Impact of TQM on employees’ job satisfaction in Indian software industry

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Abstract— Purpose – This paper seeks to examine employees’ perceptions of TQM practices and its impact on job satisfaction in Indian software industry. Methodology – Original research using self-completed questionnaires, distributed to software developers having more than 2 years of experience. The study sample consisted of 300 employees, resulting in a response rate of 76.67 percent. Data were analyzed by correlation and multiple regression analysis. Findings – The results showed that Employee empowerment, team work & cooperation, organizational culture and communication are positively associated with employees’ job satisfaction. It is also found that, where teamwork was perceived as a dominant TQM practice, improvements in job satisfaction levels were significant. Further, the result of the multiple regression analysis supports the proposed model. Originality/value – The findings make a significant contribution in the implementation of TQM practices in software industry. It also tracks the extent of TQM effects on job satisfaction. Keywords Total quality management, Outsourcing, Job satisfaction, software industry

I. INTRODUCTION
Total quality management (TQM) is a key strategy for maintaining competitive advantage and is a way of managing organizations to improve its overall effectiveness and performance towards achieving world-class status (Zhang et al., 2000; Chapman and Al-Khawaldeh, 2002). This functionality has increased considerably over the past few decades. In today’s manufacturing and service environment, TQM is used as a powerful tool to quantify the business operations. Research has confirmed the strategic benefits of quality programs and better quality is proven to contribute to greater market share and return on investment (Cole, 1992; Philips et al., 1983), lower manufacturing costs; improve productivity (Garvin, 1983) and improve the area of strategic performance (Zhang, 2000). Over the past few years, the Indian software and services industry (also called the information technology or IT industry) has relentlessly pursued the goal of acquiring the highest standards of quality for offering world-class IT software products and services. As a result, Indian organizations have created a strong value proposition in the global IT software and services arena. The quality maturity of the Indian software industry can be realized from the fact that already 316 Indian software companies have acquired different quality certifications and more companies are in the pipeline to do so. The other heartening feature has been the growing acceptance and adoption of the newly emerging PCMM by the Indian software industry. India has more than 200 companies being quality accredited and serving the needs of more than 255 Fortune 500 companies, and more and more suppliers in the United States prefer to get their software developed in India because of the quality and cost advantage (NASSCOM 2007).

TQM literature shows the relationship between TQM and employees’ job satisfaction in various countries and industries, but there is no literature on Indian software industry. Organizational outcomes are affected by Job satisfaction, so it very important for the organizations (Gray et al., 2003). The present study will fill this gap and also provide some practical guidance to the software companies dealing with this issue. Many of the basic TQM elements dealing with people have been examined in previous studies such as: teamwork, reward and recognition, customer focus, organizational trust, extensive training, high level of communication, management commitment at all levels, employee involvement, empowerment and organizational culture (see, for example: Guimaraes, 1996, 1997; Noorliza and Zainal, 1999; Dale, 1999; Oakland and Oakland, 1998, 2001). Previous studies attempting to link TQM and employees’ satisfaction have had limited outcome in scope and often affected by methodological constraints or inaccuracies.

To overcome the above limitations, this study made contribution in the literature by analytical study that shows the relationship between the soft elements of TQM and employees’ job satisfaction in software industry. Based on literature survey on TQM, five core soft elements of TQM have been identified, which support an organization’s output and affect the employees’ job satisfaction. These elements are: teamwork and cooperation, organizational culture, reward and recognition, employee empowerment, communication. In view of the absence of such research on these relationships, therefore, this paper reports the results of a survey that was designed to address three research questions:
(1) What are the core soft practices of TQM, which affect the employees’ satisfaction?
(2) Does the perceptions of employees towards TQM practices affect their job satisfaction?
(3) What is the extent of impact of TQM soft practice on employees’ job satisfaction and employees’ perception?

II. HYPOTHESIS

H1. TQM practices such as teamwork and cooperation, organizational culture, reward and recognition and personal expression, communication are positively associated with job satisfaction within software organizations.

III. METHODOLOGY

Sample and procedures

A sample of 300 software developers with more than 2 years of experience were taken from the 20 software organizations (source: NASSCOM) in 6 major cities where government has developed software parks. The organizations chosen would have following the TQM practices.

The survey was conducted between the months of February till June 2008. The questionnaire survey was the main form of data collection. The questionnaire was on 5 point Likert scale with strongly disagree (1) to strongly agree (5) range. Out of the 300 questionnaires distributed to employees in this organization, yielding a response rate of 76.67 percent, which is considered acceptable. The age range of the sample was from ages 23 to 45 years with a mean of age 34 years.

Variable measurements

Independent variables:

TQM practices: A total of 21 questions include the five TQM variables. The questionnaires on TQM dimensions were grouped into five elements; namely, teamwork and cooperation, organizational culture, reward and recognition, employee empowerment, communication. The importance of the five constructs of TQM practices are described below:

(1) Teamwork and Cooperation. This refers to the extent to which the organization practices to increase employees’ control in their work and allow them to work together and the employees’ and management cooperates each other. The practice allows employees to be more involved in the job and to work together. This construct was measured with a four-item scale developed by Zhang et al. (2000). The scale’s alpha reliability was 0.74.

