

Sociotechnical Analysis of Managerial Level Jobs: A Comparative Study in Indian Organisations

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Abstract

The design of jobs at managerial level through sociotechnical system requires the appropriate analysis of relevant technical and social subsystem constructs/factors in the organisation. The present study was conducted in various types of industrial organisations located in India (public and private sector, manufacturing and service sector) to make a comparative analysis among them. The paper helps to extract the extent to which the technical and social subsystem factors do exist in the managerial level jobs in Indian organisations in line with the framework of sociotechnical design of jobs. The findings from the study suggested that considerable differences exist in the components of managerial jobs among the various types of organisations in Indian context. The implications pointed out the areas that need attention to improve managerial level jobs in order to enhance job satisfaction and involvement.

Keywords: Managerial, Organisation, Sociotechnical system

INTRODUCTION

The managerial level jobs in organisations occupy special significance as to the effective functioning of the industrial enterprises. The demand for capable and talented managerial personnel also exhibits upward trend world over. The appropriate conceptualisation and design of managerial jobs have become an area of growing academic research and practical interest. Keeping this development in mind, this present study is an attempt to theorise the critical characteristics of managerial level jobs, and then conduct empirical analysis on a cross-section of obtained data from a diverse group of sample respondents. The designing of managerial jobs through balancing the critical constituent components also improves job satisfaction and job involvement that reduces turnover and absenteeism. The theory of sociotechnical system has been used as the theoretical framework to conceptualise and define the research variables. Sample respondents to the study were taken from the personnel in the managerial levels in both public and private sector enterprises of manufacturing and service industries. The empirical findings and analyses at the end of the paper indicate the areas in which the organisations have to improve to design managerial jobs in a better satisfying manner.

REVIEW OF LITERATURE

The term 'sociotechnical system' (STS) was coined by Eric Trist (Trist & Bamforth, 1951) to describe a method of viewing jobs, which emphasises the interrelated functioning of the social and technical subsystems of the jobs in relation to the organisation and environment in which it operates. Through continuous research and industry

applications, sociotechnical system had emerged as an established methodology that provides a structured approach to the redesign of job related processes (Pasmore & Sherwood, 1978; Taylor & Felten, 1993; Fox, 1995; Eijnatten, 1998). It holds that jobs in organisation can be conceived in terms of a combination of the social and technical subsystems factors. The social subsystem of a job includes attitudes and beliefs, contracts between employers and employees, reactions to work arrangements, and the relationships between individuals and among groups (Pasmore, 1988). The social subsystem of an organisation comprises the people who work in the organisation and the relationships among them (Trist & Bamforth, 1951; Emery, 1959, 1962; Trist, Higgins, Murray & Pollock, 1963; Pasmore, 1988). Broadly, the social subsystem includes the profile and expectations of organisational members, patterns of supervisory-subordinate relationships, interpersonal relationship of employees and the nature and interaction of subgroups within the population. At the micro level, the social subsystem embodies characteristics such as individual motivation, group performance, communication, flexibility, involvement, autonomy, commitment and satisfaction (Pasmore, 1988). At a macro level, the social subsystem represents organisational culture and social integration of workforce. The social subsystem emerges through the people working within a particular work setting (Eijnatten, 1998).

The technical subsystem of a job comprises the structures, tools, procedures, knowledge, and support necessary to perform the work (Fox, 1995). The technical subsystem of an organisation consists of the tools, work techniques and procedures, skills, knowledge and devices used by members of the social system to accomplish the tasks of the organisation (Trist & Bamforth, 1951; Thompson & Bates, 1957; Woodward, 1958; Emery, 1959; Trist *et al.*, 1963). The technical subsystem holds the tools, knowledge base, and technology required to acquire inputs, transform inputs into outputs, and provide outputs or services to customers in the organisation (Pasmore, 1988; Hendrick, 1991). According to Pasmore (1988), at the individual level, the technical subsystem affects work design, productivity, self-perceptions, and psychological contracts. At the functional unit or department level, the technical subsystem affects roles structures, physical layout, interaction patterns, and supervisory behaviour. At the organisation level, the technical subsystem affects relationships among departments, organisational structure, reward systems, organisational flexibility, and overall competitiveness. Therefore, at each level of analysis, the technical subsystem has a different type of interaction with the social subsystem.

