICT-based system. With the proliferation of Internet and computing technologies, ICT is bound to stay and to evolve as we move into the future.

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## THE IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY: EVIDENCE FROM SUGAR INDUSTRY IN INDIA

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### ABSTRACT

*Working Capital (WC) is regarded as the lifeblood of a business. It plays a pivotal role in keeping the wheels of a business enterprise running. However, the management of WC is a delicate area as it involves complex decision-making. Every organization whether profit oriented or not, depends on its size and nature of business needs requisite amount of WC. Sugar Industry in India is well developed with a consumer base of more than billion of people. It is also the second largest producer of sugar in the world. There is around 45 millions of sugar cane growers in India and a larger portion of rural labourers in the country largely rely upon this industry. This paper is a maiden attempt on the impact of working capital management on profitability using liquidity ratios, and turnover ratios. Correlation and regression models are applied to associate the relationship and estimate the association between explained and explaining variables. The regression model viz., measure of WC management shows that the ratios like Current Ratio and Inventory Turnover Ratio have highly significant positive coefficient with profitability while Quick Ratio has significant negative coefficient with profitability.*

### KEY WORDS

Profitability (*P*), Return on Investment (*ROI*), Working Capital (*WC*), Working Capital Management (*WCM*), Working Capital Ratios (*WCR*).

### JEL CLASSIFICATION

G30, G32

### INTRODUCTION

**W**orking Capital (*WC*) refers to a firm's investment in short-term assets, viz, cash, short term securities, bills receivables and inventories of raw materials, work in progress and finished goods. It can also be regarded as that portion of the firm's total capital which is employed in short-term operations. *WC* is the investment needed for carrying out day to day operations of the business smoothly. Efficient Working Capital Management (*WCM*) is an integral component of the overall corporate strategy to create shareholders' value. *WC* is the resultant need of time lag between the expenditure for the purchase of raw material and collections from the sale of the finished product. The continuing flow of cash starting from suppliers of inventory to accounts receivables and back into cash is referred to as the Cash Conversion Cycle (*CCC*). The way in which *WC* is managed can have a significant impact on both the liquidity as well as the profitability of the firm.

### MANAGEMENT OF WORKING CAPITAL IN INDIA

- ❖ An Indian corporate firm seems to have adequate and satisfactory level of working capital as reflected in their liquidity ratios. The foreign controlled corporate firms are placed in a better position relative to the domestic corporate firms.
- ❖ There are wide inter-industry variations in the liquidity ratios of the corporate enterprises. With the exception of sugar, all other industries have safe and satisfactory liquidity position.
- ❖ Majority of Indian corporate firms maintain relatively a lower cash / bank balances. Marketable securities are yet to emerge as a popular means of cash management. The excess cash is deployed to short-term debt / in short-term bank deposits.
- ❖ Accounts payable and short-term loans are the major components of current liabilities.
- ❖ The length of the operating cycle is the most widely used method to determine *WC* need. The *WC* financing policy is based on the matching approach. The majority of the corporate firms have occasionally experienced *WC* shortage due to mainly excess inventory accumulation and poor debt collection.

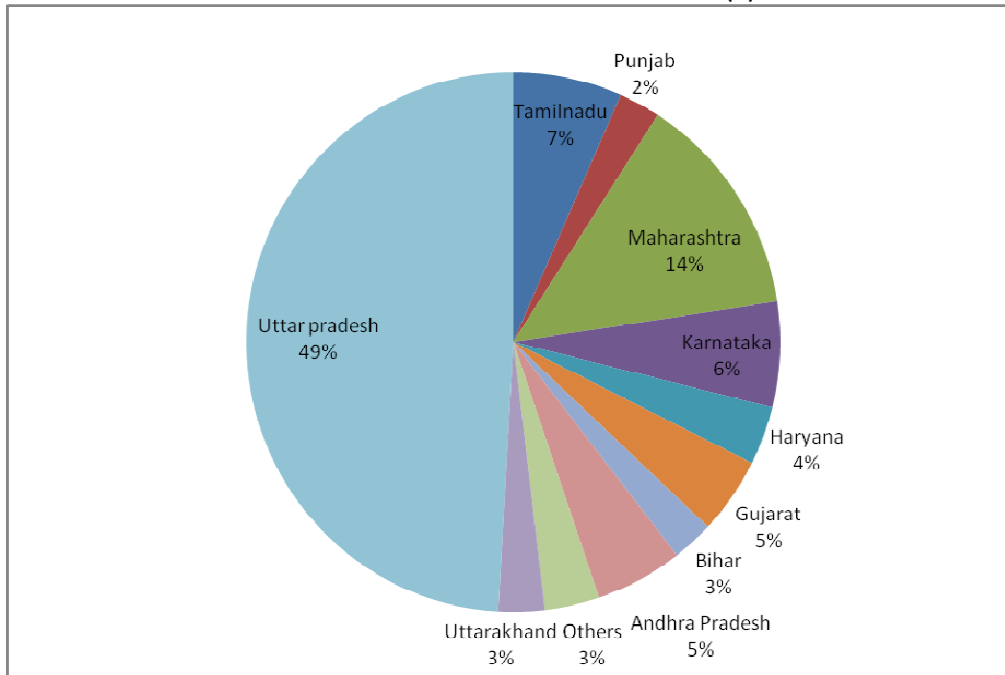
### PROFILE OF SUGAR INDUSTRY IN INDIA

The Sugar Industry constitutes one of the most important agro-based industries in India. Although this industry has a long tradition in this country, it started growing in an organized way during the 1930s after introduction of the Sugar Industry Protection Act in 1932. But the industry achieved a spectacular growth under the plan periods. While the number of sugar mills has gone up from 139 in 1950 to 400 in 1989, the corresponding sugar production has increased from 1.4 million tons to 11 million tons. However, there were large variations in the pattern of growth between different states as well as between regions. Among the various states of the Indian Union, Uttar Pradesh occupies an important place in the sugar industry. Both in terms of number of mills as well as in terms of sugar production, its share have been around 30%. In spite of this high growth rate in sugar production since 1970s the industry is beset with a number of problems like *shortage in sugarcane supply, obsolete technology, low capacity utilization, poor financial performance, and discriminatory government policies*. Due to these problems most of the sugar mills have been victims of high cost of production, which adds to their persistent losses thereby the number of sick sugar mills has been increasing during the recent past two decades.

Four factors determine sugar production in India:

- ❖ Area under sugarcane production (Max. acreage of 4.43 million hectare)
- ❖ Sugarcane yield per hectare (Max. yield of 71.3 tons per hectare)
- ❖ The production of sugarcane that is crushed by sugar factories in relation to the total sugarcane produced (Max drawl percentage = 69%)
- ❖ Recovery of sugar (Max recovery = 10.48%)

CHART – A: STATE WISE CULTIVATION AREA OF SUGARCANE (%) IN INDIA



Source: Computed results based on compiled data collected from CMIE proress Pvt. Ltd

## LITERATURE REVIEW

**Hyun-Han Shin and Luc Soenen (1998)** found in a research study on a large sample of listed American firms for the 1975-94 periods titled Efficiency of Working Capital Management and Corporate Profitability that efficient WCM is an important part of the overall corporate strategy to create shareholders' value and the profitability of firms. They also found a strong negative relationship between length of the firm's net trading cycle and its profitability. **Chiou and Cheng (2006)**, who analyzed the determinants of WCM, explored how far WCM of a firm influenced by different variables like business indicators, industry effect, operating cash flows, growth opportunity for a firm, firm's performance and the size of a firm. The study has depicted consistent results of leverage and operating cash flow for both net liquid balance and working capital requirements while variables like business indicator, industry effect, growth opportunities, performance of firm, and size of firm were unable to produce consistent conclusions for net liquid balance and working capital requirements of firms.

**Abdul Raheman (2007)**, who studied the link between WCM and Profitability of a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of 6 years (1999-2004) stated that there is a strong negative relationship between variables of the WC and profitability of the firm which means that as the increase in cash conversion cycle leads to decrease in profitability of the firm, and managers can convert cycle to possible minimum level. **Uyar (2009)**, in his paper titled "The Relationship of cash conversion cycle with Firm Size and Profitability: An Empirical Investigation on Turkey firms" examined the industry benchmarks for CCC of merchandising and manufacturing companies and found that merchandising industry has shorter CCC than that of the manufacturing industries. Further, the study examined the relationship between the length of the CCC and the size of the firms and found a significant negative correlation between the length of CCC and the firm size, in terms of both net sales and total assets.

**Chinta Venkateswara Rao et al. (2010)** in their study "Financial management focus on WC Utilization in the Indian cotton textile industry: Methodological analysis" analyzed the trends and patterns of efficiency of working capital utilization in respect of size of firms of cotton textile industry in India on the application of three indices viz., Performance Index (PI), Utilization Index (UI), and Efficiency Index (EI). The study revealed that linear growth rate (LGR) of PI, UI and EI in respect of working capital efficiency of small size firms is significant while that of the medium size firms, the trend of UI only is significant while the trend of PI, EI and UI for large size firms is insignificant.

## SIGNIFICANCE OF THE STUDY

The study is to make an attempt to analyze the impact of working capital management on profitability of sugar industry in India. Efficient management of WC is a fundamental part of the overall corporate strategy in creating the shareholders' value. Today, the management of WC is one of the most important and challenging aspects of the overall financial management. Optimization of WC i.e., minimizing the WC requirements and realizing maximum possible revenues is the order of the day. Efficient WCM increases firm's growth opportunities and return to shareholders. Very few studies have been made in relation to WCM especially in sugar industry in India. Therefore, the present study is a maiden attempt to analyze the impact of WCM on profitability of sugar industry in India.

## OBJECTIVES OF THE STUDY AND HYPOTHESES DEVELOPMENT

- ❖ To study the impact of WC on profitability of Sugar Industry in India.
- ❖ To analyze the determinants of profitability for examining the sensitivity of ROI to changes in the level of WC of the corporate firms.

In order to reach the stated objectives the following hypotheses have been developed:

- $H_0^1$ : There is no significant relationship between current ratio (CR) and return on investment (ROI).
- $H_0^2$ : There is no significant relationship between quick ratio (QR) and return on investment (ROI).
- $H_0^3$ : There is no significant relationship between working capital turnover ratio (WCTR) and return on investment (ROI).
- $H_0^4$ : There is no significant relationship between debtor turnover ratio (DTR) and return on investment (ROI).
- $H_0^5$ : There is no significant relationship between creditor turnover ratio (CTR) and return on investment (ROI).
- $H_0^6$ : There is no significant relationship between inventory turnover ratio (INV) and return on investment (ROI).

## PERIOD OF THE STUDY

The data used for the study are related to the selected Sugar Industry in India for a period of five years on a year to year basis ranging from 2005-2010. There are two basic reasons behind the selection of the period as the period of the study:

- This period relates to the post- liberalization era of the Indian economy, and
- This is the period for which the maximum financial data were available in the database.

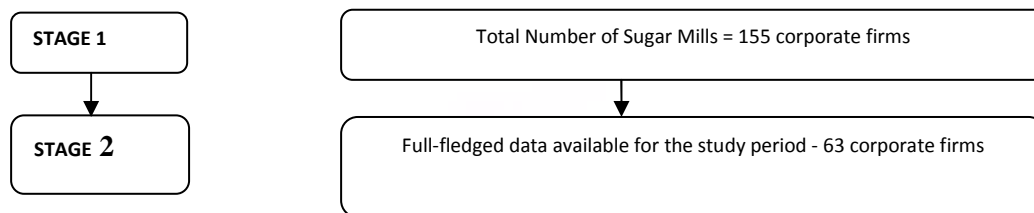
**METHODOLOGY**

**DATA COLLECTION**

Since the study is based on financial data, the main source of data was financial statements, such as balance sheets, income statements of listed companies for the period from 2005-2010. Data have also been collected from secondary sources i.e., annual reports of the companies, Centre for Monitoring Indian Economy Prowess database and from various websites concerned.

**SAMPLING DESIGN**

**MULTI-STAGE SAMPLING TECHNIQUE**



Hence, 63 corporate firms of Sugar Industry in India are selected for the study.

**RESEARCH METHODS**

**WCM MEASURES (RATIOS)**

For measuring the WCM, simple mathematical tool viz., ratio has been extensively used. The ratios relating to working capital management which have been computed and used for the analysis are:

WCM Measures (Ratios)	Elements of Ratios	Description
Current ratio (CR)	Current Assets / Current Liabilities	Current assets include cash, accounts receivable, inventory, marketable securities, prepaid expenses and other liquid assets that can be readily converted into cash. Current liabilities include short term debt, accounts payable, accrued liabilities and other debts.
Quick ratio (QR)	Quick Assets / Quick Liabilities	For calculating quick assets, stock and prepaid expenses are excluded from current assets in order to have high degree of liquidity of current assets. Quick liabilities are calculated by eliminating bank overdraft from current liabilities
Debtors' turnover ratio(DTR)	Net Credit Sales / Average Debtors	The trade debtors for the purpose of this ratio include the amount of Trade Debtors & Bills Receivables. The average receivables are found by adding the opening receivables and closing balance of receivables and dividing the total by two.
Inventory turnover ratio(INV)	Net Sales / Inventory	Net sales is the amount of sales generated by a company after the deduction of returns, allowances for damaged or missing goods and any discounts allowed. Average inventory is the median value of an inventory throughout a certain time period. The basic calculation for average inventory would be: (Current Inventory + Previous Inventory) / 2.
Cash turnover ratio(CTR)	Net Sales / Cash Balances	Net sales is the amount of sales generated by a company after the deduction of returns, allowances for damaged or missing goods and any discounts allowed. The sales number reported on a company's financial statements is a net sales number, reflecting these deductions. The cash balance is the closing balance of cash.
Working capital turnover ratio(WCTR)	Net Sales / Net Working Capital	Net sales is the amount of sales generated by a company after the deduction of sales returns, allowances for damaged or missing goods and any discounts allowed. A company uses working capital (current assets - current liabilities) to fund operations and purchase inventory
Return on investment (ROI)	PAT / Average Total Assets	PAT is the net profit earned by the company after deducting all expenses like interest, depreciation and tax. Average total assets is the average of the aggregate assets during a two year period, i.e., Total Assets (current year) + Total Assets (previous year) / 2. Total assets include all gross investments, cash and equivalents, receivables, land and building, plant and machinery, furniture and fittings and intangible assets.

**REGRESSION ANALYSIS**

$$ROI = b_0 + b_1CR + b_2QR + b_3WCTR + b_4DTR + b_5CTR + b_6INV \quad (1)$$

- Where  $b_0$  = constant  
 $b_1 \dots b_6$  = estimated coefficients  
 CR = Current Ratio  
 QR = Quick Ratio  
 WCTR = Working Capital Turnover Ratio  
 DTR = Debtors Turnover Ratio  
 CTR = Creditors Turnover Ratio  
 INV = Inventory Turnover Ratio

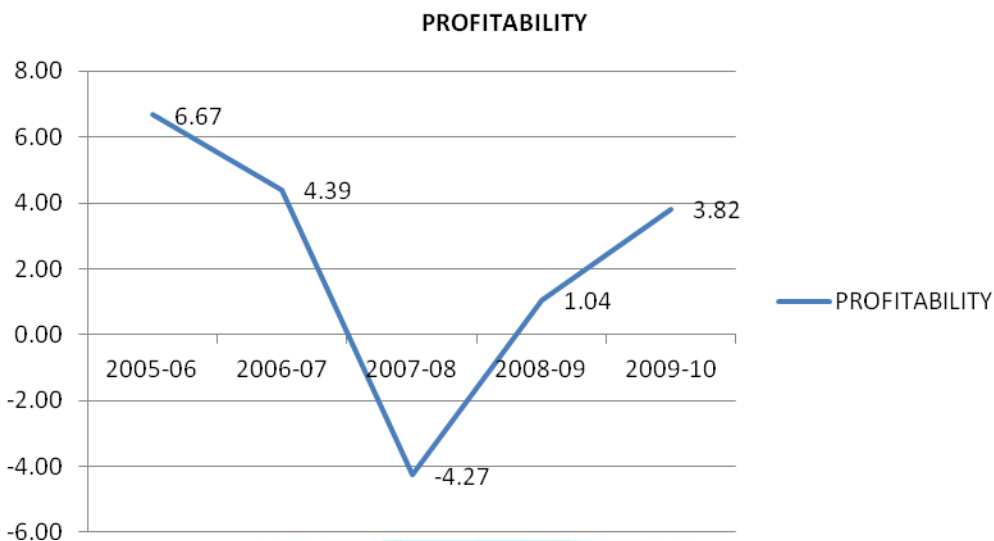
**LIMITATIONS OF THE STUDY**

- ❖ The analysis is limited to five years only (i.e. from 2005- 2010), hence a detailed trend covering a lengthy period could not be made.
- ❖ The study is based on secondary data collected from CMIE prowess, therefore the quality of the study depends purely on the accuracy, reliability and quality of secondary data source.
- ❖ The study is limited to 63 corporate firms of sugar industry in India, hence the accuracy of results is purely based on the data of sample firms for the study.



