

EDITORIAL

Management is not a single discipline but is a conglomerate of a set of interrelated disciplines. Its width, breadth, structure and texture keeps on changing depending upon the innovations and inventions in the field of science and technology; ever increasing intricacies and complexities of the market(s) concerned; changes in the policies, procedures and provisions of legal enactments introduced by the appropriate authorities from time to time; actions and reactions of the participating business players etc. Accordingly the articles received, selected and published in this issue cover a wide range of topics.

The first is a research based paper on leadership styles. In this paper, the authors have made an attempt to identify the differences in leadership styles as perceived by the leaders and the subordinates. The study is based on the primary data collected from seven hierarchical levels of the officers of a public sector undertaking. For the purpose three different questionnaires were used. The findings are noteworthy.

The second paper is on talent management in borderless world. In this the author says that the organizations are under utilizing the available talent. This hinders effective talent management in a borderless world. Based on an in depth literature review and contextual analysis the paper aims to understand what constitutes talent management in a borderless world, traces the evolution of talent management, compares the old with new realities in the organization, discusses linkage between talent and strategy and throws light on critical issues of global talent management.

Stress is an unavoidable consequence of modern living, because modern life is full of hassles, deadlines, frustrations, and demands. For many people, stress is so common that it has become a way of life. Stress is not always bad. In small doses, it can help perform under pressure and motivate to do the best. Technological revolution, associated with globalization, privatization and liberalization, has drastically changed the patterns of life thus increasing stress among employees in all sectors including the health care sector. The third paper is concerned with occupational stress of the employees in healthcare sector. The fourth paper is on “innovation in outsourcing”. In this the authors have explored the style of VSF, which used various innovative processes and techniques over the years in the industry.

In India Primary Health Centres were established long ago with the intention of providing an integrated health care to the rural population with an emphasis on preventive and curative health care. Though they were setup with an onerous objective of providing healthcare to rural masses they could not do so. The reasons are many. They were not adequately staffed, they were not well equipped and they do not possess basic amenities. Sometimes lack of awareness among the beneficiaries about availability of the required facilities/services at PHCs is one of the reasons for their failure in achieving the objective. In this context, Ramesh Babu and Hanumantha Rao have tried to understand the functioning of PHCs in Telengana region of Andhra Pradesh, assess the availability of different services and awareness among beneficiaries on availability of different health care services at some of the PHCs in Telengana region of Andhra Pradesh. This largely helps the Government in managing the health care services in the country.

Information technology has a great impact on the development of an enterprise irrespective of its size. Cloud computing is an emerging paradigm for delivering computing services relatively at a lesser cost. This computing approach relies on a number of existing technologies, i.e., the Internet, virtualization, grid computing, Web services, etc. This works out to be cheap and safe to the small and medium enterprises. The sixth article is on the impact of cloud computing on business creation, employment and output with special reference to small and medium enterprises in India. This article highlights the uses of cloud computing and throws light on the current concerns that might be preventing some organizations from using it. This is useful to tech savvy small entrepreneurs.

Papua New Guinea is endowed with rich mineral resources. It exports primary mineral products like gold, copper, and crude oil. This has resulted in dismal growth of the manufacturing sector in the country. In the last article the authors have discussed the impact of international mineral prices on export trade of PNG. I hope the articles published in this issue will be useful to the readers.

Babujee Apparao Punaty
Chief Editor

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Management Today (An International Journal of Management Studies)

Published by

Gokaraju Rangaraju Institute of Engineering and Technology

Bachupally, Kukatpally, Hyderabad - 500 090.

Management Today

(An International Journal of Management Studies)

Volume: 3

Number: 4

Oct-Dec. 2013

Contents

1. **A Study on Leadership Styles in Public-Sector Enterprises (A Case Study of Bharath Earth Movers Limited)**
Haranath, G. and Chalam, G. V. 1
2. **Understanding Talent Management in Borderless World**
Neeta Baporikar... 10
3. **Occupational Stress of the Employees at Work Place: An Empirical Study**
Tulasi Das, V. and Vijayalakshmi, Ch. 17
4. **Innovation in Outsourcing: A Case of VFS Global Leadership**
Nag, G. C. and Prakash Pandit... 28
5. **Health Care Facilities at Primary Health Centres - An Analysis of Select PHCs in Telengana Region**
Ramesh Babu, P. and Hanumantha Rao Naidu... 31
6. **Impact of Cloud Computing on Business Creation, Employment and Output with Special Reference to Small and Medium Enterprises in India**
Balaram Babu, P. and Chakravarty, P. S. 46
7. **Impact of International Mineral Prices on Export Trade of PNG**
Albert C. Mellam, Subba Rao Pulapa, Benedicta G. Mellam, John Raymond, Peter Tulapi and Joyce Rayel... 56



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home page: www.mgmt2day.griet.ac.in



A Study on Leadership Styles in Public-Sector Enterprises (A Case Study of Bharath Earth Movers Limited)

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ARTICLE INFO

Article history:

Received 09th Dec. 2013

Accepted 30th Dec. 2013

Keywords:

Authoritarian,
Participative,
Bureaucratic,
Task-oriented,
Nurturant leadership styles...

ABSTRACT

This paper attempts to study the differences in the leadership styles as perceived by the leaders and sub-ordinates in a public-sector enterprise. The study has revealed that differences do exist in different leadership styles - authoritarian, participative, bureaucratic, task-oriented and nurturant, as perceived by the leader himself and perceived by the subordinates in Bharath Earth Movers Limited (BEML). In this paper, the authors made an attempt to identify the differences in leadership styles as perceived by the leaders and subordinates in BEML. The study is based on the primary data collected from seven hierarchical levels of officers of the BEML. By adopting simple random sampling technique from each level of officers, 50% were drawn as the sample for the study. For this, three questionnaires were used to collect the data.

Introduction

Leadership means many things to many people, which is due to the changing role of leaders in different environment and in different settings ranging from leadership of the family to the top positions in multinational organizations. However, the essentials of leadership are the same to all leaders in all positions. Nevertheless, due to the variation in the skills required, roles played, functions performed, issues tackled and the relationships promoted, different leaders have varying perceptions of leadership. Theoreticians and practitioners of leadership have gone to the extent of developing the 'contingency approach', which emphasizes that there is 'no single best way' to lead people.

Concept of Leadership

There are as many definitions of leadership as there are scholars, who have attempted to analyze and understand the

concept, but there is no universally accepted definition of it, despite the fact that there are many articles and books on it. Leadership is a process of influencing the behaviour, beliefs and feelings of the members of a group. The functions of leadership however, cover wide range of activities like coordinating, decision-making, policymaking, group representing, controlling and arbitrating. Leadership, not being a single phenomenon, is affected by many variables and requires several skills like technical, human, conceptual, designing, creative, communicative and decision making. The main aspect of influencing people by a leader is the power, which has many sources. The leadership effectiveness covers the personality of the leader, his experience, expectations of superiors, characteristics of subordinates, requirements of the task, and the organisational climate and policies. A common characteristic that can be found in many of the definitions is the 'influence', exerted by the leader. That is, he tries to influence the behaviour of others in a specific direction. The trait theory has been put to rigorous research by Byrd et.al., and has resulted in the development of behavioral theory. Likert's system 4 theory, McGregor X and Y theory and Continuum theory of Tannenbaum and Schmidt have opened new vistas on the behavioral dimensions of leadership. The confusion and controversy of trait and behavioral theories have given way

Responsibility of Contents of this paper rests upon the authors and not upon GRIET publications

ISSN : 2230 – 9764

Doi: <http://dx.doi.org/10.11127/gmt.2013.12.01>

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to the contingency models of leadership like Fiedler's contingency model, Vroom and Yetton's contingency model, path goal theory, life cycle theory, tri-dimensional model and learning model.

Review of Literature:

Before discussing the leadership styles in the select organization, some of the important studies conducted by the earlier researchers are presented hereunder:

Mullen (1965) compared the leadership styles of managers in three divisions of a large automobile insurance company, and its relationship to each division's efficiency and effectiveness. Each manager showed a distinct leadership style: one was democratic, another laissez faire, and the third was authoritarian. It was concluded that all three divisions were operating at an equally high rate of efficiency and therefore measures of effectiveness did not show any difference between divisions.

Rensis Likert (1967) and his associates of the University of Michigan have developed four leadership systems of management: exploitative autocratic (system 1) benevolent autocratic (system 2), participative (system 3), and democratic (system 4). On the basis of intensive research, Likert has concluded that high producing departments in several organizations were followed by system 4 (democratic) leadership form of management.

Sinha and Chowdhary (1969) have studied 165 male executives in the State of Bihar, to test the effectiveness of leadership style. They have concluded that for less prepared subordinates, nurturant task leadership style is expected to be used more often and with greater effectiveness. Whereas, in case of better prepared subordinates, participative leadership style is anticipated to be effectively employed and an authoritarian leader is considered to be ineffective.

Sinha (1976) in his study hypothesized that before an organization achieves moderate degree of productivity, it requires nurturant-task style of leadership which can move employees towards harder efforts and work commitment. Once moderate level of productivity is achieved and the normative structure of the organization is interjected in the employees, then the organization is ready for the participative style of the management.

Based on the study of 280 managers from two public-sector and four private-sector units, Singh and Das (1977) found that "bureaucratic" style was the most predominant, followed by the style 'benevolent autocrat', 'developer', and 'democratic' styles of leadership. They highlighted that leadership style was associated with the type of organization, executives' age group, their level in the organization and their exposure to management programmes. In the public sector, leadership style was in the order of 'compromiser', 'developer', and 'autocratic' style. Whereas, in case of private sector organizations 'benevolent autocracy' was followed by the 'bureaucratic', 'democratic' and 'developer' styles. Hierarchy-wise, top-level managers were more 'benevolent autocrats' followed by 'democratic' and 'developer' in behaviour. At the organization level, the middle and lower level managers are more towards 'bureaucratic' followed by the 'benevolent autocrat' category. In case of age factor consideration, aged managers are more 'benevolent autocratic', followed by 'developer', 'bureaucratic' and 'democratic' leaders; whereas, the young executives are more democratic followed by 'benevolent autocratic' and 'bureaucratic'. The executives who are exposed to formal management education are more democratic as compared to those who do not have such exposure.

Sinha and Sinha (1977) noted in their study that the nurturing leaders were close to the authoritarian leaders in being strict, in pushing their ideas through, and in controlling other ideas and activities. The nurturing leaders were close to the participative ones in encouraging the members, giving due consideration to their ideas, and yet maintaining control over them.

Through a study of 120 managers, Jaggi (1978) observed in his analysis that prevailing leadership styles were between 'benevolent autocracy' and 'consultative' type, and the leadership style was associated with various factors such as the age of the executives, their position, functions and size of the organization. Younger managers and managers in larger-sized companies were less authoritarian than the managers in production and technical areas.

Singh (1979) studied 100 managers of public sector enterprises and concluded that 3 per cent of the managers adapted democratic style, 7 per cent autocratic style, 23 percent compromiser style, 31 percent bureaucratic style and 21 percent developer style. He found that differences in the leadership styles were due to the procedural rigidity in the public sector enterprises.

Muthayya and Vijaya Kumar (1985), by taking a sample of 68 scientific personnel belonging to different research institutions, identified five styles, viz., directive, negotiate, consultative, participative and delegate styles. The study indicated that the predominant style is 'directive' followed by 'delegate' and participative.

Singh and Pandey (1986) conducted a study to explain the pattern of relationship among three leadership styles (participative, authoritarian and authoritative) with different strategies of control, need-satisfaction and commitment with the organization. The study concluded that the participative style leads to greater need-satisfaction and organisational commitment, and authoritative style is closer to participative leadership but it does not lead to commitment. The study also brought out that participative and authoritative are positive styles of leadership.

Omer Bin Sayeed (1990) attempted in his study to examine the conflict-handling strategies, leadership behaviour and style in a common framework. The study was conducted on 79 middle level managers who were undergoing various training programmes at National Institute for Training in Industrial Engineering, Bombay. It was found that conflict management strategies represented two main conflict management styles, viz., Reciprocal Problem Solving Style and Authoritative System Supported Style, which tended to relate selectively with five leadership dimensions. Reciprocal conflict management style significantly related with Participative, Nurturant, and Task-oriented leadership behavior, while Authoritative Conflict Management Style had significant relationship with authoritarian and bureaucratic leadership style.

Panchanatham et. al. (1993) attempted to explore the leadership and problem solving styles of executives of public sector organizations. They opined that the executives dominantly used democratic, authoritative and coaching styles of leadership. There were no significant relationships between leadership styles and problem solving styles. The study suggested that the organization should design separate training programmes on problem solving and leadership styles and the executives of different branches should be considered equally for developmental programmes.

Syed Vazith Hussain (2002) sought to analyze the different leadership styles in small scale industries at micro level. He identified five styles, viz., benevolent, autocrat, consultative, democratic and delegation. He collected data from 98 owner-managers of small scale industries and concluded that owner-managers are adopting different styles depending upon the situation even though they are free from adopting any style. The results of the study strongly confirm the view that leadership is situational and effective leader should be flexible enough to adopt at different situations.

Need of the Study

From the foregoing studies, it can be said that the success and failure of any organization is attributed to the effectiveness of leadership. Thus, the leadership has become indispensable and managers are to be replaced by leaders, despite the argument that leadership is dispensable by another school of thought. As such, the topic of leadership has occasioned research studies without limit, and new dimensions are added to leadership theory and practice. The present study attempts to analyze different styles of leadership and its perceptions by their subordinates.

Objectives of the Study

Against this backdrop, the specific objectives of the study are:

- To identify the differences in leadership styles as perceived by the leaders in the BEML.
- To find out the differences in leadership styles as perceived by the subordinates.
- To find out the differences in leadership styles as perceived by the leaders and the subordinates in the selected organization.

Hypotheses:

The hypotheses formulated for the study are as follows:

- There is no significant difference in the leadership styles at the inter levels.
- There is no significant difference in the leadership styles in the inter levels as perceived by their subordinates.
- There is no significant difference in the leadership styles as perceived by the leader himself and those perceived by his subordinates.

Methodology of the Study:

(i) Selection of the Sample:

The study is based on primary data collected from the employees of BEML. The data were collected from seven hierarchical levels of officers' viz., Deputy General Manager, Assistant General Manager, Senior Manager, Managers, Assistant Managers, Engineers and Assistant Engineers from different departments of the selected organization. By adopting simple random sampling, from each level of officers 50 per cent were drawn as the sample and the total respondents for the study consisted of 399 out of 784 officers of BEML as follows.

5	Assistant Manager	III	173	88
6	Engineers	II	232	118
7	Assistant Engineers	I	190	97
---	Total		784	399

(ii) Collection of Data:

In the present study, three questionnaires were used to collect the data. Questionnaire I was designed to elicit the information relating to the socio-economic and organizational position variables viz., name, age, designation, experience and educational qualifications. Questionnaire II, leader satisfaction score (Sinha 1980) which was administered to officers with a view to judging their own leadership styles, and Questionnaire III was designed to measure the leader's style as perceived by his subordinates (Leader Behaviour Score) among officers. Both II and III questionnaires consisted of 50 items each to measure five leadership styles, viz., authoritative, participative, bureaucratic, task-oriented and nurturing and each of these categories consisted of 10 items. The collected responses were solicited on a 5-point scale, ranging from Quite True (5), True (4), Doubtful (3), False (2), Quite False (1).

The leadership styles were measured in two ways i.e., as perceived by the leader himself (Leader's Self Perception) and as perceived by his immediate subordinates (Subordinate's Perception of Superiors' Styles). For the analyses of leadership styles of the DGM, AGM, SM, M, AM and E level officers, the leader's self perception (Questionnaire-II) was used and in analyzing the styles of AGM, SM, M, AM, E and AE level employees, the subordinate's perception of the superiors' styles (Questionnaire-III) was used.

The Questionnaires supplied to each category of officers are: for AGM, SM, M, AM, M, AM and E level officers the questionnaires used are, Questionnaire I, Questionnaire II, Questionnaire III; for DGM level officers Questionnaire I, Questionnaire II; and for AE level officers the Questionnaire I and Questionnaire III were served.

Tools for Analysis

The data collected through the questionnaires were processed and the hypotheses were tested through appropriate statistical tools, viz., mean, standard deviation and 't' test.

Analysis on Leadership Styles in BEML

The presentation and discussion of the data on leadership styles pertains to the different groups in the select organization is presented as under:

Group I:

The difference between the leadership styles at inter levels of officers viz., Deputy General Managers and Assistant General Managers; Assistant General Managers and Senior Managers; Senior Managers and Managers; Managers and Assistant Managers; Assistant Managers and Engineers is discussed in group I category.

Group II:

The difference between the leadership styles at inter-levels of officers as perceived by their subordinates is presented in group II category.

Group III:

The difference between the leadership styles as judged by the leader himself and as perceived by his immediate subordinates is explained in group III category.

With a view to finding out the differences among the five levels of managers viz., (1) Deputy General Managers and

S.No.	Designation	Grade	Number of officers	Samples drawn
1	Deputy General Manager	VII	16	8
2	Assistant General Manager	VI	31	16
3	Senior Manager	V	47	24
4	Manager	IV	95	48

Assistant General Managers; (2) Assistant General Managers and Senior Managers; (3) Senior Managers and Managers; (4) Managers and Assistant Managers; and (5) Assistant Managers and Engineers of BEML in self-perception about their leadership styles and as perceived by subordinates, mean and standard deviations were computed. Further, with an intent to find out significant difference between the five levels 't' test was computed.

Group I. Leadership Styles of Officers in self perception about their Styles

- A. The difference between leadership styles of Deputy General Managers and Assistant General Managers self perception, is shown in Table-1.

Table-1: Leadership Styles of Deputy General Managers and Assistant General Managers

Sl.No.	Leadership Styles	Deputy General Managers			Assistant General Managers			't' value
		Mean	N	SD	Mean	N	SD	
1	Authoritarian (A)	30.3	8	6.9	31.0	16	7.2	0.1
2	Participative (P)	44.0	8	4.8	42.6	16	5.5	0.6
3	Bureaucratic (B)	37.4	8	9.9	38.8	16	4.1	0.4
4	Task-oriented (T)	44.3	8	4.1	40.5	16	5.7	1.9
5	Nurturant (N)	47.0	8	2.1	43.9	16	5.6	2.0

Source: Compiled from field survey

Note: SD=Standard Deviation

Mean values of participative, task-oriented and nurturant styles are higher for Deputy General Managers than Assistant General Managers, whereas mean values of authoritarian and bureaucratic styles are higher for Assistant General Managers than Deputy General Managers. In the authoritarian, participative, bureaucratic, task-oriented and nurturant styles, the Deputy General Managers and the Assistant General Managers do not differ significantly as the 't' values of these styles are less than the critical value (A0.080, P<0.05; P0.631, P<0.05; B0.374, P<0.05; T1.850, P<0.05 and N1.969, P<0.05). Hence, the hypothesis "there is no significant difference in leadership styles at inter levels self perception" is accepted.

- B. The Leadership Styles of Assistant General Managers and Senior Managers in self perception about their styles, is shown in Table 2.

Table-2: Leadership Styles of Assistant General Managers and Senior Managers

Sl.No.	Leadership Styles	Assistant General Managers			Senior Managers			't' value
		Mean	N	SD	Mean	N	SD	
1	Authoritarian (A)	31.0	16	7.2	33.0	24	6.9	0.9
2	Participative (P)	42.6	16	5.5	40.0	24	3.8	1.1
3	Bureaucratic (B)	38.8	16	4.1	33.6	24	9.0	2.5
4	Task-oriented (T)	40.5	16	5.7	38.9	24	3.9	1.0
5	Nurturant (N)	43.8	16	5.6	40.8	24	4.5	1.8

Source: Compiled from field survey

Note: SD=Standard Deviation

Mean values of participative, bureaucratic, task-oriented and nurturant styles are higher for Assistant General Managers than Senior Managers, whereas mean values of authoritarian style is higher for Senior Managers than Assistant General Managers. In authoritarian, participative, task-oriented and nurturant styles, the Assistant General Managers and the Senior Managers do not differ significantly as the 't' values of these styles are less than the critical value (A0.869, P<0.05; P1.056, P<0.05; T0.966, P<0.05 and N1.827, P<0.05). In bureaucratic style, the Assistant General Managers and the Senior Managers differ significantly as the 't' values of these styles are greater than the critical value (B2.462, P>0.05). Hence, there is significant difference in different leadership styles of Assistant General Managers and Senior Managers.

- C. The Leadership Styles of Senior Managers and Managers, is shown in Table 3

Table-3: Leadership Styles of Senior Managers and Managers

Sl.No.	Leadership Styles	Senior Managers			Managers			't' value
		Mean	N	SD	Mean	N	SD	
1	Authoritative (A)	33.0	24	6.9	31.6	48	8.9	0.7
2	Participative (P)	40.0	24	3.8	40.9	48	4.9	0.9
3	Bureaucratic (B)	33.6	24	9.0	36.0	48	7.6	1.2
4	Task-oriented (T)	38.9	24	3.9	40.5	48	4.1	1.6
5	Nurturant (N)	40.8	24	4.5	41.6	48	3.5	0.8

Source: Compiled from field survey

Note: SD=Standard Deviation

Mean values of authoritative style is higher for Senior Managers than Managers, whereas mean values of participative, bureaucratic, task-oriented and nurturant styles are higher for Managers than Senior Managers. In authoritarian, participative, bureaucratic, task-oriented and nurturant styles, the Senior Managers and the Managers do not differ significantly as the 't' values of these styles are less than the critical value (A0.740, P<0.05; P0.873, P<0.05; B1.149, P<0.05; T1.550, P<0.05 and N0.764, P<0.05). Therefore, there is no significant difference among different leadership styles in the inter levels of Senior Managers and Managers.

- A. The Leadership Styles of Managers and Assistant Managers, is shown in Table 4

Table-4: Leadership Styles of Managers and Assistant Managers

Sl.No.	Leadership Styles	Managers			Assistant Managers			't' value
		Mean	N	SD	Mean	N	SD	
1	Authoritative (A)	31.6	48	8.9	32.2	88	6.6	0.4
2	Participative (P)	40.9	48	4.9	40.6	88	5.1	0.4
3	Bureaucratic (B)	36.0	48	7.6	38.2	88	6.4	1.7
4	Task-oriented (T)	40.5	48	4.1	41.3	88	3.4	1.2
5	Nurturant (N)	41.6	48	3.5	41.2	88	2.9	0.7

Source: Compiled from field survey

Note: SD=Standard Deviation

Mean values of participative and nurturant styles are higher for Managers than Assistant Managers, whereas mean values of authoritative, bureaucratic and task-oriented styles are higher

for Assistant Managers than Managers. In authoritative, participative, bureaucratic, task-oriented and nurturant styles, the Managers and the Assistant Managers do not differ significantly as the 't' values of these styles are less than the critical value (A0.443, $P < 0.05$; P0.432, $P < 0.05$; B1.696, $P < 0.05$; T1.158, $P < 0.05$ and N0.685, $P < 0.05$). Hence, the hypothesis "there is no significant difference among different leadership styles in the inter levels of Managers and Assistant Managers" is accepted.

B. The Leadership Styles of Assistant Managers and Engineers is shown in Table 5

Table-5: Leadership Styles of Assistant Managers and Engineers

Sl.No.	Leadership Styles	Assistant Managers			Engineers			't' value
		Mean	N	SD	Mean	N	SD	
1	Authoritarian (A)	32.2	88	6.6	34.8	118	6.6	2.7
2	Participative (P)	40.5	88	5.1	39.3	118	6.3	1.6
3	Bureaucratic (B)	38.2	88	6.4	39.6	118	5.8	1.6
4	Task-oriented (T)	41.3	88	3.4	40.4	118	4.6	1.6
5	Nurturant (N)	41.2	88	2.9	42.1	118	3.7	1.9

Source: Compiled from field survey

Note: SD=Standard Deviation

Mean values of participative and task-oriented styles are higher for Assistant Managers than Engineers, whereas mean values of authoritative, bureaucratic and nurturant styles are higher for Engineers than Assistant Managers. In authoritative, participative, bureaucratic, task-oriented and nurturant styles, the Managers and the Assistant Managers do not differ significantly as the 't' values of these styles are less than the critical value (A2.737, $P < 0.05$; P1.608, $P < 0.05$; B1.638, $P < 0.05$; T1.594, $P < 0.05$ and N1.861, $P < 0.05$). In authoritative style, the Managers and Assistant Managers differ significantly as the 't' values of these styles are greater than the critical value (A2.737, $P > 0.05$). Hence, the hypothesis "there is no significant difference among different leadership styles in the inter levels of Assistant Managers and Engineers" is rejected.

Group II. The Leadership Styles of Officers as Perceived by Their Subordinates

A. Leadership Styles of Deputy General Managers and Assistant General Managers as perceived by their subordinates, is shown in Table 6

Table-6: Leadership Styles of Deputy General Managers and Assistant General Managers as perceived by their subordinates

Sl.No.	Leadership Styles	Deputy General Managers			Assistant General Managers			't' value
		Mean	N	SD	Mean	N	SD	
1	Authoritarian (A)	24.1	16	6.5	32.5	24	7.7	3.7
2	Participative (P)	40.6	16	6.6	33.8	24	6.3	3.3
3	Bureaucratic (B)	38.4	16	4.9	35.7	24	4.7	1.7
4	Task-oriented (T)	39.8	16	6.4	36.4	24	4.6	1.8
5	Nurturant (N)	42.0	16	4.4	38.7	24	3.8	2.5

Source: Compiled from field survey

Note: SD=Standard Deviation

Mean values of participative, bureaucratic, task-oriented and nurturant styles are higher for Deputy General Managers than Assistant General Managers, whereas mean value of authoritative style is higher for Assistant General Managers than Deputy General Managers. In bureaucratic and task-oriented styles, the Deputy General Managers and Assistant General Managers do not differ significantly as the 't' values of these styles are less than the critical value (B1.743, $P < 0.05$ and T1.792, $P < 0.05$). In authoritative, participative and nurturant styles, the Deputy General Managers and Assistant General Managers differ significantly as the 't' values of these styles are greater than the critical value (A3.709, $P < 0.05$; P3.247, $P < 0.05$ and N2.460, $P < 0.05$). Hence, the hypothesis "there is no significant difference among different leadership styles in the inter levels as perceived by their subordinates" is rejected.

B. Leadership Styles of Assistant General Managers and Senior Managers as perceived by their subordinates, is given in Table 7

Table-7: Leadership Styles of Assistant General Managers and Senior Managers as perceived by their Subordinates

Sl.No.	Leadership Styles	Assistant General Managers			Senior Managers			't' value
		Mean	N	SD	Mean	N	SD	
1	Authoritative (A)	32.5	24	7.7	31.4	48	7.6	0.6
2	Participative (P)	33.8	24	6.3	37.3	48	6.4	2.2
3	Bureaucratic (B)	35.7	24	4.7	35.5	48	6.4	0.2
4	Task-oriented (T)	36.5	24	4.6	37.0	48	6.1	0.5
5	Nurturant (N)	38.7	24	3.8	38.7	48	5.8	1.0

Source: Compiled from field survey

Note: SD=Standard Deviation

Mean values of authoritative and bureaucratic styles are higher for Assistant General Managers than Senior Managers, whereas mean values of participative and task-oriented styles are higher for Senior Managers than Assistant General Managers. The mean value of nurturant style is equal in Assistant General Managers and Senior Managers. In authoritative, bureaucratic, task-oriented and nurturant styles, the Assistant General Managers and the Senior Managers do not differ significantly as the 't' values of these styles are less than the critical value (A0.563, $P < 0.05$; B0.157, $P < 0.05$; T0.485, $P < 0.05$ and N1.00, $P < 0.05$). In participative style, the Assistant General Managers and the Senior Managers differ significantly as the 't' values of these styles are less than the critical value (P2.157, $P > 0.05$). Hence, the hypothesis "there is no significant difference among different leadership styles in the inter levels of officers as perceived by their subordinates" is accepted.

C. Leadership Styles of Senior Managers and Managers as perceived by their subordinates, is shown in Table 8.

Table-8: Leadership Styles of Senior Managers and Managers as Perceived by their Subordinates

Sl.No.	Leadership Styles	Senior Managers			Managers			't' value
		Mean	N	SD	Mean	N	SD	
1	Authoritative (A)	31.4	48	7.6	32.4	88	7.9	0.7

2	Participative (P)	37.3	48	6.4	35.8	88	8.5	1.1
3	Bureaucratic (B)	35.5	48	6.4	36.6	88	5.4	1.1
4	Task-oriented (T)	37.0	48	6.0	36.7	88	7.4	0.3
5	Nurturant (N)	38.7	48	5.8	36.9	88	7.7	1.5

Source: Compiled from field survey

Note: SD=Standard Deviation

Mean values of participative, task-oriented and nurturant styles are higher for Senior Managers than Managers, whereas mean values of authoritative and bureaucratic styles are higher for Managers than Senior Managers. In authoritative, participative, bureaucratic, task-oriented and nurturant styles, the Senior Managers and Managers do not differ significantly as the 't' values of these styles are less than the critical value (A0.686, $P < 0.05$; P1.143, $P < 0.05$; B1.066, $P < 0.05$; T0.28, $P < 0.05$ and N1.54, $P < 0.05$). Hence, the hypothesis "there is no significant difference among different leadership styles in the inter levels of officers as perceived by their subordinates" is accepted.