STS theory seeks to enhance job satisfaction and improve productivity through a design process that focuses on the interdependencies among people, technology, and the work environment (Emery & Trist, 1965). The technology and the people have to be treated as being coupled within a system. Out of these considerations evolved the concept of joint optimisation of the social and technical subsystems (Trist & Bamforth, 1951; Trist *et al.*, 1963). STS theory (Trist & Bamforth, 1951; Cherns, 1976; Trist, 1981; Pasmore, 1988) proposes that work design should jointly optimise the social and technical subsystems of an organisation. This holistic approach to work and organisation design emphasises fit and interdependence (Macy, Thompson & Farias, 1995; Lawler, 1996) between the design features of the organisational technical and social subsystems. The level of variety, challenge, feedback, control, decision-making and integration provided for social subsystem members is largely a function of the way in which the technical subsystem is arranged (Fullen, 1970; Davis & Taylor, 1979; Davis, 1979).

It is important to design integrated processes and a job should comprise a whole task, rather than a fragmented part (Hackman & Oldham, 1976). People should be responsible for supervising and managing complete processes. They should have the authority and resources to do a job. The information systems should be designed to match this perspective (de Sitter, den Hertog & Dankbaar, 1997). Well-established criteria exist for the design of jobs in the organisation (Emery, 1962; Cherns, 1976; Hackman & Oldham, 1976; Warr, 1987; Medsker & Campion, 1997; Older, Waterson & Clegg, 1999). The sociotechnical perspective provides inputs to people working in different roles and disciplines so as to collaboratively design work within the system. The consideration of human factors under such an integrated design process extracts commitment to the organisation on important issues (Lim, Long, and Seacock, 1992). In sociotechnical system, task structures are to be seen as the connecting points between the technology and work processes at the one end, and the personnel or labour force at the other (Zwaan & Molleman, 1998). There are always choices, in the design of sociotechnical arrangements, and in the processes through which they are designed (Klein, 1994). This was one of the initial points made by Cherns (1976). Key choices include how the overall system will operate, how the work will be managed and organised, what form of technology will be required to support this work, and what other organisational policies are required to manage and facilitate the implementation process. All these dimensions impact on the nature of roles and role relationships, the level of productivity, and the quality of work life. Designs particularly at the level of jobs incorporate various attempts to provide better security, equity, and rewards, and to satisfy the growingly articulated psychological needs of all who work (Davis & Cherns, 1975; Englestad, 1979).

Recent applications of STS theory underline innovative work designs and team-based structures that are now prevalent in industrial organisations (Cherns, 1987; Reese, 1995; Lawler, 1998). Recent researches into sociotechnical systems have shown significant potential for understanding the dynamics in industrial organisations, and for providing management some guidelines for effective job design in organisations. A sociotechnical approach suggests that the autonomy of individuals and groups, their work roles and the social structure (interactions, person-organisation fit) of the organisation are important components of job design and organisational restructuring.

CONCEPTUALISATION OF VARIABLES AND RESEARCH HYPOTHESES

Based on the review of literature in the analysis of organisational sociotechnical system, two different sets of total six variables were identified for this study. Three variables namely Supervisory Relationship, Peer Group Interaction, Person-Organisation Fit formed the part of social subsystem set of managerial level jobs. Another three variables namely Managerial Job Characteristics, Work Technology Support, and Received Organisational Support formed the part of technical subsystem set of managerial level jobs.

Organisational Social Subsystem Variables

Variable I: Supervisory Relationship

Dierendonck, Le Blanc, and Breukelen (2002) studied the relationship between the supervisory behaviour and subordinate absenteeism and showed that the supervisory behaviour is directly related to the subordinate absenteeism. They used the Leader–

Member Exchange (LMX) scale developed by Graen and Uhl-Bien (1991), and Le Blanc, de Jong, Geersing, Furda & Komproe (1993). Dierendonck *et al.* modified the original seven point scale to a five point scale (Strongly Agree = 1 to Strongly Disagree = 5), and the composite reliability score of the subscale was reported to be .85. Table 1 highlights the original scale items along with the corresponding scale items used in this study (see Appendix, Table 1).