INDUSTRY ANALYSIS

CHART – B: TREND OF PROFITABILITY OF SUGAR INDUSTRY IN INDIA DURING 2005-06 – 2009-10



Source: Computed results based on compiled data collected from CMIE prowess Pvt. Ltd

There is a steep fall in profitability (see chart – B) during the year 2007-08; afterwards there is a rise in profitability during the following years. Some corporate firms have negative value in the year 2007 and 2008 due to sugar price increase over the years. In 2008-2009, particularly, a large part of sugarcane was used for making gur than in earlier years so, the world sugar production was down when compared to the previous season. The reason for the world sugar balance for the period from October 2008 to September 2009 puts world production at 16-16.5 million tons, which is lower than the world consumption (20-22 million tons). Thus, the distinctive global surplus phase has ended and the market has moved into a deficit phase during the period.

The descriptive statistics (see table 1) shows that Cash Turnover Ratio (CTR) has the highest mean value. The deviation from the mean value is also high. Cash Turnover Ratio (CTR) also has higher standard deviation due to wider range of fluctuation over the period of study. Debtors Turnover Ratio (DTR) also has high standard deviation, indicating that the debt collection period varies highly within the industry. Current Ratio (CR) and Quick Ratio (QR) have low standard deviation from the mean value, revealing that there is not much of variation in the level of Current Assets and Quick Assets.

The correlation matrix (see table 2) of WC variables of selected sugar corporate firms reveals that there is a significant positive association between ROI and CR (0.302); ROI and INV(0.290) and CR and INV (0.254); and significant negative association between ROI and DTR (-0.259) at 5 % level. Also there is a highly positive correlation between CR and QR (0.789); QR and INV (0.512) at 1% level of significance.

TABLE 1: DESCRIPTIVE STATISTICS OF VARIABLES OF WC OF SELECTED SUGAR MILLS IN INDIA

Variables	N	Minimum	Maximum	Mean	SD
ROI	63	-11.05	13.51	2.3332	3.89877
CR	63	.45	3.77	1.2816	.52573
QR	63	.07	2.56	.3955	.40058
WCTR	63	-87.75	232.89	5.6099	39.81483
DTR	63	1.23	1864.58	104.7427	249.85805
CTR	63	.00	13239.95	2312.8493	2683.97006
INV	63	.98	13.07	3.6718	2.42596

Source: Computed results based on compiled data collected from CMIE prowess Pvt. Ltd.

TABLE 2: CORRELATION MATRIX OF WC VARIABLES OF SELECTED SUGAR MILLS IN INDIA

VARIABLES	ROI	CR	QR	WCTR	DTR	CTR	INV
ROI	1						
CR	0.302 <sup>*</sup> (0.016)	1					
QR	0.162 (0.205)	0.789 <sup>**</sup> (0.000)	1				
WCTR	-0.013 (0.917)	0.044 (0.734)	0.063 (0.623)	1			
DTR	-0.259 <sup>*</sup> (0.041)	-0.126 (0.324)	-0.188 (0.140)	-0.037 (0.772)	1		
CTR	0.136 (0.288)	0.010 (0.937)	-0.069 (0.593)	0.007 (0.954)	-0.071 (0.582)	1	
INV	0.290 <sup>*</sup> (0.021)	0.254 <sup>*</sup> (0.044)	0.512 <sup>**</sup> (0.000)	0.122 (0.340)	-0.175 (0.169)	0.034 (0.790)	1

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 3 shows that CR has highly significant positive coefficient (4.562) at 1% level with ROI, indicating that the higher CR increases the ROI and vice versa. Hence, maintaining a good CA in relation to CL helps the firms in improving the ROI of the sugar industry, hence there is a significant positive impact of CR enhancing on ROI.  $H_0^1$ : "There is no significant relationship between CR and ROI" is rejected (4.562<sub>0.01</sub>). However, QR has significant negative coefficient (-5.378) at 5% level with ROI, indicating that maintaining assets in terms of ready cash doesn't help the firms in increasing ROI. So, it is better for the industry to maintain a lesser amount of ready cash and to invest the money in convertible securities, which ultimately increases the profitability. There is a significant negative relationship between QR and ROI, hence  $H_0^2$ : "There is no significant relationship between QR and ROI" is rejected (-5.378<sub>0.05</sub>).

TABLE 3 REGRESSION RESULTS OF EXPLAINING VARIABLES ON PROFITABILITY OF SELECTED SUGAR CORPORATE FIRMS

Variables	B	T	Sig
INTERCEPT	-3.484	-2.091	0.041
CR	4.562**	3.151	0.003
QR	-5.378*	-2.491	0.016
WCTR	-0.006	-0.530	0.598
DTR	-0.003	-1.840	0.071
CTR	9.257	0.549	0.585
INV	0.618**	2.735	0.008
R <sup>2</sup>	0.273		
Adjusted R <sup>2</sup>	0.195		
F statistics	3.505** (0.005)		

\*\*Significant at the 0.01 level (2-tailed);

\*Significant at the 0.05 level (2-tailed).

As WCTR has insignificant negative coefficient (-0.006) with ROI the  $H_0^3$ : "There is no significant relationship between WCTR and ROI" is accepted (-0.006). DTR has also insignificant negative coefficient (-0.003) with ROI, hence  $H_0^4$ : "There is no significant relationship between DTR and ROI" is accepted (-0.003). CTR has insignificant positive coefficient (9.257) with ROI, hence  $H_0^5$ : "There is no significant relationship between CTR and ROI" is accepted (9.257). Whereas, INV has highly significant positive coefficient (0.618) at 1% level with ROI, which implies that as the inventory decreases the profitability of the industry will increase. Therefore, a lower inventory level is profitable for sugar industry, thereby leading to infer that there is a significant positive relationship between INV and ROI.  $H_0^6$ : "There is no significant relationship between INV and ROI" is rejected (0.618<sub>0.01</sub>). The overall regression model fit, which is represented by R<sup>2</sup>, is 27% which shows that the explaining variables determine to the extent of 27% of the changes in profitability. F stat (3.505\*) is significant @ 5% level, indicating that the variance in the dependent variable is explained by the variance in the independent variable.

**CONCLUDING REMARKS**

The analysis has brought out interesting results, the important highlights of the results are:

There is a significant positive association between ROI and CR (0.302); ROI and INV (0.290) and CR and INV (0.254); and significant negative association between ROI and DTR (-0.259) at 5 % level. Also there is a highly positive correlation between CR and QR (0.789); QR and INV (0.512) at 1% level of significance. The overall regression model fit shows that the explaining variables determine to the extent of 27% of the changes in profitability. After the downtrend in the last two years, the sugar industry in India is poised to reap a rich harvest in the season beginning October 2010. The sugar production in the country is experienced an increase in 2010-11 against 19 million tons in 2009-10. The production of sugarcane is cyclical in nature. Hence, the sugar production is also cyclical as it depends on the sugarcane production in the country. Dual pricing system is adopted in sugar industry in India, which includes sugar price in Public Distribution System and the free sale sugar price. The sugar corporate firms are overburdened with surplus inventories that most of them do not have adequate storage facilities, capacities and cash flows, which have led them to resort to distress sale of sugar, which only brings down the prices. There are more by-products produced by sugarcane like ethanol, molasses – used by breweries, biogases – used by co-generation plants and the remaining is utilized by the gur and khandsari sectors. They are traditional alternate sweeteners, with all these distinguishing characteristics the industry profitability is influenced by current ratio (CR) and inventory (INV).

**SCOPE FOR FURTHER STUDIES**

WCM is an important component of corporate financial management but it has not been recognized in financial literature unlike capital structure, capital budgeting and dividend policies. Because of this reason the valid research relating to WCM is found to be scanty in India. So, there is much to be done about WCM in India, hence the following is the scope for further studies:

- Further researches could be carried out on the same area with large number of sample companies, lengthening the years of the study.
- Study on small and medium sized companies could be undertaken by taking large sample, covering and more number of years.
- Further research may also be done on the working capital components including cash, marketable securities, receivables and inventory management.
- Also studies of WCM in different sectors and companies between sectors and cross sectors would add to the existing literature.

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**WEBSITE**

<http://www.slideshare.net/Harijan29/sugar-industry-of-india>



## A STUDY ON MOBILE PAYMENT SYSTEMS AND SERVICES

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### ABSTRACT

*Payment System is the backbone of advanced monetary economy. It is also one of the key areas in which technology has been driving force for innovation. Generally Payment systems in India have had a chequered history and traditional systems have been in vogue for many centuries, well mingling with the more recent electronic products. The initiatives of the Reserve Bank- all through a consultative process - have always aimed at the establishment of an integrated system that would benefit all the sectors of the economy, and at the same time reduce the overall risk in the system. In this paper we will study about the next generation cash less payment method using cell and its basic fundamentals architecture and other entities which take a vital to complete a particular task.*

### KEYWORDS

M-Commerce, M-Payment, Architecture, Payment protocol.

### MOBILE COMMERCE – BEYOND E-COMMERCE

**M**obile phone is a convenient technology for large scale adoption among urban as well as rural people crossing the barriers of language and last mile connectivity. More than 5 billion people are expected to own mobile phones in the globe by 2011-12. There are currently 300 million mobile phones in India and 100 million are added every year. In a few years more than 500 million people are expected to have mobile phones in India<sup>[1]</sup>.

M-commerce is often defined as the buying and selling of goods and services using wireless handheld devices such as mobile telephones or personal data assistants (PDAs). In the last four years, growth in the number of mobile telephone users worldwide has exceeded fixed lines, expanding from 50 million to almost Three billion in 2009. This fast growth stems from the cost advantage of mobile infrastructure over fixed-line installation and from the fact that mobile network consumers can simply buy a handset. Mobile commerce is a natural successor to electronic commerce. Electronic commerce has been facilitated by automatic teller machines (ATMs) and shared banking networks, debit and credit card systems. Mobile payments are a natural evolution e-payment schemes that will facilitate mobile commerce. A mobile payment or m-payment may be defined, for our purposes, as any payment where a mobile device is used to initiate, authorize and confirm an exchange of financial value in return for goods and services.<sup>[3]</sup> The main difference between successful implementations of mobile payment services in the Asia Pacific region and failure in Europe and North America is primarily attributed to the 'payment culture' of the consumers that are country-specific.

### LITERATURE REVIEW

- "There is no denying that today the mobile is more accessible than portable water or education in many parts of the country. While this is also cause to lament how technology has taken precedence over other essentials in life, one company decided to use it to advantage. Foreseeing the future for mobile money, Bharti Telesoft came up with the concept of Mobiquity or the mobile money solution". - **Hindu Business Line, India**
- "A global association of mobile operators announced Monday the launch of a pilot program, in co-operation with MasterCard, to allow the world's 200 million migrant workers, many of whom do not have bank accounts, to send money to their dependents via mobile phones. The global money transfer pilot, who has the involvement of 19 mobile operators with networks in over 100 countries, representing over 600 million customers, was unveiled at 3GSM, an annual industry trade fair in Barcelona that is expected to attract some 60,000 visitors this year." - **Red Herring The Business Technology**
- "Mobile phones are becoming an increasingly popular way to make all sorts of payments. In America fans of the Atlanta Hawks have been testing specially adapted Nokia handsets linked to their Visa cards to enter their local stadium and to buy refreshments. Elsewhere schemes are more advanced." - **Economist.com**

### NATURE OF SERVICES

The wide accessibility of the Internet makes any e-commerce service globally available. The Web enables search and delivery of rich information, and sophisticated electronic transaction processes can be integrated easily with backend enterprise information systems. In contrast, the delivery of m-commerce applications relies on private wireless communication carriers. These services are usually delivered to a specific region, and are rather simple, more personalized, location-specific and time-sensitive. Since a mobile device usually accompanies a person wherever he or she goes, mobile services can be delivered to a person anywhere and anytime rather than to a fixed office or home.

The major differences between m-commerce and e-commerce are summarized in **Table 1.1**



TABLE 1.1: E-COMMERCE Vs. M-COMMERCE

	E-COMMERCE	M-COMMERCE
<b>ORIGIN</b>		
Sponsorship	Government-sponsored Internet	Private mobile phone industry
Business entry cost	Low	High
Customer access cost	Free or low cost Internet access	High mobile service charge
Customer base	Highly educated computer users	Less educated cell phone customers
<b>TECHNOLOGY</b>		
Message transmission	Packet-switched data transmission	Circuit switched for streamlined voice communication
Protocol	TCP/IP, HTTPML	GSM, TDMA, CDMA, 3G
Standardization	Highly standardized	Multiple incompatible standards
Connectivity	Global	Mainly regional
Bandwidth	High	Low
Identity	URL with IP and domain name	Phone number
Application development	General computer applications	Device-specific applications
Interface device	Personal computers	Cell phones and PDAs
Mobility	Fixed location	Mobile
Display	Big screen	Small screen
Main input mode	Keyboard for full text input	Voice with small key pad
Main output mode	Text and graphics	Voice with small text display
Local processing power	Powerful CPU with large memory and disk space	Limited processing power with small memory chip
Software and Programming	Support a variety of programming languages	Java or specific script languages
Trend	Towards sophistication	Towards minimization
<b>SERVICES</b>		
Service range	Global	Regional
Delivery destination	PC in office connected to the Internet	Person accompanied by a mobile device
Transaction complexity	Complete and complex transactions	Simple transactions
Information provided	Rich information	Simple and short messages
Timing	Less time-critical	Time critical
Location-based service	No	Yes
Target mobility	Service to a fixed point	Service to a moving target
Backend business connection	Strong connection to backend business information systems	Weak connection to backend business information systems
Service classification	B2C (business to consumer) and B2B (business to business)	P2P (person to person) and P2S (person to system)

### MOBILE PAYMENT CHARACTERISTICS

When you want to take services under such a Mobile Devices, following kinds of characteristic should be present in the system. <sup>[4]</sup>

#### A) SIMPLICITY AND USABILITY

The m-payment application must be user friendly with little or no learning curve to the customer. The customer must also be able to personalize the application to suit his or her convenience.

#### B) UNIVERSALITY

M-payments service must provide for transactions between one customer to another customer (C2C), or from a business to a customer (B2C) or between businesses (B2B). The coverage should include domestic, regional and global environments. Payments must be possible in terms of both low value micro-payments and high value macro-payments.

#### C) INTEROPERABILITY

Development should be based on standards and open technologies that allow one implemented system to interact with other systems.

#### D) SECURITY, PRIVACY AND TRUST

A customer must be able to trust a mobile payment application provider that his or her credit or debit card information may not be misused. Secondly, when these transactions become recorded customer privacy should not be lost in the sense that the credit histories and spending patterns of the customer should not be openly available for public scrutiny. Mobile payments have to be as anonymous as cash transactions. Third, the system should be foolproof, resistant to attacks from hackers and terrorists. This may be provided using public key infrastructure security, biometrics and passwords integrated into the mobile payment solution architectures.

#### D) COST

The m-payments should not be costlier than existing payment mechanisms to the extent possible. An m-payment solution should compete with other modes of payment in terms of cost and convenience.

#### E) SPEED

The speed at which m-payments are executed must be acceptable to customers and merchants.

#### F) CROSS BORDER PAYMENTS

To become widely accepted the m-payment application must be available globally, word-wide.