- D. Leadership Styles of Managers and Assistant Managers as perceived by their subordinates, is shown in Table 9

Table-9: Leadership Styles of Managers and Assistant Managers as perceived by their subordinates

Sl.No	Leadership Styles	Managers			Assistant Managers			't' value
		Mean	N	SD	Mean	N	SD	
1	Authoritarian (A)	32.4	88	7.9	31.6	118	8.3	0.7
2	Participative (P)	35.8	88	8.5	35.1	118	6.9	0.6
3	Bureaucratic (B)	36.6	88	5.4	37.1	118	4.7	0.6
4	Task-oriented (T)	36.7	88	7.4	37.6	118	5.4	0.9
5	Nurturant (N)	36.9	88	7.6	39.5	118	5.5	2.8

Source: Compiled from field survey

Note: SD=Standard Deviation

Mean values of authoritative and participative styles are higher for Managers than Assistant Managers, whereas mean values of task-oriented, nurturant and bureaucratic styles are higher for Assistant Managers than Managers. In authoritative, participative, bureaucratic, and task-oriented styles, the Managers and Assistant Managers do not differ significantly as the 't' values of these styles are less than the critical value (A0.667, $P < 0.05$; P0.602, $P < 0.05$; B0.622, $P < 0.05$ and T0.91, $P < 0.05$). In nurturant style, the Managers and Assistant Managers differ significantly as the 't' values of these styles are greater than the critical value (N2.764, $P > 0.05$). Hence, the hypothesis "there is no significant difference among different leadership styles in the inter levels of officers as perceived by their subordinates" is rejected.

- E. Leadership Styles of Assistant Managers and Engineers as perceived by their subordinates, is shown in Table 10.

Table-10: Leadership Styles of Assistant Managers and Engineers as Perceived by their Subordinates

Sl.No.	Leadership Styles	Assistant Managers			Engineers			't' value
		Mean	N	SD	Mean	N	SD	
1	Authoritarian (A)	31.6	118	8.3	31.9	97	8.8	0.3

2	Participative (P)	35.1	118	6.9	35.6	97	7.3	0.5
3	Bureaucratic (B)	37.1	118	4.7	34.5	97	6.5	3.3
4	Task-oriented (T)	37.6	118	5.4	38.3	97	6.0	0.9
5	Nurturant (N)	39.5	118	5.5	37.9	97	7.1	1.8

Source: Compiled from field survey

Note: SD=Standard Deviation

Mean values of bureaucratic and nurturant styles are higher for Assistant Managers than Engineers, whereas mean values of task-oriented, authoritative and participative styles are higher for Engineers than Assistant Managers. In authoritative, participative, task-oriented and nurturant styles, the Managers and Assistant Managers do not differ significantly as the 't' values of these styles are less than the critical value (A0.297, $P < 0.05$; P0.457, $P < 0.05$; T0.921, $P < 0.05$ and N1.778, $P < 0.05$). In bureaucratic style, the Managers and Assistant Managers differ significantly as the 't' value of these styles are greater than the critical value (B3.311, $P > 0.05$). Hence, the hypothesis "there is no significant difference among different leadership styles in the inter levels of officers as perceived by their subordinates" is rejected.

Group III. Leadership styles as judged by the leader himself and as Perceived by his Subordinates.

With a view to find out difference between leadership style of a superior, as judged by the superior himself and as judged by his immediate subordinates, the analysis was done at six levels viz., Deputy General Manager, Assistant General Manager, Senior Manager, Manager, Assistant Manager and Engineer. Self reported scores were juxtaposed with the scores on leader behavior scores for each level. First, for the Deputy General Manager level, the leader's self perception scores were juxtaposed with the average score on subordinates (Assistant General Managers) perception on superior style. Second, for the Assistant General Manager level, the leader's self perception scores were juxtaposed with the average score on subordinates (Senior Managers) perception on superior style. Third, for the Senior Manager level, the leader's self perception scores were juxtaposed with the average score on subordinates (Managers) perception on superior style. Fourth, for the Manager level, the leader's self perception scores were juxtaposed with the average score on subordinates (Assistant Managers) perception on superior style. Fifth, for the Assistant Manager level, the leader's self perception scores were juxtaposed with the average score on subordinates (Engineers) perception on superior style. Sixth, for the Engineer level, the leader's self perception scores were juxtaposed with the average score on subordinates (Assistant Engineers) perception on superior style. To compute this 't' test was used to find out the significant difference between the leader's self perception and as perceived by their subordinates.

- A. Leadership Styles of Deputy General Managers self reported and as perceived by their Subordinates, is shown in Table 11

Table 11: Leadership Styles of Deputy General Managers and as Perceived by their Subordinates

Sl.No.	Leadership Styles	Self judgment			Judged by their subordinates			't' value
		Mean	N	SD	Mean	N	SD	

1	Authoritarian (A)	30.3	8	6.9	24.1	16	6.5	2.1
2	Participative (P)	44.0	8	4.8	40.6	16	6.6	1.4
3	Bureaucratic (B)	37.4	8	9.9	38.4	16	4.9	0.3
4	Task-oriented (T)	44.3	8	4.1	39.8	16	6.4	2.1
5	Nurturant (N)	47.0	8	2.1	42.0	16	4.4	3.7

Source: Compiled from field survey

Note: SD=Standard Deviation

The mean values of authoritative, participative, task-oriented and nurturant styles are higher for Deputy General Managers than judged by his subordinates, whereas mean values of bureaucratic style is higher for Deputy General Managers subordinates than self judgment. The Participative and bureaucratic styles of the Deputy General Managers' as perceived by their immediate subordinates do not differ significantly as the 't' values of these styles are less than the critical values (P1.429, $P < 0.05$ and B0.268, $P < 0.05$). The authoritative, task-oriented and nurturant styles of the Deputy General Managers' self judgment as perceived by their immediate subordinates differ significantly as the 't' values of these styles are greater than the critical value (A2.079, $P < 0.05$; T2.093, $P < 0.05$ and N3.723, $P < 0.05$). Hence, the hypothesis "there is no significant difference in the leadership styles of Deputy General Managers as judged by the leader himself and as perceived by their subordinates" is rejected.

- B. Leadership Styles of Assistant General Managers self reported and as perceived by their Subordinates, is shown in Table 12

Table-12: Leadership Styles of Assistant General Managers and as Perceived by their Subordinates

Sl.No.	Leadership Styles	Self judgment			Judged by their subordinates			't' value
		Mean	N	SD	Mean	N	SD	
1	Authoritarian (A)	31.0	16	7.2	32.5	24	7.7	0.6
2	Participative (P)	42.6	16	5.5	33.8	24	6.3	4.7
3	Bureaucratic (B)	38.8	16	4.1	35.7	24	4.7	2.2
4	Task-oriented (T)	40.5	16	5.7	36.4	24	4.6	2.4
5	Nurturant (N)	43.9	16	5.6	38.7	24	3.8	3.6

Source: Compiled from field survey

Note: SD=Standard Deviation

The mean values of participative, bureaucratic task-oriented and nurturant styles are higher for Assistant General Managers than judged by their subordinates, whereas mean values of authoritative styles by Assistant General Managers' subordinates than self judgment. The authoritative style of the Assistant General Managers' and as perceived by their immediate subordinates do not differ significantly as the 't' values of these styles are less than the critical value (A0.626, $P < 0.05$). The participative, bureaucratic, task-oriented and nurturant styles of the Assistant General Managers' self judgment and as perceived by their immediate subordinates differ significantly as the 't' values of these styles are higher than the critical value (P4.672, $P > 0.05$; B2.215, $P > 0.05$; T2.378, $P > 0.05$ and N3.257, $P > 0.05$). Hence, the hypothesis "there is no significant difference in leadership styles of assistant general managers as judged by the leader himself and as perceived by their subordinates" is rejected.

- C. Leadership Styles of Senior Managers and as perceived by their Subordinates, is shown in Table 13.

Table-13: Leadership Styles of Senior Managers and as judged by their Subordinates

Sl.No.	Leadership Styles	Self judgment			Judged by their subordinates			't' value
		Mean	N	SD	Mean	N	SD	
1	Authoritarian (A)	33.0	24	6.9	31.4	48	7.7	0.9
2	Participative (P)	40.0	24	3.8	37.6	48	6.4	2.3
3	Bureaucratic (B)	33.6	24	9.0	35.5	48	6.4	0.9
4	Task-oriented (T)	38.9	24	3.9	37.1	48	6.1	1.6
5	Nurturant (N)	40.8	24	4.5	38.7	48	5.8	1.6

Source: Compiled from field survey

Note: SD=Standard Deviation

The mean values of authoritative, participative, task-oriented and nurturant styles are higher for Senior Managers than perceived by their subordinates, whereas mean values of bureaucratic style is higher as perceived by subordinates than self judgment. There is no significant difference in authoritative, bureaucratic, task-oriented and nurturant styles of the Senior Managers' and as perceived by their immediate subordinates as the 't' values of these styles are less than the critical values (A0.879, $P < 0.05$; B0.911, $P < 0.05$; T1.585, $P < 0.05$ and N1.758, $P < 0.05$). The participative style of the Senior Managers' self judgment and as perceived by their immediate subordinates differ significantly as the 't' values of these styles are greater than the critical value (P2.282, $P < 0.05$). Hence, the hypothesis "there is no significant difference in leadership styles of senior managers as judged by the leader himself and as perceived by their subordinates" is rejected.

- D. Leadership Styles of Managers and as perceived by their subordinates, is shown in Table 14

Table-14: Leadership Styles of Managers and as Judged by their Subordinates

Sl. No.	Leadership Styles	Self judgment			Judged by their subordinates			't' value
		Mean	N	SD	Mean	N	SD	
1	Authoritarian (A)	31.6	48	8.9	32.4	88	7.9	0.5
2	Participative (P)	40.9	48	4.9	35.8	88	8.5	4.5
3	Bureaucratic (B)	36.0	48	7.6	36.6	88	5.4	0.5
4	Task-orientation (T)	40.5	48	4.1	36.7	88	7.4	3.8
5	Nurturant (N)	41.6	48	3.5	36.9	88	7.6	5.0

Source: Compiled from field survey

Note: SD=Standard Deviation

Managers judged themselves to be participative, task-oriented and nurturant than judged by their subordinates, whereas mean values of authoritative and bureaucratic styles are higher in case of subordinates than judged by the Managers. The perceived authoritative and bureaucratic styles of the Managers' and as perceived by their immediate subordinates do not differ significantly as the 't' values of these styles are less than the critical value (A0.512, $P < 0.05$ and B0.467, $P < 0.05$). The

participative, task-oriented and nurturant styles of the managers' self judgment and as perceived by their immediate subordinates differ significantly as the 't' values of these styles are greater than the critical value (P4.464, $P>0.05$; T3.802, $P>0.05$ and N4.97, $P>0.05$). Hence, the hypothesis "there is no significant difference in leadership styles of Managers as judged by the leader himself and as perceived by their subordinates" is rejected.

E. Leadership Styles of Assistant Managers and as Perceived by their subordinates, is shown in Table 15

Table-15: Leadership Styles of Assistant Managers and as Judged by their Subordinates

Sl.No	Leadership Styles	Self judgment			Judged by their subordinates			't' value
		Mean	N	SD	Mean	N	SD	
1	Authoritarian (A)	32.2	88	6.6	31.6	118	8.3	0.6
2	Participative (P)	40.5	88	5.1	35.1	118	7.0	6.4
3	Bureaucratic (B)	38.2	88	6.4	37.1	118	4.7	1.5
4	Task-orientation (T)	41.3	88	3.4	37.6	118	5.4	6.0
5	Nurturant (N)	41.2	88	3.0	39.5	118	5.5	2.8

Source: Compiled from field survey

Note: SD=Standard Deviation

The mean values of authoritative participative, bureaucratic, task-oriented and nurturant styles are higher for Assistant Managers than judged by their subordinates. The authoritative and bureaucratic styles of the Assistant Managers' and as perceived by their immediate subordinates do not differ significantly as the 't' values of these styles are less than the critical value (A0.6, $P<0.05$ and B1.445, $P<0.05$). The participative, task-oriented and nurturant styles of the Assistant Managers' self judgment and as perceived by their immediate subordinates differ significantly as the 't' values of these styles are greater than the critical values (P6.430, $P>0.05$; T6.015, $P>0.05$ and N2.826, $P>0.05$). Hence, the hypothesis "there is no significant difference in leadership styles of Assistant Managers as judged by the leader himself and as perceived by their subordinates" is rejected.

F. Leadership Styles of Engineers and as perceived by their subordinates, is shown in Table 16

Table-16: Leadership Styles of Engineers and as Judged by their Subordinates

Sl.No	Leadership Styles	Self judgment			Judged by their subordinates			't' value
		Mean	N	SD	Mean	N	SD	
1	Authoritative (A)	34.8	118	6.6	31.9	97	8.8	1.9
2	Participative (P)	39.3	118	6.3	35.5	97	7.3	3.9
3	Bureaucratic (B)	39.6	118	5.8	34.5	97	6.5	5.9
4	Task-oriented (T)	40.4	118	4.6	38.3	97	6.0	2.8
5	Nurturant (N)	42.1	118	3.7	37.9	97	7.1	5.2

Source: Compiled from field survey

Note: SD=Standard Deviation

The mean values of authoritative, participative, bureaucratic, task-oriented and nurturant styles are higher for Engineers than judged by their subordinates. The authoritative style of Engineers' and as perceived by their immediate subordinates do not differ significantly as the 't' values of these styles are less than the critical value (A1.848, $P<0.05$). The participative, bureaucratic, task-oriented and nurturant styles of Engineers' and as perceived by their immediate subordinates differ significantly as the 't' values of these styles are greater than the critical values (P3.939, $P>0.05$; B5.924, $P>0.05$; T2.798, $P>0.05$ and N5.177, $P>0.05$). Hence, the hypothesis "there is no significant difference in leadership styles of Engineers as judged by the leader himself and as perceived by their subordinates" is rejected.

Findings

The issues investigated in this analysis are: whether there are any differences among leadership styles at inter-levels of managers and also to find out the difference among leadership styles as judged by the leader himself and as perceived by his immediate subordinates. The following are the major findings of the analysis.

In BEM, no significant difference is found among different leadership styles at various levels and its self-perception by Deputy General Managers, Assistant General Managers, Senior Managers, Managers and Assistant Managers. Leadership styles of Assistant Managers, Engineers, Assistant General Managers, Senior Managers differ significantly.

- A significant difference is found among different leadership styles as perceived by their subordinates of Deputy General Managers, Assistant General Managers, Managers, Assistant Managers and Engineers.
- No significant difference is found among different leadership styles as perceived by their subordinates at Senior Managers as well as Managers.
- A significant difference is found in leadership styles at Deputy General Managers, Assistant General Managers, Senior Managers, Managers, Assistant Managers and Engineers as judged by the leader himself and as judged by their immediate subordinates.

Conclusions

- The analysis of self perception in BEM revealed that at officers' level, the dominant style is nurturant, followed by task-oriented, participative, bureaucratic and authoritative styles.
- The analysis of subordinates' perception on superior styles, observed that at officers' level, the dominant style is 'nurturant', followed by 'task-oriented', 'bureaucratic', 'participative' and 'authoritative' styles.
- At officers' level, a significant difference is noticed in leadership styles as judged by the leader himself and as perceived by their subordinates.

Suggestions

Leadership is the most pervasive activity touching every facet of human existence. However, leadership is affected by innumerable variables creating an incomprehensive picture. Thus, it had become very difficult to adopt a particular concept, construct, and style. Nevertheless, ineffective leadership to the organisational context would definitely create an environment of poor relationships and lower turnover. Owing to these complexities, the major suggestion that can be made is that the

knowledge and practice of leadership is to be taught preferably from lower levels of education. Irrespective of the sector, activity and operation, the leadership is to be strengthened, so as to achieve the desired results. However, there cannot be a uniform package of leadership that can be suggested to deal with all the organisational situations due to their wide variance. Therefore, the organizations should also create congenial environment, wherein the leader realizes his/her role and discharge responsibility to fulfill the individual as well as organisational goals.

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Understanding Talent Management in Borderless World

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ARTICLE INFO

Article history:

Received 18th Dec. 2013

Accepted 30th Dec. 2013

Keywords:

Borderless,
Human,
Individual,
Management,
Talent,
World

ABSTRACT

Organizations are notorious for under-utilizing the talent that they have. Rarely are the organizations able to synthesize in a way that capitalize on the skills and knowledge that the individuals possess when they come in the organization. While discrete silos of information exist – and scattered efforts persist, there is no holistic picture of the individual and the talent both latent and apparent. This hinders effective talent management in a borderless world. It is nearly unanimous that HR can and should add more value to organizations. The best way to do this is by being a business partner - by directly improving the performance of the business. This can be accomplished by effective talent management, helping with change management, influencing strategy and a host of other value-added activities that impact effectiveness (Lawler, III, E. E. 2005). Data around the individual grows as the employee cycles through the organization. To ensure that this growing circle of data about the employee is sustained and available to those who can benefit in decision-making through that knowledge, there is crucial need for understanding talent management. This is the core of this paper. Based on in depth literature review, contextual analysis the paper aims to understand what constitutes talent management in a borderless world. It traces the evolution of talent management, compares the old vs. new realities in organizations, discusses linkage of talent to strategy and throws light on critical issues of global talent management.

Introduction

Organizations are notorious for under-utilizing the talent that they have. Today's various human capital-related systems capture data, but rarely is it synthesized in a way that capitalizes on the skills and knowledge that the individual brings to the organization. While discrete silos of information exist – such as the hiring management system, the training management system, the HRIS system or the performance management system, etc. there is no holistic picture of the individual or the talent both latent and apparent therein. It is nearly unanimous that HR can and should add more value to corporations. The best way to do this is by being a business partner—by directly improving the performance of the business. This can be accomplished by effective talent management, helping with change management, influencing strategy and a host of other value-added activities that impact effectiveness (Lawler, III, E. E., 2005).

The concept sounds simple, doesn't it? But often those who work with only one aspect of the individual fail to see the whole picture of that individual — when that picture would be useful. The cause: deployment of fragmented applications. These applications exist throughout the organization, ranging from sourcing, hiring, onboarding, performance evaluation, learning management, salary history, to total rewards—often disparate and disconnected. In order to create a talent-driven environment (that begins before the candidate even walks in the door), you will have to be able to know the skills and competencies that a person brings with him or her. The data around the individual grows as the employee cycles through the organization, gaining new skills, getting bonuses or rewards, taking training, changing positions or roles, or participating in outside volunteer work, to name a few. Not only do employees' capabilities change over time, their career needs and wants also change. For example, workers may at times want more challenging assignments to foster career growth. To ensure that this growing circle of data about the employee is sustained and available to those who can benefit in decision-making through that knowledge, one employee statement of record must exist. This integration is accommodated by technology. Without it, employee management is piecemeal, and decisions concerning the workforce remain in silos and hence

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ISSN : 2230 – 9764

Doi: <http://dx.doi.org/10.11127/gmt.2013.12.02>

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ineffective. A key reason to go beyond standard data collection (and really know your employees) is the fact that 71% of those employed throughout the recession of 2008 – 2011 reported that they planned on —“jumping ship” once the economy improved and were increasingly aggressive in seeking positions elsewhere. 45% reported a decrease in loyalty to their employer, demonstrating the recessionary impact on a trend that has been rampant for some time (¹The Recession from the Worker’s Perspective, Human Capital Institute and Monster. 2009. Page 7.). Never has there been a time when the value of knowing your employees has been more crucial. Better firms must act now to identify, know and retain all employees, not just their high performers. It is acquisition and integration of employee data that makes HR and business management excellence coalesce. Traditional areas of data collection are often in separate databases or files, and the bigger areas can only be determined by “connecting the dots” on the information available about the employee.

Silos must be surpassed for HR to ensure:

- Alignment between corporate goals and the individual’s goals
- Retention risks are identified and mitigation methods crafted
- The capability to measure the brand value the employee is bringing to the company through his or her outside or volunteer activities
- The validation equity and fairness in relation to total rewards.

Integrated employee information is the first step: Visibility is required into all aspects of the employee. Growth in skills, knowledge, increasing acceptance of responsibility, tangible and intangible value to a group or the wider organization are all



Figure 1: Integrated Talent Management Value

Source: Adapted from Vital Analysis. 2011. TechVentive, Inc.

aspects to be retained. Integrated systems allow more complete understanding of the employee than existed previously, allowing all those who work with the employee and with employee data to both see and do more.

Talent management systems have blossomed into the *de facto* employee system of record within many organizations, because they have captured and retained the objectives for an employee’s position, the success that employee had in meeting those objectives, and the total history of the employee in the organization — training results, positions held, awards won, and the like. Because it is integrated and accessible, the value of the information has far greater potential use

than ever before. Only now can HR leaders truly become responsible for the organization’s lifeblood: its talent.

Understanding Talent Management

Successful organizations, guided by knowledgeable boards of directors and led by capable executive directors do not simply plan for succession, they “manage their talent” in such a way that succession is viewed as a natural progression. Even an unexpected lapse in leadership is seen as more of an opportunity than a crisis. That approach may seem difficult to embrace if your organization is fortunate to have an inspirational, model leader. But like it or not, Baby Boomers retire and unexpected things happen in life that impact employment. Now and in the future the board’s monitoring of management and succession planning processes will likely come under higher scrutiny.

In the past, organizations felt the need to keep their succession practices a secret from their workforce. Today, most companies are informing their employees about their plans and keeping them engaged in the process. This includes making the practices more transparent to a larger group of decision makers as well as the high-potential candidate(s) being developed for a future leadership position(s). Staff will have less difficulty accepting new individuals brought into their department because they understand it is a part of a larger organizational plan. Agencies will face fewer challenges hiring and promoting people because of the transparency. The image presented to prospective employees will be that of a modern organization and one that cares about its people. Donors and funding groups will be assured that executive continuity, and therefore the continuity of the mission, is receiving high priority.

Talent management facilitates genuine development of employees for both their own benefit and that of the organization. After identifying talented employees, a smart agency will train and support those individuals in a way that moves their career forward. The agency’s efforts will be reciprocated by employees who go the extra mile and stick around longer with the understanding that they have a future in the organization. Organizations know that they must have the best talent in order to succeed in the hypercompetitive and increasingly complex global economy. Along with the understanding of the need to hire, develop, and retain talented people, organizations are aware that they must manage talent as a critical resource to achieve the best possible results. Few, if any, organizations today have an adequate supply of talent. Gaps exist at the top of the organization, in the first- to midlevel leadership ranks, and at the front lines. Talent is an increasingly scarce resource, so it must be managed to the fullest effect. New pressures are put on the talent running our organizations. Are today’s leaders able to do more with less? The A-players can, and there should be a strategic emphasis on keeping those leaders—and developing their successors. Many organizations are reducing their workforces, but let’s be careful not to cut so deep that talent is scarce when the economy rebounds.

The idea of managing talent is not new. Four or five decades ago, it was viewed as a peripheral responsibility best relegated to the personnel department. Now, talent management is an organizational function that is taken far more seriously. The emphasis on talent management is inevitable given that, on average, companies now spend over one-third of their revenues on employee wages and benefits. Your organization can create a new product and it is easily copied. Lower your prices and competitors will follow. Go after a lucrative market and someone is there right after you, careful to avoid making your initial

mistakes. But replicating a high-quality, highly engaged workforce is nearly impossible. The ability to effectively hire, retain, deploy, and engage talent—at all levels—is really the only true competitive advantage an organization possesses.

Talent Management Defined

There is no shortage of definitions for this term, used by corporate leadership the world over. With a nod to other points of view, talent management can be defined as "a mission critical process that ensures organizations have the quantity and quality of people in place to meet their current and future business priorities". However, 'Talent' constitutes of: *competencies* (a cluster of related behaviors that is associated with success or failure in a job), *personal attributes* (personal dispositions and motivations that relate to satisfaction, success, or failure in a job), *knowledge* (technical and/or professional information associated with successful performance of job activities) and *experience* (educational and work achievements associated with successful performance of job activities and the process covers all key aspects of an employee's "life cycle:" selection, development, succession and performance management.

Therefore, in a competitive marketplace, talent management is a primary driver for organizational success. Broadly defined, talent management is the implementation of integrated strategies or systems designed to increase workplace productivity by developing improved processes for attracting, developing, retaining and utilizing people with the required skills and aptitude to meet current and future business needs. Key components of a highly effective talent management process include:

- A clear understanding of the organization's current and future business strategies.
- Identification of the key gaps between the talent in place and the talent required to drive business success.
- A sound talent management plan designed to close the talent gaps. It should also be integrated with strategic and business plans.
- Accurate hiring and promotion decisions.
- Connection of individual and team goals to corporate goals, and providing clear expectations and feedback to manage performance.
- Development of talent to enhance performance in current positions as well as readiness for transition to the next level.
- A focus not just on the talent strategy itself, but the elements required for successful execution.
- Business impact and workforce effectiveness measurement during and after implementation.

Internal Review

To get started, assess what you're doing now to take care of your future talent. These questions can help you gain insight into areas which need strengthening in your current process, demonstrate the importance of investing in succession planning and build board/staff support for succession planning.

1. What percentage of your employee base could retire within the next five years?
2. What is your average turnover/tenure rate?
3. Is there data from exit interviews, performance reviews?
4. How is internal talent with a high potential to take on leadership roles identified?
5. How does monitoring of performance and support their growth?

6. How long would it take to fill a critical vacancy?
7. Is there a clash in priorities or even values?
8. Who would advertise, interview and make recommendations?
9. Would the person performing those tasks be working from a mutually agreed upon set of values and goals?
10. Would the focus be on replacing the individual, or searching for their opposite, or search based on objective qualities determined by a consensus of stakeholders after considering the organization's future needs?
11. What problems or obstacles (e.g., poor assimilation procedures, lack of leadership support) might successors encounter?

Strong talent management plans have certain strategic actions and processes in common. These plans:

1. Receive visible support from the executive director, top management and board
2. Identify key leadership criteria using focus groups and industry best practices
3. Motivate future leaders by providing interesting assignments that stretch and challenge
4. Go beyond a strict compensation-reward system
5. Are simple and tailored to unique organizational needs
6. Assign specific responsibility within the organization for reviewing and overseeing the progress of employees
7. Incorporate employee input
8. Ensure Succession Management reinforces the corporate culture and the company's core values
9. Emphasize accountability and follow-up

The first step in developing a talent management plan is to assess key positions in the organization, and not just management positions. Positions with responsibilities that are crucial to the daily functions or key services of the organization, particularly in the areas of technical and professional jobs where companies are increasingly short-handed, and critical business positions that deliver the most strategic value to the organization, should be the highest priorities for review. The question for organization is: What are the roles that are critical to the implementation of our mission?

Prioritize positions based on the risk each vacancy presents to the organization (e.g., urgency of time-to-fill, overall impact on the business, the extent to which skill sets are available in the external labor market, etc.). There should not be confusion of a critical role with a top performer or a current employee; focus should be on the key position. Make sure there is a shared definition of what constitutes a critical role or key position. Emphasize that a position or department may be critical regardless of how well the people in that position or department happen to be performing.

Once there is consensus on the critical roles, there is a need to develop a success profile for each position. Identify the knowledge, skills, abilities and experiences necessary for a critical role. Understand the personal characteristics that define success as well; for example, strong leaders are adaptive, inspirational, motivational, decisive, innovative, able to prioritize, and possess vision and direction. It is important to concentrate on that role, not the current incumbent or potential successor. Determine what measureable outcomes would reflect an adequate level of performance versus a superior level of performance. Create success profiles for each key position using

existing data, interview responses, and external benchmarks. Profiles should define the knowledge, skills, abilities, and experiences that are necessary to perform the key positions successfully.

Some sources of data to consider are:

- Review existing job descriptions.
- Interview managers and incumbents to understand what distinguishes outstanding performance from acceptable performance in key positions.
- Inquire about the types of experiences one would need to have in order to prepare for these key positions.
- Compare similar positions in comparable organizations and industries to determine hot skills and trends that should be considered for success profiles.

The structural forces driving the war for talent, then, are inexorable and widespread. The economic and demographic forces are replicated in many developed countries. The war for talent is creating a new business reality. Figure 2 gives the old and new reality.

From the above figure it is clear that today companies need people and talent is not only a scarce resource but also a competitive advantage. In view of this there is altogether a fundamental shift and new way of managing talent. The crucial imperatives, taken together, then are:

1. All managers right from CEO are accountable for strengthening their talent pool
2. Need to shape the company, jobs, even strategy to appeal to talented people
3. Recruiting is like marketing
4. Need to fuel development primarily through stretch jobs, coaching, and mentoring
5. Need to affirm all people, but invest differentially in A, B, and C players

Organizations have been talking about the connection between great employees and superior organizational performance for decades. Hence, why there is so much emphasis on managing talent now? There are several drivers fueling this emphasis:

- There is a demonstrated relationship between better talent and better business performance. Increasingly, organizations seek to quantify the return on their investment in talent. The result is a body of “proof” that paints a compelling picture of the impact talent has on business performance. To highlight just a few:
 - i. A study from IBM found public companies that are more effective at talent management had higher percentages of financial outperformers than groups of similar sized companies with less effective talent management. (Bassi, L. & McMurrer, D. 2006)
 - ii. Similarly, a 2006 research study from McBassi & Co. revealed that high scorers in five categories of human capital management (leadership practices, employee engagement, knowledge accountability, workforce organization, and learning capacity) posted higher stock market returns and better safety records—two common business goals that are top of mind for today’s senior leadership.