Deluga (1998) studied the subordinate–supervisor relationship with organisational citizenship behaviour and supervisor effectiveness. It was found that a positive LMX behaviour contributes to organisational citizenship behaviour and supervisor effectiveness. He used the seven-point scale (Very much so = 7 to Not at all = 1) developed by Kozlowski and Doherty (1989) and composite reliability was found .90. Table 2 highlights the original scale items along with the corresponding scale items used in this study (see Appendix, Table 2).

Variable II: Peer Group Interaction

Van Der Vanquet and Van Der Evert (1998) studied the motivating effects of task interdependence (social job dimension) in work teams, and established that there was a strong relationship between the task interdependence measures and the personal work outcome of team members. They developed the five-point scale for the purpose of the study, and the reliability measures were reported to be high. Table 3 highlights the original scale items along with the corresponding scale items used in this study (see Appendix, Table 3).

Taking the lead from the study of Van der Vanguet *et al.* (1998), Eby and Dobbins (1997), and Wagner and Moch (1986) studied the reciprocal team interdependence with the help of seven point Likert scale (Strongly Agree = 7 to Strongly Disagree = 1) having composite reliability score of .82. The following three dimensions have been taken from their study, and have been accordingly modified to suit the purpose of this study (see Appendix, Table 4).

Importance of informal interactions and socialisations among work group members has been cited as significant attributes by a number of organisational theorists. Keeping that in mind, the following two items relating to those two dimensions have been self-developed by the researcher for the purpose of this study (see Table 5).

Variable III: Person–Organisation Fit

O'Reilly, Chatman & Caldwell (1991) in the context of people and organisational culture, made an extensive study on person–organisation fit. Results suggested that a better fit predicted job satisfaction, organisational commitment, and hence reduced employee turnover. The composite reliability score for the dimensions was reported .86. For the purpose of this study, the following seven items have been taken from O'Reilly *et al.* (1991), (see Table 6).

Hypothesis 1: *Supervisory relationship, peer group interaction, and person–organisation fit are significantly correlated with organisational social subsystem.*

Hypotheses 2 and 3 propose to compare the organisational social subsystem for both public and private enterprises studied in this research. Further, within public and private

enterprises, the cross comparisons were made for manufacturing and service organisations.

Hypothesis 2: *There is no significant difference in the social subsystem of the public and private sector organisations in the manufacturing industry.*

Hypothesis 3: *There is no significant difference in the social subsystem of the public and private sector organisations in the service industry.*

Organisational Technical Subsystem Variables

Variable IV: Managerial Job Characteristics

Smith, Robie, Ryan, Schiemeder & Parra (1998) studied the job level characteristics from the scales (Treiman, 1977; Hackman & Oldham, 1977; Hunter, Schmidt & Judiesch, 1990). Job characteristics at different levels were measured with a five - point scale having a composite reliability of .89. Table 7 highlights the original scale items along with the corresponding scale items used in this study (see Appendix, Table 7).

Palvia, Sharma, and Conrath (2001) developed a framework regarding the information system quality comprising the task characteristics, technology, people, and organisation. From the task characteristics construct, the three dimensions namely intra-unit task linkage, inter-unit task linkage, task specialisation were taken, and the following three items were developed for this study. The reliability measure of the construct was not reported in their study (see Table 8).

Variable V: Work Technology Support

Shani, Grant, Krishnan, and Thompson (1992) defined technology as the combination of individual expertise (skills and knowledge), techniques, machines, and computers required for converting inputs into outputs in the form of products or services. The same definition of technology has been adopted for the purpose of this study, and the following four dimensions (Team facilitation, Operational skill, Complexity, Usefulness) of work technology from Shani *et al.* (1992) are framed into four items as below for this study (see Appendix, Table 9).