### MOBILE PAYMENT SOLUTIONS

Mobile payment solutions may be classified according to the type of payment effected, and based on the technology adopted to implement the solution. There are a variety of combinations of these frameworks – technology adopted and mode of payment, a survey of which would constitute a study in itself. There are three different models available for m-payment solutions on the basis of payment <sup>[7]</sup>

- Bank account based
- Credit card based
- Telecommunication company billing based

#### BANK ACCOUNT BASED

Banks have several million customers and telecommunication operators also have several million customers. If they both collaborate to provide an m-payment solution it is a win-win situation for both industries. In this model, the bank account is linked to the mobile phone number of the customer. When the customer makes an m-payment transaction with a merchant, the bank account of the customer is debited and the value is credited to the merchant account.

#### CREDIT CARD BASED

In the credit card based m-payment model, the credit card number is linked to the mobile phone number of the customer. When the customer makes an m-payment transaction with a merchant, the credit card is charged and the value is credited to the merchant account. Credit card based solutions have the

limitation that it is heavily dependent on the level of penetration of credit cards in the country. In India, the number of credit card holders is 15 million. Only this small segment of the population will benefit in the credit card based model. Though limited in scope, there may be high demand within this segment for a payment solution with credit cards and also, may provide high volumes of transactions.

#### TELECOMMUNICATION COMPANY BILLING

Customers may make payment to merchants using his or her mobile phone and this may be charged to the mobile phone bills of the customer. The customer then settles the bill with the telecommunication company<sup>[11]</sup>. This may be further classified into pre-paid (debit) and post-paid (credit).

#### TECHNOLOGIES FOR MOBILE PAYMENTS

The mobile technology landscape provides various possibilities for implementing m-payments. Essentially, a GSM mobile phone may send or receive information (mobile data service) through three possible channels<sup>[1]</sup> – SMS, USSD or WAP/GPRS. The choice of the channel influences the way m-payment schemes are implemented. Secondly, the m-payment client application may reside on the phone or else it may reside in the subscriber identity module (SIM). We briefly describe NFC technology as another possibility.

##### SHORT MESSAGE SERVICE (SMS)

This is a text message service that enables short messages (140-160 characters) that can be transmitted from a mobile phone. Short messages are stored and forwarded by SMS centers. SMS messages have a channel of access to phone different from the voice channel.<sup>[10]</sup> SMS can be used to provide information about the status of one's account with the bank (informational) or can be used to transmit payment instructions from the phone (transactional).

##### UNSTRUCTURED SUPPLEMENTARY SERVICES DELIVERY (USSD)

Unstructured Supplementary Service Data (USSD) is a technology unique to GSM. It is a capability built into the GSM standard for support of transmitting information over the signaling channels of the GSM network. USSD provides session-based communication, enabling a variety of applications. USSD is session oriented transaction-oriented technology while SMS is a store-and-forward technology. Turnaround response times for interactive applications are shorter for USSD than SMS.

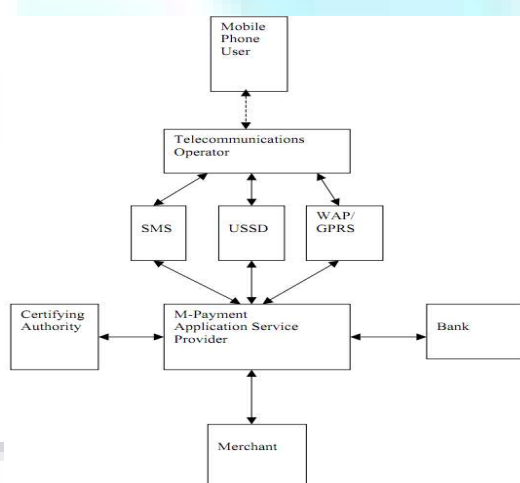
##### WAP/GPRS

General Packet Radio Service (GPRS) is a mobile data service available to GSM users. GPRS provides packet-switched data for GSM networks. GPRS enables services such as Wireless Application Protocol (WAP) access, Multimedia Messaging Service (MMS), and for Internet communication services such as email and World Wide Web access in mobile phones.

#### A GENERIC ARCHITECTURE FOR M-PAYMENTS

This is a simple, illustrative conceptual model that describes the relationship between the major participants in an m-payment scenario (Fig. 1.0). There is the customer and the merchant who would like to use an m-payment service. The M-Payment Application Service Provider (MASP) provides the necessary technical infrastructure (hardware and software) to facilitate m-payments and acts as an intermediary between the financial institutions and mobile network operators. The MASP registers users who would like to avail of the m-payment service. The users (customers and merchants) have to be registered with the MASP prior to using the service. At the time of registration the MASP collects the bank account details (or credit card details) of the customer and merchant as well as their valid digital certificates. The mobile phone numbers of the customer and the merchant are mapped to their respective bank accounts and this mapping is maintained by the MASP.

FIG. 1.0: ARCHITECTURE OF M-PAYMENT



The users are provided with a client m-payment application (mobile wallet) that is either resident on their phones or else in the SIM card. This application may be provided over the air to the users. The mobile wallet will normally interact with the MASP server.

A mobile phone user communicates with a merchant and makes an economic transaction (e.g., buying a ticket from an airline over the phone). The merchant obtains the phone number of the customer and initiates the m-payment transaction request stating the amount for which payment is required. The customer confirms the request and authorizes payment. The MASP receives the authorization and verifies the authenticity of the customer. The MASP then debits the customer account and credits the merchant account by interacting with the bank. Once the electronic funds transfer is successful a confirmation message is sent to the customer and the merchant advising them of the debit and credit respectively. The Certifying Authority also shown in Fig. 1.0 supplies digital certificates for the users in the system to provide security (see section below). This model can be extended to handle the interaction between the MASP and the financial system taking into account inter-bank payments and settlement.

##### M-PAYMENT PROTOCOLS

A sample protocol that describes the transaction between a customer and a merchant, each using his or her mobile phone and a m-payment application service provider as an intermediary is outlined in this section. It is assumed that customer and merchant are registered as users with the m-payment application service provider (with their respective bank account details) and both of them have valid digital certificates. The transactions are detailed below...

##### 1. Service Request: Customer → Merchant

Customer makes a service request to the merchant

##### 2. Product Options: Merchant → Customer:

Merchant sends his product options and his certificate

##### 3. Product Selection: Customer → Merchant:

Customer selects a product; the selection is signed by the customer's private key

4. Payment Request: Merchant → M-payment Application Solution Provider (MASP) → Customer:

The payment request (containing the invoice amount) is signed using merchant's private key. Customer can verify that the merchant is genuine by using his certificate (sent earlier in step 2). The MASP also authenticates the merchant before passing the payment request to the customer.

5. Payment Authorization: Customer → MASP:

The customer authorizes the payment request by digitally signing the authorization using the customer's private key. The MASP transfers the money from the buyer's account to the seller's account by communicating to the bank(s).

6. Payment Confirmation: MASP → Customer:

MASP confirms payment made to merchant

7. Payment Confirmation: MASP → Merchant:

MASP informs merchant of successful payment

The customer and the merchant can verify their respective bank accounts as to whether payment has been made.

The Institute for Development and Research in Banking Technology (IDRBT) has an experimental, proof-of-concept project where PKI enabled m-payment applications have been demonstrated to be feasible.

## STAKEHOLDERS

There are many different stakeholders in the process of implementing mobile payments. They are <sup>[6]</sup>

- a) Consumers
- b) Merchants
- c) Mobile Network operators
- d) Mobile device manufacturers
- e) Financial institutions and banks
- f) Software and technology providers
- g) Government

Each player has different incentives and strategies. Sometimes these interests and strategies between different players may be in conflict e.g., the telecommunications network provider would like to maximize revenues through each m-payment transaction whereas customers and merchants would like to minimize costs for each m-payment transaction. The expectations of each of the stakeholders are outlined below.

### CONSUMER EXPECTATIONS

- Personalized service
- Minimal learning curve
- Trust, privacy and security
- Ubiquitous – anywhere, anytime and any currency
- Low or zero cost of usage
- Interoperability between different network operators, banks and devices
- Anonymity of payments like cash
- Person to person transfers

### MERCHANT

- Faster transaction time
- Low or zero cost in using the system
- Integration with existing payment systems
- High security
- Being able to customize the service
- Real time status of the mobile payment service

### BANKS

- Network operator independent solutions
- Payment applications designed by the bank
- Exceptional branding opportunities for banks
- Better volumes in banking – more card payments and less cash transactions
- Customer loyalty

### TELECOM NETWORK PROVIDERS

- Generating new income by increase in traffic
- Increased Average Revenue Per User.
- Become an attractive partner to content providers

### MOBILE DEVICE MANUFACTURER

- Large market adoption with embedded mobile payment application
- Low time to market
- Increase in Average Revenue Per User (ARPU)

### GOVERNMENT

- Revenue through taxation of m-payments
- Standards

## CONCLUSION

The Mobile Payment Forum of India (MPFI) has been formed with Institute for Development and Research in Banking Technology (IDRBT) and Rural Technology Business Incubator (RTBI), IIT Madras taking the lead role. Lots of challenges are to be overcome for a successful implementation of mobile payments to be widely accepted as a mode of payment. Businesses, merchants and consumers have to come forward and make value-producing investments. A regulatory framework and widely accepted standards will be the pillars on which mobile payment applications will be built.

Research so far has outlined a diversity of thinking and innovation that exists in the m-payments arena. Numerous solutions have been tried and failed but the future is promising with potential new technology innovations <sup>[4]</sup>.

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## SERVICE QUALITY IN HIGHER EDUCATION

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**ABSTRACT**

Higher education today is undergoing a more radical transformation than perhaps any other aspect of our culture. Technological, economic, sociological, and governmental forces are altering education dramatically, impacting its institutions, teachers, students, funding sources, and basic function in society. To unlock potential and helping talented people to gain advanced training whatever their background requires customer-centric approach to education. During the mid-1980s and late 1990s, overcrowded classes, inadequate library & laboratory facilities and little student's services have been the norms in most of the institutions. Rarely has an institution responded by creating remedial program for inadequately prepared students. But now colleges and universities have initiated restructuring and reengineering their operating processes to cut costs and become more efficient while responding to increased competition. Higher education customers are demanding more attention and immediate service. Proactive institutes are now adjusting their practices by refocusing their efforts externally. In the following article the author has made an effort to find out various service quality dimensions used by the institutions due to the increased competition in the field of higher education.

**KEYWORDS**

Higher education, learning facilities, service quality, students.

**SERVICE QUALITY AND HIGHER EDUCATION**

Even though successful completion and enhancement of students' education are the reasons for existence of higher educational institutions, college administrators tend to focus disproportionately more time on programs for attracting and admitting students. Satisfying the admitted students is also important for retention. Admitting students has been always an important activity for the higher educational institutions. However, the rapid expansion of colleges and universities, significant increases in college education costs combined with demographic shifts in the population may force colleges to think differently about the role of student satisfaction for their survival (Kotler and Fox, 1995). Keaveney and Young (1997) have focused on testing a modified version of the Student Satisfaction and Retention Model which incorporated a comprehensive set of independent variables and self-reported experiential assessments to predict experience, which in turn related to the student satisfaction and retention. Keaveney and Young (1997), attitude predict behavior intentions, which in turn predict actual behavior. Using this theoretical support, the student satisfaction and retention model assumes that student satisfaction leads to intentions to stay which in turn leads to student retention. Different from the previous research studies, this model incorporates a comprehensive set of independent variables that are hypothesized to predict student satisfaction and retention. It also incorporates a set of self-reported outcome assessment variables, which provide information about students' evaluations of the programs offered by the institute beyond satisfaction and retention. Therefore, it is argued that the student satisfaction and retention model is a more comprehensive retention model which considers the impact of a unique set of variables to explain student retention for higher educational institutions.

**SERVICE QUALITY DIMENSIONS IN HIGHER EDUCATION**

Parasuraman, Zeithmal, and Berry (1990) examine the relationship between the quality dimensions and the students' satisfaction in higher education. Furthermore, this study is also examine critical factors in service quality dimensions (Reliability, Courses, Tangibles, Lectures, Study Materials, Responsiveness, Access, Assurance, and Empathy) that contributes most to the satisfaction of the students. This study was conducted using a set of questionnaire to 200 Bachelor Degree students form two private higher education institutions to identify service quality dimensions that were considered important by students. The responses were submitted to a qualitative cluster analysis: that is, the responses were stored into what appeared to be homogenous categories and definition was written for each category. The results of this exercise are as:

**Reliability:** Ability to perform the service dependably and accurately.

**Course:** The focus is on content of courses.

**Tangibles:** Appearance of physical facilities and provision of appropriate equipment.

**Lectures:** The focus is on presentation and organization of lectures.

**Study Materials:** Provision for appropriate study materials.

**Responsiveness:** Willingness to help students; provide prompt feedback on assignments.

**Access:** Approachability and ease of contact.

**Assurance:** Inspiring full confidence among students.

**Empathy:** Understanding the feelings and situation of students and motivate them.

In order to determine the importance of each of these dimensions to the students, a convenience sample of students was asked to rate of importance of each dimension along a five-place scale ranging from 'most important' to 'least important'. And it was found that values of five dimensions (Reliability, Tangibility, Responsiveness, Assurance, and Empathy) are greater than the others.

**OBJECTIVE OF THE STUDY**

The objective of the study is to examine the importance of various service quality dimensions, the higher educational institutes are attached to.

**RESEARCH METHODOLOGY**

The research design of the study is exploratory cum descriptive. The research is exploratory due to the fact that the field of higher education has not been deeply touched by the earlier researcher. Therefore, in this case, extensive preliminary work needs to be done to gain familiarity with the phenomena in the situation to understand what is occurring, before developing a model and setting up a rigorous design for comprehensive investigation. The study is descriptive because the area of research that has been chosen by the researcher explains the attributes, which are associated with service quality implication in the field of higher education. To fulfill the objective of the study a questionnaire was prepared for students. The questionnaires related to students (N=400) was put forwarded to respondents of different higher educational institutes and observations are presented in the form of tables. The research has been carried out in the NCR region comprising the state of Haryana, UP, & Delhi as NCR has emerged as a prominent center higher education. Further, to solve the purpose of the study both descriptive as well as inferential statistical techniques were applied. In the descriptive, Means and Standard Deviation were calculated and to test the significance level of the difference between Means of the criterion variables Mann-Whitney Test and Karl Pearson's Coefficient of Correlation (r) were applied.

## RESULTS OF SURVEY

For the purpose of examining importance of service quality dimensions different learning facilities and soft-skills development activities offered by the institutes to students have been identified by the author and presented to respondents in the form of a questionnaire. In the questionnaire respondents were asked to indicate their opinions on a five-point likert scale and the results are presented in the form of Tables.

## LEARNING FACILITIES

Learning facilities are basic requirements of any course. The more an institute will be able to provide these facilities to students effectively and efficiently the more it will be able to satisfy its students and maintaining good relationships with them and thus having a good market image. Institutes are aware of the fact that learning facilities are foremost reasons for any student to take admission in any institute. So for any institute it become important to provide these facilities in the same way as projected. In the survey, an attempt has been made to gain insight into different learning facilities offered by different management institute to students for developing connected and lifelong learning and presented in the Table 1.1. It may be noted that out of different learning facilities qualified and experienced staff has the top value (Mean = 4.00, Std. Dev. = 1.155), and then focus more on case studies (Mean = 3.87, Std. Dev. = 1.160), spacious, airy, well lit classes (Mean = 3.84, Std. Dev. = 1.051), vast collection of books/journals in library (Mean = 3.77, Std. Dev. = 1.103), ideal students/faculty ratio (Mean = 3.74, Std. Dev. = 1.081), modern audio and visual system in the classes (Mean = 3.69, Std. Dev. = 1.229), flexibility of choice opting for specialization (Mean = 3.66, Std. Dev. = 1.146), promote industry-institute interaction (Mean = 3.66, Std. Dev. = 1.225), emphasis to develop entrepreneurship (Mean = 3.62, Std. Dev. = 1.337), work stations are on Local Area Network (Mean = 3.53, Std. Dev. = 1.320), e-journal facility in the library (Mean = 3.4, Std. Dev. = 1.353), internet Based Instruction (Mean = 3.37, Std. Dev. = 1.31), and emphasis on early IT training (Mean = 3.27, Std. Dev. = 1.318).