(2) Organizational culture. This refers to a set of values and guiding beliefs shared by members within an organization. It is not only able to change, guide and display but also give significant contributions by influencing the thought, feeling, interaction and performance within the organization (Yusof and Ali, 2000). This construct was measured by a four-item scale developed by Lau and Idris (2001). The scale’s alpha reliability was 0.72.

(3) Reward and recognition. This can be defined as monetary and non-monetary benefits, such as increased salary, bonuses and promotion, which are conferred for public acknowledgement of superior performance with respect to goals (Juran and Gryna, 1993). This construct was measured by a five-item scale adopted from Zhang et al. (2000). The alpha reliability of the scale in this study was 0.80.

(4) Employee Empowerment: Empowerment means the assigning of responsibility with authority to the employees. Individual freedom and empowerment are found to encourage employees to participate in discussions and decision making (Truss 2001). This construct was measured by a four-item scale developed by Zhang (2000). The alpha reliability of this scale was 0.70.

(5) Communication: Communication helps to provide clarity of roles and responsibilities of each employee. Communication helps to improve quality through customer satisfaction by providing better service and quicker response to queries (Cortada 1995). This construct was measured by a four-item scale developed by Lau and Idris (2001). The alpha reliability of the scale in this study was 0.83.

Dependent variable: job satisfaction. Job satisfaction can be defined as an emotional reaction that “results from the perception that one’s job fulfils or allows the fulfillment of one’s important job values, provided that it is to the degree that those values are congruent with one’s needs” (Locke, 1976, p. 1307). This was measured by a five-item scale adopted from Wright and Cropanzano (1998). The constructs are: degree of satisfaction with the work, co-workers, and supervision, total pay and promotional opportunities. The internal consistency reliability coefficient for the scale is 0.79. подготовить

IV. ANALYSIS OF DATA

The statistical computer program used for the questionnaires data analysis was SPSS for Windows Version 11.0. Correlation studies were used to determine the relationship between the dependent and independent variables. TQM practices were regressed against job satisfaction. The multiple regression analyses confirmed the significance of the independent and dependent variables.

A. Result of Surveys

Factor analysis and scale reliabilities:
B. Descriptive Statistical Analysis

<table>
<thead>
<tr>
<th>Measure</th>
<th>It e m s</th>
<th>Factor loadin g</th>
<th>KMO</th>
<th>Eigenva lue</th>
<th>Varianc e explain ed (%)</th>
<th>Relia bility</th>
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<tbody>
<tr>
<td><strong>Independent variables</strong></td>
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<tr>
<td>Teamwork &amp; Cooperation</td>
<td>4</td>
<td>0.598 - 0.718</td>
<td>0.845</td>
<td>2.693</td>
<td>53.77</td>
<td>0.74</td>
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<tr>
<td>Employee Empowerment</td>
<td>4</td>
<td>0.531 - 0.955</td>
<td>0.70</td>
<td></td>
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<td></td>
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<tr>
<td>Organizational culture</td>
<td>4</td>
<td>0.516 - 0.803</td>
<td>0.72</td>
<td></td>
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</tr>
<tr>
<td>Communication</td>
<td>4</td>
<td>0.701 - 0.795</td>
<td>0.83</td>
<td></td>
<td></td>
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<tr>
<td>Reward &amp; recognition</td>
<td>5</td>
<td>0.510 - 0.755</td>
<td>0.80</td>
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<tr>
<td><strong>Dependent variable</strong></td>
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<tr>
<td>Job satisfaction</td>
<td>5</td>
<td>0.653 - 0.797</td>
<td>0.831</td>
<td>2.325</td>
<td>46.47</td>
<td>0.79</td>
</tr>
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Table I. Factor analysis and scale reliabilities – independent variables

Note: n ¼ 230

A principal component factor analysis with varimax rotation was conducted to validate the underlying structure of TQM practices (Table I). In interpreting the factor, only a loading of 0.5 or greater on the factor and 0.35 or lower on the other factors is considered. Results are shown in table 1 which indicates the sufficient inter correlation. These factors were namely reward and recognition (five items), employee empowerment (four items), organizational culture (four items), communication (four items), and teamwork & cooperation (four items), respectively. Thus, a model with five factors may be adequate to represent the data because the result of the analysis can be considered satisfactory since they do not exceed 60 percent of the explained variance recommended in social sciences (Hair et al., 1998).

Similarly, another factor analysis was undertaken to see the dimensionality of the independent variable (job satisfaction). The results shows sufficient inter correlation. The reliability of the questionnaire was tested according to Cronbach alpha measurements. The reliability coefficients of all the five elements of TQM were above 0.70, which concurs with the suggestion made by Nunnally (1978).