Palvia, Sharma, and Conrath (2001) also studied work technology in the context of sociotechnical approach to determine the quality of a computer information system. The following three dimensions (Effectiveness, User acceptability, Flexibility) related to technology have been taken from them, and the following items have been developed for this study (see Appendix, Table 10).

Variable VI: Received Organisational Support

Received organisational support is defined as the employees' 'global beliefs concerning the extent to which the organisation values their contributions and cares about their well-being (Eisenberger, Huntington, Hutchison & Sowa, 1986). Johlke, Stamper, and Shoemaker (2001) studied a few selective aspects of received organisational support as an antecedent to employee commitment taking leads from earlier studies by Eisenberger *et al.* (1986), Shore and Tetrick (1991) and Wayne and Liden (1997). Seven point Likert Scale was used (strongly disagree = 1 to strongly agree = 7), and had the composite reliability score of .92 (see Appendix, Table 11).

Brandes, Dharwadkar, and Wheatley (2004) in their study reflected the relationship between the organisational support facilities, and employee involvement and work outcomes. They modified the POS (perceived organisational support) scale used by Eisenberger *et al.* (1986) having seven points ranging from Strongly Disagree = 1 to Strongly Agree = 7, and a composite reliability score of .92 (see Appendix, Table 12).

Hypothesis 4: *Managerial job characteristics, work technology support, and received organisational support are significantly correlated with organisational technical subsystem.*

Hypotheses 5 and 6 propose to compare the organisational technical subsystem for both public and private enterprises studied in this research. Further, within public and private enterprises, the cross comparisons were made for manufacturing and service organisations.

Hypothesis 5: *There is no significant difference in the technical subsystem of the public and private organisations in the manufacturing industry.*

Hypothesis 6: *There is no significant difference in the technical subsystem of the public and private organisations in the service industry.*

EMPIRICAL STUDY

Data and Sample

The sample of the final study was targeted at the companies based in India. For the purpose of this study, junior and middle level personnel at managerial category (both from technical and managerial background) from the defined set of organisations formed the population. The organisations were broadly classified on the basis of the type of activity (manufacturing/service), and nature of ownership (public/private) of the organisations. Two major types of activities were classified as:

- a) Manufacturing (concerns, which were engaged in manufacturing, processing, or preservation), and
- b) Servicing (concerns, which were providing any type of service including consultancy companies and trading houses).

In order to obtain diversified categories of sample, the entire population was then stratified according to having the business turnover of Rs. 1,000 cr. and above, and employed manpower was 1,000 and above for all the organisations studied.

Survey Instrument

The survey instrument used in this study was a structured questionnaire. The questionnaire was made up of two parts. The first part of the questionnaire gathered background information of the respondents from different organisations who filled up the questionnaires. The second part of the questionnaire addressed the scale items related to the social and technical subsystem constructs of organisations. The variables were

measured using multiple items. All of the scale items represented in the survey instrument utilised a five–point categorical rating scale. The anchors used included:

- a) 1 = not at all,
- b) 2 = to a small extent,
- c) 3 = to a moderate extent,
- d) 4 = to a large extent,
- e) 5 = a very large extent.

Pilot Study

The purpose of the pre–test was to validate and empirically test the adapted scale items that had been drawn from previous studies. The pilot–test used a convenient sample of 93 company representatives from India. The statistical method used in these scales was principal component factor analysis. The items drawn from previously tested scales that were modified for this study were validated by factor loadings on their respective constructs. The guideline used was a factor loading of 0.5 or above (Hair, Anderson, Tatham & Black, 1995). Reliability concerns the extent to which a measurement of a phenomenon provides stable and consistent result. In assessing measurement reliability, Fornell and Larcker (1981) stress the importance of the reliability of each measure (individual item), and the internal consistency or composite reliability of each construct (Cronbach, 1951). The reliability score and factorial loading of each item were found to be well above the acceptable criterion of 0.50. The results of the pre – test provided the necessary validation in order to finalise the scale items to be used in the final study.