**TABLE 1.1: KEY LEARNING FACILITIES OFFERED TO STUDENTS (Number of Respondents = 400)**

S. No.	Variables	Mean Scores	Standard Deviation
1	Ideal students/faculty ratio (15:1)	3.74	1.081
2	Qualified and experienced faculty/staff	4	1.155
3	Modern audio and visual systems in classes	3.69	1.229
4	Spacious, airy, well lit classes	3.84	1.051
5	Vast collection of books/journals in library	3.77	1.103
6	E-journal facility in the library	3.4	1.353
7	Work stations are on Local Area Network	3.53	1.32
8	Internet Based Instruction	3.37	1.31
9	Emphasis on early IT training	3.27	1.318
10	Emphasis to develop entrepreneurship	3.62	1.337
11	Flexibility of choice while opting for specialization	3.66	1.146
12	Focus on discussing case studies	3.87	1.16
13	Promote industry-institute interaction	3.66	1.225

**Source:** Computed on the basis of Field Data

Standard deviation value of some of the learning facilities such as ideal students/faculty ratio (1.081), spacious, airy, well lit classes (1.051), vast collection of books/journals in library (1.103), qualified and experienced staff (1.155) indicate that there is consistency in the opinions of respondents, where as in case of e-journal facility (1.353), emphasis to develop entrepreneurship (1.337), emphasis on early IT training (1.318) there is divergence of opinion among the respondents.

Students (N=400) were asked to indicate their opinion about various learning facilities which college is providing or offering to them. From responses it has come out that about 71% students feel that institute is having an ideal students/faculty ratio which is one the most important strategic way of maintaining relationships with students. As competition is growing among management institutes so it is basic requirement that an institute should have an ideal students and faculty ratio. As far as management course is concerned, the ratio is 15:1, it means for every fifteen students there should be one faculty member. Nearly 4/5<sup>th</sup> of the students are in agreement that institute is having well qualified and experienced faculty to teach, rest either disagree or did not have a clear opinion. In this case also, response is encouraging just due to the fact that only having sufficient number of faculty members does not mean that students will be satisfied but it is also very important institutes make it sure that faculty is qualified and experienced also. Among respondents 69% are in opinion that classrooms are provided with modern audio and visual systems including LCD projectors. It has become one of the basic requirements in management institutes these days and institutes do understand this fact and using latest technological tool for classroom teaching so that it could have a better impact on the students' learning. About 78% students stated that classrooms are spacious, airy, well lit and echo-proof to facilitate teaching and learning process. In management institutes traditional classrooms are hardly found and it is due increasing competition among private or self-financed institutes as every institute tries to project itself as a better service provider than other institutes. About 3/4 students agreed that institute is having vast collection of books, periodicals, journals, review articles on various subjects in the library. An institute which is having a library filled with different titles of books and other required printed material it will be able to enhance knowledge of its students. In many institutes it was noticed that proper focus is given to maintain the library but still there is lack of sufficient number of titles of books and quality journals. Nearly 63% students stated that institute is having e-journal facility in library. The question was an extension part of previous question and in this case also it was found that along with printed journals and magazines in library many institutes have made available e-journals facility for their students for better access of information and data. About 65% students indicated that all the work stations are on Local Area Network with round the clock, high speed internet facility. Technology has become an integral part of any course these days and so is the management education. Most of the institutes have agreed on the growing importance of technology in management education and making efforts to make it an integral part of student's learning. Nearly 3/5<sup>th</sup> students revealed that they are provided internet based instructions. It has become possible due to use of technological resources such as e-mail, website, etc. These days students put their queries through internet and they receive answer through internet by faculty members and in the same way if institutes want to provide some information to students then e-mail or website are used. Nearly half of the students stated that in management institutes focus given on providing early IT training to students while rest of the students disagree or did not have clear opinion. Institutes' know growing importance of technology in every field whether it is education or business world and a student should be familiar with common technological resources or tools. So, keeping this thing in view students are provided early IT training rather they are having such subjects in their curriculum which are based on information technology and help them in training program. Nearly 65% of the respondents are in agreement that emphasis is given to enhance entrepreneurship skills among students. Institutes try to prepare their students in such a way that after passing out they will be job provider rather than job seeker, so efforts are made to develop entrepreneurship skills among students through different subjects and workshops. Majority of the respondents stated that they are provided flexibility of choice while opting for specialization. When a student wants to opt for specialization then in most of the institute he/she is given open choice to choose any of the specialization among different ones in which he/she is more interested. If students are not able to decide which specialization is better for them then senior faculty members guide them. Among respondents 3/4 respondents stated that faculty focus on discussing case studies/conducting workshops in every subject to enhance decision making skills of students. Case study is a practice which enhances decision making skills of students and workshop is a practice which enhances practical approach of students. From the study it was found that in many institutes practical approach of students is developed by conducting workshops in different subjects and decisions making skills of the students are sharpened by discussing case study in the classroom and asking case studies to them in the examination also. Nearly 68% students stated that institute promotes industry-institute interaction while rest either disagree or did not have a clear opinion.

Every institute wishes that its students should be placed in some organization after passing out from institute. From students' responses it was found that institutes know the importance of interaction with industry and its long term impact. Institutes also agree with the point that a better placed student is the best advertising mean for any institute. So, efforts are made to promote interaction between institute and industry. To what extent management institutes get success in their efforts is another issue. From the result of survey, it is evident that in most of the cases response of students is positive and this is due to reason that institutes are well aware of the fact it will help in maintaining better relationships with students and developing a better brand image in the marketplace. In the study, at attempt has also been made to gain insight into major learning facilities used by different management institute to have connected and lifelong learning approach with students and to identify relationship among the means values of learning facilities and average of key learning facilities coefficient of correlation has been calculated and results are presented in Table 1.2.

**TABLE 1.2: RELATIONSHIP BETWEEN DETERMINANTS OF KEY LEARNING FACILITIES AND AVERAGE OF KEY LEARNING FACILITIES (Number of Respondents = 400)**

S. No.	Variables	Mean Scores	Standard Deviation	r value
1	Ideal students/faculty ratio (15:1)	3.74	1.081	0.942**
2	Qualified and experienced faculty/staff	4	1.155	0.983**
3	Modern audio and visual systems in classes	3.69	1.229	0.954**
4	Vast collection of books/journals in library	3.77	1.103	0.978**
5	Flexibility of choice while opting for specialization	3.66	1.146	0.952**
6	Focus on discussing case studies	3.87	1.16	0.972**

**Notes:** r-value indicates value of Karl Pearson's Coefficient of Correlation.

\*\* indicates Correlation is significant at 1% level.

**Source:** Computed on the basis of Field Data

Higher value of 'r' (Towards +1.000) indicates that such variables are more focused by the management institutes for better relationship management with the students while less value of 'r' (Towards 0.0) indicates that such variables are less focused. The test results indicate that there is significant and positive correlations in relation to various learning facilities such as, qualified and experienced staff ( $r = 0.983$ ), focus more on case studies ( $r = 0.972$ ), vast collection of books/journals in library ( $r = 0.978$ ), ideal students/faculty ratio ( $r = 0.942$ ), modern audio and visual system in the classes ( $r = 0.954$ ), and flexibility of choice opting for specialization ( $r = 0.952$ ).

### ACTIVITIES RELATED TO IMPROVE SOFT SKILLS AMONG STUDENTS

In management institutes improving soft skills among students is one of the major concerns. Institutes make a number of efforts to achieve this objective. The institutes are also aware that such acts help to attract new students, make existing students more loyal to institute and maintaining good relationships with students. Keeping this in view, the researcher has asked respondents (N=400) to indicate about various efforts made by their respective institutes. A number of activities which are used by management institute to enhance soft skill among students were identified through literature survey and listed in questionnaire. Respondents were asked to indicate their opinion about the level of significance management institutes are attached to listed activities (Table 1.3).

**TABLE 1.3: SOFT SKILLS DEVELOPMENT ACTIVITIES FOR STUDENTS (Number of Respondents = 400)**

S. No.	Variables	Mean Scores	Standard Deviation
1	Guest lecture from sr. executives from industry	3.14	1.233
2	Guest lectures from sr. faculty (outside institute)	3	1.162
3	Provision for Personality Development Classes	3.64	1.182
4	Conducting seminar, quiz contests	3.56	1.336
5	Conducting national & international conferences	3.09	1.479
6	Promoting students to conduct cultural events	3.81	1.12

**Source:** Computed on the basis of Field Data

Results of the survey indicated that promoting students to conduct cultural events (Mean = 3.81, Std. Dev. = 1.12), conducting personality development classes (Mean = 3.64, Std. Dev. = 1.182), and conducting seminar, quiz contests (Mean = 3.56, Std. Dev. = 1.336), are used moderately by the institutes while conducting guest lectures from sr. executive from industry (Mean = 3.14, Std. Dev. = 1.233), conducting national & international conferences (Mean = 3.09, Std. Dev. = 1.479), and conducting guest lectures from sr. faculty members outside from the institute (Mean = 3, Std. Dev. = 1.162), received lowest rankings from the respondents.

About different mentioned indicators in questionnaire, 4/5<sup>th</sup> respondents are in agreement that guest lectures by senior executives from industry are conducted in the institute where 77% respondents stated that institute also focus on conducting guest lectures by senior faculty members outside from institutes such as senior faculty members from some of university or any other reputed management institutes. The reason for conducting guest lectures by senior executives from industry and senior faculty members from different management institutes is that it is highly beneficial for students to interact with such senior people from different field, knowing about their views and experience. Students also get a chance to share their own experience and doubts and try to find out a solution if there is any. Nearly, 3/4 students agreed that they are having regular personality development classes in their institute. Now-a-days due to competition level among management institutes, every institute is making effort to satisfy its students to the maximum. Traditionally faculty members themselves conduct such classes but now management institutes invite specialized people to conduct personality development classes for students.

As far as conducting seminars and quiz-contests are concerned around 64% students responded in favour while 1/3<sup>rd</sup> did not agree with that or not having any clear opinion. This is an area where students get a chance to perform at a challenging platform and showing their worth along with that they also get a chance to interact with students of different institutes. Focusing on conducting national and international conferences is also one of the areas through which soft-skills can be enhanced among students. Among respondents, 52% of the respondents are in agreement where as 48% respondents did not agree with it or not having any clear opinion. In this case responses are not encouraging as a management institute needs expertise for this, in addition experts from various fields are needed to invite and therefore, every institute is not able to manage such conferences. Managing cultural activities within the institute also develop confidence and presentation skills among participants. In this regard 3/4 students are in agreement that they are motivated to conduct and participate in such activities. Results of the survey indicated that institutes make serious efforts to increase soft skills among students and in most of the cases response of students is very positive. From survey, the researcher find out that management institutes are aware that students give a lot of importance to such activities, they also make regular request to conduct such activities or allowing them to participate in such acts taking place in other institutes. So, making efforts to increase the soft skills among students help in making better relationships with students and increasing their satisfaction level.

In the study, at attempt has also been made to gain insight into the major soft skills development activities used by different management institutes to have connected and lifelong learning approach with students. To identify the relationship among the means values of key soft-skills development activities and average of key soft-skills development activities coefficient of correlation has been calculated. Higher value of 'r' (Towards +1.000) indicates that such variables are more focused by the management institutes for better relationship management with the students while less value of 'r' (Towards 0.0) indicates that such variables are less focused and results are presented in the Table 1.4.

TABLE 1.4: RELATIONSHIP BETWEEN DETERMINANTS OF KEY SOFT SKILLS DEVELOPMENT ACTIVITIES AND AVERAGE OF KEY SOFT SKILLS DEVELOPMENT ACTIVITIES FOR STUDENTS  
(Number of Respondents = 400)

S. No.	Variables	Mean Scores	Standard Deviation	r value
1	Guest lecture from sr. executives from industry	3.14	1.233	0.985**
2	Guest lectures from sr. faculty (outside institute)	3	1.162	0.978**
3	Provision for Personality Development Classes	3.64	1.182	0.965**
4	Conducting seminars, quiz contests	3.56	1.336	0.987**

**Notes:** r-value indicates value of Karl Pearson's Coefficient of Correlation.

\*\* indicates Correlation is significant at 1% level.

**Source:** Computed on the basis of Field Data

The test results indicate that there is significant and positive correlation in relation to some of soft-skill development activities such as, conducting personality development classes ( $r = 0.965$ ), conducting seminars, quiz contests ( $r = 0.987$ ), conducting guest lectures form senior executives from industry ( $r = 0.985$ ), and conducting guest lectures from senior faculty members outside from the institute ( $r = 0.978$ ).

## CONCLUSION

Service quality assurance in higher education is the activity that aims at maintaining and raising the level education, e.g. research, assessing acceptability, recruitment, appointment procedure and different mechanisms and systems. The aim of service quality assurance in higher education is to guarantee the improvement of standards and quality in higher education in order to make higher education meet the needs of students, employers and financiers. Higher educational institutes are putting their efforts to provide maximum service quality to students in education system but still there is a lot more focus required.

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**CONSUMER BUYING BEHAVIOUR ON MOBILE PHONE: A COMPARATIVE STUDY**

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**ABSTRACT**

The purpose of this study was to determine the consumer buying behaviour of professional college students (urban & rural) towards mobile phone. For survey students (consumers) who are studying in **Delhi-NCR and Hajar & Rohtak cities of Haryana state's professional colleges** are taken and measure the effects on consumers' purchasing behaviour. The aim of this research is to determine and evaluate whether differences in culture impact on the buyer behaviour of urban and rural consumers when purchasing a mobile phone and is an attempt to explore the motivational factors for mobile purchase in view of the emergence of vast opportunities for rural markets. The present study aims to examine the comparative buying behaviour of rural and their urban counterparts towards the purchase of mobile phone. A comparative study is needed to assess the similarities and difference between buying behaviour displayed by both rural and urban consumers with regards to mobile phone. A face-to-face interview survey is conducted on 230 students (115 from rural & 115 from urban) who's study in **Delhi- NCR and Hajar & Rohtak cities' different-2 professional college** and who are selected with random sampling. Data are analyzed by using Z-test analysis. SPSS 19.0 for Windows is employed for the scale measurement. The findings indicate that there is a significant difference between urban and rural consumers in terms of mobile phone purchasing behaviour and also recommend that managers in mobile phone organizations should be concerned with the cultural dynamics of consumers as part of their going re-segmentation, communication and promotion strategies within their overall marketing strategies.

**KEYWORDS**

Consumer behaviour, Cultural dynamics, Promotion strategies, Re-segmentation, Z-test analysis.

**INTRODUCTION**

Consumer behaviour refers to the mental and emotional process and the observable behaviour of consumers during searching, purchasing and post consumption of a product or service. Consumer behaviour involves study of how people buy, what they buy, when they buy and why they buy. It blends the elements from psychology, sociology, socio-psychology, anthropology and economics. It also tries to assess the influence on the consumer from groups such as family, friends, reference groups and society in general.

Buyer behaviour has two aspects: the final purchase activity visible to any observer and the detailed or short decision process that may involve the interplay of a number of complex variables not visible to anyone.

**FACTORS AFFECTING CONSUMER BUYING BEHAVIOUR**

Consumer buying behaviour is influenced by the major three factors:

➤ **SOCIAL FACTORS**

Social factors refer to forces that other people exert and which affect consumers' purchase behaviour. These social factors can include culture and subculture, roles and family, social class and reference groups.

➤ **PSYCHOLOGICAL FACTORS**

These are internal to an individual and generate forces within that influence her/his purchase behaviour. The major forces include motives, perception, learning, attitude and personality.

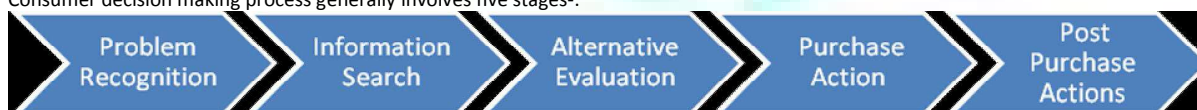
➤ **PERSONAL FACTORS**

These include those aspects that are unique to a person and influence purchase behaviour. These factors include demographic factors, lifestyle, and situational factors.