C. Multiple Regression Analysis

As noted in Table III, H1 states that employees exposed to high levels of TQM practices will experience high levels of...
job satisfaction. The F-statistics produced (F ¼ 32.28) which was significance at 1 percent level (Sig. F ¼ 0.000), thus confirming the fitness for the model. The Durbin-Watson of falls between the acceptable range (1.5, 2.5) indicating no autocorrelation problem in the data. Therefore, it indicates that the error term is independent. The results indicate no multicollinearity problems. This indicates that there is a statistically significant relationship between TQM practices and employees’ job satisfaction. The coefficient of determination, R 2 was 41.9 percent. This expresses that TQM can significantly account for 41.9 percent in employees’ job satisfaction. Thus, H1 was partially supported.

The results also indicated that there were four elements of TQM; namely, teamwork, employee empowerment, organizational culture and communication, which are positively, associated with employees’, job satisfaction. Moreover, the findings also indicate that the most important TQM practice that explains the variance in employees’ job satisfaction was teamwork and were significant at the 1 percent levels (p < 0.01). The other element of TQM, namely, reward and recognition are not significantly associated with employees’ job satisfaction. However, reward and recognition have provided longer term, infrastructural benefits necessary for the continued improvement over time, but with an indirect association towards employees’ job satisfaction.

V. DISCUSSION

The objective of this study was to know the relationship between TQM practices and employees’ job satisfaction within Indian software industry. The results of this study revealed that where teamwork and cooperation was perceived as a dominant TQM practice, there was a strong association with job satisfaction. The result implies that TQM recognizes and emphasizes the importance of teamwork to facilitate employees’ ability to work together to get a job done (Morrow, 1997; Noorliza, 1999; Noorliza and Zainal, 2000; Gifford et al., 2002).

In contrast, there was a weak relationship between reward and recognition and employees’ job satisfaction. Reward and recognition was found to have insignificant contributions towards employees’ job satisfaction. The present results are in contrast with the findings from previous study conducted by O’Driscoll and Randall (1999), in which he found that the rewards offered by an organization have a positive effect on employees’ satisfaction towards their job and the organization for which they work.

However, the findings indicate the importance of communication, organizational culture and employee empowerment for predicting job satisfaction. In addition, employee empowerment was also found to have a positive contribution towards employees’ job satisfaction. It is important that management practice empowerment and trust their employees’ capabilities to have control over their working lives.

The result also indicated that there was a positive relationship between organizational culture and employees’ job satisfaction as well as identification with the organization. The findings stresses on the need to monitor organizational culture and to evolve better TQM practices so that employees’ job satisfaction and other work-related outcomes are maintained at a high level. The results provide supporting evidence for the views of Yusof and Ali (2000), which states that organizational culture is not only able to change, guide, and display behavior of the individual but also give significant contributions by influencing the thoughts, feelings, satisfaction, interaction and affective reactions within the organization.

Further, the result of simple and multiple regression analyses confirmed that the job satisfaction variable was significantly related to perceptions of TQM practices and thus implementing TQM does payoff. The result of this regression analyses also supports the proposed model based on the empirically validated TQM implementation instruments, which are reliable and valid. This study also supports the findings from previous studies conducted by Guimaraes (1996) and Gardner and Carlopio (1996) which found that with TQM practices, on average, employees reported higher job satisfaction within the organization. Thus, in terms of human resource management goals and objectives, one is encouraged to think that TQM programs have a positive influence as Guimaraes (1996) indicates.

VI. CONCLUSIONS, IMPLICATIONS AND RESEARCH LIMITATIONS

In summary, the paper reports an exploratory investigation of the relationship between TQM practices and employees’ job satisfaction within the Indian software industry. As claimed by some authors (e.g. Guimaraes, 1996, 1997; Noorliza and Zainal, 2000; Noorliza, 1999), TQM does have significant effects on personnel attitudes towards their job and the organization. The development of TQM practices should provide useful measures for investigating the relationship between TQM practices and job satisfaction particularly in relation to the Indian software organizations. Companies could use this instrument to do a pre-test baseline measurement, and then periodically re-administer it to identify changes associated with TQM efforts. The implication is that organizations should focus firstly on teamwork & cooperation, employee empowerment, communication and organizational culture. The findings could prescribe potential implications for top management to review their TQM programs, consistent with the training needs of the employees within the organization.

The authors realize that there are some limitations, which must be considered for future research. The results gathered may generally be limited, although this study was the first one aimed at developing an instrument for measuring the relationship between TQM and employees’ job satisfaction
within the context of Indian software organizations. In order to improve external validity of the instrument, additional studies would be needed, with increased sample sizes, geographical diversity, organization type, and so on. Secondly, the findings are based on the use of self-reported survey data, which may be affected by response biases. Thirdly, cross-sectional data analysis cannot confirm the direction of causality implied in our research model, so it is necessary to be cautious in conclusions regarding causality. Fourthly, it is also important that other major constructs related to the TQM implementation process should be added to the conceptual framework underlying this study. Finally, while the measure of job satisfaction comprises of only a small number of items, which tapped different aspects of job satisfaction behavior, and does not represent an overall view of job satisfaction, therefore this is a considerable biased view for this study. Future research may be beneficial, if more items and better measures are developed, in relation to this outcome variable. It is also proposed that future research be conducted in other types of organizations such as manufacturing and service using a similar approach.

REFERENCES