Figure 2: Old vs. New Reality

- Talent is a rapidly increasing source of value creation.
- The context in which we do business is more complex and dynamic. Hyper-competition makes it more difficult than ever to sustain a competitive advantage long term. New products—and new business models—have shorter life cycles, demanding constant innovation. Technology enables greater access to information and forces us to move “at the speed of business.” Global expansion adds to these challenges—a single company may, for example, have its headquarters in Japan, its R&D function in India, and its worldwide sales operations based in California.
- Boards and financial markets are expecting more. *Strategy + Business* magazine once described CEOs as “the world’s most prominent temp workers.” (Lucier, C., Schuyt, R., & Tse, E. 2005)
- Employee expectations are also changing. This forces organizations to place a greater emphasis on talent management strategies and practices. Employees today are:
 1. Increasingly interested in having challenging and meaningful work.
 2. More loyal to their profession than to the organization.
 3. Less accommodating of traditional structures and authority.
 4. More concerned about work-life balance.
 5. Prepared to take ownership of their careers and development.
 6. Workforce demographics are evolving. Organizations wage a new “war for talent” these days. Today, 60 percent of the workers over the age of 60 are electing to postpone their retirement due to the financial crisis. *Career builder survey* (2009)

Evolution of Talent Management

To understand why talent management has become so

important, it is important to understand the three stages of evolution (Figure 3):

1. **Personnel Department:** In the 1970s and 1980s the business function which was responsible for people was called "The Personnel Department." The role of this group was to hire people, pay them, and make sure they had the necessary benefits. The systems which grew up to support this function were batch payroll systems. In this role, the personnel department was a well understood *business function*.

2. **Strategic HR:** In the 1980s and 1990s organizations realized that the HR function was in fact more important - and the concepts of "Strategic HR" emerged. During this period organizations realized that the VP of HR had a much larger role: recruiting the right people, training them, helping the business design job roles and organization structures (organization design), develop "total compensation" packages which include benefits, stock options and bonuses, and serving as a central point of communication for employee health and happiness. The "Head of Personnel" became the "VP of HR" and had a much more important role in business strategy and execution. The systems which were built up to support this new role include recruiting and applicant tracking (ATS), portals, total compensation systems, and learning management systems. In this role, the HR department now became more than a business function: it is a *business partner*, reaching out to support lines of business.

3. **Talent Management:** This is what new era organizations are now entering: the emergence of "Talent Management." While strategic HR continues to be a major focus, HR and L&D organizations are now focused on a new set of strategic issues:

- How can we make our recruiting process more efficient and effective by using "competency based" recruiting instead of sorting through resumes, one at a time?
- How can we better develop managers and leaders to reinforce culture, instill values, and create a sustainable "leadership pipeline?"
- How do we quickly identify competency gaps so we can deliver training, e-learning, or development programs to fill these gaps? How can we use these gaps to hire just the right people?
- How do we manage people in a consistent and measurable way so that everyone is aligned, held accountable, and paid fairly?
- How do we identify high performers and successors to key positions throughout the organization to make sure we have a highly flexible, responsive organization?
- How do we provide learning that is relevant, flexible, convenient, and timely?

These new, more challenging problems require new processes and systems. They require tighter integration between the different HR silos - and direct integration into line of business management processes. Today organizations are starting to buy, build, and stitch together performance management systems, succession planning systems, and competency management systems. The HR function is becoming *integrated with the business* in a real-time fashion.

Linking Talent to Strategy

The best talent management programs always start with strategy. Knowing where the business is headed - and how it's organized - is the only way to understand the future demands on

employees and leaders. This should inform your talent management strategy. If a company doesn't link talent management to strategy it cannot know what skills it will need in the future. This is how many companies have ended up with generic pools of high-potential leaders who lack the right skills for the roles the firm now needs to fill. This failure to grasp future talent requirements affects an organization's ability to react to changing market conditions. Left unchecked it can even threaten its long-term survival.

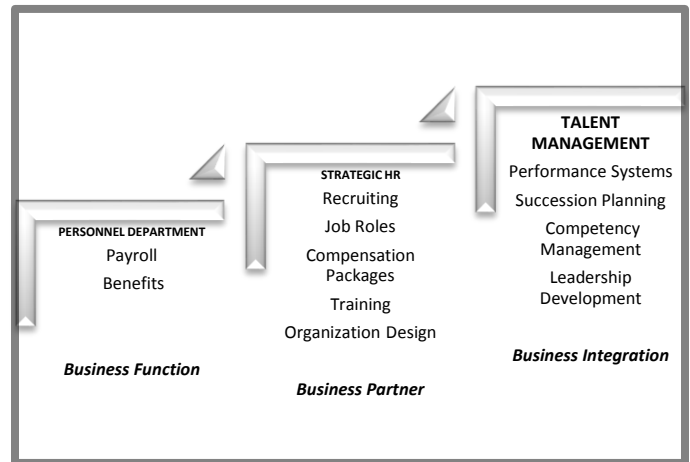


Figure 3: Evolution of Talent Management

It is vital to remember that new strategies demand new skills. When a global financial services company moved to a more matrixed structure, its leaders needed new skill sets. Before, the firm's individual units had worked as separate businesses, totally focused on achieving results at the operating company level. Most jobs focused on execution. The leaders, who competed with each other for capital, talent and other resources, excelled at this. However the firm's change in strategy called for leaders who could work as general managers, not just operating heads. They needed to be able to shape strategy, not just execute someone else's. And they had to be able to link it to the broader strategy of the whole organization. This brief illustration shows the profound effect that strategic shifts can have on the skills demanded of leaders.

Once the strategy and operating model is understood, the organization can start to scope out the type and number of roles that will be needed to deliver its strategy efficiently. At this point, as well as considering any new roles that may be required, it is also appropriate to review existing roles and see whether or not they can be redesigned to maximize efficiency. For example, if there are 200 executive positions and 40 per cent of them are due to retire in the next five years a key question to ask is: by changing organization and job design, could the organization run just as effectively with only 120 executives?

This work involves understanding what roles are needed and assessing whether the company already has the right people with the right skills to handle them. When carrying out this assessment, it's critical to be clear and objective not only about people's current abilities, but also the skills and competencies that will be needed to make for success in future roles. Understanding future role requirements may also dictate whether the organization seeks to grow talent internally, bring in external hires, or partner with other organizations in order to get the right people onboard.

It's also important to understand what talent management

means different things to different companies and not every industry has the same need for talent management. In some industries it provides a key competitive advantage; in others it's purely the cost of doing business. For example, it may simply be too expensive for a retail company operating on tight margins to develop talent internally, while growing internal talent may be a prerequisite in an R&D-focused pharmaceutical company.

Global Talent Management

Global competition for skilled workers is keen; worldwide, many employers are experiencing a talent shortage. A survey of nearly 33,000 employers in 23 countries reveals that 40% are struggling to locate qualified candidates (Manpower (2006). With the liberation of trade policies, transnational companies moving production to low-cost areas and the corresponding growth of global supply chains, increased globalization has resulted in socio-economic and cultural challenges. Further, talent now takes many forms, from migrants crossing borders (temporarily or seeking new homes), students gaining degrees and expatriates on assignment to tourists, refugees and business travelers. Consequently, the demand for skills has countries working hard to develop policies that will attract talent with human and technological skills to support economic growth, retain talent and even reverse talent migration. In a "reverse brain drain" effect, China and India, for example, encourage their educated nationals to return and fill jobs at home (Kuptsch, C., & Pang, E. F. 2006).

Thus, the need for talent creates movement between countries. The United States relies on foreign talent, particularly in certain fields. U.S. universities, for example, are not graduating enough U.S. students in science and engineering, and by 2010, 25% of the nation's scientists and engineers will reach retirement age. Reflecting this shift, in 2000, 22% of all U.S. science and engineering positions were held by foreign-born professionals, up from 14% in 1990 (BEST. 2004). In contrast, countries such as China and India have a wealth of talent in science, engineering and technology. Each year, China produces 350,000 graduate engineers and India 120,000, compared with 63,000 in the United States (Gandossy, R., & Kao, T. 2004). In addition, the demand for foreign-born talent is further demonstrated by the fact that the total cap on the number of available H-1B visas under U.S. immigration policies is regularly reached months in advance of the application deadline. Clearly, the ability to attract and retain talent is increasingly important to long-term growth. Managing global talent has challenges and significant implications for sustainability and growth.

A recent study of global companies, for example, states that companies are concerned about the development of future leaders capable of navigating the global business environment. Key findings show that the most important determinant of global talent management (GTM) success is the degree of involvement by the CEO, the board of directors and the GTM leader in talent management activities. On average, for example, CEOs spend 16% of their time speaking publicly about GTM, mentoring high potentials, participating in talent reviews and approving the succession plans. Board members in 46% of companies provide input into assessment of key employees and 39% meet with high potentials during the year (IRC Survey, 2004). In sync with the trend to develop global HR policies and practices, organizations are creating global talent management processes. For example, at Intel Corporation, a global chip maker, HR utilizes a talent management program and works with management to assess workforce needs (Tucker, E., Kao, T., & Verma, N. 2005). Research

shows organizations value having global frameworks, specifically around a common language and structure in areas such as performance management, leadership development for high potentials and professional development. There is less agreement, however, about developing common frameworks for recruitment (Morton, L. 2005).

Conclusion

Anticipated workforce changes and cost-effective ways to access talent are key to the next generation of talent management. Predictive workforce monitoring will lead to effective strategic talent decision-making. Factors such as flexible talent sourcing, customized and personalized rewards, distributed and influential leadership, and unified and compassionate workplace cultures will be important for successful talent management. Companies will increasingly utilize different types of employment relationships, and nonstandard employment models will continue to evolve. Free agency employment relationships—contracting for the best talent on an as-needed basis—will become more common. To benefit from the knowledge, skills and corporate memory of mature workers, phased retirement will become prevalent. Keeping workers engaged—particularly the next generations—may call for HR to redesign the workweek, benefits packages and reward programs (Tucker, E., Kao, T., & Verma, N. 2005). Scenario planning and talent-match databases will become essential planning tools.

In closing, to sustain outstanding business results in a global economy, organizations will rethink and reinvent their approaches to talent management. Effective talent management calls for strong participatory leadership, organizational buy-in, employee engagement and workplace scorecards with talent management metrics. Companies that master talent management will be well-positioned for long-term growth in workforce performance for years to come.

To conclude, talent management has never been more of an immediate concern than it is right now. But in the rush to fill a perceived talent management void, organizations must be careful not to rush into implementing initiatives or programs that are more about taking action than about implementing a well-crafted solution. Careful planning, culminating in a sound talent strategy that is tightly connected to the organization's overall business strategies and business needs, is required for talent management to become ingrained in an organization's culture and practices. In all, a talent plan should include purposeful thought and intentional action, to both prepare and grow existing staff, and plan for unexpected vacancies. This fluid process allows organizations to take advantage of and even create opportunities to strengthen their staff, volunteers, board and organization. Only when this happens is it possible for talent management to be both effective and sustainable.

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Occupational Stress of the Employees at Work Place: An Empirical Study

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ARTICLE INFO

Article history:

Received 30th Nov. 2013

Accepted 30th Dec. 2013

Keywords:

Occupational Stress,
Frustrations,
Transformation,
Downsizing

ABSTRACT

Stress is an unavoidable consequence of modern living, because modern life is full of hassles, deadlines, frustrations, and demands. For many people, stress is so common that it has become a way of life. Stress is not always bad. In small doses, it can help perform under pressure and motivate to do the best, thereby to protect self reorganization. The advent of technological revolution in all walks of life coupled with globalisation, privatization and liberalization policies has drastically changed the conventional patterns in all sectors. The health care sector is of no exemption. During the past decade, the health care sector had under gone rapid and striking changes due to the entry of more private/corporate hospitals, downsizing, introduction of new technologies, etc have created a cut throat competitive environment. The implications of the above said transformations have affected the social, economic and psychological domains of the hospital employees and their relations. Due to these changes, the employees in the health care sector are experiencing a high level of stress. To identify the occupational stress level and its implication a survey was conducted in Vijayawada city of Andhra Pradesh. The result obtained was analysed using descriptive statistics and Pearson Correlation. The study concluded that employees of the selected hospitals are experiencing high degree of stress.

Introduction

The advent of technological revolution in all walks of life coupled with globalisation, privatization, and liberalization policies has drastically changed conventional patterns in all sectors. The health care sector is of no exemption. The radical policy changes with regarding to fiscal deficit and structural changes in India as to prepare to cope with the new economic world order. Globalisation and privatization led policies compelled the health care sector to reform and adjust to have a competitive edge to cope with multinationals led environment. The implications of the above said transformations have affected

the social, economic and psychological domains of the hospital employees and their relations. Evidence from existing literature states that more than 60% of the hospital employees have one or other problem directly or indirectly related to these drastic changes.

All the factors discussed above are prospective attributes to cause occupational stress and related disorders among the employees. Organizational life can be stressful. Beyond bullying and mobbing, individuals experience stress from a number of sources, including the work itself and the organizational environment. Work overload or underload, role ambiguity, and role conflict are just a few of the stressors employees experience from their tasks (K. I. Miller, Ellis, Zook, & Lyles, 1990).

Workplace Factors Causing Stress

The workplace is an important source of both demands and pressures causing stress, and structural and social resources to counteract stress. The workplace factors that have been found to be associated with stress and health risks can be categorized as

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ISSN : 2230 – 9764

Doi: <http://dx.doi.org/10.11127/gmt.2013.12.03>

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those to do with the content of work and those to do with the social and organisational context of work. Those that are intrinsic to the job include long hours, work overload, time pressure, difficult or complex tasks, lack of breaks, lack of variety, and poor physical working conditions. Unclear work or conflicting roles and boundaries can cause stress, as can having responsibility for people. The possibilities for job development are important buffers against current stress, with under promotion, lack of training, and job insecurity being stressful. There are two other sources of stress, or buffers against stress: relationships at work, and the organisational culture. Managers who are critical, demanding, unsupportive create stress, whereas a positive social dimension of work and good team working reduces it.

An organisational culture of unpaid overtime or work causes stress. On the other hand, a culture of involving people in decisions, keeping them informed about what is happening in the organisation, and providing good amenities and recreation facilities reduce stress. Organisational change, especially when consultation has been inadequate, is a huge source of stress. Such changes include mergers, relocation, restructuring or "downsizing", individual contracts, and redundancies within the organisation.

Review of Literature

Psychological demands of a job can have pervasive and profound emotional and physical effects on the lives of workers (Kahn, 1981; Karasek and Theorell, 1990; Matteson and Ivancevich, 1982). Cooper and Cartwright, 1994; Quick et al., 1997; Spielberger and Reheiser, 1994; Spielberger et al., 2002, has clearly established that job-related stress has an adverse impact on productivity, absenteeism, worker turnover and employee health. In addition to these severe consequences of stress-related problems in the workplace, reduced productivity and diminished customer services are hidden costs that often result from 'exhausted or depressed employees who are not energetic, accurate, or innovative at work' (Karasek and Theorell, 1990, p.167).

According to Michie, S. and Williams, S (2003), the health and community service sector (HCS) is a high-risk sector for job stress with negative consequences for both the individual and the organisation. In the broader literature there is strong evidence for the propositions that work organisation factors predict adverse health and other outcomes, even after controlling for other possible causes of the same outcomes such as socioeconomic status or personality characteristics. There is also significant evidence that various stress prevention or intervention strategies have demonstrated effectiveness in the prevention or control of work-related stress. Occupational stress can occur when there is a discrepancy between the demands of the environment/workplace and an individual's ability to carry out and complete these demands. NIOSH, 1999 and Henry, O. & Evans, A.J. 2008) clearly says that a stressor can lead the body to have a physiological reaction that can strain a person physically as well as mentally. A variety of factors contribute to workplace stress such as excessive workload, isolation, extensive hours worked, toxic work environments, lack of autonomy, difficult relationships among coworkers and management, management harassment and lack of opportunities or motivation to advancement in one's skill level (Colligan, Thomas W; Colligan MSW, & Higgins M, 2006).

Stress-related disorders encompass a broad array of conditions, including psychological disorders (e.g., depression, anxiety, post-traumatic stress disorder) and other types of

emotional strain (e.g., dissatisfaction, fatigue, tension, etc.), maladaptive behaviors (e.g., aggression, substance abuse), and cognitive impairment (e.g., concentration and memory problems). In turn, these conditions may lead to poor work performance, higher absenteeism, less work productivity or even injury. Job stress is also associated with various biological reactions that may lead ultimately to compromised health, such as cardiovascular disease, or in extreme cases death (NIOSH, 2007). Stress is a prevalent and costly problem in today's workplace. About one-third of workers report high levels of stress. One-quarter of employees view their jobs as the number one stressor in their lives. Three-quarters of employees believe the worker has more on-the-job stress than a generation ago. Evidence also suggests that stress is the major cause of turnover in organizations. With continued stress at the workplace, workers will develop psychological and physiological dysfunctions and decreased motivation in excelling in their position (Princeton Survey Research Associates, 1997).

A person's status in the workplace can also affect levels of stress. While workplace stress has the potential to affect employees of all categories; those who have very little influence to those who make major decisions for the organisation. However, less powerful employees (that is, those who have less control over their jobs) are more likely to suffer stress than powerful workers. Managers as well as other kinds of workers are vulnerable to work overload (Primm, 2005). Another study found that level of harassment at workplaces lead to differences in performance of work related tasks. High levels of harassment were related to the worst outcomes, and no harassment was related to least negative outcomes. In other words, women who had experienced a higher level of harassment were more likely to perform poorly at workplaces (Gyllensten, K, 2005).

St. Paul Fire and Marine Insurance Company conducted several studies on the effects of stress prevention programs in hospital settings. Program activities included (1) employee and management education on job stress, (2) changes in hospital policies and procedures to reduce organizational sources of stress, and (3) the establishment of employee assistance programs. In one study, the frequency of medication errors declined by 50% after prevention activities implemented in a 700-bed hospital. In a second study, there was a 70% reduction in malpractice claims in 22 hospitals that implemented stress prevention activities. In contrast, there was no reduction in claims in a matched group of 22 hospitals that did not implement stress prevention activities (Jones JW, Barge BN, Steffy BD, Fay LM, Kuntz LK, Wuebker LJ, 1988). Many researchers agree that we need to avoid a strategy based only on individual actions since these imply, albeit indirectly, that stress is solely dependent on the individual and that the working environment doesn't count for anything (Cooper et al., 2001; Giga et al. 2003; Lamontagne et al. 2007).

Cooper (1983; 1985) summarized and categorized six factors responsible for stress 1. Factors intrinsic to the job (heat, noise, chemical fumes, shift work); 2. Relationships at work (conflict with co-workers or supervisors, lack of social support); 3. Role in the organisation (for example, role ambiguity); 4. Career development (lack of status, lack of prospects for promotion, lack of a career path, job insecurity); 5. Organisational structure and climate (lack of autonomy, lack of opportunity to participate in decision making, lack of control over the pace of work); 6. Home and work interface (conflict between domestic and work roles; lack of spousal support for remaining in the workforce).

Occupational stress is an increasingly important occupational health problem and a significant cause of economic loss. Occupational stress may produce both overt psychological and physiologic disabilities. However it may also cause subtle manifestation of morbidity that can affect personal well-being and productivity (Quick, Murphy, Hurrell and Orman, 1992). A job stressed individual is likely to have greater job dissatisfaction, increased absenteeism, increased frequency of drinking and smoking, increase in negative psychological symptoms and reduced aspirations and self-esteem (Jick and Payne, 1980). The use of role concepts suggests that occupational stress is associated with individual, interpersonal and structural variables (Kutz and Kahn, 1978; Whetten, 1978).

Rationale of the study

The fact that employee stress is an increasing problem in almost all organizations has indeed been the driving force for a variety of researches on occupational stress. The literature on occupational stress recognizes its inevitability in many jobs where pressures of work begin to build up and cause adverse strain on the emotion of employees, their thought process and their physical condition. Explanations on occupational stress-whether temporary or long-term, mild or severe, have been advanced. Job-related causes of stress have been found to be emanating from workload, time pressure, poor quality of supervision, insecure organizational climate, multiple responsibilities, role conflict and ambiguity, lack of positive reinforcement and career development concern. It has also been explained that some jobs are more stress-causing, especially which involve rotating shift work, machine-paced task, routine and repetitive work or hazardous environment. Stress vulnerability has also been major focus to determine how stress effects differently across similar jobs. Three sets of factors causing occupational stress, i.e., environmental factors, organizational factors and individual factors have been examined in detail. The present research mainly emphasized to study the level of stress among skilled and unskilled workers. It has also emphasized on studying the role of skills in job stress.

Objectives of the study:

The following objectives have set for the study:

- to study the socio economic profile of the respondents,
- to examine the affect of stress on work life of the corporate hospital staff
- to putforth some suggestions based on the findings arrived to reduce the stress of the employees in the workplace .

Methodology

To fulfil afore said objectives, the data were collected from both primary sources as well as secondary sources. The secondary data were collected from various journals, books, periodicals and web. The primary data were collected with support of Occupational Stress Index (OSI) questionnaire which is designed by Srivastava, A.K., and Singh, A.P., (1981). The Occupational Stress Index questionnaire consists of 46 items, each to be rated on the five points Likert's scale ranging from strongly agree-5 to strongly disagree-1. The questionnaire items relate role over-load, role ambiguity, role conflict, unreasonable group and political pressure, responsibility for persons, under participation, powerlessness, poor peer relations, intrinsic,

impoverishment, low status, strenuous working conditions and unprofitability. The questionnaires were distributed to 150 sample employees of various corporate hospitals, Vijayawada City of Andhra Pradesh, out of which only 125 are responded. The convenient sampling method is deployed to select the sample employees.

Research Procedure:

To study the impact of stress on their work life the Occupational Stress Index (OSI) questionnaires were personally distributed to the employees in various corporate hospitals, Vijayawada, Andhrapradesh. At the onset of distribution the employees were briefed individually on the purpose, nature and expected duration for completing the questionnaire. Confidentiality and anonymity were also assured to participants. A period of 10 days was allowed for completion of the questionnaires. Collection of the questionnaires took place at the premises of the hospitals. Participants were given the opportunity to clarify any problems experienced with the questionnaire. A follow-up was done after an additional week to collect outstanding questionnaires not completed within the time limit.

Data Analysis and Results:

Table-1: Socio Economic Profile of the Respondents

Age Group	F	%	Educational Qualifications	F	%
Below 30 years	21	17	Nursing	41	33
30-40 years	26	21	Pharmacy	9	7
40-50 years	39	31	Lab Technician	20	16
50-60 years	33	26	Medicine	31	25
More than 60years	06	5	Other	24	19
Marital Status			Years in Position		
Married	110	88	1-5 years	55	44
Unmarried	15	12	6-10 years	66	53
Salary Drawn (Rs.)			11-15 years	4	3
Up to Rs.10,000	33	26	Work Experience		
10,001 to 20,000	41	33	1-5 years	10	8
20,001 to 30,000	12	10	6-10 years	51	41
30,001 to 40,000	14	11	11-15 years	39	31
>Rs.40,000-	25	20	>15 years	25	20

The information furnished in the above table reveals that the Socio Economic Profile of the respondents out of 125 respondents 21 members are belongs to the age group of below 30 years, 26 members are in between 30-40 years of age group, 39 are having more than 40-50 years of age, and 33 members are having 50- 60 years of age group and 06 members are having more than 60 years of age. Regarding the educational qualifications is concerned 41 members are having Nursing as the Qualification, 9 members are having pharmacy as the qualification, 21 members are lab technician qualification, 31 members are Medicine qualification and the remaining 24 members are having other qualification. Out of 125 respondents 110 are married and the 15 members are unmarried. More the duration of the present job helps the employees to understand more about the activities associated with the job, thereby they can coordinate the job rated issues. The duration of the present job is concerned, about 55 respondents are working in the same

position from 1- 5 years, 66 members are continuing the same position from 6-10 years, and 4 members are continuing the same position from 11-15 years. From the sample it is observed that 33 members are drawing salary below Rs.10,000/- , 41 members are drawing a salary in between Rs. 10,001 to Rs.20,000/- , 12 members are drawing Rs. 20,001 to Rs.30,000/-, 14 members are drawing in between Rs.30,001/- to Rs.40,000/- and 25 members are drawing more than Rs.40,000/-. Work experience is concerned out of total respondents 10 members are having 1-5 years of work experience, 51 members are having 6-10 years of work experience, 39 members are having 11-15 years of work experience, and remaining members are having more than 16 years of work experience in the hospital industry.

Results & Discussions

Table-2: Mean, Standard Deviation and Pearson Inter-Correlation among Role over Load Variables

Sl. No.	Variables	Mean	SD	1	2	3	4	5	6
1	I have to do a lot of work in this job.	4.55	1.043	1 .125					
2	Owing to excessive workload I have to manage with insufficient number of employees and resources	2.57	1.358	.272(**) .002 125	1 .125				
3	I have to dispose off my work hurriedly owing to excessive work load	2.31	1.019	.155 .084 125	.395(**) .000 125	1 .125			
4	Being too busy with official work I am unable to devote sufficient time to my domestic and personal problems	4.45	1.103	.022 .811 125	.233(**) .009 125	.183(*) .041 125	1 .125		
5	I have to do such work as ought to be done by others	2.49	1.543	.322(**) .000 125	.552(**) .000 125	.451(**) .000 125	.340(**) .000 125	1 .125	
6	I am unable to carry out my assignments to my satisfaction on account of excessive load of work and lack of time	4.22	1.036	-.014 .875 125	.141 .116 125	.157 .080 125	.056 .537 125	.256(**) .004 125	1 125

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

The mean scores computed in the Table -2 are based on weighted average method. Among all variables, I have to do a lot of work in this job has got highest mean value of 4.55 and standard deviation of 1.043. The analysis of the data describes that there is a significant and strong correlation was found in the following variables i.e., (a) I have to do such work as ought to be done by others with Owing to excessive workload I have to manage with insufficient number of employees and resources ($r=.552$, $p<0.01$), (b) I have to do such work as ought to be done by others with I have to dispose off my work hurriedly owing to excessive work load ($r=.451$, $p<0.01$), (c) I have to dispose off my work hurriedly owing to excessive work load with Owing to excessive workload I have to manage with insufficient number of

Role Overload

Role overload in the workplace involves physiological and psychological stress (Colligan & Higgins, 2005; Katz & Kahn, 1978), which might lead to negative physical and mental health issues (E. Jones, Chonko, Rangarajan, & Roberts, 2007). Role overload is increasing among healthcare professionals (Peiro, Gonzalez-Roma, Tordera, & Manas, 2001). Employees with role overload are experiencing that decreased job satisfaction and increased intent to leave the organization. Occupational Stress Index (OSI) questionnaire consists of 6 variables in role overload category. Cronbach's Alpha coefficient for these six variables is calculated as 0.770.

employees and resources ($r=.395$, $p<0.01$).

Role Ambiguity

Role ambiguity denotes uncertainty about the expectations, behaviors, and consequences associated with a particular role. Consequences of role ambiguity may include tension, job dissatisfaction, and turnover. It is useful to distinguish objective role ambiguity from the subjective role ambiguity experienced by the person in the role. Occupational Stress Index (OSI) questionnaire consists of 4 variables in Role Ambiguity category. Cronbach's Alpha coefficient for these four variables is calculated as 0.732.

Table-3: Mean, Standard Deviation and Pearson Inter-Correlation among Role Ambiguity Variables

Sl. No	Variables	Mean	SD	1	2	3	4
1	The available information relating to my job role and its outcomes are vague and insufficient.	3.95	1.497	1 .125			
2	The objectives of my work-role are quite clear and adequately planned	4.47	0.758	.248(**) .005 125	1 .125		
3	I am unable to perform my duties smoothly owing to uncertainty and ambiguity of the scope of my jurisdiction and authorities	4.19	1.236	.568(**) .000 125	.428(**) .000 125	1 .125	
4	It is not clear that what type of work and behavior my higher authorities and colleagues expect from me	3.22	1.538	.418(**) .000 125	.410(**) .000 125	.449(**) .000 125	1 .125

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

The mean scores computed in the above Table -3 are based on weighted average method. Among all variables, the objectives of my work-role are quite clear and adequately planned has got highest mean value of 4.47 and standard deviation of 0.758. The analysis of the data describes that there is a significant and strong correlation was found in the following variables i.e., (a) I am unable to perform my duties smoothly owing to uncertainty and ambiguity of the scope of my jurisdiction and authorities with the available information relating to my job role and its outcomes are vague and insufficient ($r=.568, p<0.01$), (b) It is not clear that what type of work and behavior my higher authorities and colleagues expect from me with I am unable to perform my duties smoothly owing to uncertainty and ambiguity of the scope

of my jurisdiction and authorities ($r=.449, p<0.01$), (c) I am unable to perform my duties smoothly owing to uncertainty and ambiguity of the scope of my jurisdiction and authorities with the objectives of my work-role are quite clear and adequately planned ($r=.428, p<0.01$).