**CONSUMER BUYING DECISION PROCESS**

Consumer buying decision process is the processes undertaken by consumer in regard to a potential market transaction before, during and after the purchase of a product or service.

Consumer decision making process generally involves five stages:-

**1. PROBLEM RECOGNITION**

Purchase decision making process begins when a buyer becomes aware of an unsatisfied need or problem. This is the vital stage in buying decision process, because without recognizing the need or want, an individual would not seek to buy goods or service.

**2. INFORMATION SEARCH**

After the consumer has recognized the need, he / she will try to find the means to solve that need. First he will recall how he used to solve such kind of a problem in the past, this is called nominal decision making. Secondly, a consumer will try to solve the problem by asking a friend or goes to the market to seek advice for which product will best serve his need, this is called limited decision making.

Sources of information include:

- Personal sources
- Commercial Sources
- Public sources
- Personal experience

**3. ALTERNATIVES EVALUATION**

Consumers' evaluates criteria refer to various dimension; features, characteristics and benefits that a consumer desires to solve a certain problem. Product features and its benefit is what influence consumer to prefer that particular product. The consumer will decide which product to buy from a set of alternative products depending on each unique feature that the product offers and the benefit he / she can get out of that feature.

**4. PURCHASE ACTION**

This stage involves selection of brand and the retail outlet to purchase such a product. Retail outlet image and its location are important. Consumer usually prefers a nearby retail outlet for minor shopping and they can willingly go to a far away store when they purchase items which are of higher values and which

involve higher sensitive purchase decision. After selecting where to buy and what to buy, the consumer completes the final step of transaction by either cash or credit.

**5. POST-PURCHASE ACTIONS**

Consumer favourable post-purchase evaluation leads to satisfaction. Satisfaction with the purchase is basically a function of the initial performance level expectation and perceived performance relative to those expectations. Consumer tends to evaluate their wisdom on the purchase of that particular product. This can result to consumer experiencing post purchase dissatisfaction. If the consumer's perceived performance level is below expectation and fail to meet satisfaction this will eventually cause dissatisfaction, and so the brand and/ or the outlet will not be considered by the consumer in the future purchases. This might cause the consumer to initiate complaint behaviour and spread negative word-of-mouth concerning that particular product.

**DEMOGRAPHIC PROFILE**

**TABLE 1: DEMOGRAPHIC CHARACTERISTICS**

Variables	Characteristics	Respondents					
		Rural		Urban		Total	
		No.	%	No.	%	No.	%
Age :	1.Below 20Years	104	90.4%	90	78.3%	194	84.3%
	2.20 to30 years	11	9.6%	25	21.7%	36	15.7%
	3.Over 30 Years	115	100%	115	100%	230	100%
Sex:	1.Male	94	81.7%	95	82.6%	189	82.2%
	2.Female	21	12.3%	20	17.4%	41	17.8%
		115	100%	115	100%	230	100%
Educational Qualification:	1.Under Graduate	109	94.8%	104	90.4%	213	92.6%
	2.Graduate	6	5.2%	11	9.6%	17	7.4%
		115	100%	115	100%	230	100%
Course:	B.Tech:	(107)		(93)			
	1.Civil Engineering	8	6.96%	37	32.17%	45	19.56%
	2.Mecanical Engineering	27	23.47%	21	18.26%	48	20.86%
	3.Computer Science	18	15.65%	13	11.30%	31	13.48%
	4.Electronic & Communication	37	37.17%	14	12.17%	51	22.17%
	5.Electrical Engineering	17	14.78%	8	6.96%	25	10.87%
	MBA	8	6.96%	15	13.04%	23	10.00%3.04%
BBA	-	-	7	6.08%	7		
		115	100%	115	100%	230	100%

**MOBILE PHONE USED**

**TABLE 2: MOBILE PHONE USED**

S. No	Mobile Phone	Respondents					
		Rural		Urban		Total	
		No.	%	No.	%	No.	%
1.	Nokia	70	60.86%	52	45.22%	122	53.04%
2.	Samsung	17	14.78%	27	23.48%	44	19.13%
3.	Sony	1	.86%	2	1.74%	3	1.30%
4.	TATA	1	.86%	8	6.96%	9	3.91%
5.	Reliance	-	-	7	6.08%	7	3.04%
6.	LG	5	4.35%	5	4.35%	10	4.35%
7.	Spice	6	5.23%	3	2.61%	9	3.91%
8.	Other	15	13.04%	11	9.57%	26	11.30%
	Total	115	100%	115	100%	230	100%

**SOURCE OF INFORMATION**

**TABLE 3: SOURCE OF INFORMATION USED**

S. No	Source of Information	Respondents					
		Rural		Urban		Total	
		No.	%	No.	%	No.	%
1.	News Paper	5	4.35	12	10.43	17	7.39
2.	T.V.	13	11.30	15	13.04	28	12.17
3.	Internet	19	16.52	24	20.87	34	29.56
4.	Mobile Phone Retailer	14	12.17	13	11.30	27	11.73
5.	Magazine	2	1.74	-	-	2	.87
6.	Radio	5	4.35	2	1.74	7	3.04
7.	Friends	53	46.1	39	33.91	92	40
8.	Other	4	3.48	10	8.70	14	6.087
	Total	115	100%	115	100%	230	100%

**PURCHASE DECISION**

**TABLE 4: PURCHASE DECISION**

S. No	Purchase Decision	Respondents					
		Rural		Urban		Total	
		No.	%	No.	%	No.	%
1.	Self Decision	50	43.47	51	44.34	101	43.91
2.	Friends	18	15.65	17	14.80	35	15.22
3.	Family Members	44	38.26	43	37.40	87	37.83
4.	Mobile Phone Retailer	2	1.74	3	2.61	5	2.17
5.	Other	1	.87	1	.87	2	
	Total	115	100%	115	100%	230	100%

**CONSUMER SATISFACTION**

**TABLE 5: CONSUMER SATISFACTION**

S. No	Consumer Satisfaction	Respondents					
		Rural		Urban		Total	
		No.	%	No.	%	No.	%
1.	Satisfied	89	77.39%	83	72.17%	172	74.78%
2.	Dissatisfied	26	22.61%	32	27.83%	58	25.22%
	Total	115	100%	115	100%	230	100%

**RESEARCH OBJECTIVE**

This paper is an attempt to explore the motivational factors for mobile purchase in view of the emergence of vast opportunities for rural markets. The present study aims to examine the comparative buying behaviour of rural and their urban counterparts towards the purchase of mobile phone. A comparative study is needed to assess the similarities and difference between buying behaviour displayed by both rural and urban consumers with regards to mobile phone.

➤ **Hypotheses Development Based on Literature Survey:**

The study attempts to compare and analyze the motivational factors for purchase of mobile phone among rural and urban consumers. The motivational factors selected for purchase of mobile phone are: Price, Quality, Style, Functions, and Brand. Following Hypothesis are tested:

1. **H<sub>1</sub>:** There is no significant difference between rural and urban consumers regarding mobile phone on 'Price Consciousness'.
2. **H<sub>2</sub>:** There is no significant difference between rural and urban consumers regarding mobile phone on 'Quality Consciousness'.
3. **H<sub>2</sub>:** There is no significant difference between rural and urban consumers regarding mobile phone on 'Style Consciousness'.
4. **H<sub>2</sub>:** There is no significant difference between rural and urban consumers regarding mobile phone on 'Functions Consciousness'.
5. **H<sub>2</sub>:** There is no significant difference between rural and urban consumers regarding mobile phone on 'Brand Consciousness'.

**RESEARCH METHODOLOGY**

For the purpose of the study, both the rural and urban consumers are asked to rate the five mobile phone purchase motivators (**Price, Quality, Style, Functions, and Brand**) on 5- Point Likert (importance) scale for mobile phone: Extremely Important(5), Some-what Important (4), Neither-Important nor Unimportant (3), Some-what Important (2) and Extremely Unimportant(1). For the purpose of testing Hypothesis, the scores are averaged and standard deviation is calculated, then Z-Test is used to test the hypothesis. Additionally, percentage analysis is used to analyze the sub-objective: Source of Information, Role of Family in decision making and consumer Satisfaction.

The Z-Test is parametric test to determine the statistical significance between a sample distribution mean and population parameter. The Z-Test is selected as parametric test are more powerful because their data are derived from interval and ratio measurement. The Z-Test is used for two independent samples, large sample size and two tailed test.

The Assumptions made:

1. The random sampling distribution of a statistic is approximately normal.
2. Values given by the samples are sufficiently close to the population value and can be used in its place for calculating the standard error of the estimate. (Gupta S.P., 2000).

The present study is mainly based on primary data. The mobile phone consumers belong to both rural and urban.

1. **Data Source:** The present study is mainly based on primary data from different-2 professional college' students from **Delhi- NCR and Jhajjar & Rohtak cities**.
2. **Research Approach:** Survey Research
3. **Research Instrument:** Questionnaire in English
4. **Sampling Plan:**
  - Sampling Unit: Data collected from users of mobile phone from different-2 professional college' students.
  - Sample Size: A sample of around 230 mobile users, 115 each from rural students and urban from phone from different-2 professional college' students of **Delhi- NCR and Jhajjar & Rohtak** two district of Haryana state are selected.
  - Data Analysis: For the purpose of the study, both the rural and urban samples will be asked to rate the five mobile phone purchase motivators (Price, Quality, Style, Functions and Brand) on 5-Point Likert (importance) scale for mobile phone. The Z-Test is used for analysis.

**Z-TEST ANALYSIS**

• **Price (P)**

**Null Hypothesis:**

**H<sub>0</sub>:** There is no significant difference in the mean score of price of rural and urban consumer ( $X_{p1} = \overline{X_{p2}}$ )

**H<sub>1</sub>:** There is significant difference in the mean score of price of rural and urban consumer ( $X_{p1} \neq X_{p2}$ )

1. **Statistical Test:**

The Z – Test is chosen because the data are interval and two samples large and independent.

2. **Significance Level (α) = 0.05 ( two –tailed test)**

3. **Calculated Value :**

**Table 6 - Group Statistics for Price**

	N	Mean	Std. Deviation	Std. Error Mean
Rural	115	3.7478	1.17610	.10967
Urban	115	3.7130	1.30965	.12213

TABLE7-INDEPENDENT SAMPLES TEST FOR PRICE

Levene's Test for Equality of Variances			t-test for Equality of Means				
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	
Equal variances assumed	4.070	.045	.212	228	.832	.03478	.16414

4. **Critical Test Value:**

For 5% significance level and two tailed test the critical value is 1.96.

5. **Interpretation:**

Since the calculated value is less than the critical value (0.212 < 1.96), we fail to reject the null hypothesis.

**There is no significance difference in the mean score of price of rural and urban professional college's student (consumer).**

• **Quality (Q)**

1. **Null Hypothesis:**

H<sub>0</sub>: There is no significant difference in the mean score of quality of rural and urban consumer ( $X_{Q1} = \bar{X}_{Q2}$ )

H<sub>1</sub>: There is significant difference in the mean score of quality of rural and urban consumer ( $X_{Q1} \neq X_{Q2}$ )

2. **Statistical Test:**

The Z – Test is chosen because the data are interval and two samples large and independent.

3. **Significance Level (α) = 0.05( two –tailed test)**

4. **Calculated Value :**

TABLE8-GROUP STATISTICS FOR QUALITY

	N	Mean	Std. Deviation	Std. Error Mean
Rural	115	4.2957	1.02576	.09565
Urban	115	4.5217	0.85170	.07942

TABLE9-INDEPENDENT SAMPLES TEST FOR QUALITY

Levene's Test for Equality of Variances			t-test for Equality of Means				
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	
Equal variances assumed	3.860	.051	1.818	228	.070	-.22609	.12433

5. **Critical Test Value:**

For 5% significance level and two tailed test the critical value is 1.96.

6. **Interpretation:**

Since the calculated value is less than the critical value (1.818 < 1.96), we fail to reject the null hypothesis.

**There is no significance difference in the mean score of quality of rural and urban professional college's student (consumer).**

• **Style (S)**

1. **Null Hypothesis:**

H<sub>0</sub>: There is no significant difference in the mean score of style of rural and urban consumer ( $X_{S1} = \bar{X}_{S2}$ )

H<sub>1</sub>: There is significant difference in the mean score of style of rural and urban consumer ( $X_{S1} \neq X_{S2}$ )

2. **Statistical Test:**

The Z – Test is chosen because the data are interval and two samples large and independent.

3. **Significance Level (α) = 0.05( two –tailed test)**

4. **Calculated Value :**

TABLE 10-GROUP STATISTICS FOR STYLE

	N	Mean	Std. Deviation	Std. Error Mean
Rural	115	4.1391	1.09133	.10177
Urban	115	4.0857	1.13920	.10623

TABLE 11-INDEPENDENT SAMPLES TEST FOR STYLE

Levene's Test for Equality of Variances			t-test for Equality of Means				
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	
Equal variances assumed	1.012	.316	.296	228	.768	.04348	.14711

5. **Critical Test Value:**

For 5% significance level and two tailed test the critical value is 1.96.

6. **Interpretation:**

Since the calculated value is less than the critical value (.296 < 1.96), we fail to reject the null hypothesis.

**There is no significance difference in the mean score of style of rural and urban professional college's student (consumer).**

• **Function (F)**

1. **Null Hypothesis:**

H<sub>0</sub>: There is no significant difference in the mean score of function of rural and urban consumer ( $X_{F1} = \bar{X}_{F2}$ )

H<sub>1</sub>: There is significant difference in the mean score of function of rural and urban consumer ( $X_{F1} \neq X_{F2}$ )

2. **Statistical Test:**

The Z – Test is chosen because the data are interval and two samples large and independent.

3. **Significance Level (α) = 0.05( two –tailed test)**

4. **Calculated Value :**



TABLE 12 - GROUP STATISTICS FOR FUNCTION

	N	Mean	Std. Deviation	Std. Error Mean
Rural	115	4.4087	0.98137	.09151
Urban	115	4.4522	0.94816	.08842

Table13-Independent Samples Test for Function

Levene's Test for Equality of Variances		t-test for Equality of Means					
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	
Equal variances assumed	.051	.822	.342	228	.733	-.04348	.12725

5. **Critical Test Value:**

For 5% significance level and two tailed test the critical value is 1.96.

6. **Interpretation:**

Since the calculated value is less than the critical value (.342 < 1.96), we fail to reject the null hypothesis.

**There is no significance difference in the mean score of function of rural and urban professional college's student (consumer).**

• **Brand (B)**

1. **Null Hypothesis:**

H<sub>0</sub>: There is no significant difference in the mean score of brand of rural and urban consumer ( $X_{B1} = \bar{X}_{B2}$ )

H<sub>1</sub>: There is significant difference in the mean score of brand of rural and urban consumer ( $X_{B1} \neq X_{B2}$ )

2. **Statistical Test:**

The Z – Test is chosen because the data are interval and two samples large and independent.

3. **Significance Level (α) = 0.05( two –tailed test)**

4. **Calculated Value :**

TABLE 14 - GROUP STATISTICS FOR BRAND

	N	Mean	Std. Deviation	Std. Error Mean
Rural	115	4.2696	1.14188	.10648
Urban	115	4.3737	0.97747	.09115

TABLE 15 – INDEPENDENT SAMPLES TEST FOR BRAND

Levene's Test for Equality of Variances		t-test for Equality of Means					
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	
Equal variances assumed	1.806	.180	.744	228	.557	-1.0435	-1.4017

5. **Critical Test Value:**

For 5% significance level and two tailed test the critical value is 1.96.

6. **Interpretation:**

Since the calculated value is less than the critical value (.744 < 1.96), we fail to reject the null hypothesis.

**There is no significance difference in the mean score of brand of rural and urban professional college's student (consumer).**

**LIMITATION OF THE STUDY**

The present study is confined to Delhi-NCR, & two district of Haryana( Rohtak, Jhajjar) area's profession colleges 'students of age group of below 20, 20 to 30, over 30 only and the finding may not be applicable to the other states of the country because of socio-cultural differences. Further, consumer behaviour being dynamic in nature, there is every possibility that over and space findings of today may become invalid tomorrow.