The pre–test incorporated seven **Supervisory Relationship** items and the principal component factor analysis result indicated that one factor represented 46% variance of the scale. That factor included all seven items with a factor loading greater than 0.5. The Cronbach's alpha measure of reliability of seven items was determined to be 0.88 (see Table 13).

The pre–test incorporated eight **Peer Group Interaction** items and the principal component factor analysis result indicated that one factor represented 63% variance of the scale. That factor included five items with a factor loading greater than 0.5. Another factor included three items with a factor loading greater than 0.5 representing 56% variance of the scale. The Cronbach's alpha measure of reliability of eight items was determined to be 0.72 (see Table 13).

The pre–test incorporated seven items of **Person–Organisation Fit** and the principal component factor analysis result indicated that one factor represented 59% variance of the scale. That factor included four items with a factor loading greater than 0.5. Another factor included three items with a factor loading greater than 0.5 representing 52% variance of the scale. The Cronbach's alpha measure of reliability of seven items was determined to be 0.76 (see Table 13).

The pre–test of the **Managerial Job Characteristics** included eight scale items adapted from previous studies and the principal component factor analysis indicated that one factor represented 40% of the explained variance of the scale. That factor comprised four items with a factor loading greater than 0.5. Another factor comprised the rest of the four items with a factor loading greater than 0.5 representing 42% of the explained variance of the scale. The Cronbach's alpha measure of reliability of eight items was determined to be 0.68 (see Appendix, Table 14).

The pre-test incorporated seven **Work Technology** items and the principal component factor analysis result indicated that one factor represented 48% variance of the scale. That factor included four items with a factor loading greater than 0.5. Another factor comprised the rest of the three items with a factor loading greater than 0.5 representing 43% of the explained variance of the scale. The Cronbach's alpha measure of reliability of seven items was determined to be 0.78 (see Appendix, Table 14).

The pre – test incorporated nine **Received Organisational Support** items and the principal component factor analysis result indicated that one factor included four items with a factor loading greater than 0.5 representing 69% variance of the scale. Another factor included three items with a factor loading greater than 0.5, representing 51% variance of the scale, and the third factor included two items with factor loadings greater than 0.5 representing 46% variance of the scale. The Cronbach's alpha measure of reliability of nine items was determined to be 0.75 (see Appendix, Table 14).

Sample Response Rate and Characteristics

One thousand sixteen hundred representatives from different Indian companies that approved to participate in this survey were distributed the questionnaires as sample respondents for this study. Despite the repeated reminders, 459 filled-up questionnaires were received back from a total of nine organisations. After elimination of received filled-up questionnaires in which item responses were missing, the final sample consisted of 444 responses. The usable response rate of 27.75% based on total number of respondents receiving the questionnaires is within the range typically reported for research studies in social sciences. A brief summary of the demographic profile of sample respondents in the final survey is presented in Table 15 (Appendix).

Data Analysis and Results

The descriptive was analysed for three different sets of data. The first set was the pooled sample total dataset of the final study. The second set of data was for manufacturing and service sector organisations in public enterprises. The third set of data belonged to the manufacturing and service sector organisations in private enterprises. Table 16 shows the detailed results of mean and standard deviations (s.d.) for all different sets of data (see Appendix, Table 16).

From Table 16 it is seen that the mean score of peer-group interaction was the highest (3.55) for pooled sample dataset, whereas the score was the lowest (3.09) for the variable person-organisation fit for the same dataset. In the case of manufacturing organisations in the public sector, the highest mean score was found for peer-group interaction (3.54), and the lowest mean score was for person-organisation fit (2.72). For public sector organisations in the service industry, the highest mean score was found to be 3.60 for peer-group interaction, and the lowest mean score came out as 3.26 for Work Technology Support. So far as the manufacturing organisations in the private sector were concerned, peer-group interaction exhibited the highest mean score of 3.56, and person-organisation fit had the lowest mean score of 3.19. In the case of private sector organisations in the service industry, Work Technology Support had the highest mean score of 3.59, and person-organisation fit displayed the lowest mean score of 3.03 (see Appendix, Table 17).