Role Conflict

Role conflict is essentially a discrepancy between differing expectations of a role. If two people have different expectations for what the other's proper role should be, then role conflict is likely to ensue. Occupational Stress Index (OSI) questionnaire consists of 5 variables in Role Conflict category. Cronbach's Alpha coefficient for these five variables is calculated as 0.765.

Table-4: Mean, Standard Deviation And Pearson Inter-Correlation Among Role Conflict Variables

Sl. No	Variables	Mean	SD	1	2	3	4	5
1	My different officers often give contradictory instructions regarding my works	4.46	1.066	1 .125				
2	Officials do not interfere with my jurisdiction and working methods	4.40	1.350	.752(**) .000 125	1 .125			
3	I am not provided with clear instructions and sufficient facilities regarding the new assignments entrusted to me	4.58	1.158	.671(**) .000 125	.721(**) .000 125	1 .125		
4	Employees attach due importance to the official instructions and formal working procedures	4.65	.732	-.103 .255 125	.046 .613 125	-. .174 .052 125	1 .125	
5	It becomes difficult to implement all of a sudden the new dealing procedures and policies in place of those already in practice	4.96	.266	-.049 .589 125	-.067 .456 125	-. .054 .547 125	-. .073 .420 125	1 .125

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

The mean scores computed in the above Table -4 are based on weighted average method. Among all variables, it becomes difficult to implement all of a sudden the new dealing procedures and policies in place of those already in practice has got highest

mean value of 4.96 and standard deviation of 0.266. The analysis of the data describes that there is a significant and strong correlation was found in the following variables i.e., (a) Officials do not interfere with my jurisdiction and working methods with

My different officers often give contradictory instructions regarding my works ($r=.752$ $p<0.01$), (b) I am not provided with clear instructions and sufficient facilities regarding the new assignments entrusted to me with Officials do not interfere with my jurisdiction and working methods ($r=.721$ $p<0.01$), (c) I am not provided with clear instructions and sufficient facilities regarding the new assignments entrusted to me with My different officers often give contradictory instructions regarding my works ($r=.671$ $p<0.01$).

Unreasonable Group and Political Pressure

People have a desire to get to the top of any company. They desire to do so not only because of money, but because of the

desire to achieve power. Work place politics often have a negative connotation because of the negative influential behaviors associated with a person trying achieving goals of getting to the top. There's a thin line between persuasion and manipulation, and the negative connotation exists because of the few members that who use unethical tactics in their pursuits. Occupational Stress Index (OSI) questionnaire consists of 4 variables in unreasonable group & political pressure category. Cronbach's Alpha coefficient for these five variables is calculated as 0.650.

Table-5: Mean, Standard Deviation and Pearson Inter-Correlation among Unreasonable Group & Political Pressure Variables

Sl.No	Variables	Mean	SD	1	2	3	4
1	Sometimes it becomes complex problem for me to make adjustment between political / group pressures and formal rules and instructions	4.46	.828	1 .125			
2	I have to do some work unwillingly owing to certain group / political pressures	4.41	.934	.060 .507 125	1 .125		
3	In order to maintain group-conformity sometimes i have to do/ produce more than the usual	4.33	1.127	.115 .202 125	.829(**) .000 125	1 .125	
4	I am compelled to violate the formal and administrative procedures and policies owing to group / political pressures	4.48	1.286	.232(**) .009 125	.326(**) .000 125	.324(**) .000 125	1 .125

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

The mean scores computed in the above Table -5 are based on weighted average method. Among all variables, I am compelled to violate the formal and administrative procedures and policies owing to group / political pressures has got highest mean value of 4.48 and standard deviation of 1.286. The analysis of the data reveals that there is a significant and strong correlation was found in the following variables i.e., (a) In order to maintain group-conformity sometimes i have to do/ produce more than the usual with I have to do some work unwillingly owing to certain group / political pressures ($r=.829$ $p<0.01$), (b)

Responsibility

I am compelled to violate the formal and administrative procedures and policies owing to group / political pressures with I have to do some work unwillingly owing to certain group / political pressures ($r=.326$ $p<0.01$), (c) I am compelled to violate the formal and administrative procedures and policies owing to group / political pressures with In order to maintain group-conformity sometimes i have to do/ produce more than the usual ($r=.324$ $p<0.01$).

Table-6: Mean, Standard Deviation and Pearson Inter-Correlation among Responsibility for Persons Variables

Sl.No	Variables	Mean	SD	1	2	3
1	The responsibility for the efficiency and productivity of many employees is thrust upon me	4.66	.647	1 .125		
2	I am responsible for the future of a number of the employees	4.70	.660	.351(**) .000 125	1 .125	
3	I bear the great responsibility for the progress and prosperity of this organisation/ department	4.70	.660	.351(**) .000 125	1.000(**) .125	1 .125

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

The mean scores computed in the above Table -6 are based on weighted average method. Among all variables, I bear the great responsibility for the progress and prosperity of this organisation/ department has got highest mean value of 4.70 and

standard deviation of 0.660. . Occupational Stress Index (OSI) questionnaire consists of three variables for responsibility of person's category. Cronbach's Alpha coefficient for these five variables is calculated as 0.799. The analysis of the data reveals

that there is a significant and strong correlation was found in the following variables i.e., (a) I bear the great responsibility for the progress and prosperity of this organisation/ department with I am responsible for the future of a number of the employees ($r=1.000$ $p < 0.01$), (b) I am responsible for the future of a number

of the employees with I bear the great responsibility for the progress and prosperity of this organisation/ department ($r=.351$ $p < 0.01$) and vice versa.

Under Participation

Table-7: Mean, Standard Deviation and Pearson Inter-Correlation among Under Participation Variables

Sl.No	Variables	Mean	SD	1	2	3	4
1	Most of suggestions are heeded and implemented here	4.86	.711	1 .125			
2	My co-operation is frequently sought in solving the administrative or other work related problems at higher level	4.97	.358	-.017 .849 .125	1 .125		
3	My opinions are sought in forming important policies of the organisation/ department	4.98	.179	-.017 .849 .125	-.008 .929 .125	1 .125	
4	My opinion is sought in changing or modifying the working system, implements and conditions	4.83	.790	.877(**) .000 .125	.437(**) .000 .125	-.019 .832 .125	1 .125

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

The mean scores computed in the above Table -7 are based on weighted average method. Among all variables, My opinions are sought in forming important policies of the organisation/ department has got highest mean value of 4.98 and standard deviation of 0.179. Occupational Stress Index (OSI) questionnaire consists of four variables in under participation category. Cronbach's Alpha coefficient for these four variables is calculated as 0.646. The analysis of the data reveals that there is a significant and strong correlation was found in the following variables i.e., (a) My opinion is sought in changing or modifying the working system, implements and conditions with Most of

suggestions are heeded and implemented here ($r=0.877$, $p < 0.01$), (b) My opinion is sought in changing or modifying the working system, implements and conditions with My co-operation is frequently sought in solving the administrative or other work related problems at higher level ($r=.437$ $p < 0.01$).

Powerlessness

A feeling of powerlessness is a universal cause of job stress. When employees feel powerless, they are prey to depression's traveling companions, helplessness and hopelessness. Employees alter or avoid the situation because they feel nothing can be done.

Table-8: Mean, Standard Deviation And Pearson Inter-Correlation Among Powerless Ness Variables

Sl.No	Variables	Mean	SD	1	2	3
1	My decisions and instructions concerning distribution of assignments among employees are properly followed	4.74	.598	1 .125		
2	My suggestions regarding the training programmes of the employees are given due significance	4.59	.794	.315(**) .000 .125	1 .125	
3	Our interests and opinion are duly considered in making appointments for important posts	4.63	.690	.173 .053 .125	.886(**) .000 .125	1 .125

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

The mean scores computed in the above Table -8 are based on weighted average method. Among all variables, My decisions and instructions concerning distribution of assignments among employees are properly followed has got highest mean value of 4.74 and standard deviation of 0.598. Occupational Stress Index

(OSI) questionnaire consists of three variables in Powerlessness category. Cronbach's Alpha coefficient for these five variables is calculated as 0.737. The analysis of the data reveals that there is a significant and strong correlation was found in the following variables i.e., (a) Our interests and opinion are duly considered in

making appointments for important posts with My suggestions regarding the training programmes of the employees are given due significance ($r=0.886$, $p<0.01$), (b) My suggestions regarding the training programmes of the employees are given due significance with My decisions and instructions concerning distribution of assignments among employees are properly followed ($r=.315$ $p<0.01$).

Poor Peer Relations

The term peer group refers to an individual's small, relatively intimate group of peers who interact on a regular basis (often referred to as a clique). Peer groups consist of individuals who share friendship, hang around and talk to each other as well as do activities together.

Table-9: Mean, Standard Deviation and Pearson Inter-Correlation among Poor Peer Relations Variables

Sl.No	Variables	Mean	SD	1	2	3	4
1	I have to work with persons whom I dislike	1.85	.783	1 .2125			
2	Some of my colleagues and subordinates try to defame and malign me as unsuccessful	1.89	.909	.497(**) .000 125	1 .125		
3	My colleagues do co-operate with me voluntarily in solving administrative and other work related problems	1.96	.919	.551(**) .000 125	.902(**) .000 125	1 .125	
4	There exists sufficient mutual co-operation and team spirit among the employees of this organisation / department	4.88	.326	.023 .801 125	-.127 .157 125	-.043 .634 125	1 .125

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

The mean scores computed in the above Table -9 are based on weighted average method. Among all variables, there exists sufficient mutual co-operation and team spirit among the employees of this organisation / department has got highest mean value of 4.88 and standard deviation of 0.326. Occupational Stress Index (OSI) questionnaire consists of 4 variables in Poor peer relations category. Cronbach's Alpha coefficient for these four variables is calculated as 0.733. The analysis of the data reveals that there is a significant and strong correlation was found in the following variables i.e., (a) My colleagues do co-

Intrinsic Impoverishment

operate with me voluntarily in solving administrative and other work related problems with Some of my colleagues and subordinates try to defame and malign me as unsuccessful ($r=0.902$, $p<0.01$), (b) My colleagues do co-operate with me voluntarily in solving administrative and other work related problems with I have to work with persons whom I dislike ($r=.551$, $p<0.01$). (c) Some of my colleagues and subordinates try to defame and malign me as unsuccessful with I have to work with persons whom I dislike ($r=.497$, $p<0.01$).

Table-10: Mean, Standard Deviation and Pearson Inter-Correlation among Intrinsic Impoverishment Variables

Sl.No,	Variables	Mean	SD	1	2	3	4
1	My assignments are of monotonous nature	4.94	.353	1 .125			
2	I get ample opportunity to utilize my abilities and experience independently	4.90	.429	-.041 .651 125	1 .125		
3	I got ample opportunity to develop my aptitude and proficiency properly	4.89	.462	-.044 .624 125	.922(**) .000 125	1 .125	
4	My suggestions and co-operation are not sought in solving even those problems for which I am quite competent	4.98	.179	-.016 .857 125	-.020 .823 125	.369(**) .000 125	1 .125

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

The mean scores computed in the above Table -10 are based on weighted average method. Among all variables, My suggestions and co-operation are not sought in solving even

those problems for which I am quite competent has got highest mean value of 4.98 and standard deviation of 0.179. . Occupational Stress Index (OSI) questionnaire consists of 4

variables in Intrinsic Impoverishment category. Cronbach's Alpha coefficient for these four variables is calculated as 0.554. The analysis of the data reveals that there is a significant and strong correlation was found in the following variables i.e., (a) I got ample opportunity to develop my aptitude and proficiency properly with I get ample opportunity to utilize my abilities and experience independently ($r=0.922$, $p<0.01$), (b) My suggestions and co-operation are not sought in solving even those problems for which I am quite competent with I got ample opportunity to develop my aptitude and proficiency properly ($r=.369$, $p<0.01$).

Low Status

Table-11: Mean, Standard Deviation and Pearson Inter-Correlation among Low Status Variables

Sl.No	Variables	Mean	SD	1	2	3
1	Higher authorities do care for my self-respect	4.76	.465	1 .125		
2	This job has enhanced my social status	4.78	.413	.316(**) .000 .125	1 .125	
3	My higher authorities do not give due significance to my post and work	4.77	.442	.276(**) .002 .125	.915(**) .000 .125	1 .125

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

The mean scores computed in the above Table -11 are based on weighted average method. Among all variables, this job has enhanced my social status has got highest mean value of 4.78 and standard deviation of 0.413. Occupational Stress Index (OSI) questionnaire consists of three variables in Low Status category. Cronbach's Alpha coefficient for these three variables is calculated as 0.741. The analysis of the data reveals that there is a significant and strong correlation was found in the following variables i.e., (a) My higher authorities do not give due significance to my post and work with This job has enhanced my social status ($r=0.915$, $p<0.01$), (b) This job has enhanced my social status with Higher authorities do care for my self-respect ($r=.316$, $p<0.01$).

Strenuous Working Condition

Health services are one of the fundamental sectors of society and the economy. The ILO endorses the fundamental principles of the human right to health and social security. Decent working conditions for health workers are essential to provide health services and to ensure that all members of society have access to social health protection. The lack of capacity to provide health services has significant effects on individual and public health, poverty, income generation, labour market productivity, economic growth and development. While the burden of disease and the demand for health services varies in each community, the affordability of health care challenges most countries.

Table-12: Mean, Standard Deviation and Pearson Inter-Correlation among Strenuous Working Condition Variables

Sl.NO	Variables	Mean	SD	1	2	3	4
1	I do my work under tense circumstances	4.70	.907	1 .125			
2	Some of my assignments are quite risky and complicated	4.75	.715	.085 .347 .125	1 .125		
3	I often feel that this job has made my life cumbersome	4.69	.745	.483(**) .000 .125	.278(**) .002 .125	1 .125	
4	Working conditions are satisfactory here from the point of view of our welfare and convenience	4.63	.724	.177(*) .049 .125	.492(**) .000 .125	.443(**) .000 .125	1 .125

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

The mean scores computed in the above Table -12 are based on weighted average method. Among all variables, some of my assignments are quite risky and complicated has got highest mean value of 4.75 and standard deviation of 0.715. Occupational Stress Index (OSI) questionnaire consists of four variables in Strenuous Working Condition category. Cronbach's Alpha

coefficient for these four variables is calculated as 0.647. The analysis of the data reveals that there is a significant and strong correlation was found in the following variables i.e., (a) Working conditions are satisfactory here from the point of view of our welfare and convenience with Some of my assignments are quite risky and complicated ($r=0.492$, $p<0.01$), (b) I often feel that this

job has made my life cumbersome with I do my work under tense circumstances ($r=.483$, $p< 0.01$), (c) Working conditions are satisfactory here from the point of view of our welfare and **Unprofitability**

convenience with I often feel that this job has made my life cumbersome ($r=.443$, $p< 0.01$)

Table-13 Mean, Standard Deviation and Pearson Inter-Correlation Among Unprofitability Variables

Sl. No	Variables	Mean	SD	1	2
1	I get less salary in comparison to the quantum of my labor / work	4.60	.907	1 .125	
2	I am seldom rewarded for my hard labor and efficient performance	4.76	.588	.726(**) .000 .125	1 .125

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

The mean scores computed in the above Table -13 are based on weighted average method. Among all variables, I am seldom rewarded for my hard labor and efficient performance has got highest mean value of 4.76 and standard deviation of 0.588. Occupational Stress Index (OSI) questionnaire consists of two variables in Strenuous Working Condition category. Cronbach's Alpha coefficient for these two variables is calculated as 0.797. The analysis of the data reveals that there is a significant and strong correlation was found in the following variables i.e., (a) I am seldom rewarded for my hard labor and efficient performance with I get less salary in comparison to the quantum of my labor / work ($r=0.726$, $p< 0.01$).

Findings

- Many respondents strongly feel that due to insufficient manpower they are doing lot of work at their work place and they are feeling difficulty in carrying / performing their duties.
- Many respondents strongly feel that their roles and responsibilities are clearly described by the management, but due to the heavy work load, competition most of the employees are unable to concentrate on their duties.
- Unreasonable group and peer pressure is resulting in increased under participation, poor peer relation and a sense of lowered status. The reasons are obvious, that because of peer pressure the confidence and self esteem of the individual is lowered.
- powerlessness leads to disappoints among employees
- Low status and strenuous working conditions are the major factors to the employees to undergo for stress.
- More work and time pressure, in its turn, can leads to job dissatisfaction and high emotional exhaustion.

Suggestions

- Be sure the workload is suitable to employees' abilities and resources; avoid unrealistic deadlines.
- Reward system leads to commitment among the employees towards the organisation vision and mission
- Connect with others at work
- Consult employees about scheduling and work rules.
- Develop the capacity to meet challenges with humor
- Don't try to control the uncontrollable
- Flip your negative thinking
- Give workers opportunities to participate in decisions that affect their jobs.
- Praise good work performance, both verbally and officially,

through schemes such as Employee of the Month.

- Provide opportunities for career development.
- Resolve conflict positively
- Show that individual workers are valued.
- Take time away
- Talk it over with someone

Conclusion:

Occupational stress has been a long-standing concern of the health care industry. Health care occupations have long been known to be highly stressful and associated with higher rates of psychological distress than many other occupations. Health care workers are exposed to a number of stressors, ranging from work overload, time pressures, and lack of role clarity to dealing with infectious diseases and difficult and ill, helpless patients. Such stressors can lead to physical and psychological symptoms, absenteeism, turnover, and medical errors. Since stress is a natural individual response to real or perceived danger, it is important that both personal and work related stressors are identified, so that preventive or remedial measures might be implemented and stress resilience increased. Dealing with stress is often seen as the individual's responsibility alone. Sometimes the most different part is for the individuals themselves to acknowledge that there is a problem and for management to acknowledge that stress is one consequence of work life. Effective stress management involves the implementation of practical, supportive policies, systems and procedures, which include preventive as well remedial measures and which will not only enhance the happiness of employees, but will also improve corporate productivity.

Limitations:

There are number of limitations for this study that needs to be kept in mind while discussing the results and findings.

- The selected sample is limited (N=125) within the corporate hospitals in Vijayawada city of A.P.
- The gender ratio is not equal. So it is difficult to account the same for the both.
- The sample selected may not be accurate as the sample selected was only within my limits.
- The data was assessed using simple statistical tools of correlation, mean and standard deviation with support of SPSS.

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Innovation in Outsourcing: A Case of VFS Global Leadership

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ARTICLE INFO

Article history:

Received 29th Nov. 2013

Accepted 30th Dec. 2013

Keywords:

Outsourcing,
Innovation,
Leadership,
Success,
Industry

ABSTRACT

Business process outsourcing (BPO) had been the talk of the town for quite some time in the Indian service industry. In this sector few companies used innovative means to achieve continuous successes in their businesses. VFS (visa facility services) Global is associate company of Swiss multinational subsidiary, Kuoni Travel Group India Private Ltd., is one such outsourcing company connected with providing visa application services to diplomatic missions and thereafter engaged promoting tourism worldwide. This case explores the style of VFS's leadership which used various innovative processes and techniques in their success on continuous improvements over the years in the industry..

Introduction

Innovation' may be defined as a novel creation that produces value. Be it as simple as change of a color shade of a product or as vast as World Wide Web. Innovation is a multistage process, with important variations in the primary tasks as well as in the corporate issues and effective management practices occurring among these, divided into seven stages. The principal areas of these stages are dominated by search for answers to different managerial inputs. The first stage is potential demand of products and services in the market followed by second stage of idea formulation or product / service design concepts and evaluation. The third stage is the problem solving stage through technical and market information. The fourth stage is the prototype product or trial service formation through the adaptation of new technology or existing technology. The fifth stage is the commercial exploitation of products and services followed by sixth stage to transfer the data to manufacturing and /or service departments. The seventh stage is to look out again for new innovative inputs.

While analyzing the innovation processes practiced by VFS

Global it has been observed that the company has also followed the similar path to achieve their goals in business process outsourcing. VFS was started as an outsourcing company for processing visa applications of intending Indian travelers to US. Later the same facilities were extended to other diplomatic missions for visa application. Among the countries currently availing these facilities are Australia, China, South Africa, France, Indonesia, Bangladesh, UAE, Russia, Malaysia, Philippines, Thailand, Ukraine etc for the intending tourist wish to travel to countries like UK, USA, India, Canada, France, Belgium, Australia, UAE and many more. Even the Government of India has given the contract to provide outsource services to the Indian Embassy's at France, China, Thailand, Saudi Arabia, and Indian High Commission's offices in Sri Lanka, Australia, UK, Switzerland and Canada (http://en.wikipedia.org/wiki/VFS_Global).

At one time VFS Global faced some problems when it was observed that company's online UK visa application process was flawed, insecure, allowing applicant's identities were claimed to be stolen. These security flaws were also detected from countries like India, Nigeria and Russia which affected their online visa applications

Despite all these teething troubles the corporate leadership took various important decisions and came out successfully and won many accolades and recognition from different bodies beginning from year 2008 to 2011. As of now, VFS serves the interest of 26 diplomatic missions in 42 countries worldwide, handling over seven million visa applications (contracted) every year through its ISO certified offices around the Globe by

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ISSN : 2230 – 9764

Doi: <http://dx.doi.org/10.11127/gmt.2013.12.04>

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customizing innovation.

Background of VFS Global

Kuoni Travel Group (India) Private Ltd. a part of Zurich based Multinational Kuoni Travel Group established VFS Global in the year 2001 as a subsidiary for business process outsourcing (BPO), exclusively focused to serve diplomatic missions throughout the world. The organization initially started its operation in Mumbai, at the initiative of the State Department of the United States to serve the interest of the US embassy in India, at a time when embassy was not able to manage the crowds outside the embassy.

VFS is engaged to provide administrative support services to consular sections of diplomatic missions. The company manages non-judgment tasks related to the life cycle of a visa application process, thereby enabling the missions to focus on key important areas of assessment and decision making. Among the other services like dedicated visa application centers, websites, joint visa application centers, biometric facility, waiting lounges, online appoint schedule services, courier and delivery services.

By end 2011, VFS became one of the largest outsourcing and technology services specialists for diplomatic missions and governments worldwide and holding 526 visa application centers across five continents located in 63 countries. The company served the interests of 37 sovereign governments and successfully processed around 41 million visa applications since its inception in the year 2001 (www.vfsglobal.com).

Steps for customization in innovation

Innovation has been the lifeline for VFS and always been kept as top priority for their business. Apart from processing visa applications for intending tourists, VFS also introduced few key innovative offerings, like joint Visa application centre (JVAC), Indian workers resource centre (IWRC), video conferencing service and tourism promotion.

JVAC initiated by VFS was a service to provide easy accessibility and convenience to its service for visa applicants. This facilitates visa application processing for several countries from a single location making the process simple for an applicant. This is a common point for submission of visa applications to any countries. However, the decision to issue visas to applicants rested with the respective missions.

Government of India, Ministry of Overseas Affairs, had sanctioned IWRC for the benefit of Indian workers in the United Arab Emirates (UAE) along with the Community Welfare Wing in the Embassy of India and outsourced the same to VFS Global. This sanction made VFS to offer infrastructure and professional support to Indian workers for managing their grievance redressal, counseling and also to guide and provide with all kinds of medial, financial, emotional and legal support needed by them. Located at Dubai, IWRC serves all Indian workers in the seven emirates of the UAE, which reaches out to people in every possible manner.

In video conferencing services VFS implemented cutting edge technology to aid client countries in strengthening immigration control and simplified the visa application processes for the intending travelers. In this process the corresponding embassies / visa section of embassies are connected by video teleconferencing (VTC) to incorporate the visa procedures with the applicants, even from a remote place who are required to be interviewed by the visa offices of a particular mission. This

process reduces the interview lines at the mission premises and also save the travelling time of visa applicant to the embassy office. Post video conference applicants also need to attend the interview with VFS at a predetermined date and time. Apart from travelling, visa applicants also save money from boarding and lodging in embassy cities because of teleconferencing. However, applicants are charged with a small amount for the VTC services made by VFS them.

In tourism promotion VFS offered innovative services to client governments by partnering with country's tourism boards to offer visa services to the travelers in their travel to respective countries. One such association established by VFS is with The National Tourism Agency of UK is responsible for promoting Britain internationally in 35 markets. Its mission is to value the tourism to Britain working along with industry, nations and regions. In 2008, a strong partnership was forged with VisitBritain, supported by UK Border Agency, to promote UK a tourist destination for the intending travelers ([/www.vfsglobal.com/customisation_innovation](http://www.vfsglobal.com/customisation_innovation)).

Odds VFS faced

However, despite all these innovative successes the company had once faced some odds in December 2005. An Indian applicant made a report on security breach and flaws in visa application processes. Both VFS and UK visa offices run by Home Office and Foreign and Commonwealth Office through British Diplomatic posts overseas, remained silent about this complaint even after this report. Then in May 2007, the same applicant went public when he observed that his earlier report has been ignored. It was estimated that this security breach at that moment affected almost 50,000 people among the visa applicants whose identities had been compromised. This warning lead to British media outcry and an investigation was ordered by British Foreign and Commonwealth Office to an independent agency, which noticed the organizational failures both by VFS and UK Visa offices. The investigator recommended that VFS online visa applications should be immediately suspended from India and replaced by the secure online applications made available directly at the UK visas website (http://www.theregistrar.co.uk/2007/08/11/uk_visa_site_investigation/).

To this, VFS took stern measures and closed the site after being ordered by an independent government investigation launched by British Foreign and Commonwealth Office. Later, the independent investigator, Linda Costelloe Baker report revealed that the problem was due to 'organization failures' both by VFS and UK visas (<http://www.fco.gov.uk/Files/kfile/IndependentInvestigation26thJuly2007>). Hence, in order to overcome such problems in future, VFS provided trouble free services to diplomatic missions and made all centers ISO compliant.

Post this incident the investigator, Linda Baker further mentioned that there were no evidences to confirm about the data were stolen or misused despite conducting extensive testing. However, it revealed that VFS underestimated the importance and necessity to protect the personal data to the levels expected by the UK Data protection Act 1998. Therefore, after this incident several visa application level check were put in place along with the upgraded technical processes to check the records of online application site.

After this, in November 2007, the UK Information Commissioner's office announced some violation of Data Protection Act 1998, by foreign office and asked them to sign an undertaking that it would comply Data Protection Act and will not open VFS UK online visa facility. To this, "Guardian" the British media (<http://www.guardian.co.in/technology/2007/nov/14/data/.protection.breach>) reported that foreign office should terminate its relationship with VFS.

Accolades

Despite facing above odds the company came out successfully and created some deterrent to overcome future problems so as to maintain quality services to countries and diplomatic missions. Through innovations, the company soon emerged from a biometric enrolment provider to a biometric end-to-end solution provider for its clients and implemented a conceptualized business intelligence solution known as "Third Eye" to have real time control in global operation. This arrangement was initially introduced into VFS Call centers and later extended to VFS global visa application centers. VFS also set up a global security operation centers from which VFS started on a real time global monitoring from a security perspective. These continuous innovations made the company to receive many accolades for its service quality, information technology and security technology (Refer exhibit I).

In year 2012, the company received one of the prominent awards, that is, 'Capgemini Leadership Award for Innovation' at the NASSCOM India leadership Forum 2012. While receiving the award from the former Honorable Home minister of India, Mr. P. Chidambaram, who was chief guest at the event, Mr. Zubin Karkaria, former CEO and Chairman said, "we are very honored to have won this prestigious award. Innovation is one of our core values, and in fact the creation of VFS Global itself was one of the biggest and most successful innovations, born out of a single core competence of understanding the visa process and the requirement of travelers. We are deeply committed to finding ways to continuously enhance customer service, and we recognize that innovation plays a critical role in this quest. It allows us to infuse creativity in keeping our products and services up to date and in line with our clients need. This award is a strong validation of our goal of imbedding the value of innovation deep into our organizational culture. I thank all our people around the world for their contribution, and I thank our esteemed client governments for giving us an opportunity to innovate in service to them". (www.news.plugged.in/vfsglobal-receives-capegemini-leadership-award). In the same year, company won the Travel Agents Association of India Award for Leadership in Innovation in Visa Outsourcing Industry.

In the year 2013, the company received the Best Network Security Implementation 2013 Award from Fortinet Network Security Award at 18th Business Excellence Award from Dubai Department of Economic Development held in 2013. (www.vfsglobal.com/about_us/awards_accolades.asp) (Refer Exhibit I).