**CONCLUSION**

**THE MOTIVATIONAL FACTORS**

TABLE 16: THE Z-TEST (TWO TAILED TEST, SIGNIFICANCE LEVEL-0.05)

Motivational Factors	Rural Sample		Urban Sample		Calculated Value(Z)	Critical Value	S/NS
	Mean	Stand Dev.	Mean	Stand Dev.			
Price	3.7478	1.1761	3.7130	1.3096	.212	1.96	NS
Quality	4.2957	1.0257	4.5217	0.8517	1.818	1.96	NS
Style	4.1391	1.0913	4.0857	1.1372	.296	1.96	NS
Function	4.4087	0.9814	4.4522	0.9482	.342	1.96	NS
Brand	4.2696	1.1418	4.3737	0.9774	.744	1.96	NS

**Note:** NS- Not Significant, S-Significant

**CONCLUSION OF Z-TEST**

1. There is no significance difference in the mean score of price of rural and urban professional college's student (consumer).
2. There is no significance difference in the mean score of quality of rural and urban professional college's student (consumer).
3. There is no significance difference in the mean score of style of rural and urban professional college's student (consumer).
4. There is no significance difference in the mean score of function of rural and urban professional college's student (consumer).
5. There is no significance difference in the mean score of brand of rural and urban professional college's student (consumer).

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## EVALUATING FINANCIAL HEALTH OF DR. REDDY'S LABORATORIES THROUGH 'Z' SCORE THEORY- A CASE STUDY

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### ABSTRACT

Most of the internal users as well external users like shareholders, government, bankers, creditors, financial institutions etc. focus on the success and solvency position of the company with whom they are dealing. The absolute figures presented in financial statements and accounts do not serve this object. As there are many accounting tools like ratio analysis, decision theory etc. used for analysis but again they shows absolute result through which the present position can be judged not the future. Edward Altman, Professor of Finance at New York University was the first person who developed a model known as "Z score Model" to predict the financial health of the business enterprise. In the present research paper an attempt is made to predict the financial health of Dr. Reddy Laboratories for the 2001-02 to 2010-11 i.e. for 10 years using modified Altman's model.

### KEYWORDS

Pharmaceutical company, Active Pharmaceutical Ingredients (APIs), Custom Pharmaceutical Services (CPS)

### INTRODUCTION

The Z Score is also a critical business tool which utilizes to inform how to improve the financial health of the business. Z Score factors that contribute to under-performance; working capital, earnings retention, profitability and leverage can be isolated. This enables managers to initiate actions to improve the score of these factors contributing to financial unhealthiness. Focus areas for managers to improve Z Score are on earnings/ (losses), capital expenditures, equity and debt transactions. It includes:

1. Earnings increases working capital and equity.
2. Adjust EBIT by adding back interest expense.
3. Adjust EBIT by adding back income tax expense.
4. Acquiring new long term debt increases working capital, total liabilities and total assets.
5. Depreciation and amortization expense is already included in the earnings but it will increase working capital as noncash items previously deducted.
6. Capital Expenditures decrease working capital as cash is used to pay for them.

### BRIEFING OF DR. REDDYS LABORATORIES

Established in 1984, Dr. Reddy's Laboratories Ltd. is an integrated global pharmaceutical company, committed to providing affordable and innovative medicines for healthier lives. Through its three businesses - **Pharmaceutical Services and Active Ingredients, Global Generics and Proprietary Products** – Dr. Reddy's offers a portfolio of products and services including Active Pharmaceutical Ingredients (APIs), Custom Pharmaceutical Services (CPS), generics, biosimilars, differentiated formulations and News Chemical Entities (NCEs).

Global Generics business helps to reduce drug costs for individuals and governments by bringing generic drugs to market as early as possible, and making them available to as many patients as possible. Despite the great advances of medical science, there are still many unmet medical needs. The Proprietary Products businesses address some of these unmet medical needs, by developing and bringing to market new drugs.

Through innovation in science and technology, combined with a deep understanding of underlying disease pathways, company develop and commercialise new formulations of approved products. It also develops new chemical entities with improved and well-characterised safety and efficacy profiles.

### OBJECTIVE OF THE STUDY

1. To evaluate efficiency and financial performance of the selected company.
2. To forecast financial health of the company.

### RESEARCH METHODOLOGY

The present study is based on secondary available on web sites of the company. The period of the study is 2001-2011. The present study is based on K.B.Mehta's Model, the modified version of Altman's model to analyses about the financial health of the Dr. Reddys Laboratories.

### LIMITATION OF THE STUDY

1. The present study is based on secondary data.
2. Data are collected only for ten years.
3. Data of only one company has been selected.

### REVIEW OF LITERATURE

**William H. Beaver** (1967) selected five ratio out of thirty financial ratios to study the financial health of 79 successful units and 79 unsuccessful units. The ratios were (i) cash flow to total debt (ii) net income to total assets (iii) total debt to total assets (iv) networking capital to total assets and (v) current assets to current liabilities. It was observed that cash flow to total debt had maximum prediction power among different ratios in the study.

**V.Dheenadhyan** (2008) adopted Z score to predict the corporate failure of steel authority of Indian Limited. The Z score of SAIL showed a rising trend throughout the study period and it was concluded that the financial health of the SAIL was good.

**Prof. Edward Altman** (1968) selected five ratios of twenty two initially considered. He took 33 successful units and 33 bankrupt firms and developed a model popularly known as 'Z score model'.

**Johah Aiyabei** (2002) applied Z score model to examine the financial performance of small business firms based in kenya and discussed the theoretical aspect of a financially distressed firm based on a cyclical concept.

**Mansur A. Mulla** (2002) conducted a study to evaluate financial health of textile mills by using Z score model.

In the Indian context, **L.C.Gupta** (1979) attempted a refinement of Beaver's method with the objective of building a forewarning system of corporate sickness. A simple non-parametric test for measuring the relative differentiating power of the various financial ratios were used. The test is based on taking a sample of sick and non-sick arraying them by the magnitude of each ratio to be tested, selecting a cut of point which will divide the array into two classed with a minimum possible number of misclassification and then computing the percentage classification error.

Selvam, M. and others (2004) made a study to predict the financial health and viability of India Cement Ltd. they concluded that the cement company under the study was just on the range of financial collapse.

Krishna Chaitanya (2005) measured the financial distress of IDBI with the help of Altman's Z score to predict that IDBI is not in the health zone and is likely to be insolvent in the near future.

**THEORY OF Z SCORE**

The generic Z Score is the distillation into a single measure of a number of appropriately chosen financial ratios, weighted and added. If the derived Z Score is above a calculated score, the firm is financially healthy, if below the cut-off, it shows financial failure. The Z Score was first developed by NYU Professor Edward Altman. The Z Score methodology was developed to provide a more effective financial assessment tool for credit risk analysts and lenders. It is employed by credit professionals to mitigate risk in debt portfolios and by lenders to extend loans. It is widely utilized because it uses multiple variables to measure the financial health and credit worthiness of a borrower. The Z Score is an open system and it allows users of the Z Score to understand the variables employed in the algorithm.

The original Z Score formula was as follows:

$$Z = 0.012T_1 + 0.014T_2 + 0.033T_3 + 0.006T_4 + 0.999T_5.$$

T<sub>1</sub> = Working Capital / Total Assets.

T<sub>2</sub> = Retained Earning / Total Assets.

T<sub>3</sub> = Earning Before Interest and Taxes / Total Assets.

T<sub>4</sub> = Market value of Equity / Book value of Total Liabilities.

T<sub>5</sub> = Sales / Total Assets.

**PROF. K.B.MEHATA'S MODEL: INDIAN SCENARIO**

Prof. K.B.Mehata has modified Altman's model as per Indian condition.

$$Z = 0.717X_1 + 0.845X_2 + 3.107X_3 + 0.42X_4 + 0.995X_5$$

X<sub>1</sub> = Net Working Capital to Total Assets which measures liquid assets in relation to the size of the company.

X<sub>2</sub> = Retained Earning to Total Assets which measures profitability.

X<sub>3</sub> = Earning Before Interest and Taxes to Total Assets which measures operating efficiency apart from tax and leveraging factors.

X<sub>4</sub> = Book value of Equity to Book value of Total Debts shows long term solvency position.

X<sub>5</sub> = Net Sales to Total Assets Standard measure sales generating capacity.

According to him following three situations arises,

1. If Z score is < 1.2 then it shows Bankruptcy Zone. Its failure is certain.
2. If Z score is between 1.2 and 2.9 then it shows Grey Zone. In this situation failure is uncertain to predict.
3. If Z score is > 2.9 then it shows Safe Zone. Its shows good financial health of a unit.

**TABLE 1: VARIOUS DATA OF DR. REDDYS LABORATORIES**

YEAR	NET WORKING CAPITAL (NWC)	TOTAL ASSETS (TA)	RESERVES	EARNING BEFORE INTEREST & TAX (EBIT)	NET SALES	BOOK VALUE OF EQUITY	BOOK VALUE OF DEBT
01-02	1,011.89	1,471.79	1,419.73	470.77	1,493.87	1,457.99	13.82
02-03	1,151.71	1,835.69	1,768.66	431.15	1,533.84	1,806.92	28.76
03-04	929.84	2,105.24	2,008.76	303.35	1,661.22	2,047.02	58.22
04-05	1,366.20	2,347.33	2,035.82	44.38	1,548.76	2,074.08	273.23
05-06	1,599.92	3,186.02	2,223.79	263.78	2,003.26	2,262.14	923.87
06-07	2,773.62	4,703.26	4,289.40	1,357.68	3,783.26	4,373.36	329.90
07-08	1,960.26	5,274.09	4,727.72	582.60	3,343.89	4,811.81	462.31
08-09	2,412.30	5,899.40	5,174.90	729.50	3,999.50	5,259.10	640.30
09-10	1,764.10	6,477.80	5,830.20	1,084.80	4,395.60	5,914.60	563.20
10-11	2,741.60	7,465.00	5,935.60	1,051.90	5,188.50	6,020.20	1,444.80

Source: Data collected from money control.com

**TABLE: 2 CALCULATIONS OF VARIOUS RATIOS USED IN Z SCORE OF DR. REDDYS LABORATORIES**

	FINANCIAL RATIO	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	Mean
X <sub>1</sub>	NWC to TA	0.68	0.63	0.44	0.58	0.50	0.58	0.37	0.40	0.27	0.36	0.481
X <sub>2</sub>	RETAINED EARNING TO TA (Reserve to TA)	0.96	0.96	0.95	0.87	0.70	0.91	0.89	0.87	0.9	0.79	0.88
X <sub>3</sub>	EBIT to TA	0.32	0.37	0.14	0.02	0.08	0.28	0.11	0.12	0.16	0.14	0.174
X <sub>4</sub>	BVE to BVD (Equity to Debt)	105.50	62.83	35.16	7.59	2.44	13.25	10.40	8.21	10.50	4.17	26
X <sub>5</sub>	NET SALES to TA	1.02	0.83	0.79	0.66	0.63	0.80	0.63	0.67	0.6786	0.69	0.739

Note:

Retained earning is not available, therefore reserve is considered as retained earning

As book value of Debt is not available, debt equity ratio is used to replace it.

**TABLE 3: STATEMENT SHOWING CALCULATION OF Z SCORE**

	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11
0.717 X <sub>1</sub>	0.4875	0.4517	0.3155	0.4159	0.3585	0.4159	0.2653	0.2868	0.1936	0.2581
0.842 X <sub>2</sub>	0.8083	0.8083	0.7999	0.7325	0.5894	0.7662	0.7494	0.7325	0.7578	0.6652
3.107 X <sub>3</sub>	0.9942	1.1496	0.4350	0.0621	0.2486	0.8699	0.3418	0.3728	0.4971	0.4350
0.42 X <sub>4</sub>	44.31	26.3886	14.7672	3.1878	1.0248	5.565	4.368	3.4482	4.41	1.7514
0.995 X <sub>5</sub>	1.0149	0.82585	0.7861	0.6567	0.6268	0.796	0.6269	0.6666	0.6666	0.6865
Z score	47.6149	29.6241	17.1037	5.055	2.8481	7.5431	6.3514	5.5069	6.5251	3.7962

**FINDINGS**

**NET WORKING CAPITAL TO TOTAL ASSETS**

The ratio of working capital to total assets shows the liquidity position of the company. The ratio of working capital to total assets are calculated in table-2. It is observed from the table that the ratio ranges between 0.27 to 0.68. It indicates that during 2001 to 2007 the company is investing funds too much in current assets instead of investing in potential investments and during 2008 to 2011 the ratio was very low which indicate poor working capital management of the company.



**RETAINED EARNINGS TO TOTAL ASSETS**

The ratio of retained earnings to total assets indicates what was the proportion of fixed assets financed by the retained earning i.e. reserves. As retained earning is free reserves and cheaper source of finance than debt. Table-2 depicted the said ratio. It is observed that 88% fixed assets financed through the retained earning or reserve. This shows very good position of the company because they are more relying on internal source of financing rather than debt.

**EARNING BEFORE INTEREST AND TAX TO TOTAL ASSETS**

This ratio express operating performance and productivity of the assets which is mentioned in table-2. This ratio varies from 0.11 to 0.37. During selected period the operating efficiency of the company is very low. Company is unable to operate the fixed assets properly.

**BOOK VALUE OF EQUITY TO BOOK VALUE OF TOTAL DEBTS**

This ratio is used to find out the long term solvency of the company. The 1:1 ratio is considered as good because excessive use of debt leads to insolvency. Fixed interest paid on debt where as variable dividend paid on equity. If debt is more than equity then it reduces the profit of the company. From the table-2 it shows that company's equity debt proportion is very strong. Company is relying more on equity rather than debt. During selected period the solvency criteria of the company is best.

**NET SALES TO TOTAL ASSETS**

Sales plays very important role in the overall performance of the companies because all the operation are more or less depends on that revenue only. Therefore, higher the ratio indicates the better performance and poor ratio indicates the poor financial management of the companies in the optimum utilisation of its assets in generating the sales. Table-2 shows clear picture about the companies utilisation capacity of asset to convert it into the revenue, which is not a reasonable. It is suggested that the company has to take appropriate steps to improve the level of sales revenue as compared to total assets.

**SUGGESTIONS**

1. During 2001 to 2007 the company is investing funds too much in current assets instead of investing in profitable investments which indicate poor working capital management of the company. Though the company is having safe position but due to improper working capital management may leads the company towards insolvency. So the company has to adopt proper technique of managing working capital.
2. The operating efficiency is very low is not the good sign for the long period. Company has employ and invest money only in those fixed assets which improve the efficiency as well as profitability.
3. The company's utilisation capacity of asset to convert it into the revenue, is not a reasonable. It is suggested that the company has to take appropriate steps to improve the level of sales revenue as compared to total assets.

**CONCLUSION**

The Z score of DR. REDDYS LABORATORIES based on modified Altman's model is ranging from 3.7962 to 47.6149 during the study period (i.e. 2001-02 to 2010-11). It is observed from the table-3 that the company is in safe zone. The financial health of the company is very good and safe for long period of time. This study will be useful for the shareholder of pharmaceutical industry.

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**EFFECT OF BARRIERS IN CREATION OF KNOWLEDGE**

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**ABSTRACT**

*Knowledge management is growing rapidly. More and more companies have built knowledge repositories, support. Knowledge management is about survival in a new business. Today's organization has renewed responsibility to hire knowledge able employees and specialist to manage Knowledge as an intangible asset For the continuous growth of any organization there are several factors which act continuously. The study began with identifying the different areas which require different treatment to achieve all the time to get the required knowledge to complete in today's highly volatile environment wherein the response time is very less. This article is about to analysis what all factor effecting in creation of knowledge and how they are barriers in creation of knowledge.*

**KEYWORDS**

Knowledge, Creation, barriers.

**INTRODUCTION**

The theory of organization has been subjugated by pattern that conceptualizes the organization as a system that processes information or solves problems. Central to this paradigm is the assumption that a fundamental task for organizations how efficiently it can deal with information and decisions in an uncertain environment this standard suggests that solution lies in the input-process-output sequence of hierarchal information processing. Yet a critical problem with this paradigm follows from its passive and static view of the organization. Information processing is viewed as a problem solving activity which centers on what is given to organization with due consideration of what is created by it. Any organization that dynamically deals with a changing environment ought not only to process information imposed by environment no doubt constitutes an important approach to interpreting certain aspects of organization's interaction with its environment, together with the means by which it creates and distributes information and knowledge, are important when it comes to building an active and dynamic understanding of the organization

Although ideas are formed in minds of individuals, interaction between individual typically plays a critical role in developing these ideas. That is to say "communities of interaction" contribute to the amplification and development of new knowledge. While these communities might span departmental or indeed organizational boundaries, the point to note is that they define a further dimension to organizational knowledge creation.

While organizational knowledge creation is a continuous process with no ultimate end, an organization needs to converge this process at some point in order to accelerate the sharing of knowledge beyond the boundary of the organization for further knowledge creation. As knowledge is conventionally defined as "justified true belief" this convergence needs to be based on the "justification" or truthfulness of concepts. Justification is the process of final convergence and screening, which determines the extent to which the knowledge created within the organization and society. In this sense, justification determines the "quality" of created knowledge and involves criteria or "standards" for judging truthfulness. What matters are evaluations "standard" for judging truthfulness. In the business organizations, the standards generally include cost, profit margin, and the degree to which a product can contribute to the firm's development. There are also value premises that transcend factual or pragmatic considerations. These might be the opinions about such things as the extent to which the knowledge created is consistent with the organization's vision and perception relating to adventure, romanticism and aesthetics. The inducements to initiate a convergence knowledge may be multiple and qualitative rather than simple and quantitative standards such as efficiency, cost, return on investment. In knowledge-creating organizations, it is the role of top or middle management to determine the evaluation standards determining the turning point from dissipation to convergence in the creation process is a highly strategic task which is influenced by the "aspiration" of the leaders of the organization.

**THE FACTOR AS FOLLOWS****COMMUNICATION FACTOR**

Every organization have to deal with communication .Communication involves transmission and reception of messages. As communication people use symbols to create messages. They cannot communicate to other individuals a meaning, attitude, perception, belief or feeling. Communication involves at least two – one to transmit the message and another to receive the message. Some of the sub factors on which communication depends are

1. Choosing the right method: By knowing the right method of choosing the media one can communicate effectively, else there are chances of miscommunication.
2. Technology: The sender and receiver both should be aware of latest technology. This may help them to communicate fast and accurately avoiding the communication problems such as damping effect, noise etc.
3. Listening skills: Listening skills also plays a very important role. Generally there are two types of listening problems, selective listening and poor listening. Selective listening- people's tendency to hear only what they want and disregard information that creates cognitive dissonance. Poor listening: Six bad habits that prevent effective listening. (1) faking attention (2) listening too hard for the small details that major points are missed (3) refusing to listen when subject matter is difficult (4) dismissing the subject prematurely as uninteresting (5) criticizing the delivery and physical appearance of the sender (6) yielding to distraction

1. Lack of interpretation skills: Where the listeners do not have full information to engage in meaningful conversation.
2. No common language: there are so many languages spoken in our country such as Tamil, Hindi, Bengali etc. For many people 'school' becomes 'ischool' and 'which' becomes 'wuch'. Some speakers speak in a low pitch as if they are whispering. Communication fails in such circumstances.

**FEAR OF FAILURE**

1. Trial problem: Many times people in the organization are afraid of using new ideas or adoption for a newer technology. They are afraid to take a trial also. Such people generally keep the innovativeness and creativeness with themselves leading to failure in their careers.
2. Experiencing the error: There are also some people who are ready to take risk and work. But even then due to experience of failure they have met have made them not to take initiative.
3. Lack of faith: people sometime loose hope towards achievement due to various reasons may be due to personnel reasons. These people neither move towards achievement nor do they allow others to move forward.

**HEALTH**

1. Mental health: The person working in any organization should have minimum level of I.Q and E.Q.
2. Poor diet and malnutrition: Employee working in an organization should be in good health condition. He should eat good nutritious food. Poor diet may reduce his level of understanding and stops his thinking level.

3. Chronic stress: Stress in the organization may be defined as “an adaptive response to an external situation that results in physical, Physiological or behavioral deviations from organizational participants”. Stress may lead to fatigue, anxious, difficulty concentration physiological changes like increased high blood pressure and heart beats.
4. Destructive habits: Some of the habits like smoking, consuming tea/coffee etc make people to get attached more to these activities and giving less importance to the work. Example people say they can’t work without taking morning tea.

**ATTITUDE FACTOR**

Attitude is defined as “beliefs, feelings and behavioral tendencies of people towards objects, people and ideas”.

1. Nervousness: People feel nervous whenever they do new kind of work or activity, but this should not become a habit like. Employees stick to negative attitude and get nervous.
2. Moody and shy: Many times employees many be moody or too shy to work or ask. Such kind of attitude makes them to feel way from the group of people resulting in to withdrawal nature to work or risk.
3. Carelessness and irresponsible nature: These kind of attitude not only affect individual but also his subordinates. Since in an organization make of the works involve team effort. In such situation carelessness and irresponsible nature may damage to both individual as well as for the organization.

**ROLE CLARITY FACTOR**

Role clarity: It may be defined as unclear about the role and the individual does not know what is expected of him.

1. Poor job description: Many times subordinates may fail to understand their job roles. This may also lead to conflict.
2. Overload: It occurs when expectations from for the role exceed the individual’s capabilities to perform. It may also have resulted due to taking too many roles.

**MOTIVATION FACTOR**

Motivation: In simple terms it may be defined as the set of forces that cause people to behave in certain ways.

1. Lack of responsibility: Person who is highly motivated takes more responsibility and work dedicatedly. If he less motivated then chances are that person may take less or no responsible work.
2. Advancement and growth: These physiological drives are directly concerned with the biological maintenance of the organism and motivated by higher order needs. Put another way, the person who fails to satisfy this basic level of needs just wont be around long enough to attempt satisfaction of higher need levels.
3. Flexible time: People fail to understand their target levels as a result they assume higher target levels and fail to achieve it and get demotivated.
4. Lack of involvement: Many times employees get involved in other work activities and less involves in organization work. This may make them less motivated towards the work and also affect the work involvement of others.
5. Rewards: Rewards play an important role in motivating individuals. Rewards generally are four types, membership and seniority, job status, competency and performance. If there are any delays in giving the rewards or lack in recognition of individuals then employees become less motivated towards the work environment.

**WORK FORCE DIVERSITY**

1. Demographic changes: Demographic changes such as age difference, generation gap have affected the work environment. Sometimes such factors give rise to negative attitude towards a person or a group finally resulting in to discrimination, harassment etc.
2. Diverse customer requirements: Due to globalization customer needs and wants are changing rapidly. This has affected the skills and competencies of the managers and professionals.

**OTHER FACTORS**

1. Lack of resources: Resources plays a major role since the resources availability motivates the employee to use his skills in proper utilization. If the resources are less then employees fail to plan out for the required result.
2. Hierarchy of organization: Organization structure also plays an important role. Taller structures are expensive since more managers are involved and fosters communication problem. Companies have found that flat structure has led to higher levels of employee morale and productivity.
3. Divide and rule: It is the one of the tool to reduce grievances against management. Whenever top management feels about informal meetings and grouping taking place in the organization they try to segregate and reorganize the workers. This may demotivate the workers leading to decreased output.
4. Attacking and blaming others: Many of the managers and supervisors believe that blaming the employees is needed in the organization so as to keep track of them. But this may demotivate them resulting in to decreased output.

The factor that can over come by any company in creation of knowledge

With this factors the barriers;

➤ breaching of confidentiality 2. Choosing right method 3. Technology 4. Listening skills. To over come this the any organization may concentrate bring them to the common platform where in they can exchange their views
➤ If prioritizing, lack of faith and belief, falling short of expectation, is been influencing to become a barrier for knowledge creation. this is mainly due to their monotonous jobs that can be over come
➤ changing customer requirements and intensive competition which in turn is also affecting the mental health and hence leading to destructive habits. due to the monotonous job.
➤ self doubting, withdrawal nature, nervousness, lacking in the self confidence which is making them self doubtful and the person is self doubting then its implied that he will be nervous which in turn makes him to withdraw from the knowledge creation process. The organization style is so that, certain level of empowerment is not there whenever required at work which is leading to self doubting
➤ Legal concern 2. Diverse work teams. The legal concern is mainly due to the organization systems, rules and regulations where in certain level of empowerment is not given due to which they face problem of job security which is leading for the barrier.
The concerned areas are 1. Resistance to change 2. Hierarchy of organization. Reason: lack of empowerment makes the person to feel suffocated.

Important factor effect in creation of knowledge	illumination
1. Lack of responsibility 2. withdrawal nature 3. self doubting 4. Poor Job description 5. Job security 6. Chronic stress	In general to overcome these barriers the organization may try to implement the following remedies: 1. expose the employees with success stories of the organization 2. allow them to interact informally through open house concept 3. Respecting the ideas and empowering the person learn from mistakes. 4. Show the concern to the family members. 5. Develop a healthy competition within the organization 6. Empowerment 7. Decentralization 8. Exposing the employees to the latest developments 1. Work with bench marking tool. 2. Design the stress relieving courses like YOGA, ART of LIVING etc.

**CONCLUSION**

In recent past more than machineries, methods, it is the knowledge which is taking prime position .But in most of the situations we fail to create the required knowledge at the right time. Creation of Knowledge is very important in any industries. Knowledge creation and how it flow is very important because the factors like communication is blood stream of any organization. It should not lead to effect in Creation of Knowledge. lack of empowerment makes the person to feel suffocated

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## THE ELECTRONIC-NOSE TECHNOLOGIES IN HEALTHCARE AND BIOMEDICINE: A CASE STUDY

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### ABSTRACT

*This paper reviews the range of sensors used in electronic nose (e-nose) systems to date. It outlines the operating principles and fabrication methods of each sensor type as well as the applications in which the different sensors have been utilized. It also outlines the advantages and disadvantages of each sensor for application in a cost-effective low-power handheld e-nose system.*

### KEYWORDS

Sensors, Gases.

### INTRODUCTION

There have been many developments in electronics to create real life environments with respect to sight and sound. But there are three other significant senses- smells, touch and taste which have not been experimented much with. The sensor technology of artificial olfaction had its beginnings with the invention of the first gas multi sensor array in 1982. Advances in aroma-sensor technology, electronics, biochemistry and artificial intelligence made it possible to develop devices capable of measuring and characterizing volatile aromas released from a multitude of sources for numerous applications. These devices, known as electronic noses.

Electronic nose is being developed for military and homeland security applications in the detection of explosives and hazardous chemicals. Currently, many explosives are found by dogs and other animals with highly sensitive olfactory senses. Developing an efficient hand-held device has been a challenge because volatile explosive vapours found in large open spaces are present at low concentrations that range from parts per billion or even parts per trillion. Bomb detectors might not be very good than electronic noses because they are blind to many important environmental and olfactory chemicals. However, the diversity of today's terrorist threats (explosive, chemical, and biological) makes it increasingly apparent that there is a role for electronic noses with the ability to quickly learn and recognize threat vapours of any kind. Electronic noses are best used as investigative rather than screening tools

A few smell-sensing instruments had been proposed in narrow applications earlier in the 1960's. Moncrief developed one of the first smell detection instruments in 1961 for agricultural application, where he used a single coated thermistor as the smell sensor. In 1964, Wilkens and Hartmen developed a smell detector where an array of smell detectors was used. It was in late 1980's that the first intelligent electronic smelling system came into being. Researchers in the University of Warwick in Coventry, England, developed sensor arrays for odour detection. Pattern recognition techniques were used by Gardner to discriminate the output of electronic smell sensors. Hartfield described an integrated circuit based device that performs data acquisition from a miniature array of 32 conducting polymer gas sensors. David and Gardner designed a circuit capable of measuring signals from arrays of resistive and piezoelectric sensor types in the same board

Electronic noses were originally used for quality control applications in the food, beverage and cosmetics industries. Current applications include detection of hazardous chemicals and explosives, detection of odours specific to diseases for medical diagnosis, and detection of pollutants and gas leaks for environmental protection. The Warwick pioneers envisioned an electronic equivalent of the mammalian olfactory system and so even though it doesn't resemble its biological counterpart the least bit, the label 'electronic nose' or 'E nose' has been widely adopted.

Artificial noses have been around for more than 20 years. These devices typically consist of arrays of chemical sensors that respond to odorant molecules. Each sensor responds slightly differently to a given odor, and taken together, the sensors give an "odor fingerprint"—a characteristic response pattern, such as a series of colors to each odor.

Most of these devices have been able to identify and distinguish only between specific odors they've previously been trained to recognize, however, says neuroscientist Rafi Haddad of the Weizmann Institute of Science in Rehovot, Israel. If an artificial nose is ever to replace the real thing, he says, it will have to be able to classify odors it has never encountered before

Electronic noses use almost the same sample delivery and transfer techniques as gas-chromatography systems, but do not include columns or mass spectrometers, Warburton says. Chemical detection in most electronic noses is performed using a series of sensors, predominantly comprised of conducting-polymer, metal-oxide, and infrared sensors.

"This kind of technology can be used around the clock to analyze odor quality and can be operated by technicians who have much less training than those who operate gas-chromatography systems," says Aaron Kramer, project manager for Nordic Sensor Technologies AB, Linkoping, Sweden. Electronic nose systems are also more affordable than most GC/MS systems.

Despite these benefits, electronic nose systems are not designed to replace standard analysis systems. "When the electronic nose detects a problem or quality deviation, researchers will still need to perform traditional chemistry methods with GC/MS to learn what is causing the problem," Kramer says.

The term "electronic nose" is a bit of a misnomer and has found varied acceptance within the field. Some companies, including Nordic Sensor Technologies AB, are trying to abandon it because the technology does not simulate the exact function of a human nose.

The human nose has been used as an analytical tool in many industries to measure the quality of food, drinks, perfumes and also cosmetic and chemical products. It is commonly used for assessing quality through odour and this is carried out using sensory panels where a group of people fills out questionnaires on the smells associated with the substance being analysed. These sensory panels are extremely subjective as human smell assessment is affected by many factors. Individual variations occur and may be affected by physical and mental health as well as fatigue (Pearce et al., 2003). For this reason, gas chromatography and mass spectrometry have been employed to aid human panels to assess the quality of products through odour evaluation and identification and also to obtain more consistent results. However, these assistive techniques are not portable, they tend to be expensive and their performance is relatively slow.

The solution to the shortcomings of sensory panels and the associated analytical techniques is the electronic nose (e-nose). E-nose systems utilize an array of sensors to give a fingerprint response to a given odour, and pattern recognition software then performs odour identification and discrimination. The e-nose is a cost-effective solution to the problems associated with sensory panels and with chromatographic and mass-spectrometric techniques and can accommodate real time performance in the field when implemented in portable form.

The development and utilization of many new electronic-nose (e-nose) applications in the healthcare and biomedical fields have continued to rapidly accelerate over the past 20 years. Innovative e-nose technologies are providing unique solutions to a diversity of complex problems in biomedicine that are now coming to fruition. A wide range of electronic-nose instrument types, based on different operating principles and mechanisms, has facilitated the creation of different types and categories of medical applications that take advantage of the unique strengths and advantages of specific sensor types and sensor arrays of different individual instruments.

Electronic-nose applications have been developed for a wide range of healthcare sectors including diagnostics, immunology, pathology, patient recovery, pharmacology, physical therapy, physiology, preventative medicine, remote healthcare, and wound and graft healing. E-nose biomedical applications range from

biochemical testing, blood compatibility, disease diagnoses, drug purity, monitoring metabolic levels, organ dysfunction, and telemedicine. This review summarizes some of the key technological developments of electronic-nose technologies, arising from past and recent biomedical research, and identifies a variety of future e-nose applications currently under development which have great potential to advance the effectiveness and efficiency of biomedical treatments and healthcare services for many years.

A concise synthesis of the major electronic-nose technologies developed for healthcare and medical applications since the 1980s is provided along with a detailed assessment and analysis of future potential advances in electronic aroma detection (EAD) technologies that will provide effective solutions to newly-emerging problems in the healthcare industry. These new e-nose solutions will provide greatly improved quality controls for healthcare decisions and diagnoses as well as badly needed final confirmations of appropriate patient treatments. The purpose of this chapter is to provide some detailed insights into current and future e-nose applications that will yield a variety of new solutions to detection-related tasks and difficult problems in the fields of healthcare and biomedicine. The uses of electronic-noses for quality control (QC) and quality assurance (QA) issues, associated with numerous diagnostic testing activities conducted within the medical field, also are discussed.