Roads Ahead

Innovation for competitive advantage has been a platform for continuous improvement with VFS. The company engaged in creating novel facilities at their visa offices like cafeteria, internet and ATM for their visa applicants so that the visa applicants feel comfortable in interaction with the local visa office officials. These interactions also create opportunities for developing tourism for the countries and help the parent company Kuoni to

enhance their business in out-bound tourism. Around mid November 2013, VFS Global has been the largest outsourcing and technology services specialist company for diplomatic missions worldwide with 45 Government clients, 1109 visa application centers located in 104 countries across five continents handling the interest of 37 sovereign governments and processed successfully around 71 million visa applications since its inception in 2001 and style of leadership pursued by VFS in BPO companies.

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EXHIBIT - I

Year	Award for IT and Information Security
2008	'Security Strategist Award for Best Information Security in India'
2009	'EDGE Award for Innovations in Disaster Recovery Systems'
2010	'Leadership in IT Security' under travel and hospitality category
2010	'EDGE Award in Document Management Systems
2010	ISACA Award for IT Governance and IT Security
2011	EDGE Award in "Maximizing Business impact through IT"
2012	Capgemini Leadership Award in Innovation

Source: www.news.plugged.in/vfsglobal-receives-capgemini-leadership-award



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Health Care Facilities at Primary Health Centres - An Analysis of Select PHCs in Telengana Region

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ARTICLE INFO

Article history:

Received 18th Dec. 2013

Accepted 30th Dec. 2013

Keywords:

Primary Health Centres

IPHS

Assured Services

MCH care

Two-way ANOVA

ABSTRACT

In India, the Bhore Committee (1946) has conceived the concept of Primary Health Centre (PHC) as a basic health unit to provide health care to the people at the nearest location. The Committee proposed an integrated health care to the rural population with emphasis on preventive and curative health care. These centers functioned as peripheral health service institutions with little or no community involvement. Increasingly, these centers came under criticism, as they were not able to provide adequate health coverage, partly, because these PHCs were not adequately staffed, equipped and possessed basic amenities. In this context, the present study is aimed at understanding the functioning of PHCs in Telengana region of Andhra Pradesh. More, specifically, the objectives of the study were to know the Indian Public Health Standards (IPHS) for Primary Health Centres, assess the availability the services and understand the awareness of beneficiaries on availability of health care services at select PHCs in Telengana region of Andhra Pradesh. The study revealed that in spite of prescribing IPHS for PHCs in India for a quite long period, all services stipulated by IPHS are not offered at the select PHCs in Telengana region indicating lot of variations and deficiencies in the availability of the services. Further, the beneficiaries are not fully aware of the services provided by the select PHCs in three districts of Telengana in spite of existence of citizen charter. In view of the above facts, the Government has to take measures to provide services in PHCs as per IPHS and educate the target population to enable them to utilize the services provided by the PHCs in select districts of Telengana- Warangal, Khammam and Karimnagar.

Introduction

The WHO, in the preamble to its constitution, defined health as a 'state of complete, mental and social well-being and not

merely absence of disease or infirmity'. The WHO has also defined primary health care at the International Conference on Primary Health Care held in the former Soviet Union and affirmed that *primary health care is essential health care based on practical, scientifically sound and socially acceptable methods and technology, universally accessible to individuals and families in the community through their full participation and at a cost that the community and the country can afford*. It is the first level of

Responsibility of Contents of this paper rests upon the authors and not upon GRIET publications.

ISSN : 2230 – 9764

Doi: <http://dx.doi.org/10.11127/gmt.2013.12.05>

contact of individuals, the family and the community with the national health system, bringing health care as close as possible to where people live and work.

The Institute of Medicine of United States proposed that accessibility, comprehensiveness, coordination, continuity and accountability were essential attributes of primary care². Sometimes affordability was added to the list of critical attributes, calling attention to the balancing act expected of primary care between optimizing health and equitably distributing limited resources. The World Development Report 1993 called for targeted investment to enhance health. It recommended reduced Government investment in tertiary facilities and sub-specialist training and more investment in public health and essential services needed by everyone³. In India, the Bhore Committee (1946)⁴ has conceived the concept of Primary Health Centre (PHC) as a basic health unit to provide health care to the people at the nearest location. The Committee proposed an integrated health care to the rural population with emphasis on preventive and curative health care. In 1951, the health planners in India have visualized the PHCs and its Sub-Centres (SCs) as the vehicles with appropriate infrastructure to provide health care services to the rural population⁵. The Central Council of Health at its first meeting in January 1953 has recommended the establishment of PHCs in community development blocks to provide comprehensive health care to the rural population⁶. These centers functioned as peripheral health service institutions with little or no community involvement. Increasingly, these centers came under criticism, as they were not able to provide adequate health coverage, partly, because these PHCs were not adequately staffed, equipped and possessed basic amenities.

The sixth five year plan (1983-88) proposed reorganization of PHCs on the basis of one PHC for every 30,000 rural population in the plains and one PHC for every 20,000 population in hilly, tribal and desert areas for providing effective health care services. Since 1988, many modifications were suggested and adopted in terms of population coverage, quantity and quality of health care services to be provided by PHCs. As per IPHS 2012⁷, a PHC will cover a population of 20,000- 30,000 (depending upon the geographical location) and occupy a place between a sub centre at the most peripheral level and community health center (CHCs) at block level. Every PHC serves as a first port of call to a qualified doctor in the public health care sector in rural areas providing a range of preventive, curative and promotive health care. While it serves as a referral unit for 6 sub-centers, cases are also referred from the PHCs to the CHCs and other higher order of secondary level health care delivery system. Further, PHCs, providing 24-hour services with appropriate linkage plays an important role in improving institutional delivery of health care by helping to reduce maternal mortality and infant mortality.

However, PHCs were criticized on various issues such as the inability to perform to the expectation of the stakeholders, in sufficient number of doctors, high rate of absenteeism in both medical and para-medical staff, non-residential (staying away from place of work) stay of both medical and para-medical staff, inadequate physical infrastructure and facilities, insufficient availability of drugs, lack of accountability to the public by both medical and para-medical staff, lack of community participation and lack of monitoring system for quality care etc.

In order to provide optimal level of quality health care, a set of standards were formulated for PHCs by Government of India.

These standards were called **Indian Public Health Standards (IPHS) for PHCs**⁸. The objectives of IPHS were to provide qualitative health care and sensitize the community about the health care delivery system. IPHS for Primary Health Centres prescribed by the Government of India were prepared keeping in view the functional requirement for PHCs with minimum standards such as building, manpower, instruments and equipments, drugs and other facilities etc.

Review of Literature

Survey of literature reveals that studies were conducted in India on the functioning of PHCs. ICMR Task Force⁹ conducted an independent evaluation of family welfare services being offered at the level of Primary Health Care Centers. A total of 398 PHCs from 199 districts, located in 18 States and a Union Territory – Pondicherry- were evaluated. A major component of the assessment of quality was observation of the ANMs while they were providing services in the field. This was complemented by an examination of the records and reports maintained at the PHCs and sub-centres for their completeness and accuracy. Further, the records of a sub-sample of beneficiaries were examined to find out details of care provided. These were matched with the responses of the beneficiaries. It was observed that resources in terms of physical facilities were satisfactory at PHCs, but deficient at the level of sub- centre which were really the first contact point for the community. With regard to manpower, there was a substantial shortage of ANMs. The study underlined the urgent need to equip ANMs with better skills and facilities so as to improve their performance in various aspects of maternal and child health care. Kumar¹⁰'s study was aimed at evaluating home-based maternal and child health (MCH) recording and reporting system. The study reviewed the existing MCH recording and reporting system and then evaluated the implementation of a simplified, home-based recording system. A review of the recording and reporting system was conducted at 10 sub-centres under five PHCs. The registers maintained by health workers, as well as those of their supervisors and medical officers, were studied to ascertain the information system, the difficulties of recording and reporting and ways of improving the system. A review of the existing system showed that records were incomplete. The procedures of record-maintenance were perceived to be cumbersome and time consuming. There were several other problems: there were no printed forms, shortage of stationery led to registers being maintained on loose sheets, supervisors experienced difficulty in acquiring information from the health workers and duplication of work dominated the information management system. Rakesh et al¹¹ study on availability of services and facilities at Primary Health Centres in Ahmedabad District, Gujarat, conducted among 10 randomly selected PHCs revealed deficiency in staff ranging from 11.3 percent to 30 percent, non-residence of staff at PHCs, inadequate public transport system for patients, inadequate supplies of drugs etc. The study emphasized the need for strengthening of PHCs in line with their envisaged role in health care delivery system.

Ganguly and Garg¹² conducted a study on quality of health assistants in Primary Health Centres in rural Maharashtra. The study was undertaken with the objective of developing a tool to assess the quality of health assistants in primary health centres. Health assistants from three PHCs in the Wardha district of India were observed for a year using a tool developed. Data was collected by direct observation, interview and review of records

for quality of activities. It was observed that none of the health assistants were clear about their job descriptions and field activities pertaining to maternal and child health received poor focus. Nanjunda¹³ conducted a study on functioning of Primary Health Centres in the selected tribal districts of Karnataka. The study was intended to understand how the Primary Health Centres in the select tribal districts of Karnataka were functioning and to know their problems and prospects. Observations were made in 35 PHCs randomly selected from the three tribal dominant districts of Karnataka-Mysore, Chamaraja Nagar and Kodagu. The study observed that non availability of essential facilities, ill-mannered behavior of the staff and inadequate manpower were the major reasons leading to negative perceptions about the PHCs by tribal population. Further, the study emphasized the need for policy change with respect to the working of PHCs.

Pratima Mittra et al¹⁴ studied the client satisfaction with the services provided by the sub-centres in two districts of Andhra Pradesh and observed that services such as ante-natal care, intra-natal and post-natal care, immunization and family planning had received much attention in the community. The study concluded that in-service training and attitude of health functionaries are important determinants for improving the quality of services provided at the peripheral level. Meenakshi Gautham et al¹⁵ observed that in Andhra Pradesh 69.5 per cent of the respondents accessed non-degree allopathic practitioners (NDAPs) as a first point of call. The study observed that most of the rural population seeks first level of curative healthcare close to home, and pay for a composite convenient service of consulting-cum dispensing of medicines. Swapna Budimelli and Kalyan Chebrolu¹⁶ conducted a study to understand the level of utilization of maternal health care services by the beneficiaries in Andhra Pradesh. The study has observed that urban poor in spite of their proximity to urban health facilities could not access to the services due to social exclusion, lack of information and lack of economic resources. Mahapatra et al¹⁷ conducted a study on operational availability of doctors in PHCs and examined the effect of residence of doctors and private practice of doctors on the functioning of PHCs. Cross-sectional data on place of residence of doctors, private practice and attendance pattern of 38 operationally available medical officers were analyzed. The study observed that about 80 per cent of doctors residing within 20 kms radius of PHCs, attended the PHCs on all days of a week, compared with only 33 per cent staying more than 20 kms away from PHCs. Among those staying within 20 kms of PHCs the

absenteeism is less than 3 times of those who stays more than 20 Kms away from PHCs. Among those who are un-involved in the private practice, the absenteeism is less than 4 times of those who involved in private practice. The study concluded that residence of doctors affect the operational availability of doctors.

However, serious efforts are not made in these studies to examine functioning of PHCs in Telengana region of Andhra Pradesh. Hence, there is a gap in the literature. In view of the gap, there is a need for searching studies aiming at explaining the working of PHCs in Telengana region of Andhra Pradesh and the present study will be an attempt in this direction.

Objectives of the Study

The objective of the study is to understand the functioning of PHCs in Telengana Region of Andhra Pradesh. More, specifically, the objectives of the study will be:

- to know the Indian Public Health Standards (IPHS) for Primary Health Centres, assess the availability and evaluate the implementation of these standards in select PHCs in Telengana region of Andhra Pradesh.
- to understand the awareness of beneficiaries on availability of health care services at select PHCs in Telengana region of Andhra Pradesh.

Sources of Data

The study is based on both primary and secondary data. The main sources of primary data are field survey of facilities available and opinions of beneficiaries. The data collected through primary source is related to the perceptions of respondents on various aspects of working of PHCs. The secondary data are culled out from Government reports and other published literature.

Data Collection

Data required for the study were collected using schedules which were designed to elicit information on the functioning of PHCs in the select districts of Telengana region of Andhra Pradesh in terms of availability of various types of services and perceptions of the beneficiaries on the availability of these services.

Sample Design

In order to get a clear picture of the health care service delivery status, the sample selection is done on the basis of multi-stage purposive sampling. At the first stage, 3 districts – Warangal, Kammam and Karimnagar were selected. From each of the 3 districts, 15 PHCs, which had sufficient geographic, economic and social variations, are identified.

Table-1: Sample PHCs in Telengana Region of Andhra Pradesh

Warangal District		Khammam District		Karimnagar District	
S. No.	Name	S.No.	Name	S.No.	Name
1	Valishala	16	T.Palem	31	Mutharam
2	Regonda	17	Mudhigonda	32	Kamanpur
3	Rayaparthy	18	Matoorpeta	33	Kolanur
4	Sangem	19	Bonakallu	34	Elakathurthi
5	Chennaraopet	20	Wyra	35	Kamalapuram
6	Malkapur	21	Tallada	36	Choppadandi
7	Kadipikonda	22	Chintakani	37	Myadaram
8	Zaffargadh	23	Lankasagar	38	Uppal
9	Raghunathpalli	24	Kalluru	39	Vangara
10	Alankanipet	25	Konijerla	40	Mulkanur

11	Nekkonda	26	Gangaram	41	Gopalpur
12	Inguthy	27	Pedda gopathi	42	Vavilala
13	Kothaguda	28	Vemsoor	43	Veenavanka
14	Komatlagudem	29	Pinapaka	44	Illanthakunka
15	Gangaram	30	Janampeta	45	Chelpur

Subsequently, 45 PHCs, 423 beneficiaries of PHCs (147 in Warangal, 137 in Khammam and 139 in Karimnagar) were selected for eliciting the perceptions on functioning of PHCs in the select districts of Telengana region of Andhra Pradesh.

Computation of Scores

Measurement of Availability Score

Sl.No.	Description of Score and Abbreviation	Calculation Procedure
1	Availability Score for Service (ASS)	Number of PHCs in Three Districts where a particular service is available
2	Ideal Availability Score for Service (IASS)	Total Number of Select PHCs in Three Districts
3	Percentage of Availability	Sl. No 2/ Sl. No 1*100
4	Availability Score for District (ASD)	Number of Services available in a Particular District
5	Ideal Availability Score for District (IASD)	(Total number of PHCs in a district) X (Number of Services)
6	Percentage of Availability	Sl. No 5 ÷ Sl. No 4*100

Measurement of Awareness Score

1	Awareness Score for Service (KSS)	Number of Beneficiaries who were aware of the availability of a particular service in three districts
2	Ideal Awareness Score for Service (KASS)	Total Number of Select Beneficiaries in Three Districts
3	Percentage of Availability	Sl. No 2/ Sl. No 1*100
4	Awareness Score for District (KSD)	Sum of beneficiaries who were aware of the availability of a each service in a particular District
5	Ideal Awareness Score for District (KASD)	(Sum of Beneficiaries in a District) X (Number of Services)
6	Percentage of Awareness	Sl. No 5 ÷ Sl. No 4*100

In order to gain understanding of the functioning of PHCs and to evaluate their adherence to the IPHS 2007, the researcher has made personal visits during March 2013 to all the 45 selected PHCs. During the visits, the researcher has gained knowledge about the functioning of PHCs and prepared a schedule to collect the factual data and perceptions of beneficiaries from the select PHCs in Telengana Region of Andhra Pradesh.

Indian Public Health Standards (IPHS) for Primary Health Centres

An attempt is made herein to present the Indian Public Health Standards (IPHS) for primary health centers (PHCs) and to compare the facilities available at the select primary health centers located in three districts of Telengana region of Andhra Pradesh. The Government of India notified these standards by stipulating both qualitative and quantitative minimum norms of health care to be delivered by public health care organizations. The objective of these standards is to emphasize on the delivery of quality services, which are fair, responsive and equitable to the needs of the beneficiaries – the well being of target population.

With a view to assessing the level of availability of services and awareness of the availability of services by the beneficiaries in the select PHCs of three districts in Andhra Pradesh, availability score and ideal availability score is calculated as mentioned here under.

Services at the Primary Health Centre for meeting the IPHS

As per IPHS, every PHC has to provide minimum services as listed in Table -2

Table-2: Services to be provided by PHCs as per IPHS Standards

1. Assured Services
OPD services
24 hours emergency services
Referral services
In-patient services (6 beds)
3. Maternal and Child Health Care
Ante-natal care
Regular Organization of antenatal clinics
Facility for internal examination for gynecological conditions
Treatment for gynecological disorders like leucorrhoea, menstrual disorders etc.
Treatment for anemia given to all women
5. Other Services
Nutrition services
School Health programmes

Promotion of safe water supply
Promotion of basic sanitation
Prevention and control of local endemic diseases
2. Treatment of Specific Cases
Surgery for cataract
Primary management of wounds
Primary management of fracture
Minor surgeries like draining of abscess etc.
Primary management of cases of Poisoning / Snake, insect or scorpion bite
Primary management of burns
4. Family Planning Service
Facility for Tubectomy
Facility for vasectomy
Facility for Medical Termination Pregnancy (Abortion)
Management of Reproductive Track Infection (RTI) / Sexually Transmitted Infection (STI)
Usage of family planning devices
6. Other Functions
Disease surveillance and control of epidemics
Collection and reporting of vital statistics
Education about health / behaviour change communication

These services cover all the essential elements of preventive, promotive, curative and rehabilitative primary health care. However, the present study is restricted to understand the services that are to be provided by all the PHCs in respect of assured services, treatment of specific cases, maternal and child health care, family planning service and other services.

Assured Services

As per IPHS for PHCs, every PHC has to offer appropriate treatment for accident cases, treatment for dog bite/snake

bite/scorpion bite cases, stabilization of the condition of the patient in case of injuries before referral to higher level facilities and other emergency conditions. Further, the assured services include OPD services, 24 hour emergency services, referral services and in-patient services.

Comparative Analysis of Availability of Assured Services in PHCs

With a view to compare the availability of assured services in three districts in Telengana region of Andhra Pradesh, data pertaining to 45 PHCs in three districts of Telengana region- Warangal, Khammam and Karimnagar is presented in Table-3.

Data furnished in Table -3 reveals that assured services in Khammam district are available to the extent of 86.66 per cent, followed by Warangal district 75.00 per cent and Karimnagar district 71.66 per cent. Over all, assured services in the form of OPD services and referral services are available in all the 45 (100 per cent) PHCs. Assured services in the form of in-patient services are available in 34 (75.55 per cent) PHCs and 24 hr emergency services are available in 16 (35.55 per cent) PHCs. The data revealed that more assured services are available in Khammam district when compared with other two districts and assured services in the form of 24 hr emergency services are least available in the PHCs of select districts of Telengana.

The data presented in Table-3 were subjected to two-way ANOVA to test the hypotheses that there is no significant inter-district variation in the availability of assured services and inter-services variation of assured services provided by the PHCs. The analysis resulted in the rejection of the null hypothesis revealing a significant inter-district variation in the availability of assured services and inter-services variation of assured services provided by the PHCs.

Table -3: Comparative Analysis of Availability of Assured Services in PHCs in Three Districts

Sl. No.	Assured Services	Warangal Dist (15)	Khammam Dist.(15)	Karimnagar Dist. (15)	ASS	IASS	Percentage of Availability
1	OPD Services	15	15	15	45	45	100.00
2	24 Hr Emergency Services	4	7	5	16	45	35.55
3	Referral Services	15	15	15	45	45	100.00
4	In-patient Services	11	15	8	34	45	75.55
5	ASD	45	52	43	140	180	77.77
6	IASD	60	60	60	180		
7	Percentage of Availability	75.00	86.66	71.66	77.77		
8	F- Value	df.	F		P-value	F crit	
	Inter-district variation	2	5.047847		0.030	4.102	H ₀ Rejected
	Inter-service variation	5	29.95215		1.04E-05	3.325	H ₀ Rejected

Source: Field Survey

Awareness of the Availability of Assured Services in PHCs

With a view to understand the awareness of the beneficiaries of availability of assured services, data pertaining to 423 beneficiaries (147 in Warangal, 137 in Khammam and 139 in Karimnagar) within the target population of the 45 select PHCs in three districts of Telengana region- Warangal, Khammam and Karimnagar was culled out and presented in Table-4

Data furnished in Table -4 reveals that in Khammam district 66.05 per cent of the beneficiaries are aware of the availability of assured services in PHCs followed by 56.97 per

cent of beneficiaries in Warangal district and 56.55 per cent of beneficiaries in Karimnagar district. The analysis of the data also revealed that in terms of type of assured services, 423 (100.00 per cent) beneficiaries are aware of the availability OPD services in PHCs, followed by referral services, 329 (77.77 per cent) and in-patient services, 232 (54.84 per cent). However, only 28 (6.61 per cent) of the beneficiaries are aware of the availability of assured services in the form 24 hr emergency services indicating the inadequate communication between the PHCs and beneficiaries. On the whole, 59.81 per cent of beneficiaries are aware of the availability of assured services in the select PHCs of Telengana.

Table-4: Awareness of the Availability of Assured Services in PHCs- Beneficiaries

Sl.No.	Assured Service	Warangal District (147)	Khammam District (137)	Karimnagar District (139)	KSS	KASS	Percentage of Awareness
1	OPD Services	147	137	139	423	423	100.00
2	24 Hr Emergency Services	16	7	5	28	423	06.61
3	Referral Services	97	115	117	329	423	77.77
4	In-patient Services	75	103	54	232	423	54.84
5	KSD	335	362	315	1012	1692	59.81
6	KASD	588	548	556	1692		
7	Percentage of Awareness	56.97	66.05	56.65	59.81		
8	F- Value	Df	F		P-value	F crit	
	Inter-district variation	2	3.484266		0.0710	4.102	H ₀ Accepted
	Inter-service variation	5	30.116		1.01E-05	3.325	H ₀ Rejected

Source: Field Survey

The data presented in Table-4 were also subjected to two-way ANOVA to test the hypotheses that there is no significant inter-district and inter-services variation in the awareness among the beneficiaries on availability of assured services provided by the PHCs. The analysis resulted in the acceptance of the null hypothesis revealing there is no significant inter-district variation in the awareness among the beneficiaries on availability of assured services, but the inter-service analysis between the assured services provided by the PHCs resulted in rejection of null hypothesis signifying inter-service variations in the awareness among the beneficiaries.

Treatment of Specific Cases

As per IPHS for PHCs, every PHC has to offer appropriate treatment for specific cases in the form of surgery for cataract, primary management of wounds, primary management of fracture, minor surgeries like draining of abscess, primary management of cases of poisoning / snake, insect or scorpion bite and primary management of burns.

Comparative Analysis of Availability of Treatment of Specific Cases in PHCs

With a view to compare the availability of treatment for specific cases in three districts in Telengana region of Andhra Pradesh, data pertaining to 45 PHCs in three districts of Telengana region- Warangal, Khammam and Karimnagar is presented in Table-5.

Data furnished in table 5 reveal that treatment of specific cases in Khammam district are available to the extent of 81.11 per cent, followed by Karimnagar district 70.37 per cent and Warangal district 64.44 per cent. Over all, treatment of specific cases services in the form of surgery for cataract surgery is available in 3PHCs (6.67 per cent), primary management of wounds in 43PHCs (95.56 percent), primary management of fracture and minor surgeries like draining of abscess in 34 PHCs each (75.56 percent), primary management of cases of poisoning / snake, insect or scorpion bite in 39 PHCs (86.67 percent) and primary management of burns in 37PHCs (82.22 percent). The data revealed that more services are available in Khammam district than other two districts and treatment of specific cases - cataract surgery is less available in the PHCs of select districts of Telengana.

Table-5: Comparative Analysis of Availability-Treatment of Specific Cases in PHCs

Sl.No.	Treatment of Specific Cases	Warangal District (15)	Khammam District (15)	Karimnagar District (15)	ASS	IASS	Percentage of Availability
1	Cataract Surgery	1	1	1	3	45	06.67
2	Wounds	13	15	15	43	45	95.56
3	Fracture	12	14	8	34	45	75.56
4	Minor Surgeries	10	14	10	34	45	75.56
5	Poisoning/Snake bite	12	14	13	39	45	86.67
6	Burns	10	15	12	37	45	82.22
7	ASD	58	73	59	190	270	70.37
8	IASD	90	90	90	270		
9	Percentage of Availability	64.44	81.11	65.56	70.37		
10	F- Value	df	F		P-value	F crit	
	Sources of inter-district variation	2	3.484266		0.071085	4.102821	H ₀ Accepted
	Inter-service variation	5	30.116		1.01E-05	3.325	H ₀ Rejected

Source: Field Survey

The data presented in table 5 was also subjected to two – way ANOVA to test the hypotheses that there is no significant inter-district and inter-service variation in the availability of treatment for specific cases in select PHCs of Telengana. The analysis resulted in the acceptance of the null hypothesis revealing no significant inter-district variation in the availability of treatment of specific cases but the analysis resulted in the rejection of the null hypothesis revealing significant inter-services variation in the availability of treatment of specific cases in select PHCs in Telengana.

Awareness of the Availability of Treatment of Specific Cases in PHCs

With a view to understand the beneficiaries awareness on availability of treatment of specific cases in PHCs, data pertaining to 423 beneficiaries within the target population of

the 45 select PHCs in three districts of Telengana region- Warangal Khammam and Karimnagar and were culled out and presented in Table-6

Data furnished in table 6 reveal that in Khammam district, 68.98 per cent of the beneficiaries are aware of the availability of treatment of specific cases in PHCs followed by 66.21 per cent of beneficiaries in Warangal district and 56.83 per cent of beneficiaries in Karimnagar district. The analysis of the data also revealed that beneficiaries are aware of availability of treatment of specific cases- wounds - 389 (91.96 per cent), fractures- 335 (79.20 per cent), burns - 330 (78.01 per cent), poisoning/ snake bite - 280 (66.19 per cent), minor surgeries 252 (59.57 per cent) – Cataract surgery 39 (9.21 per cent). Overall, 64.03 per cent of beneficiaries are aware of the availability of treatment of specific cases in the select PHCs of Telengana.

Table-6: Awareness on the Availability of Treatment of Specific Cases in PHCs- Beneficiaries

.Sl.No	Specific Cases	Warangal District (147)	Khammam District (137)	Karimnagar District (139)	KSS	KASS	Percentage of Awareness
1	Cataract Surgery	21	5	13	39	423	9.21
2	Wounds	130	131	128	389	423	91.96
3	Fracture	126	134	75	335	423	79.20
4	Minor Surgeries	92	86	74	252	423	59.57
5	Poisoning / Snake bite	94	94	92	280	423	66.19
6	Burns	121	117	92	330	423	78.01
7	KSD	584	567	474	1625	2538	64.03
8	KASD	882	822	834	2538		
9	Percentage of Awareness	66.21	68.98	56.83	64.03		
10	F- Value	df	F		P-value	F crit	
	Inter-district variation	2	3.484266		0.071	4.102	H ₀ Accepted
	Inter-service variation	5	30.116		1.01E-05	3.325	H ₀ Rejected

Source: Field Survey

The data presented in table 6 were also subjected to two – way ANOVA to test the hypotheses that there is no significant inter-district and inter-service variation in the awareness among the beneficiaries on the availability of treatment for specific cases provided by the PHCs. The analysis resulted in the acceptance of the null hypothesis revealing no significant inter- district variation in the awareness among the beneficiaries on the availability of treatment for specific cases. The analysis resulted in the rejection of the null hypothesis revealing significant inter-service variation in the awareness among beneficiaries on the availability of treatment for specific cases provided at the PHCs.

Maternal and Child Health Care (MCH)

As per IPHS for PHCs, every PHC has to offer appropriate services in the form of ante-natal care, organization of ante-natal clinics, examination for gynecological conditions, treatment for gynecological disorders and treatment for anemia.

Comparative Analysis on Availability of Maternal and Child Health (MCH) Care in PHCs

With a view to compare the availability of MCH care services in three districts in Telengana region of Andhra Pradesh, data pertaining to 45 PHCs in three districts of Telengana region- Warangal, Khammam and Karimnagar are presented in table 7.

Table-7: Comparative Analysis of Availability of MCH Care in PHCs in three Districts

Sl.No.	MCH Care	Warangal District (15)	Khammam District (15)	Karimnagar District (15)	ASS	IASS	Percentage of Availability
1	Ante-natal care	14	13	14	41	45	91.11
2	Antenatal clinics	15	15	15	45	45	100.00
3	Examination of gynecological conditions	7	12	10	29	45	64.44
4	Treatment of gynecological conditions	7	12	6	25	45	55.56
5	Treatment for Anemia	14	12	13	39	45	86.67
6	ASD	57	64	58	179	225	79.56
7	IASD	75	75	75	225		
8	Percentage of Availability	76.00	85.33	77.33	79.56		
9	F- Value	df	F		P-value	F crit	
	Inter-district variation	2	0.757709		0.499	4.458	H ₀ Accepted
	Inter-service variation	4	6.273128		0.013	3.837	H ₀ Rejected

Source: Field Survey

Data furnished in table 7 reveal that maternal and child health Care services in Khammam district are available to the extent of 85.33 per cent, followed by Karimnagar district (77.33 per cent) and Warangal district (76.0 per cent). Over all maternal and child health care services in the form of ante-natal care is available in 41 (91.11 per cent) PHCs, ante-natal clinics in 45 (100 per cent) PHCs, facility for examination of gynecological conditions in 29 (64.44 per cent) PHCs, treatment of gynecological conditions in 25 (55.56 per cent) PHCs and treatment for anemia in 39 (86.67 per cent) PHCs. The data revealed that more services are available in Khammam district when compared with other two districts and maternal and child health care services in the form of treatment of gynecological conditions is less available in the PHCs of select districts of Telengana.