**ELECTRONIC NOSE**

The electronic nose is a system that consists of three functional components that operate serially on an odorant sample-a sample handler, an array of gas sensors and a signal processing system. The output of the electronic nose can be the identity of the odorant, an estimate of the concentration of the odorant, or the characteristics properties of the odour as might be perceived by a human.

ENS can be seen as arrays of non specific sensors able to generate electrical signals in response to either simple or complex volatile compounds, and give through a suitable multi component analysis technique, the possibility of discrimination, recognition and classification of odours. The target compound, in gaseous form, is introduced into the sensing chamber where the sensors are exposed to the vapour. A variety of basic sensors can be used according to the nose strategy chosen. Some of them are sensitive to the mass of adsorbed species; others show sensitivities to electric charges while others are based on either surface or bulk conductivity changes due to chemically interactive materials

These changes are dependent on a complex interaction between the components of the vapour and the sensors, as each sensor responds to a number of components in a unique manner. Each sensor in the array has different characteristics (e.g., coatings, operating temperatures, etc.) and, hence, each sensor will give a different electrical response (voltage output) for a particular odour.

The pattern of response across all the sensors in the array is used to identify and/or characterise the odour. In electronic noses pattern recognition methods are required for the qualitative analysis of odours or of different compounds present in a certain mixture and multi component analysis methods are required for the quantitative determination of one or more compounds in a mixture. Commercially available analysis techniques fall into three main categories as follows:

1. Graphical analyses: bar chart, profile, polar and offset polar plots
2. Multivariate data analyses (MDA): principal component analysis (PCA)
3. Network analyses: artificial neural network (ANN) and radial basis function (RBF)

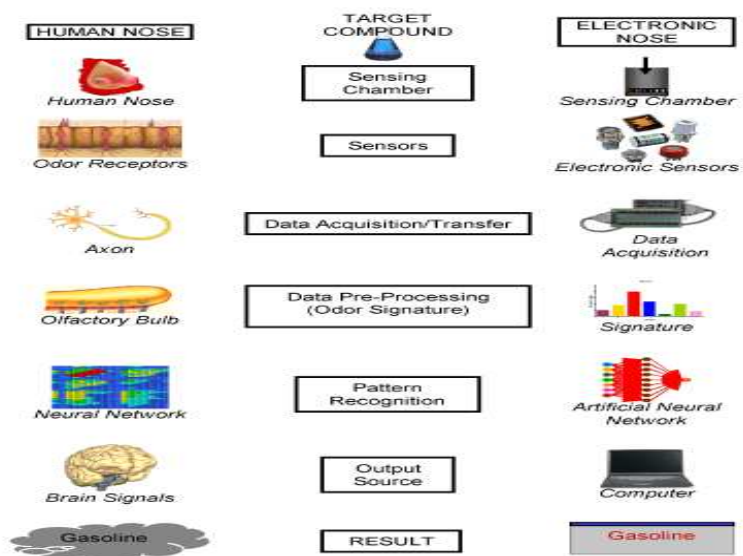
Experimental data are evaluated by a qualitative or quantitative link between output signals of an instrument and the chemical information (composition or concentration of analytes). This requires a comparison of the sensor outputs with previously recorded calibration data. When high concentrations of volatile are measured, a non-linear pattern recognition technique, such as ANN (Artificial Neural Networks), would be more appropriate.

On a very simplified and abstract level, ANN is based on the cognitive process of the human brain. ANNs are a commonly used pattern recognition technique which attempt to mimic the biological processes of the human brain.

**COMPARISON OF ELECTRONIC NOSE WITH BIOLOGICAL NOSE**

Each and every part of the electronic nose is similar to human nose. The function of inhaling is done by the pump which leads the gas to the sensors. The gas inhaled by the pump is filtered which in the human is the mucus membrane. Next comes the sensing of the filtered gas, which will be done by the sensors i.e., olfactory epithelium in human nose. Now in electronic nose the chemical retain occurs which in human body is enzymal reaction. After this the cell membrane gets depolarised which is similar to the electric signals in the electronic nose. This gets transferred as nerve impulse through neurons i.e., neural network which is analogous to the electronic circuitries in the electronic nose.

**FIGURE 2.1: BIOLOGICAL AND ARTIFICIAL OLFACTION**



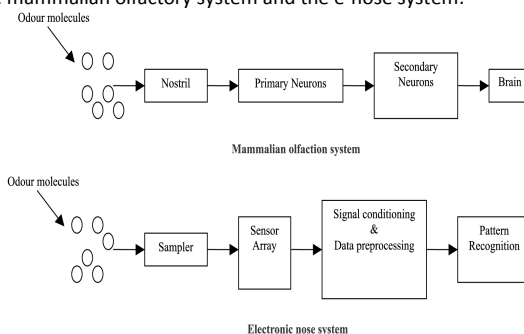
**THE NEED OF ELECTRONIC NOSE**

Why do we have to electronify the nose? The human sniffers are costly when compared to electronic nose. It is because these people have to be trained. This is more time consuming than the construction of an electronic nose. Also the speedy, reliable new technology of the gas sensors in the electronic nose helps in the continuous real time monitoring of odour at specific sites in the field over hours, days, weeks or even months. An electronic nose also overcomes other problems associated with the human olfactory system. For the confirmation of the values obtained from a sniffer the result obtained from the sniffer has to be compared with some other sniffer's value. And here there are great chances of difference in the values got by each individual. Detection of hazardous or poisonous gas is not possible with a human sniffer. Thus taking into consideration all these cases of individual variability, adaptation (becoming less sensitive after prolonged periods of exposure), fatigue, infections, mental state and subjectivity we can say that electronic nose is highly efficient than human sniffer

Principle of operation of e-nose systems. The e-nose attempts to emulate the mammalian nose by using an array of sensors that can simulate mammalian olfactory responses to aromas.

The odour molecules are drawn into the e-nose using sampling techniques such as headspace sampling, diffusion methods, bubblers or pre-concentrators. The odour sample is drawn across the sensor array and induces a reversible physical and/or chemical change in the sensing material, which causes an associated change in electrical properties, such as conductivity. Each "cell" in the array can behave like a receptor by responding to different odours to varying degrees. These changes are transduced into electrical signals, which are preprocessed and conditioned before identification by a pattern recognition system as shown in the below Figure. The e-nose system is designed so that the overall response pattern from the array is unique for a given odour in a family of odours to be considered by the system.

The following figure shows the Comparison of the mammalian olfactory system and the e-nose system:



## APPLICATIONS OF ELECTRONIC NOSE

The advent of the electronic nose has opened a variety of applications and new possibilities in many fields where the presence of odours is the relevant phenomenon. The biggest market for the electronic nose is the food industry including quality monitoring or grading of food, beverage and fruits, inspection of food packaging materials. There are also researches being done in using the electronic nose for disease diagnosis. An electronic nose can examine odours from the body (e.g., breath, wounds, body fluids, etc.) and identify possible problems. Electronic noses are found to be effective tools in environmental management. Applications include that analysis of fuel mixtures, detection of oil leaks, testing ground water for odours, and identification of household odours. Potential applications include identification of toxic wastes, air quality monitoring, and monitoring factory emissions. Applications include that analysis of fuel mixtures, detection of oil leaks, testing ground water for odours, and identification of household odours. Potential applications include identification of toxic wastes, air quality monitoring, and monitoring factory emissions.

Others in the industry have generalized the term to pertain to all technologies that mimic the sense of smell through chemical fingerprinting, says Wayne Gagne, applications specialist with AromaScan, Hollis, N.H.

Most systems that can be categorized as electronic noses create chemical footprints by analyzing sample headspace. The gaseous release generated by odorous samples is collected from equally sized samples over a period of time, Gagne says. Once odors are analyzed by an electronic nose, the chemical footprints are placed in a library and used as a comparison for other samples.

"The machine doesn't know what any odors are – you have to give it information to correlate chemical footprints with odors," Gagne says. "We are finding that these tools are particularly important for the polymer and food industries."

Relatively new technologies, electronic noses have only been on the market for about a decade. Because of this, companies have spent a great deal of time over recent years educating clients about the need for their products. Worldwide, about seven companies are active in the market, and about as many are working to develop the technology, Warburton says.

Some electronic noses can be combined with gas chromatographs to provide more exact descriptions of the chemicals that comprise specific odorants. Despite this enhanced capability, the instruments will not notice that odors are disagreeable to humans unless they are told which chemical footprints cause unpleasant smells.

## MEDICAL DIAGNOSTICS AND HEALTH MONITORING

Modern medicine faces the problem and challenge of achieving effective disease diagnoses through early detections of disease conditions in order to facilitate the application of rapid treatments, but at the same time dramatically reducing the invasiveness of diagnostic treatments.

Chemical analysis of human biological samples, such as breath, blood, urine, sweat and skin, are the most common means of diagnosing most pathological conditions.

## RESPIRATORY DISEASE DIAGNOSTICS

It is well known that exhaled human breath contains thousands of volatile organic compounds (VOCs) in gas phase, which can individually be detected by gas chromatography and mass spectrometry.

Such VOCs can potentially be used as non invasive biomarkers of various biochemical pathways that are operative in health and disease. Interestingly, it has been demonstrated that there is a link between exhaled VOC and human lung disease, in particular regarding lung cancer. An electronic nose has been developed that can diagnose respiratory infections such as pneumonia by comparing smell prints from the breath of a sick patient with those of patients with standardized readings. It is also being studied as a diagnostic tool for lung cancer.

## URINARY TRACT INFECTIONS

Urinary tract infections have been thoroughly investigated by Di Natale, Aathithan and Pavlou proposed the use of the electronic nose as a potential diagnostic tool for patients affected with kidney diseases, by distinguishing traces of blood in urine samples, and for the rapid identification of *E. coli*, *Proteus* spp. and *Staphylococcus* spp. infections at very high levels of confidence. Aathithan analyzed 534 clinical urine specimens of which 21 % had significant bacteriuria indications. The sensitivity and specificity of the electronic nose compared with conventional cultural counts were 83.5% and 87.5% respectively, but the e-nose diagnoses were done at significantly lower costs.

## ENVIRONMENTAL MONITORING

Environmental applications of electronic noses include analysis of fuel mixtures, detection of oil leaks, testing ground water for odours, and identification of household odours. Potential applications include identification of toxic wastes, air quality monitoring, and monitoring factory emissions. Air pollution and many different types of odours are common pollutants which require monitoring and quantification. The exhaust from automobiles and trucks is a very good example of environmental air pollution. Water pollution occurs where there are leaking fuel tanks or where spills have occurred and organics have entered the aquifers. Water pollution associated with rivers, lakes, and water aquifers represents approximately 60% of the world environmental problems. Because pollutants in water are volatile, water pollution can be measured simply by testing the headspace vapours above the water.



## FOOD INDUSTRY

Panels of well trained tasters and smellers are daily utilized to certify the goodness of foods and their fitting with the human taste. Therefore food analysis represents also a practical field where an electronic nose can be utilized as an essential support of the human capabilities. Analysis of fruit ripeness, food and beverage quality check, grading of wines, meat quality assessment etc are some of its major areas of application in this industry. Electronic noses can be used to augment or replace panels of human experts. The Electronic nose has also been applied to both alcoholic and non-alcoholic beverages, for example in the identification of coffee bean types; instant coffee aromas during processing; the detection of diacetyl, dimethyl sulphide and amylacetates during fermentation.

## ANALYSIS OF FRUIT RIPENING

Since fruit ripening is associated with an accumulation of aromatic volatiles during ripening for both climacteric and non climacteric fruit, electronic noses seem to hold a great potential in the fruit industry. Sensor signal used in the electronic nose helps to assess fruit quality and maturity. Using e noses to monitor fruit freshness and maturity level is advantageous as it can maximize profits and have better consumer satisfaction. Information from the noses can help in removal of rotten fruits at the appropriate time which can help in avoiding storage losses due to rots and fruit diseases.

## ANALYSIS OF MEAT QUALITY

Meat, especially beef, reaches an acceptable state for consumption after a long period of storage at low temperature, a storage procedure known as aging. During storage, not only aging but also bacterial spoilage can occur. Consequently, to obtain appropriately aged meat, it is desirable to monitor the progress of aging and bacterial spoilage simultaneously. A direct sensing method for monitoring meat quality can be employed. The sensor is composed of an Ag/AgCl electrode and a platinum electrode on which putrescine oxidase or xanthine oxidase were immobilized to estimate bacterial spoilage or the progress of aging, respectively.

## ANALYSIS OF DAIRY PRODUCTS

The shelf-life of milk also has been studied. A Fox 4000 electronic nose equipped with 18 sensors and an auto sampler was used to evaluate the growth of total bacteria in milk stored at ambient temperature and 5 °C. The results showed that measurements generated by the electronic nose could be used to detect both bacterial growth in milk and shelf-life. Gorgonzola and cottage cheese were characterized using polypyrrole semiconductor sensors in the electronic noses.

## ADVANTAGES OF ELECTRONIC NOSE OVER BOMB DETECTORS

A bomb detector is designed to answer the question, what something is not. For example, it is not a bomb. It provides little or no information on the identity of the object producing the odour or fragrance. Conversely an electronic nose answers the question what something is. For example, it is jet fuel. An electronic nose sees everything and misses nothing. A bomb detector is best used to detect trace amounts of explosives in the presence of high background chemical vapours. An electronic nose is best used to characterize and recognize objects by detecting the principal chemical components of the object's aroma. An electronic nose is limited in its ability to detect trace levels of explosives or chemical weapons by its inherent and finite dynamic range. Its full sensitivity can be best used when there are no high-concentration background chemicals. Electronic noses have the ability to recognize an almost limitless number of chemical vapour threats while bomb/chemical agent detectors provide the ability to detect specific target chemicals at trace levels while not being affected by high ambient concentrations of non-target compounds. Electronic noses provide a different screening capability with inherently more information gathering power than bomb detectors and help to resolve ambiguities by using a library of aroma signatures. Therefore, an electronic nose would work well screening the relatively clean air of a commercial office building, military headquarters and other enclosed spaces such as a shipping container.

## CONCLUSION

An "electronic nose" is a system originally created to mimic the function of an animal nose. However, this analytical instrument is more a "multi-sensor array technology" than a real "nose". Whatever the sensor technology, it is still far from the sensitivity and selectivity of a mammalian nose. Therefore, its aim is not to totally replace either the human nose or other analytical methods. A sensory panel is necessary to define the desired product quality which can then be used to train the system. Traditional analytical methods such as GC-analysis will always be needed to determine qualitatively or/and quantitatively why one food sample differs from others. The "electronic nose" can only perform quick "yes or no" tests in comparison to other products. It could occasionally replace sensory analysis and even perform better than a sensory panel in routine work, or in cases where non-odorous or irritant gases need to be detected.

Compared to classical and other novel analytical methods, the electronic nose built offers a cheap and non destructive instrument that (if properly programmed and automated) can be operated by non specialists.

The number of measurements that can be done in a day compares favourably to other sophisticated methods, such as aromatic profile identification using chromatography (one of the newest approaches), and since the whole process is automatic, the cost of each measurement is very low. Therefore, in the near future, the electronic nose could be envisaged as a global measurement system calibrated for ripeness determination or a multi instrument system to extract the indicators for which it has been calibrated.

Food analysis is a very complex discipline. Due to its strict interaction with the quality of life it is extremely important to improve the performances of the methods in the fields. EN seems to be a new instrument that can offer the unique advantage of providing fast and low expensive qualitative analysis of many kinds of foods.

Further work needs to address important limitations. For example, a straightforward procedure should be devised to detect and correct sensor drift from year to year. Also, the initial calibration of the system for a given cultivar should take only a few measurements and be valid, at least, for some consecutive campaigns. Finally, the measurement cycle should be faster in order to increase throughput. All of these considerations are being studied and might imply the optimization of the sampling process, the use of more advanced processing algorithms, and the incorporation of new sensor technologies into the system.

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