The data presented in table 7 were also subjected to two – way ANOVA to test the hypotheses that there is no significant

inter-district and inter-service variation in the availability of maternal and child health care services provided by the PHCs. The analysis resulted in the acceptance of the null hypothesis revealing no significant inter-district variation in the availability of maternal and child health care services but the analysis also resulted in the rejection of the null hypothesis revealing significant inter-service variation in the availability of various types of maternal and child health care services provided by the PHCs.

Awareness of the Availability of Maternal and Child Health Care in PHCs

With a view to understand the awareness of the beneficiaries on the availability of maternal and child health care in PHCs, data pertaining to 423 beneficiaries within the target population of the 45 select PHCs in three districts of Telengana region- Warangal, Khammam and Karimnagar were culled out and presented in table 8.

Table-8: Awareness of the Availability of Maternal and Child Health Care in PHCs- Beneficiaries

Sl. No.	MCH Care	Warangal District (147)	Khammam District (137)	Karimnagar District (139)	KSS	KASS	Percentage of Awareness
1	Ante-natal care	136	129	129	394	423	93.14
2	Antenatal clinics	126	112	116	354	423	83.69
3	Examination of gynecological conditions	15	29	14	58	423	13.71
4	Treatment of gynecological conditions	18	32	17	67	423	15.84
5	Treatment for Anemia	76	48	52	176	423	41.61
6	KSD	371	350	328	1049	2115	49.60
7	KASD	735	685	695	2115		
8	Percentage of Awareness	50.48	51.09	47.19	49.60		
9	F- Value	df	F		P-value	F crit	
	Inter-district variation	2	1.069391		0.387	4.458	H ₀ Accepted
	Inter-service variation-	4	95.70239		8.64E-07	3.837	H ₀ Rejected

Source: Field Survey

Data furnished in table 8 reveal that in Khammam district, 51.09 per cent of the beneficiaries are aware of the availability of maternal and child health care in PHCs followed by 50.48 per cent of beneficiaries in Warangal district and 47.19 per cent of beneficiaries in Karimnagar district. The analysis of the data also revealed that in terms of maternal and child health care, 394 (93.14 per cent) beneficiaries are aware of the availability of ante-natal care services, 354 (83.69 per cent) beneficiaries are aware of the availability of ante-natal clinic services, 176 (41.61 per cent) beneficiaries are aware of the availability of treatment for anemia services, 67 (15.84 per cent) of the beneficiaries are aware of the availability of treatment of gynecological conditions. However, only 58 (13.71 per cent) of the beneficiaries are aware of the availability of services for examination of gynecological conditions. Overall, 49.60 per cent of the beneficiaries are aware of the availability of maternal and child health care in the select PHCs of Telengana.

The data presented in table 8 were also subjected to two – way ANOVA to test the hypotheses that there is no significant inter-district and inter-service variation in the awareness of the beneficiaries about the availability of maternal and child health care services provided by the PHCs. The analysis resulted in the acceptance of the null hypothesis revealing no significant inter-district variation in the awareness of availability of maternal and child health care services but the analysis also resulted in the rejection of the null hypothesis revealing significant inter-service variation in the awareness of availability of various types of services within the MCH Care provided by the PHCs.

Family Planning Services

Family planning services consist of educating, motivating and counseling target population to adopt appropriate family planning methods. The PHCs have to provide contraceptives

such as condoms, oral pills, emergency contraceptives, IUD insertions after indentifying eligible persons. Eligible couples who adopt permanent methods (tubectomy /vasectomy) have to be followed up to check if they develop any complications. Couples who require medical termination of pregnancy (MTP) and infertility problem should be counseled and referred to appropriate health care centre. Further, every PHC has to offer appropriate treatment for reproductive tract infections (RTI) and sexually transmitted infections (STI). As per IPHS for PHCs, every PHC has to offer family planning services in the form of facility for tubectomy, vasectomy, medical termination of pregnancy(MTP), management of reproductive tract and ST infections (RTI/STI) and education on the use family planning devices.

Comparative Analysis of Availability of Family Planning Services in PHCs

With a view to compare the availability of family planning services in three districts in Telengana region of Andhra Pradesh, data pertaining to 45 PHCs in three districts of Telengana region- Warangal, Khammam and Karimnagar are presented in table 9.

Data furnished in table 9 reveal that family planning services in Warangal district are available to the extent of 74.67 per cent, followed by Khammam district 70.67 per cent and Karimnagar district 62.67 per cent. Family planning services in the form of tubectomy are available in 38 (84.44 per cent) PHCs, vasectomy in 39 (86.67 per cent) PHCs, medical termination of pregnancy (MTP) in 7 (15.56 per cent) PHCs, management of reproductive tract and ST infections (RTI/STI) in 33 (73.33 per cent) PHCs and education on use family planning devices in 39 (86.67 per cent) PHCs. The data revealed that more services are available in Warangal district when compared with other two districts and family planning

services in the form of MTP is less available in the PHCs of select districts of Telengana.

The data presented in table 9 were also subjected to two – way ANOVA to test the hypotheses that there is no significant inter-district and inter-service variation in the availability of family planning services provided by the PHCs. The analysis

resulted in the rejection of the null hypothesis revealing significant inter-district variation in the availability of family planning services between the three districts. The analysis also resulted in the rejection of the null hypothesis revealing significant inter-service variation in the availability of various types of family planning services provided by the PHCs in select districts of Telengana.

Table-9: Comparative Analysis of Availability of Family Planning Services in PHCs

Sl. No.	Family Planning Services	Warangal District (15)	Khammam District (15)	Karimnagar District (15)	ASS	IASS	Percentage of Availability
1	Tubectomy	14	12	12	38	45	84.44
2	Vasectomy	14	13	12	39	45	86.67
3	MTP	2	3	2	7	45	15.56
4	RTI/STI	11	12	10	33	45	73.33
5	Family Planning Devices	15	13	11	39	45	86.67
6	ASD	56	53	47	156	225	69.33
7	IASD	75	75	75	225		
8	Percentage of Availability	74.67	70.67	62.67	69.33		
9	F- Value	Df	F	P-value		F crit	
	Sources of inter-district variation	2	4.846154	0.0418		4.458	H ₀ Rejected
	Inter-service variation	4	72.76923	2.5E-06		3.837	H ₀ Rejected

Source: Field Survey

Awareness of the Availability of Family Planning Services in PHCs

With a view to understand the awareness of the beneficiaries of availability of family planning services in PHCs, data pertaining to 423 beneficiaries within the target population of the 45 select PHCs in three districts of Telengana region- Warangal, Khammam and Karimnagar were culled out and presented in table 10.

Data furnished in table 10 reveals that in Khammam district, 53.14 per cent of the beneficiaries are aware of the availability of family planning services in PHCs followed by 47.19 per cent of beneficiaries in Karimnagar district and 44.49 per cent of beneficiaries in Warangal district. The analysis of the data also revealed that in terms of type of family planning services, 394 (93.14 per cent) beneficiaries are aware of the availability of tubectomy services. 393 (92.91 percent) beneficiaries are aware of the availability of vasectomy services. 106 (25.06 percent) beneficiaries are

aware of the availability of family planning devices 94 (22.22 percent) beneficiaries are aware of the availability of RTI/STI service and only 32 (7.51 per cent) of the beneficiaries are aware of the availability MTP services indicating the inadequate communication between the PHCs and beneficiaries. Overall, 48.18 per cent of beneficiaries are aware of the availability of family planning services in the select PHCs of Telengana.

The data presented in table 10 were also subjected to two – way ANOVA to test the hypotheses that there is no significant inter-district and inter-service variation in the awareness of the beneficiaries about the family planning services provided by the PHCs. The analysis resulted in the acceptance of the null hypothesis revealing no significant inter-district variation in the awareness of family planning services but the analysis resulted in the rejection of the null hypothesis revealing significant inter-service variation in the awareness of various types of services available within the family planning services provided by the PHCs.

Table-10: Awareness of the Availability of Family Planning Services in PHCs- Beneficiaries

Sl. No.	Family Planning Services	Warangal District (147)	Khammam District (137)	Karimnagar District (139)	KSS	KASS	Percentage of Awareness
1	Tubectomy	131	135	128	394	423	93.14
2	Vasectomy	131	133	129	393	423	92.91
3	MTP	8	12	12	32	423	7.51
4	RTI/STI	20	42	32	94	423	22.22

5	Family Planning Devices	37	42	27	106	423	25.06
6	KSD	327	364	328	1019	2115	48.18
7	KASD	735	685	695	2115		
8	Percentage of Awareness	44.49	53.14	47.19	48.18		
9	F- Value	Df	F	P-value	F crit		
	Inter-district variation	2	3.16064	0.097	4.458		H ₀ Accepted
	Inter-service variation	4	364.8749	4.4E-09	3.837853		H ₀ Rejected

Source: Field Survey

Other Services at PHCs

Every PHC has to offer appropriate diagnose for malnourishment in children, pregnant women and others, offer advice on nutritious food and coordinate with Integrated Child Development Scheme (ICDS). Conduct regular checkup of school children in their schools; provide appropriate treatment to the children including de-worming. Life style education and counseling to adolescents either individually or in groups has to be provided. Promote safe drinking water by checking and testing the quality of water and suggesting appropriate measures to the concerned officials and promote basic sanitation within its jurisdiction and advice concerned authorities appropriately.

The PHCs should take appropriate measures for disinfection of water sources after testing the water quality using H2S- Strip Test. Further, every PHC has to take appropriate steps within its jurisdiction on prevention and control of locally endemic diseases like malaria, kalaazar, Japanese encephalitis, etc

Comparative Analysis of Availability of Other Services in PHCs

Table-11: Comparative Analysis of Availability of other Services in PHCs in Three Districts

Sl. No.	Other Services	Warangal District (15)	Khammam District (15)	Karimnagar District (15)	ASS	IASS	Percentage of Availability
1	Nutrition	7	6	7	20	45	44.44
2	School Health	15	14	15	44	45	97.78
3	Safe Water	13	15	14	42	45	93.33
4	Basic Sanitation	14	15	15	44	45	97.78
5	Control of Endemic Diseases	14	15	15	44	45	97.78
6	ASD	63	65	66	194	225	86.22
7	IASD	75	75	75	225		
8	Percentage of Availability	84.00	86.67	88.00	86.22		
9	F- Value	df	F	P-value	F crit		
	Inter-district variation	2	1	0.409	4.458		H ₀ Accepted
	Inter-service variation	4	79.42857	1.78E-06	3.837		H ₀ Rejected

Source: Field Survey

The data presented in table 11 were also subjected to two – way ANOVA to test the hypothesis that there is no significant inter-district and inter-service variation in the availability of other services provided by the PHCs. The analysis resulted in

With a view to compare the availability of other services in three districts in Telengana region of Andhra Pradesh, data pertaining to 45 PHCs in three districts of Telengana region- Warangal, Khammam and Karimnagar are presented in table 11.

Data furnished in table 11 reveal that other services in Karimnagar district are available to the extent of 88.00 per cent, followed by Khammam district 86.76 per cent and Warangal district 84.00 percent. Other services in the form of advice on nutrition is available in 20 PHCs (44.44 per cent), health check up of school children in 44 PHCs (97.78 percent), promoting use of safe drinking water in 42 PHCs (93.33 per cent), education on sanitation in 44 PHCs (97.78 per cent) and steps to control endemic diseases in 44 PHCs (97.78 per cent) of the 45 PHCs selected for the study. The data revealed that more services are available in Karimnagar district when compared with other two districts and other services in the form of advice on nutrition are less available in the PHCs of select districts of Telengana.

the acceptance of the null hypothesis revealing that there is no significant inter-district variation in the availability of other services but the analysis resulted in the rejection of the null hypothesis revealing significant inter-service variation in the

availability of various types of other services provided by the PHCs.

Awareness of the Availability of other Services in PHCs

With a view to understand the awareness of the beneficiaries of availability of other services in PHCs, data

pertaining to 423 beneficiaries within the target population of the 45 select PHCs in three districts of Telengana region- Warangal, Khammam and Karimnagar were culled out and presented in table 12.

Table-12: Awareness of the Availability of Other Services in PHCs- Beneficiaries

Sl. No	Other Services	Warangal District (147)	Khammam District (137)	Karimnagar District (139)	KSS	KASS	Percentage of Awareness
1	Nutrition	38	18	28	84	423	19.86
2	School Health	112	115	100	327	423	77.30
3	Safe Water	48	26	67	141	423	33.33
4	Basic Sanitation	37	23	44	104	423	24.59
5	Control of Endemic Diseases	31	20	47	98	423	23.17
6	KSD	266	202	286	754	2115	35.65
7	KASD	735	685	695	2115		
8	Percentage of Awareness	36.19	29.49	41.15	35.65		
9	F- Value	df	F	P-value		F crit	
	Inter-district variation	2	3.095391	0.1010		4.458	H ₀ Accepted
	Inter-service variation	4	27.18569	0.0001		3.837	H ₀ Rejected

Source: Field Survey

Data furnished in table 12 reveal that in Karimnagar district, 41.15 per cent of the beneficiaries are aware of the availability of other services in PHCs followed by 36.19 per cent of the beneficiaries in Warangal district and 29.49 per cent of beneficiaries in Khammam district. The analysis of the data also revealed that in terms of other services, 327 (77.30 per cent) beneficiaries are aware of the availability of school health services in PHCs. 141 (33.33 percent) beneficiaries are aware of the availability of safe water services. 104 (24.59 percent) beneficiaries are aware of the availability of basic sanitation service. 98 (23.17 percent) beneficiaries are aware of the availability of control of endemic disease services. However, only 84 (19.86 percent) of the beneficiaries are aware of the availability of advise on nutrition services. Overall, 35.65 percent of beneficiaries are aware of the availability of other services in the select PHCs of Telengana.

The data presented in table 12 were also subjected to two – way ANOVA to test the hypotheses that there is no significant inter-district and inter-service variation in the awareness of the beneficiaries about the other services provided by the PHCs. The analysis resulted in the acceptance of the null hypothesis

revealing no significant inter-district variation in the awareness of other services but the analysis also resulted in the rejection of the null hypothesis revealing significant inter-service variation in the awareness of various types of services available within the other services provided by the PHCs.

Other Functions at PHC

As per IPHS for PHCs, every PHC should perform other functions such as being alert to detect unusual health events and take appropriate remedial measures, reporting the vital events after collecting the same periodically. Further, all PHCs should educate the public in general on aspects about health and function as change agent in the behavioral modification of the target population.

Analysis of Availability of Other Functions at PHCs

With a view to compare availability of other functions at PHCs in three districts in Telengana region of Andhra Pradesh, data pertaining to 45 PHCs in three districts of Telengana region- Warangal, Khammam and Karimnagar are presented in table 13.

Table-13: Comparative Analysis of Availability Other Functions at PHCs

Sl. No	Other Functions	Warangal District (15)	Khammam District (15)	Karimnagar District (15)	ASS	IASS	Percentage of Availability
1	Disease Surveillance and Control	14	14	15	43	45	95.56
2	Reporting of Vital statistics	14	15	15	44	45	97.78
3	Health Education	12	15	13	40	45	88.89
4	ASD	40	44	43	127	135	94.07
5	IASD	45	45	45	135		
6	Percentage of Availability	88.89	97.78	95.56	94.07		
7	F- Value	df	F	P-value		F crit	
	Inter-district variation	2	1.857143	0.2688		6.944	H ₀ Accepted
	Inter-service variation	2	1.857143	0.268		6.944	H ₀ Accepted

Source: Field Survey

Data furnished in table 13 reveal that other functions in Khammam district are available to the extent of 97.78 per cent, followed by Karimnagar district (95.56%) and Warangal district (88.89%). Other functions in the form of disease surveillance and control is available in 43 PHCs (95.56%), reporting of vital statistics in 44 PHCs (97.78%), and health education in 40 PHCs (88.89%) of the 45 PHCs selected for the study. The data revealed that more functions are available in Karimnagar district when compared with other two districts.

The data presented in table 13 were also subjected to two – way ANOVA to test the hypothesis that there is no significant inter-district and inter-service variation in the availability of other functions provided by the PHCs. The analysis resulted in

the acceptance of the null hypothesis revealing that there is no significant inter-district variation in the availability of other functions and also the analysis resulted in the acceptance of the null hypothesis revealing there is no significant inter-service variation in the availability of various types of other functions provided by the PHCs.

Awareness of other Functions at PHCs

With a view to understand the awareness of the beneficiaries of availability of other services in PHCs, data pertaining to 423 beneficiaries within the target population of the 45 select PHCs in three districts of Telengana region- Warangal, Khammam and Karimnagar were culled out and presented in table 14.

Table-14: Awareness of on Availability of Other Functions at PHCs- - Beneficiaries

Sl. No.	Other Functions	Warangal District (147)	Khammam District (137)	Karimnagar District (139)	KSS	KASS	Percentage of Awareness
1	Disease Surveil- lance and Control	27	13	42	82	423	19.39
2	Reporting of Vital statistics	90	75	101	266	423	62.83
3	Health Education	56	58	55	169	423	39.95
4	KSD	173	146	198	517	1269	40.74
5	KASD	441	411	417	1269		
6	Percentage of Awareness	39.23	35.52	47.48	40.74		
7	F- Value	df	F	P-value		F crit	
	Inter-district variation	2	2.861777	0.169		6.944	H ₀ Accepted
	Inter-service variation	2	35.84908	0.002		6.944	H ₀ Rejected

Source: Field Survey

Data furnished in table 14 reveal that in Karimnagar district, 47.48 per cent of the beneficiaries are aware of the availability of other functions in PHCs followed by 39.23 per cent of beneficiaries in Warangal district and 35.52 per cent of beneficiaries in Khammam district. The analysis of the data also revealed that in terms of all other functions, 266 (62.83%)

beneficiaries are aware of the availability of reporting of vital statistics function in PHCs, followed by health education function (39.95%). However, only 82 (19.39%) of the beneficiaries are aware of the availability of disease surveillance and control function. Overall, 40.74 per cent of

beneficiaries in the select PHCs of Telengana are aware of other functions of PHCs.

The data presented in table 14 were also subjected to two – way ANOVA to test the hypothesis that there is no significant inter-district and inter-service variation in the awareness of the beneficiaries about the other functions of PHCs. The analysis resulted in the acceptance of the null hypothesis revealing no significant inter-district variation in the awareness of other functions between the three districts but the analysis resulted in the rejection of the null hypothesis revealing significant inter-function variation in the awareness of functions available within the other functions.

Conclusions and Suggestions

The study on understanding of health care facilities at PHCs in Telengana region of Andhra Pradesh in terms of availability of services and awareness of services by the beneficiaries revealed that services provided by the PHCs include assured services, treatment of specific cases, MCH care, family planning services, other services and other functions. The conclusions of the study include;

1. Assured services in the form of OPD services and referral services are available in all the 45 PHCs. Assured services in the form of in-patient services are available in 34 (75.55%) PHCs and 24 hr emergency services are available in 16 (35.55%) PHCs. The analysis of the data also revealed that in terms of type of assured services, 423 (100%) beneficiaries are aware of the availability OPD services in PHCs, followed by referral services 329 (77.77%) and in-patient services 232 (54.84%). However, only 28 (6.61%) of the beneficiaries are aware of the availability of assured services in the form 24 hr emergency services. On the whole, 59.81 per cent of beneficiaries are aware of the availability of assured services in the select PHCs of Telengana.
2. Treatment of specific cases services in the form of surgery for cataract is available in 3 (6.67%) PHCs, Primary management of wounds in 43 (95.56%) PHCs, primary management of fracture and minor surgeries like draining of abscess in 34 (75.56%) PHCs each, primary management of cases of poisoning / snake, insect or scorpion bite in 39 (86.67%) PHCs and primary management of burns in 37 (82.22%) PHCs. The analysis of the data also revealed that beneficiaries are aware of availability of treatment of specific cases- wounds - 389 (91.96%), Fractures- 335 (79.20%), Burns - 330 (78.01%), Poisoning/ Snake Bite - 280 (66.19%), Minor Surgeries -252 (59.57%), Cataract surgery- 39 (9.21%). Overall, 64.03% of the beneficiaries are aware of the availability of assured services in the select PHCs of Telengana.
3. Maternal and Child Health Care services in the form of ante-natal care are available in 41 (91.11%) PHCs, antenatal clinics in 45 (100%) PHCs, facility for examination of gynecological conditions in 29 (64.44%) PHCs, treatment of gynecological conditions in 25 (55.56%) PHCs and treatment for anemia in 39 (86.67%) PHCs. The analysis of the data also revealed that in terms of MCH Care, 394 (93.14%) beneficiaries are aware of the availability of ante-natal care services, 354 (83.69%) beneficiaries are aware of the availability of ante-natal clinic services, 176 (41.61%) beneficiaries are aware of the availability of treatment for anemia services, 67 (15.84%) of the beneficiaries are aware of the availability treatment for gynecological conditions.. Overall, 49.60% of beneficiaries are aware of the availability of MCH care in select PHCs of Telengana.
4. Family planning services in the form of tubectomy are available in 38 (84.44%) PHCs, vasectomy in 39 (86.67%) PHCs, medical termination of pregnancy (MTP) in 7 (15.56%) PHCs, management of reproductive tract and ST infections (RTI/STI) in 33 (73.33%) PHCs and education on use of family planning devices in 39 (86.67%) PHCs. 394 (93.14%) beneficiaries are aware of the availability of tubectomy services. 393 (92.91%) beneficiaries are aware of the availability of vasectomy services. 106 (25.06%) beneficiaries are aware of the availability of family planning devices. 94 (22.22%) beneficiaries are aware of the availability of RTI/STI service and only 32 (7.51%) of the beneficiaries are aware of the availability MTP services. On the whole, 48.18% of beneficiaries are aware of the availability of family planning services in the select PHCs of Telengana.
5. Other services in the form advice on nutrition are available in 20 PHCs (44.44%), health check up of school children in 44 PHCs (97.78%), promoting use of safe drinking water in 42 PHCs (93.33%), education on sanitation in 44 PHCs (97.78%) and steps to control endemic diseases in 44 PHCs (97.78%) of the 45 PHCs selected for the study. The analysis of the data also revealed that in terms of other services, 327 (77.30%) beneficiaries are aware of the availability of school health services in PHCs. 141 (33.33%) beneficiaries are aware of the availability of safe water services. 104 (24.59%) beneficiaries are aware of the availability of basic sanitation service. 98 (23.17%) beneficiaries are aware of the availability of control of endemic disease services. 84 (19.86%) of the beneficiaries are aware of the availability of nutrition services. On the whole, 35.65% of beneficiaries are aware of the availability of other services in the select PHCs of Telengana.
6. Other functions in the form disease surveillance and control is available in 43 PHCs (95.56%), reporting of vital statistics in 44 PHCs (97.78%), and health education in 40 PHCs (88.89%) of the 45 PHCs selected for the study. The analysis of the data also revealed that in terms of all other functions, 266 (62.83%) beneficiaries are aware of the availability of reporting of vital statistics

function in PHCs, followed by health education function 169 (39.95%) beneficiaries. However, only 82 (19.39%) of the beneficiaries are aware of the availability of disease surveillance and control function. On the whole, 40.74% of beneficiaries in the select PHCs of Telengana are aware that PHCs also perform other functions.

Suggestions

The study revealed that in spite of prescribing IPHS for PHCs in India for a quite long period, all services stipulated by IPHS are not offered at the select PHCs in Telengana region indicating lot of variations and deficiencies in the availability of the services. Further, the beneficiaries are not fully aware of the services provided by the select PHCs in three districts of Telengana in spite of existence of citizen charter. In view of the above facts, the Government has to take measures to provide services in PHCs as per IPHS and educate the target population to enable them to utilize the services provided by the PHCs in select districts of Telengana-Warangal, Khammam and Karimnagar.

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Impact of Cloud Computing on Business Creation, Employment and Output with Special Reference to Small and Medium Enterprises in India

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ARTICLE INFO

Article history:

Received 30th Sep. 2013

Accepted 30th Dec. 2013

Keywords:

Cloud computing,
Web services,
Virtualization,
Grid computing,
Small and medium enterprises (SMEs)

ABSTRACT

Small and Medium Enterprises seek opportunities to rationalize the way they manage their resources. Information technology had a great impact in all aspects of life and the global economy is currently undergoing fundamental transformation. Information technology has very real impact in most of industries and in all aspects of economy, while businesses and enterprises continue to undergo considerable changes. Usage of these technologies is revolutionizing the rules of business, resulting in structural transformation of enterprises. Modern businesses are not possible without the help of information technology, which is having a significant impact on the operations of Small and Medium Enterprises (SME) and it is claimed to be essential for the survival and growth of the economies in general. It is argued in this article that cloud computing is likely to be one of those opportunities sought by the Small and Medium Enterprises (SME) in these difficult times and could prove to be of immense benefit (and empowering in some situations) to them due to its flexibility and pay-as-you-go cost structure (Pay-per-use: You pay for cloud services only when you use them, either for the short term (for example, for CPU time) or for a longer duration (for example, for cloud-based storage or vault services). Cloud computing is an emerging new computing paradigm for delivering computing services. This computing approach relies on a number of existing technologies, e.g., the Internet, virtualization, grid computing, Web services, etc. Cloud computing is an emerging area that affects IT infrastructure, network services, and applications. The term "cloud computing" has different connotations for IT professionals, depending upon their point of view and often their own products and offerings. As with all emerging areas, real-world deployments and customer success stories will generate a better understanding of the term. The provision of this service in a pay-as-you-go way through (largely) the popular medium of the Internet gives this service a new distinctiveness. In this article, some aspects of this distinctiveness will be highlighted and some light will be shed on the current concerns that might be preventing some organizations from adopting it.

Introduction

Cloud computing is a new general purpose Internet-based technology through which information is stored in servers and

provided as a service and on-demand to clients. It can provide a fundamental contribution to promote growth and competition, and it can help the economy to recover from a severe downturn.

"The cloud" can be implemented to varying degrees. Cloud computing in its simplest form involves moving data storage from in-house servers to a third-party service provider with centralized servers for many clients. It can also involve moving entire operating systems and software to "the cloud" so that users can connect via an internet connection to the application they want.

Cloud computing is an emerging new computing paradigm for

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ISSN : 2230 – 9764

Doi: <http://dx.doi.org/10.11127/gmt.2013.12.06>

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delivering computing services. This computing approach relies on a number of existing technologies, e.g., the Internet, Virtualization, Grid Computing, Web Services, etc. The provision of this service in a pay-as-you-go way through (largely) the popular medium of the Internet gives this service a new distinctiveness.

Providing software as a service is not a new computing practice. Some companies, known as Application Service Providers (ASPs), were providing businesses with software programs as a service via the medium of the Internet during the 1990s. However, such attempts at "utility computing" did not take off. This was largely attributed to lack of sufficient bandwidth. During that period, broadband was neither cheap nor plentiful enough for utilities to deliver computing services with the speed and reliability that businesses enjoyed with their local machines (Carr, 2009). Then came Web services (especially those based on the XML-based SOAP message protocol) that represented a model of software delivery based on the notion that pieces of software applications could be developed and then published to a registry where they can be dynamically discovered and consumed by other client applications over different transport protocols (e.g., HTTP, TCP/IP, etc.) irrespective of the language used to develop those applications or the platforms (e.g., Operating systems, Internet servers) on which they are implemented. This was a dramatic improvement over the SOAP is an XML-based and open source message transport protocol. It stands for Simple Object Access Protocol services provided by ASPs which relied on proprietary (and hence un-portable) software.

The advent of Web services promised many exciting possibilities. Some of these promised possibilities initially received a great deal of attention and were a frequent subject of media discussions and futuristic scenarios (sometimes amounting to "hype") such as the ability to automate the process of discovery, binding, and invocation of Web services on the Internet without human intervention (Manes, 2004; Nakhimovsky & Myers, 2004). One technology analyst and author (David Chappell) in 2003 even doubted if there was a business case for Web services (Chappell, 2003). However, Web services are nowhere near achieving the full potential that was hoped for. Nevertheless, the technology is being implemented successfully (and commercially) by many of the big players such as eBay, Amazon and Google (Iskold, 2006). Furthermore, the technology has also created the foundation for a new Enterprise Application Integration (EAI) paradigm known as Service-Oriented Architecture (SOA). The extensible XML-based nature of SOAP has enabled many organizations to expose some of their legacy and disparate systems as Web services in order to achieve total integration of their systems (Clark, 2007; Flinders, 2007; Mohamed, 2007). Most importantly, SOAP-based Web services are now being used in the delivery of some aspects of a new computing paradigm (namely cloud computing) which not only promises to deliver software remotely but also other computing-related functionality thanks also to other relatively new technologies such as virtualization and grid computing.

Firms will be able to adopt this service on demand, so as to avoid large up-front costs (that are currently necessary for hardware and software equipment) and spend in ICT according to their production necessities - Dubey and Wagle (2007) and

Armbrust et al. (2009) for early reviews of the topic. This will have a large impact on the cost structure and through it on the production possibilities of all firms, especially small and medium size enterprises (SMEs). Cloud computing allows enterprises to get their applications up and running faster, with improved manageability and less maintenance, and enables IT to more rapidly adjust resources to meet fluctuating and unpredictable business demand. Application of cloud computing is going to reduce drastically the fixed costs of entry and production, turning part of them into variable costs related to the production necessities. This will have a positive impact on entry and competition in all. But for many organizations, in a short period of time may not be possible to make the transition to cloud computing, particularly as the cloud market is so new. Longer term, cloud computing is increasingly appearing to be a transformative change in the business landscape. Cloud computing is becoming part of the enterprise more and more. Customers every day are considering the cloud as a way to drive new business opps and it's becoming a reality for many.

Though cloud computing is the best thing for small business since the invention of the stapler. But that doesn't mean that every small business should immediately throw out all their servers and software and conduct all their business operations in the cloud. Small business owners have different needs and different comfort levels. It may be more advantageous for them to use cloud computing only for certain applications. Cloud computing is a great opportunity for small businesses to off-load the hassle and costs of IT management.

One approach might be to start cloud computing slowly; choose one or two of business applications to replace and see how it goes. Hopefully over time it will become more comfortable and able to reap even more. Security issues related to having their business data 'out' on the Internet seem to be the number one concern of small business owners.

What is Cloud Computing?

There seems to be many definitions of cloud computing around. A study by McKinsey (the global management consulting firm) found that there are 22 possible separate definitions of cloud computing. In fact, no common standard or definition for cloud computing seems to exist (Grossman, 2009; Voas & Zhang, 2009).

According to National Institute of Standards and Technology (NIST) definition:

"Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (for example, networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction."

It is a service, a platform, and even an operating system. Some even link it to such concepts as grid computing -- which is a way of taking many different computers and linking them together to form one very big computer.

Cloud computing can mean a lot of things, but essentially, it refers to any service in which data is stored in a remote virtual environment instead of on your business' premises. Generally, these services are subscription-based, and may be billed on a monthly basis, with rates dependent on the amount of data you're storing remotely, or in "the cloud".

A basic definition of cloud computing is the use of the Internet for the tasks of performing on computers. The "cloud" represents the Internet. Beyond just being used as a place to store and share information, cloud computing can be used to manipulate information. For example, instead of using a local database, businesses could rent CPU time on a web-based database. The major drawback of using cloud computing as a service is that it requires an Internet connection. So, while there are many benefits, sometimes it may cut off from the Web.

How Cloud Computing Works

Although cloud computing is an emerging field of computer science, the idea has been around for a few years. It's called cloud computing because the data and applications exist on a "cloud" of Web servers.

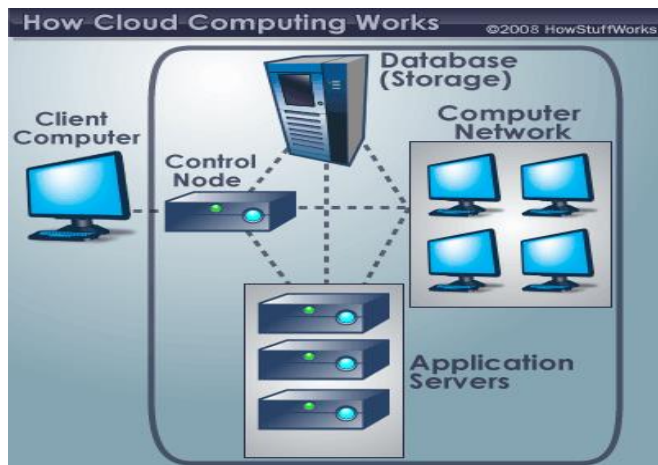


Fig. 1

Source: by Jonathan Strickland, Howstuffworks.com

For an executive of a large corporation responsibilities are more. Among all other responsibilities, particular responsibility includes providing the employees the right hardware and software they need to do their jobs. Buying computers for everyone isn't enough – they also have to purchase software or software licenses to give employees the tools they require. Whenever a new hire, they have to buy more software or make sure that current software license allows another user. It's so stressful for executives.

As such there is an alternative available for executives. Instead of installing a suite of software for each computer, they have to load one application. That application would allow workers to log into a Web-based service which hosts all the programs the user would need for his or her job. Remote machines owned by another company would run everything from e-mail to word processing to complex data analysis programs. It's called cloud computing, and it could change the entire computer industry.

In a cloud computing system, there's a significant workload shift. Local computers no longer have to do all the heavy lifting when it comes to running applications. The network of computers that make up the cloud handles them instead. Hardware and software demands on the user's side decrease. The only thing the user's computer needs to be able to run is the cloud computing system's interface software, which can be as simple as a Web browser, and the cloud's network takes care of the rest.

For example, an e-mail account with a Web-based e-mail service like Hotmail, Yahoo! Mail or Gmail, then they have some

experience with cloud computing. Instead of running an e-mail program on your computer, you log in to a Web e-mail account remotely. The software and storage account doesn't exist on computer -- it's on the service's computer cloud.

Some of the companies researching cloud computing are big names in the computer industry. Microsoft, IBM and Google are investing millions of dollars into research. Some people think Apple might investigate the possibility of producing interface hardware for cloud computing systems.

Cloud Computing in India

Gartner estimated that SaaS market in India was US\$27 million in 2007. According to a study by Springboard Research, the Indian SaaS market would experience a CAGR (compound annual growth rate) of 77% during 2006-2010 and will reach US\$165 million in 2010 (IANS 2008). According to a study by India's National Association of Software and Services Companies (NASSCOM) and McKinsey, remote infrastructure management will be a US\$15 billion industry in India by 2013.

In September 2008, IBM opened a cloud center in Bangalore, which targets mid-market vendors, universities, government bodies and microfinance and telecommunications companies (Channelworld 2008). Indian universities are banking on the cloud to develop innovative research and education activities. The Indian Institute of Technology (IIT), Kanpur and other academic institutions use the cloud (MacMillan 2009; Raghu (2008). In November 2009, Microsoft India announced commercial availability of cloud services such as e-mail, collaboration, conferencing and productivity starting US\$2 per user per month (HT 2009). These services are mainly targeted to SMEs. India also has a number of local cloud providers

In July 2009, VM ware opened a cloud center in Pune (eeherald.com 2009). Likewise, the U.S. Company, *Parallels* announced a plan to establish cloud operations in India (Desai 2009). The SaaS vendor, Salesforce.com, which started its operations in 2005, is focusing on cities such as Bangalore, Gurgaon and Mumbai and is taking measures to create cloud awareness. Salesforce.com's clients include big companies such as Bharti AXA General Insurance, eBay India, Sify Technologies, Polaris Software Labs, Lodha Group, Servion, Maytas Properties, HCL, Sasken Communication Technologies, Ocimum Biosolutions, and state owned National Research Development Corporation (NRDC) (Srikanth 2009).

The Indian offshoring industry is probably the prime example of an industry that is likely to feel the impact of cloud computing. The demand for cloud related services is especially high in the offshoring industry and technology hubs such as Bangalore and Delhi (Economic Times 2009).

SMEs and Importance of Information Technology in its Field

Small- and medium-scale enterprises (SMEs) occupy an important and strategic place in economic growth and equitable development in all countries. The post-liberalisation era in the Indian economy has enhanced the opportunities and challenges for the small industries sector. Constituting as high as 90% of enterprises in most countries worldwide, SMEs are the driving force behind a large number of innovations and contribute to the growth of the national economy through employment creation, investments and exports. Their contribution to poverty reduction and wider distribution of wealth in developing economies cannot be underrated. With their dynamism, flexibility and innovative drive they are increasingly focusing on improved production methods, penetrative marketing strategies and management capabilities to sustain and strengthen their operations. They are

thus poised for global partnership and to absorb latest technologies in diverse industrial fields.

According to the newly enacted Micro, Small and Medium Enterprises Development Act 2006, which will come into effect from October 2, 2006, enterprises are classified into Micro, Small and Medium according to the following criteria:

Micro enterprise Does not exceed 25 Lakh rupees.

Small enterprise More than 25 Lakh rupees, but does not exceed 5 Crore rupees.

Medium enterprise More than 5 Crore rupees but does not exceed 10 Crore rupee.

The common definition of the Organisation for Economic Cooperation and Development [OECD, 2002], is based on employment figures. The widely accepted definition points to Small Sized Enterprises with between 1 to 49 employees, while Medium Sized Enterprises are firms with between 50 to 100 employees [Mustafa & Gashi, 2006]. OECD noted that SME are fundamental for the economic growth in member countries and constitute over 95% of the enterprises.

The factors – strengths coupled with opportunities – that work in favour of Indian SMEs include their high contribution to domestic production, significant export earnings, low investment requirements, operational flexibility, location wise mobility, low intensive imports, capacities to develop appropriate indigenous technology, import substitution, contribution towards defense production and competitiveness in domestic and export markets.

While we look into new approaches to strengthen them effectively, one has to understand the limitations of SMEs, which include low capital base, concentration of management functions in one/ two persons, inadequate exposure to international environment, inability to face impact of WTO regime, inadequate R&D and lack of professionalism. Besides these, the most formidable problem faced by the SMEs has been in accessing technology and maintaining competitiveness. The reasons for the inability of SMEs to identify their technology needs are;

- Poor financial situations and low levels of R&D
- Poor adaptability to changing trade trends;
- Desire to avoid risk;
- Non-availability of technically trained human resources;
- Emphasis on production and not on production costs;
- Lack of management skills;
- Lack of access to technological information and consultancy services;
- Isolation from technology hubs.

One of the main factors that influences in the success or failure of enterprise is technology. The best use of technology no doubt enables enterprise in reducing cost of production, maintain consistency in quality, improve productivity and finally develop the competitiveness of the enterprise.

A lot of the technology they have is old, so it's time for a refresh.

Technology had a great impact in all aspects of life and the global economy is currently undergoing fundamental transformation. Technical applications have very real impact in most of the industries and in all aspects of economy, while businesses and enterprises continue to undergo considerable changes. Usage of these technologies is revolutionizing the rules of business, resulting in structural transformation of enterprises.

Modern businesses are not possible without help of any sophisticated technology, which is having a significant impact on the operations of Small and Medium Sized Enterprises (SME) and it is claimed to be essential for the survival and growth of economies in general. SME is drawing attention in developed and developing countries as well as in transition countries. It is generally recognized that SME play a key role in the revitalization and development of national economy in many countries and particular in the context of India. It is encouraging the development of SME and the role that SME sector can play in promoting economic and social development by creating opportunities for employment.

Several theories elaborate on connection between information technology, economic development and social change. Almost all agree on the importance of information and communication technology adoption in SME, while the importance of SME as engines to economic growth is well acknowledged worldwide. Information technology, particularly the Internet is having a significant impact on the operations of SME and it is claimed to be essential for the survival and growth of nations economies in general and SME in particular. Especially information technology are changing the economy and traditional business become more dependent on new technologies. Compared with traditional business new technologies facilitate an increased interactivity, flexibility, cheap business transactions as well as improve interconnection with business partners and customers. Information technology is having a significant impact in sector of Small and Medium Sized Enterprises (SME), especially where industries are in decline or when unemployment levels are high. In the last part of the twentieth century, the Internet and mobile phones not only changed the face of communications, but also gave the impetus to economic growth.

Globalization of world economy and technological developments in the two decades of twentieth century have transformed the majority of wealth creating work from physically based to knowledge based and has greatly enhanced the values of information to business organisation by offering new business opportunities. While, for the last two hundred years, economics has recognized only two factors of production: labour and capital, this is known changing. Information and knowledge are replacing capital and energy as the primary wealth creating assets.

Information has become a critical resource, a priceless product and basic input to progress and development. Information has become synonymous with power. Therefore, accurate, rapid and relevant information are considered to be essential for SME [Combs, 1995:67]. SME would need as well as effective information systems to support and to deliver information to the different users. Such information systems would include those technology that support decision making, provide effective interface between users and computer technology and provide information for the managers on the day-to-day operations of the enterprises. Information is needed for various purposes and serve as an invaluable commodity or product. Information is very important aspect of decision making in all levels of management in enterprises [Hicks,1993:648], especially in competitive business environment and managers utilize information as a resource to plan, organize, staff

administer and control activities in ways that achieve the enterprises objectives.

The ability of SME's to realize their goals depends on how well the organisation acquires, interprets, synthesizes, evaluate and understands information and how well its information channels supports organizational processes. Combs [1995:124] noted that information technology is one of the most important factors of any production activity and technological changes can have profound consequences. This technology will continue to enable the growth of global work, where SME operate across national boundaries. Today, new technologies, especially Internet technology are changing the global flows of information, trade and investment and the competitiveness.

Is Cloud Computing Good for Small Business?

Cloud computing refers to software applications and data storage services that are delivered in real time over a network, usually the Internet. These services include basically anything that you can do on a PC: e-mail, data storage, and communications and productivity applications. The benefits of cloud computing may include lower costs, greater mobility and enhanced collaboration.

Cloud services may be considerably less expensive than the comparable desktop software and user licenses. Prominent IT companies offer free suites of productivity applications as well as the more feature-rich subscription services. The subscription services are pay for usage, but they offer priority customer support and premium features. Additionally, by leveraging cloud services small business can reduce the need for in-house exchange servers and IT staff, thereby potentially reducing operation expenditures.

Having such productivity applications and storage "in the cloud" enables access to your files anytime and anywhere there is a network connection. It can also make it easier for colleagues to collaborate on projects regardless of time zone or location.

One area where the results of cloud computing is mixed is reliability. On the upside, commercial cloud service providers need to have very solid data back-up systems. With cloud computing it is unlikely that your data will be lost as service providers will typically have data recovery systems in place. However, a more frequent problem is accessibility. While 24-7 access is one of the promises of cloud computing, the reality is that outages do occur. From time to time even major providers have services go offline due to system failures or maintenance. Additionally, you will need stable internet access at your end in order to ensure your access to the available services.

Still, as every computer user knows, physical in-office systems and networks also fail. When considering moving to the cloud, a question you have to ask is: "how often do your own office systems go offline?" Assess your tolerance to the risk of network outages. If a cloud-computing system's stability is consistent with your needs, cloud computing might be advantageous to your operations.

A bigger consideration is security. By taking your data and workflow into the cloud, you are trusting a third party with your data. As well, by increasing access points to your data – for instance by allowing employees to access data from remote locations – you run a greater risk that third parties could access it. Although switching to cloud computing may be a good choice for some businesses, it is also likely to be a growing practice in the future, and something that all businesses may ponder.

Most major computer firms are heavily investing in cloud offerings; therefore it is likely that some of the services you

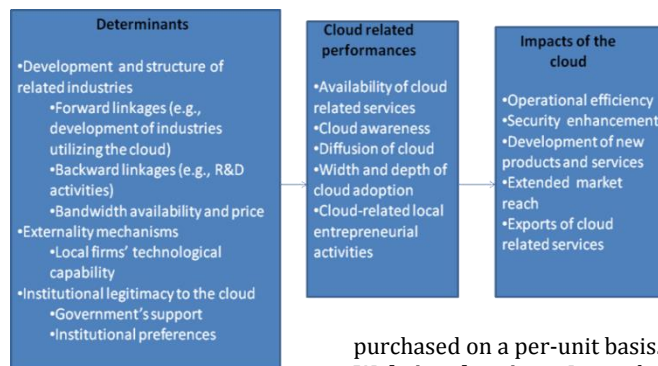
already use will be moved to the cloud (if they haven't been already).

A Framework for Cloud Related Indicators in Developing Countries

Source: Cloud Computing In Developing Economies: Drivers, Effects and Policy Measures, Nir Kshetri

How Small Businesses Can Use Cloud Computing?

Document storage. Many cloud document storage services allow you to store and access Word files, PDFs, audio files, spreadsheets, and other data through your Internet connection, so you can access your files from any computer as long as you can get online. A typical provider allows up to one gigabyte of free storage per account; if your business needs more space, it can be



purchased on a per-unit basis.

Website hosting. Instead of purchasing a physical server to host your website, many users have now switched to "cloud hosting," which operates on one or more connected servers online. This means that you can quickly scale up or down if your bandwidth needs increase or decrease. It's also far more cost-effective than a dedicated server, as you only need to pay for the amount of computing power you're using, instead of paying the full cost of running an entire server. On the downside, because you are not physically in control of your data storage, there are some security risks as far as cloud hosting is concerned. Nonetheless, it's a great option for many small businesses.

Accounting and billing: If you and your employees need to keep track of your hours, expenses, and invoices, one way to make sure everything's in order is to use an accounting system that's hosted in the cloud, so users can access the service from anywhere. Many accounting services even offer programs that let you track your time as you are working, and monitor how timely your clients are with paying your invoices.

Project management: If you're managing a team of workers who frequently need to upload files for feedback and editing, it makes a lot of sense to switch from an internal project management system to one that's hosted online. This is particularly useful if you have employees who work remotely or travel for business, or if you're managing a project that involves freelance contractors. In addition to file sharing, such systems can be used to send messages within a group, and to set up milestones and email reminders.

Web analytics: You could track your own server logs for data about who's visiting your business website, but many cloud-based web analytics platforms offer far more advanced solutions for tracking and parsing your data than you could do independently. There are a number of popular free analytics options that allow you to track measures including browser type, country, referring link, and conversion rate (i.e., completing a desired action). If you're willing to pay a small monthly fee, you

can even sign up for real-time reporting services that let you track what users are doing on your site at this very second.

Where to get Cloud services or Cloud Offerings?

Cloud computing is not just a concept technology that promises to deliver many exciting things. It is already a reality and there are many commercial implementations of it. For example, Amazon's Elastic Compute Cloud (EC2) offers a variety of services and it represents a virtual computing environment that allows users to use Web service interfaces in order to launch instances with a variety of operating systems, load them with customers' custom application environment and manage customers' network's access permissions. Amazon's other cloud, known as S3 (or simple storage service), provides a Web services interface that can be used to store and retrieve any amount of data, at any time, from anywhere on the Web. It provides developers with access to "the same highly scalable, reliable, fast, inexpensive data storage infrastructure that Amazon uses to run its own global network of Websites", according to Amazon's description of this service. A number of clouds serving different needs are also provided by Google. One popular service is Google Apps. Google Apps is a collection of Web-based messaging (e.g., Gmail, Google Talk, and Google Calendar) and productivity and collaboration tools (Google Docs: text files, spreadsheets, and presentations).

IBM has a number of cloud products under its Smart Business portfolio. They include Smart Market (a portal service to compare and manage different business applications that run in IBM's cloud environment), Smart Cube (an all-in-one appliance that has networking, storage, and office software built in), Smart Desk, (a dashboard software package that enables users to manage applications and services from the Market and Cube clouds). IBM is also trying to address the concerns of IT staff who claim that their top challenge is finding enough available resources to perform tests before moving new applications into production. IBM response was the introduction of Smart Business Test Cloud (designed, according to IBM, to reduce costs to organizations substantially) which includes a pre-integrated set of services, from planning through management, for a test environment implementation. Delivered through hardened services methods for the design and deployment of integrated cloud solutions, this cloud can leverage existing investments in hardware, software, storage, and virtualization management, or utilize the newly announced IBM Cloudburst (a complete IBM service management package) as the infrastructure solution.

Like other major vendors, Microsoft is also investing heavily in this new computing service delivery model and has introduced Azure, as its cloud offering. Azure has three components: Windows Azure (which provides developers with on-demand compute and storage to host, scale, and manage Internet or cloud applications), SQL Azure (which extends the capabilities of Microsoft SQL Server into the cloud as a Web-based distributed relational database) and Azure. Net Services (which include a set of Microsoft hosted, highly scalable, developer-oriented services that provide key building blocks required by many cloud-based and cloud-aware applications). The above examples are intended to provide an impression of the type of cloud services on offer by some of the major players in this field.

There is no space here to list the many other cloud services that currently exist. However, some Web sites and blogs maintain

a list of those suppliers which can be found easily by "google-ing" one's search. This, no doubt, is a manifestation of the growing number of cloud providers and vendors.

India's CRL and AdventNet are among the high-profile Indian cloud providers. Other Indian IT companies such as TCS and Wipro have plans to enter the cloud market. Wipro has built a "private cloud" for its internal use. The company is also considering other services: public cloud, hybrid cloud, and helping independent software vendors design and implement SaaS (Foley 2009). Likewise, TCS is exploring the possibilities of cloud through pilot projects (Morgan 2009). Other IT players such as HCL Technologies and Bharti Airtel have also embraced the cloud.

As noted above, the Indian company Advent Net's Zoho division operates a popular suite of web-based applications (Economist 2008a). Likewise, Hyderabad-based Pressmart provides SaaS based e-publishing and digitization services to the print industry. Pressmart solution can help firms deliver contents across multiple platforms such as Web, mobile, RSS, podcasts, blogs, social networking sites, articles directories and search engines (Sanyal 2008). In 2008, Pressmart received VC investment from Draper Fisher Jurveston and NEA-IndoUS Ventures.

Table-1: Cloud-Related Entrepreneurship of Developing World-Based Firms

Infosys	India	<ul style="list-style-type: none"> Partnered with its major clients in 	<ul style="list-style-type: none"> Provides cloud computing-based
Computational Research Laboratories (CRL)	India	<ul style="list-style-type: none"> March 2008: Yahoo signed a research pact with CRL to support cloud research. 	<ul style="list-style-type: none"> A lab run by the Tata Group CLR would provide EKA supercomputer, which was the world's fourth fastest in March
AdventNet	India	<ul style="list-style-type: none"> Zoho division operates a popular suite of web-based applications. Zoho had over 1.5 million users in March 2009. 2 million In September 2009. 	<ul style="list-style-type: none"> The ICICI bank's insurance arm uses Zoho's applications to develop innovative services such as a personalized insurance for diabetes. Premiums are adjusted depending on how well

Impact of Cloud Computing on SMEs

Operational Efficiency: Productivity and Efficiency Gains

Operational efficiency is related to the costs of accomplishing corporate functions. Anecdotal evidence from developing countries such as China, India and South Africa indicates that adoption of the cloud may lead to productivity and efficiency gains. As noted earlier, cloud has enabled some South African call centers to increase productivity by 20% (Firth 2009). The Indian cloud Provider, Netmagic reported that the company's cloud services helped its clients cut costs by 25-30% (Abrar 2009). Microsoft claimed that its cloud services offered in India would help reduce IT costs by 10 -50% (HT 2009). Likewise, the cloud-based model has helped Chinese software start-ups access to infrastructures and data centers and utilize virtualized computing resources, which has led to a reduction of the upfront investments and product development costs.

Security Enhancement

Most organizations in the developing world have weak defense mechanisms. In 2002, North America accounted for 58% of the global IT security market (Europemedia 2002). An estimate suggested that in 2006, about 3 million of Brazil's SMEs lacked anti-virus software in their PCs (Business Wire 2006). Likewise, 60% of Kenyan banks reportedly have insecure systems (Kinyanjui 2009). The cloud thus has a possibility to enhance security for these companies. In this regard, the concept of "hollow diffusion" of e-commerce can be helpful in understanding weak defense (Otis & Evans 2003). Many companies in developing countries arguably lack technological and human resources to focus on security. "Hollow diffusion" can take place in human terms (lack of skill and experience) as well as in technological terms (failure to use security products) (Otis & Evans 2003). Some ISPs in industrialized countries reportedly block contents originated from problematic networks in developing countries (Garfinkel 2002).

The cloud's economies of scale allow a business model in which third parties can provide a cost-effective security for smaller companies by integrating security applications into cloud services (Grossman 2009). Delivery of security on the cloud can address some of the human (e.g., problems to install and maintain software) and technological issues and may strengthen the defense mechanisms.

Development of New Products and Services

The cloud has also helped some developing world-based firms develop new products and services. Zoho's applications are used by hospitals and banks in India to develop new products. As another example of cloud use to develop new products and services, consider the Computational Intelligence Research Group at the University of Pretoria. As noted earlier, students in the university use the cloud to develop new drugs.

Extending Market Reach

The cloud can also extend market reach of SMEs. Consider for instance, healthcare off shoring industry. Industrialized world-based healthcare providers are increasingly off shoring services related to medical transcription, billing and insurance claims teleimaging and telepathology to India. Most of these are currently dominated by big players such as Wipro and Teleradiology solutions. Cloud computing is likely to open the door for small Indian players to participate in the global healthcare off shoring industry. Availability of web-based applications such as those offered by Zoho reduces the up-front investments for small Indian off shoring companies.

Exports of Cloud Related Services

There has been some achievement on the export of cloud related applications and services. Unbelievable as it may sound some developing world-based technology companies such as AdventNet have been exporting cloud-based applications.

Advantages of Cloud Computing

Cloud computing offers numerous advantages both to end users and businesses of all sizes. The obvious huge advantage is that one has to support more for infrastructure or should have the knowledge necessary to develop and maintain the infrastructure, development environment or application, as were things up until recently. The burden has been lifted and someone else is taking care of all that. Business are now able to focus on their core business by outsourcing all the hassle of IT infrastructure.

As with any major business decision, if you are considering the use of a cloud-based system in your organization, you should carefully evaluate both its advantages and disadvantages to

ensure it is in line with your business goals and specific network needs.

Advantages:

1. Easy Implementation: Cloud hosting allows businesses to retain the same applications and business processes without having to deal with the backend technicalities. Readily manageable by the Internet, a cloud infrastructure can be accessed by enterprises easily and quickly. Another advantage is a lesser cost for in-house IT infrastructure maintenance. While a backup can be an extra cost, it can be worth it in the event of a technical failure within the cloud.

2. Accessibility: A major advantage of cloud storage is the ability to access data from any location. Offices in two or more locations can access the same files. For companies with people telecommuting or working out of multiple locations, it provides continuity and effectiveness. Business travelers can also access data from anywhere in the world. An internet cloud infrastructure maximizes enterprise productivity and efficiency by ensuring the application is accessible from any place anytime, allowing collaboration and sharing among users in multiple locations.

3. No Hardware Required: A physical storage center is no longer needed as it is hosted in the cloud. Again, a backup could be worth looking into in the event of a disaster that could leave the company's productivity stagnant. Recovering from a disaster is easier with this data storage configuration. Any company can retrieve data when needed, assuming that cloud storage provider wasn't effected. This option helps with disaster recovery planning efforts. If any company is hit with a disaster, it's highly likely that the data remains safe on the third-party servers. It can be the difference between a company coming back from disaster or closing its doors. It is not unheard of for businesses to fold following the failure of an inadequate data storage solution.

4. Cost per Head: Overhead technology costs are kept at a minimum with cloud hosting services, enabling businesses to use the extra time and resources for improving the company infrastructure. Costs are usually lower with cloud computing. The company pays a monthly or annual fee for a certain amount of storage space. That fee is much lower than the initial cost of hardware backup solutions and expertise to configure and manage them.

5. Troubleshooting, installation and configuring: Cloud hosting provides easy, optimal utilization and management. In addition to 24x7x365 monitoring, Stratosphere Networks will install, troubleshoot and configure the cloud software and handle any customization and upgrades the enterprises.

6. Flexibility for Growth: Flexible storage requirements are easy with cloud storage. Instead of adding extra hard drives when storage needs change, company has virtually endless storage available in the cloud. Renting space in this manner allows a company to scale cost against storage and pay for what they are actually utilizing.

7. Efficient Recovery: Cloud computing delivers faster and more accurate retrieval of applications and data. With less downtime, it is the most efficient recovery plan.

Disadvantages of Cloud Computing

1. Security: If you use the Cloud Computing, then be clear in mind that you are sharing your important files with the cloud service provider. you are relying on a third party to effectively secure your data. There may be security issues later on and your private or crucial files may get accessed by Cloud service

provider. It is important to thoroughly check the security features offered by any cloud storage provider you are considering, read reviews and compare providers before making choices. Although, it's a big risk to use the Cloud technology for your files' storage but you can put an end to this fear by opting for the most trusted service provider than going with any new or unknown provider. The choice is yours and extent of risk depends on your choice only.

2. **Technical Problems:** Well, don't forget that at last it's another sort of technology and technology faces issues as well. This may be downtime issues or may be any other like hack etc. So it's quite possible that you may also have to suffer from it, while using the Cloud technology. Nothing can be more wired than the situation, when you need to access your files stored in the Cloud urgently and at the same time, your service provider is facing some technical issues. In such situations, you can't do anything but just can wait for your service provider to solve all the issues. Well, who knows that how much time it's going to take.

3. **Access:** To access your cloud storage, you will need an Internet connection up and running, or choose a provider with offline sync (which has its own draw backs). In areas with no internet connectivity, be that 3G or POTS retrieving this data could be impossible, you would also need to think about connectivity failure scenarios too.

4. **Control:** You give up some control when you place your data on a third-party solution. You do not control the servers. You do not control where those servers sit, and you always run the chance of having your cloud storage company go out of business. Choosing a company with a good track record and a reliable client base is very important for this reason.

5. **Bandwidth:** constraints limit the amount of data exchange that happens, when you're in an office with a local server the cables or wifi can (usually) pass data much faster than traditional internet connections, if you transfer large files and have a slow connection then cloud storage is probably not an option for you right now.

6. **Swapping:** providers can be very difficult. Your company would need to download all data to your local network then upload it again to the new provider, which would require storage capacity, enough to store all of the data you were hosting with the third party, this could get expensive and consider all that redundant hardware, look for companies which can migrate your data for you from your previous provider.

Cloud Computing is boon of modern technology and really makes your tasks to get done with convenience at its best. Though there are some disadvantages it is better to adopt.

To What Extent are Small & Medium-Sized Businesses Making Use of Cloud Computing? – A Survey Report of the GFI Software SME Technology

Only 10% of senior business decision makers in Small and Medium-sized enterprises (SMEs) claim to fully understand what cloud computing means. 62% have never heard of cloud computing. A further 13% have heard of it but don't know what it means.

24% of IT professionals have either never heard of cloud computing or don't know what the term means.

Security fears are not the main concern for organisations considering cloud computing. Although security is the second

highest perceived disadvantage (after vendor lock-in), only 12% cite it as a main reason for not actually pursuing cloud computing.

Over half of all respondents (56%) will not pursue cloud computing because their needs are met by the current in-house set-up.

Despite the IT industry's emphasis on the financial benefits of cloud computing, 44% of respondents cite 'too expensive' as a reason for not adopting.

The top three perceived benefits of cloud computing are: expertise of service provider, lower costs and accountability.

There is growing resistance to the on-premise and hosted polarization. SMEs are increasingly embracing a hybrid model that mixes and matches services to reflect business needs and existing IT skills/infrastructure.

Suggestions

Businesses should consider the following hints and tips when selecting a cloud service provider:

- Proceed with caution. This may mean that a move to "the cloud" will take longer than expected but the outcome may be better.
- Look for a provider you have a business relationship with – don't just go for price.
- Look for good governance arrangements, for example, will the provider's client manager meet regularly with the business?
- Do a full cost-benefit analysis to determine what it costs to have in-house IT. You may find that it costs more than you think.
- Consider the jurisdiction the contract is signed in. For example, if you have a dispute with your cloud service provider, the dispute may only be able to be resolved getting Judiciary help.
- Be conscious of your privacy risks. Your data may be stored offshore and there may be consequences under privacy laws.
- Make sure that data is backed up as part of the service. Do not assume it is part of the service.
- Ask about the level of security provided.
- Make sure you have a Service Level Agreement (SLA) and that you read the terms carefully to understand the limitations to the service. The SLA should have clauses on response times, business continuity and disaster recovery.
- Do your due diligence on your preferred cloud service provider. For example, look for any certification they have, such as Information Technology Infrastructure Library Certification, do online searches of the service provider and look at the track record and scale of the service provider.
- Ask what happens to your data if you choose to leave a service provider, such as deletion of data.
- Do not make your decision on your preferred service provider based on cost. A large reputable service provider may cost you more but may provide you the level of service you require and it can help mitigate some of the risks highlighted in this document.
- Run trials to test whether the cloud solution meets your needs.
- When starting out in "the cloud", do not outsource important business-critical software, outsource general software such

as "point of sale" software or email.

- Advise your clients where and how their data is stored. It may also be necessary to amend your agreements with clients to allow you to store confidential client information in "the cloud".
- Be aware of the different types of services cloud service providers can offer. These services are generally grouped into the following categories:
- Infrastructure as a Service (IaaS) – this lets you relocate your servers to the cloud computing service provider, but you remain in control of, and responsible for, your software and data.
- Platform as a Service (PaaS) – this lets you relocate your servers and operating system, while you remain responsible for your data.
- Software as a Service (SaaS) – this is the full cloud package, where the applications you run, your data and the server is managed and operated offsite by your cloud service provider. A good quality cloud solution can provide your business, regardless of size, with greater IT flexibility at a lower cost.

A good quality cloud solution can provide your business, regardless of size, with greater IT flexibility at a lower cost.

Conclusion

Cloud computing can be good for small business. It is cheap, easy to set up and requires little maintenance at the end. However there are risks associated with it in terms of security and stability. If you are not processing large amounts of personal or financial data about your customers, or if the work you are doing in the cloud is not business critical, then these may not be major considerations. Many business use a hybrid option, running software on their own computers for some services, running others in the cloud. Whatever way you choose to run your IT systems you always need to make sure that you have a backup plan if things do go wrong.

Like everything else, cloud computing too has its pros and cons. While the technology can prove to be a great asset to your company, it could also cause harm if not understood and used properly.

Despite its disadvantages and the fact that it is still in an infant age, cloud computing remains strong and has great potential for the future. Its user base grows constantly and more big players are attracted to it, offering better and more fine tuned services and solutions. We can only hope that the advantages will further grow and the disadvantages will be mitigated, since cloud computing seems to have made IT a little bit easier.

The high rate at which IT technology changes will continue to place a great deal of pressure on organizations' budgets. Continuous upgrades of software and hardware have become important items on many of those organizations' resource meetings and will continue to put pressure on the budgets of those organizations. This situation is likely to be made worse in the current difficult economic conditions.

Cloud computing is an Internet-based network model that enables on-demand access to a shared pool of computing resources such as networks, servers, storage, applications and services provided by a third party. It is becoming a standard method of software and hardware systems operation and provides several advantages including potential cost savings for many businesses. Recently though, as witnessed with the Amazon

cloud outage that rocked the IT world in April and knocked several popular websites offline including Quora, Foursquare and Reddit, the risks and disadvantages associated with cloud computing were highlighted. For many, this incident called the cloud's overall reliability into question.

This article introduced the still-evolving area of cloud computing, including the technologies and some deployment concerns. Definitions and standardization in this area are a work in progress, but there is clear value in cloud computing as a solution for several IT requirements.

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Impact of International Mineral Prices on Export Trade of PNG

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ABSTRACT

ARTICLE INFO

Article history:

Received 20th Dec. 2013

Accepted 30th Dec. 2013

Keywords:

Merchandise exports,
Export prices,
Export quantities,
Mineral products,
Agricultural products..

Papua New Guinea is economy driven, largely by selected mineral exports because the country is endowed with rich mineral resources. It exports primary mineral products like gold, copper, and crude oil. This economic platform is owed largely to the dismal growth of the manufacturing sector. The growth in the value of merchandise exports was linked to the decline in the exchange rate of Papua New Guinea Kina (local currency) against foreign currencies of those countries to which the mineral resources were mostly exported, and also due to a significant increase in international prices of the mineral products that the country exports. Hence, it is suggested that the country should build its manufacturing sector to process the minerals and get the advantage of exporting value-added products, and the creation of employment to domestic human resources leading to the creation of ancillary and subsidiary industries within the country.

Introduction

Papua New Guinea (PNG) is a developing country with a dual economy comprising a formal, corporate-based economy and a large informal economy, where subsistence farming accounts for the bulk of economic activities (Department of National Planning 2005). PNG's currency is Kina. PNG Kina=US\$0.3655 as on 18th December 2013.

(<http://www.pnbgd.com/finance/fx.php?rid=69CA881D271E>). Papua New Guinea is endowed with a rich natural resource base including major gold and copper deposits, large oil and natural gas reserves, vast expanses of agricultural land, and extensive forests and maritime resources. These rich natural resources provide the foundation for a markedly dualistic economy in which a dynamic, capital-intensive enclave minerals sector dominates. However, 85 per cent of the 6.2 million (according to the 2007 estimate FROM WHERE? SOURCE) population derive their livelihood from agriculture, mainly low-productivity labour-

intensive farming. This indicates that the manufacturing sector in PNG has not grown to the extent of providing large-scale employment to its population. It is a popularly held view in the country and region that PNG's human resource is also not ready to man the jobs of massive industrialisation. The country exports primary products like gold, copper and crude oil, coffee, tea, rubber, cocoa, copra, palm oil, rubber and timber. Merchandise exports of PNG play a vital role in the gross domestic product (GDP) of the country as a percentage of value of merchandise exports to GDP in current prices. This increased from 66.53% in 2004 to 75.11% in 2007, but declined to 60.22% in 2010. (Statistical Digest-2008 for GDP of the years 2004 to 2008) (http://www.indexmundi.com/papua_new_guinea/gdp_real_growth_rate.html).

The Study

Need for the study: Merchandise exports contribute significantly to the GDP of PNG. But the percentage of the value of merchandise exports in GDP at current prices declined in 2009 and 2010, due mainly to the decline in the total value of merchandise exports of PNG. International commodity prices and exchange rates and quantity of exports are the two significant factors that determine the value of merchandise exports. Hence the study was undertaken to ascertain the impact of these two factors on the value of merchandise exports.

Responsibility of Contents of this paper rests upon the authors and not upon GRIET publications.

ISSN : 2230 – 9764

Doi: <http://dx.doi.org/10.11127/gmt.2013.12.07>

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Methodology: The study is based on secondary data collected from books, reports, journals, websites and other published studies. All relevant parameters of export-driven economies including export zones, cluster and supply-chain management approaches were identified. This study is a combination of both qualitative and quantitative methods of research and therefore appropriate statistical tools were used wherever applicable.

Share of Minerals in total Merchandise Exports of PNG

Papua New Guinea's major merchandise exports are mineral products. Table -1 presents share of minerals in total value of merchandise exports for PNG between 1990 and 2010 in millions of Kina. The data showed that the value of total merchandise exports increased from K 1390.5 million in 1991 to K15, 579.5 million in 2010, recording an annual growth rate of 51.02%. In fact total exports declined from K15,655.6 million in 2008 to K 11,902.8 million in 2009 due to global economic recession. However, global economic recovery enabled the country to increase its total exports to K 15,579.5 million in 2010. The export value of crude oil was initiated in 1992. Exports of crude

oil increased from K 301.4 million in 1993 to K 2224.8 million in 2010, recording an annual growth rate of 33.85%. However, exports of crude oil declined during 1997, 1998, 2002 and 2009. The value of export of gold increased from K 666.9 million in 1991 to K6380.3 million in 2010, recording an annual growth rate of 42.83%. However, exports of gold declined during 1993, 1996, 1997 and 2004. The value of export of copper increased from K 327.8 million in 1991 to K4329. 5 million in 2006, but declined to K3089.3 million in 2010, recording an annual growth rate of 42.70%. However, exports of copper declined during 1996, 1997, 1998, 1999, 2000, 2007, 2008 and 2009 owing to closure of Bougainville copper mine. (http://epress.anu.edu.au/sspng/mobile_devices/ch13.html).

The value of total export of mineral products like crude oil, gold and copper increased remarkably from K 1005.3 million to K 11,782.8 million between 1991 and 2010, recording an annual growth rate of 53.60%. Annual growth rate of mineral exports by 53.60% (annual growth of merchandise exports was 51.02%) between 1991 and 2010 contributed phenomenally to the growth of total exports during the period of study.

Table-1: Share of Value of Mineral Exports in total value of Merchandise Exports(in Millions of Kina)

Year	Crude Oil	Gold	Copper	Value of Mineral Exports	Total Merchandise Exports	Share of mineral Exports to total merchandise exports (%)
1990	0.0	393.2	349.2	757.5	1122.4	67.48
1991	0.0	666.9	323.8	1005.3	1390.5	72.30
1992	301.4	745.9	313.5	1371.5	1862.6	75.09
1993	817.8	681.6	256.3	1767.8	2527.3	69.95
1994	702.7	702.3	367.4	1782.7	2662.0	66.97
1995	827.7	840.1	754.5	2435.4	3399.8	71.63
1996	1073.9	773.6	387.0	2244.6	3313.9	67.73
1997	852.2	718.7	259.8	1838.9	3059.3	60.10
1998	813.1	1227.8	395.7	2452.1	3687.7	66.49
1999	1382.4	1546.1	574.3	3524.0	4985.3	70.69
2000	1870.8	1950.8	595.4	4443.7	5741.7	77.39
2001	1889.4	2115.1	859.1	4895.6	6084.8	80.46
2001	1889.4	2115.1	859.1	4895.6	6107.0	80.16
2002	1431.2	2294.8	1018.7	4774.0	6367.1	74.98
2003	1631.9	2811.2	1415.0	5890.0	7822.1	75.30
2004	1652.2	2779.5	1544.2	6007.5	8417.1	71.37
2005	2283.1	2834.1	2497.7	7651.9	10271.1	74.50
2006	2988.5	3090.9	4329.5	10459.3	12830.6	81.52
2007	2983.6	3674.4	4172.7	10910.6	14058.8	77.61
2008	3506.1	4669.3	3616.7	11855.5	15655.6	75.73
2009	1610.4	5366.7	2025.9	9057.0	11902.8	76.02
2010	2224.8	6380.3	3089.3	11782.8	15579.5	75.63

Source: Quarterly Bulletins for the respective years, Bank of Papua New Guinea.

Export of Mineral Products in terms of Quantities

Analysis of value of exports indicates that the growth rate of mineral exports was more than that of all merchandise exports. Against this background, an attempt was made to analyse the growth of exports of mineral products in terms of quantities. Table-2 reports the growth of export of mineral products in terms of quantities between 1991 and 2010. It is observed from

this table that the exports of crude oil declined from 14,547,900 barrels to 10,391,900 barrels between 1992 and 2010, with an average annual decline rate of 1.50%.

Export of copper declined from 192,400 tonnes in 1991 to 154,700 tonnes in 2010, with an average annual decline rate of 0.98%. Export of gold increased from 57.8 tonnes in 1991 to 61.5 tonnes in 2010 (with fluctuations) with an average annual

growth rate of 0.32%. But the indices of exports of individual mineral products and all mineral products provided in Table-3 revealed that exports of quantities of mineral products declined by around 15% from 1994 to 2010.

Table -2: Quantity of Mineral Products Exported

Year	Crude Oil	Copper	Gold
	Barrels	tonnes	Gold
	('000)	('000)	(tonnes)
1990	0.0	196.5	33.6
1991	0.0	192.4	57.8
1992	14547.9	187.9	67.0
1993	45842.6	192.2	59.3
1994	43456.4	207.2	55.8
1995	36990.2	215.7	55.2
1996	39307.7	127.7	46.9
1997	27972.2	77.8	44.3
1998	28033.6	109.5	58.2
1999	30,646.2	143.9	63.0
2000	21,581.7	126.8	72.8
2001	21,369.7	170.1	69.1
Break in Series			
2001	21,369.7	170.1	69.1
2002	153,705.0	170.1	59.1
2003	14,983.4	230.6	68.4
2004	12,564.7	173.9	67.3
2005	13,299.8	226.1	70.5
2006	14,521.1	216.7	56.7
2007	13,802.8	199.4	57.5
2008	12,185.1	185.7	63.3
2009	10,145.6	153.7	64.0
2010	10,391.9	154.7	61.5

Influence of Prices and Volume on Export Earnings of Mineral Products

The value of export earnings of merchandise is determined by international prices, exchange rate fluctuations and volume of exports. Despite the decline in the export of mineral products in terms of quantities, the value of exports increased. This might be due to an increase in the export prices and/or decline in the value of PNG Kina against the exchange value of currencies of export destination countries.

An attempt is made to analyse the impact of prices and exchange value on the value of mineral exports. The value of individual items of exports, as well as total merchandise exports, are discounted by the export price index of the respective products and total merchandise exports in order to eliminate the influence of export prices on the value of merchandise exports.

Table-3: Export Volume Indices of Mineral Products (1994=100.0)

Year	Gold	Copper	Crude Oil	Total Mineral Index
1994	100.0	100.0	100.0	100.0
1995	98.9	104.1	85.1	95.2
1996	84.1	61.7	90.5	81.5
1997	79.4	37.6	64.4	65.3
1998	104.3	52.9	64.5	82.6

1999	112.9	69.5	70.5	90.6
2000	130.5	61.2	54.4	88.4
2001	123.9	82.1	49.2	86.3
Break in Series				
2001	123.9	82.1	49.2	86.3
2002	105.9	82.1	35.4	78.1
2003	122.6	111.3	34.5	93.6
2004	120.8	83.9	28.9	87.4
2005	126.4	109.2	30.6	94.7
2006	101.6	104.6	33.4	81.4
2007	103.1	96.2	31.8	81.1
2008	113.4	89.7	28.1	81.3
2009	113.4	74.2	22.9	84.0
2010	110.2	74.7	23.9	85.4

Source: Quarterly Bulletins for the respective years, Bank of Papua New Guinea.

Table- 4 presents export price indices of mineral products vis-à-vis all merchandise exports.

Table-4: Export Price (as realised by the exporters of Papua New Guinea) Indices of Mineral Products (1994=100.0)

Year	Gold	Copper	Crude Oil	Mineral Index
1994	100.0	100.0	100.0	100.0
1995	120.8	195.8	140.7	148.2
1996	131.0	170.6	170.3	156.6
1997	128.8	141.9	190.7	160.2
1998	166.9	198.6	181.3	176.3
1999	193.1	220.8	282.8	229.2
2000	211.9	264.1	515.7	348.1
2001	245.6	284.9	546.9	376.1
Break in Series				
2001	245.6	284.9	546.9	376.1
2002	303.9	338.2	585.9	401.8
2003	326.0	344.0	681.3	438.5
2004	327.5	499.5	826.6	502.2
2005	319.5	617.3	1040.7	614.2
2006	433.3	1113.7	1290.7	958.1
2007	506.5	1170.6	1357.8	1008.9
2008	590.9	1085.0	1831.3	1116.9
2009	674.6	732.4	1028.1	759.7
2010	824.4	1116.3	1336.0	993.0

Source: Quarterly Bulletins for the respective years, Bank of Papua New Guinea.

It is observed from this table that the export price of gold increased by an average annual growth rate of 45.28%, while that of copper was 63.52% between 1994 and 2010. Export price of crude oil increased by an average annual growth rate of 77.25% between 1994 and 2010. Thus the growth rate of export price of

crude oil was highest among the mineral products. Growth rate price indices of mineral products increased by 893% while that of all merchandise exports increased by 796.2% during 1994 to 2010. Consequently, mineral index increased by 893% between 1994 and 2010 with an average annual growth rate of 55.81% during the period of study while the price index for all merchandise increased by 49.75%. Thus the average growth rate of prices of mineral products was more than that of all merchandise during 1994 to 2010.

An attempt to find-out the value of mineral exports after eliminating the impact of price increase is reported in Table -5. This Table reports the value of export of mineral products after eliminating the impact of price changes.

It is observed from Table-5 that, although the exports of mineral products increased from K 1782.7 million in 1994 to K11, 782.8 million in 2010, the value of export of mineral products after eliminating the influence of price changes, declined from K 1782.7 million in 1994 to K1186.59 million in 2010. This indicates the decline in volume of exports of mineral products. Thus, it is likely that the impact of price on increase in the value of merchandise exports of mineral products was to the tune of K 10,596.21 million in 2010.

Table -5 presents the value of total merchandise exports after eliminating the impact of price changes. It is observed that though the exports of mineral products increased from K 1782.7 million in 1994 to K11, 782.8 million in 2010, the value of export of mineral products after eliminating the influence of price changes, declined from K 1782.7 million in 1994 to K1186.59 million in 2010, owing to decline in volume of exports of mineral products. The impact of price on the increase in the value of exports of mineral products was to the tune of K 10,596.21 million in 2010 or on an average by 74.30% during 1994 to 2010.

**Table-5: Value of export of mineral products after eliminating the impact of price changes
(K in millions)**

Year	Value of Export of Mineral Products	Price Index 1994=100.00	Value of export of Mineral Products after eliminating the impact of price changes	Percentage change on the Value of Export of Mineral Products	Percentage change on the Value of Export of Mineral Products
1994	1782.7	100	1782.70	0.00	0.00
1995	2435.4	148.2	1643.32	792.08	32.52
1996	2244.6	156.6	1433.33	811.27	36.14
1997	1838.9	160.2	1147.88	691.02	37.58
1998	2452.1	176.3	1390.87	1061.23	43.28
1999	3524	229.2	1537.52	1986.48	56.37
2000	4443.7	348.1	1276.56	3167.14	71.27
2001	4895.6	376.1	1301.68	3593.92	73.41
2002	4774	401.8	1188.15	3585.85	75.11
2003	5890	438.5	1343.22	4546.78	77.19
2004	6007.5	502.2	1196.24	4811.26	80.09
2005	7651.9	614.2	1245.83	6406.07	83.72

2006	10459.3	958.1	1091.67	9367.63	89.56
2007	10910.6	1008.9	1081.44	9829.16	90.09
2008	11855.5	1116.9	1061.46	10794.04	91.05
2009	9057	759.7	1192.18	7864.82	86.84
2010	11782.8	993	1186.59	10596.21	89.93

Source: Quarterly Bulletins for the respective years, Bank of Papua New Guinea.

The impact of price on increase in the value of total merchandise exports was to the tune of K 13,841.1million in 2010. The percentage of impact of price on the value of all merchandise exports was 72.95% during 1994 to 2010. Thus the impact of price increase of mineral products was more than all merchandise exports.

Table-6 presents the varying degrees of impact of price changes on value of merchandise exports and mineral exports.

**Table-6: Varying Impact of price changes on Value of total merchandise exports and Mineral products exports
(K in millions)**

Year	Percentage impact of Price on the Value of total merchandise Exports	Percentage impact of Price on the Value of Export of mineral products
1994	0.00	0.00
1995	30.31	32.52
1996	32.66	36.14
1997	36.87	37.58
1998	47.56	43.28
1999	57.26	56.37
2000	68.27	71.27
2001	70.87	73.41
2002	73.50	75.11
2003	75.45	77.19
2004	78.25	80.09
2005	81.83	83.72
2006	88.34	89.56
2007	89.03	90.09
2008	90.06	91.05
2009	85.60	86.84
2010	88.84	89.93

Source: Quarterly Bulletins for the respective years, Bank of Papua New Guinea.

The results in Table-6 also indicated that the impact of price changes was more profound in the case of mineral exports than all merchandise exports. Having established that the price increase has impacted more on the value of mineral exports than all merchandise exports, an attempt was made to ascertain the impact of exchange rates on the value of mineral and all merchandise exports.

Table-7 reports the exchange rates of foreign currencies against the Papua New Guinea's currency, Kina. Export earnings in terms of home currency are also influenced by the exchange

value of the currency of the importing country.

It is observed from this Table that the value of Papua New Guinea's Kina against the Australian Dollar declined from 1.3618 in 1991 to 0.4014 in 2010. This means that the PNG Kina, which was earning Australian \$ 1.3818 in 1991, earned only Australian

\$ 0.4014 in 2010. Indices of exchange values were calculated with 1994 as base year as the data for prices and volume of exports were available with 1994 as the base year. The index of PNG Kina against Australian Dollar indicate that Australian \$1 =PNG K1 in 1994. But Australian \$1 =PNG K0.3673 in 2010.

**Table-7: Exchange Rates of Selected Countries
(Foreign Currency Units Per Kina)**

Year	Aus \$	Index of A\$	US\$	Index of US\$	Japanese Yen	Index of Yen
		1994=100.00		1994=100.00		1994=100.00
1990	1.3616	124.61	1.0511	123.88	141.36	166.88
1991	1.3818	126.46	1.0498	123.72	131.91	155.72
1992	1.4708	134.60	1.0127	119.35	126.09	148.85
1993	1.5077	137.98	1.019	120.09	113.93	134.49
1994	1.0927	100.00	0.8485	100.00	84.71	100.00
1995	1.0558	96.62	0.781	92.04	73.21	86.42
1996	0.9666	88.46	0.758	89.33	82.77	97.71
1997	0.9331	85.39	0.6884	81.13	83.6	98.69
1998	0.7644	69.96	0.4808	56.66	62.91	74.27
1999	0.605	55.37	0.389	45.85	44.25	52.24
2000	0.6306	57.71	0.362	42.66	39.13	46.19
2001	0.5761	52.72	0.2952	34.79	35.97	42.46
2002	0.4706	43.07	0.2563	30.21	31.97	37.74
2003	0.4317	39.51	0.2832	33.38	32.68	38.58
2004	0.4231	38.72	0.3109	36.64	33.47	39.51
2005	0.4241	38.81	0.3225	38.01	35.69	42.13
2006	0.4326	39.59	0.3274	38.59	37.99	44.85
2007	0.402	36.79	0.3384	39.88	39.7	46.87
2008	0.4454	40.76	0.3694	43.54	38.14	45.02
2009	0.4612	42.21	0.3637	42.86	33.98	40.11
2010	0.4014	36.73	0.3686	43.44	32.13	37.93

Source: Quarterly Bulletins for the respective years, Bank of Papua New Guinea.

This decline in the value of Kina would result in PNG exports to Australia being cheaper and PNG imports from Australia being costly. Similar trends are also observed in case of US Dollar and Japanese Yen. Thus, the analysis of exchange rates indicate that the value of merchandise exports of PNG might be inflated in terms of PNG Kina due to devaluation of PNG Kina against Australian Dollar, US Dollar and Japanese Yen. It might have similar effects with the currencies of other countries to which PNG exported because exports to other countries were priced against US Dollar, as was the common conversion practice for various countries. In fact around 50% of PNG exports were supplied to Australia.

An attempt is made to eliminate the impact of price and exchange rate fluctuations on the value of merchandise exports. Table -8 reports the value of export of mineral products after eliminating the impact of price changes and exchange rate changes.

It is observed in Table-8 that, though the exports of mineral products increased from K 1782.7 million in 1994 to K11, 782.8 million in 2010, the value of export of mineral products after eliminating the influence of price changes, declined from to K 1782.7 million in 1994 to K1186.59 million in 2010. This indicates the decline in volume of exports of mineral products. It is also observed that the export of mineral products after eliminating the influence exchange rate fluctuation of PNG Kina against Australian Dollar increased from K 1782.70 million in 1994 to K 4327.82 million in 2010. It is further observed that the value of mineral products declined from K 1782.70 million in

1994 to K 435.83 million after eliminating the influence of price changes and fluctuations in exchange rates of PNG Kina against Australian Dollar. These observations indicate that the increase in Kina value of export of mineral products was mostly due to an increase in international prices of mineral products that PNG exports and devaluation of PNG Kina against Australian Dollar, US dollar and Japanese Yen.

Conclusion

Value of export earnings of mineral products is determined by international prices, volume of exports and exchange rate fluctuations. This study analysed the impact of prices and exchange rates on the value of exports. Export prices of mineral products increased by 1016.9 % in 2008. The prices of mineral products increased by 893% between 1994 and 2010. The growth rates of copper and crude oil were higher than that of the average growth rate of all mineral products exported by Papua New Guinea during the same period. The growth in value of exports of mineral products was due largely to the increase in international prices and decline in the value of PNG Kina against the Australian Dollar, US Dollar and Japanese Yen. Thus, increase in prices and decline in the exchange value of PNG Kina contributed significantly to the growth in the value of mineral exports of the country.

It is therefore suggested that Papua New Guinea should craft and implement strategies to add value to export products rather than primary, or crude products in order to enhance the real value of exports by getting the advantages of terms of trade, as well as, to industrialise the economy in order to increase

employment opportunities and develop ancillary industries within the country.

Acknowledgements: This paper is based on a grant from the School of Business Administration and the Research Committee of the University of Papua New Guinea. The authors gratefully acknowledge the funding support from these Committees.

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Table-8: Value of export of mineral products after eliminating the impact of price changes and exchange rate changes (K in million).

Year	Value of Export of mineral products	Price Index 1994=100.00	Value of exports of mineral products after eliminating Price changes	Exchange rate Index 1PNGK=A\$	Value of exports of mineral products after eliminating Exchange rate changes	Value of exports of mineral products after eliminating Price changes and Exchange rate changes
1994	1782.7	100	1782.70	100	1782.70	1782.70
1995	2435.4	148.2	1643.32	96.62	2353.08	1587.78
1996	2244.6	156.6	1433.33	88.46	1985.57	1267.93
1997	1838.9	160.2	1147.88	85.39	1570.24	980.17
1998	2452.1	176.3	1390.87	69.96	1715.49	973.05
1999	3524	229.2	1537.52	55.37	1951.24	851.33
2000	4443.7	348.1	1276.56	57.71	2564.46	736.70
2001	4895.6	376.1	1301.68	52.72	2580.96	686.24
2002	4774	401.8	1188.15	43.07	2056.16	511.74
2003	5890	438.5	1343.22	39.51	2327.14	530.70
2004	6007.5	502.2	1196.24	38.72	2326.10	463.18
2005	7651.9	614.2	1245.83	38.81	2969.70	483.51
2006	10459.3	958.1	1091.67	39.59	4140.84	432.19
2007	10910.6	1008.9	1081.44	36.79	4014.01	397.86
2008	11855.5	1116.9	1061.46	40.76	4832.30	432.65
2009	9057	759.7	1192.18	42.21	3822.96	503.22
2010	11782.8	993	1186.59	36.73	4327.82	435.83

Source: Quarterly Bulletins for the respective years, Bank of Papua New Guinea.



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