Table 17 shows the relative ranking of the sociotechnical variables in the pooled sample, public manufacturing and service organisations, and private manufacturing and service organisations. The pooled sample was classified into four categories namely, public manufacturing organisations, private manufacturing organisations, public sector service organisations, and private sector service organisations. Independent samples t-test was used to compare the mean differences and to test the defined hypotheses in this study.

The differences among the scores of the variable Supervisory Relationship for various types of organisations imply that in Indian organisations the managerial employees receive differential treatment from their immediate supervisors in terms of superior-subordinate relations based on reciprocity. The relatively higher scores of the variable Peer Group Interaction for various types of organisations substantiate that in Indian organisations the managerial employees share healthy and more informal interactions among the co-workers/colleagues. The relatively low scores of the variable Person-Organisation Fit for various types of organisations substantiate that in Indian organisations are mostly characterised by seniority based promotions, lack of concern for employee diversity and sharing of information, interdepartmental conflicts, and reluctance to practice new ways of doing things.

The differences among the scores of the variable Managerial Job Characteristics for various types of organisations imply that in Indian organisations, the managerial level jobs are mostly lacking the challenging job assignments and authority that commensurate with responsibility, requiring higher order coordination with related departments, and specialised knowledge and skills. The relatively higher scores of the variable Work Technology Support for various types of organisations substantiate that in Indian organisations, the work technology used by managerial employees are mostly effective, user friendly, flexible. The relatively low scores of the variable Received Organisational Support for various types of organisations substantiate that in Indian organisations, the operational support facilities received by managerial level employees are not adequate.

HYPOTHESES TESTING

Hypothesis 1: *Supervisory relationship, peer group interaction, and person-organisation fit are significantly correlated with organisational social subsystem.*

The Pearson's correlation coefficient between the organisational social subsystem and supervisory relationship, peer group interaction, and person-organisation fit was significant at the significance level of .01. Therefore, it can be concluded that there was a strong positive correlation between the organisational social subsystem and its constituent factors in Indian organisations. Hence the research hypothesis 1 was strongly accepted (see Appendix, Table 18).

Hypothesis 2: *There is no significant difference in the social subsystem of managerial level jobs of the public and private organisations in the manufacturing sector.*

Null hypothesis = The Variance / Means between the two groups do not differ significantly and are same / equal. $H_0: \mu_1 = \mu_2$

Alternate hypothesis = The Variance / Means between the two groups differ significantly and are not the same / equal. $H_a: \mu_1 \neq \mu_2$

It was hypothesised that there was no significant difference in the social design of managerial level jobs with reference to the various constructs viz. – supervisory relationship, peer–group interaction, and person–organisation fit when compared between: *the managerial level personnel of the public and private organisations in the manufacturing sector*. Independent samples t–test revealed significant differences in the social subsystem between public manufacturing and private manufacturing organisations. A review of the results in Table 19 (see Appendix) indicated that the resulting t–statistic was 2.90 ($p < .01$). Mean value of the social design factors was higher for private manufacturing firms (3.40) than the public-manufacturing firms (3.17). The associated values of significance (p –values) were less than .05, and thus, the null hypothesis got rejected, i.e. the difference in the means is significant (see Table 19).

Hypothesis 3: *There is no significant difference in the social subsystem of managerial level jobs of the public and private organisations in the service sector.*

It was hypothesised that there was no significant difference in the social design of managerial level jobs with reference to the various constructs viz. – supervisory relationship, peer–group interaction, and person–organisation fit when compared between: *the managerial level personnel of the public and private organisations in the service sector*. Independent samples t–test revealed significant differences in the organisational social subsystem between public and private organisations in the service sector. A review of the results in Table 20 (see Appendix) indicated that the resulting t–statistic was 4.61 ($p < .01$). Mean value of the organisational social subsystem was higher for public enterprises (3.50) than the private enterprises (3.26) in the service sector. The associated values of significance (p –values) were again less than .05, and thus, the null hypothesis got rejected, i.e. the difference in the means is significant (see Table 20).

Hypothesis 4: *Managerial job characteristics, work technology support, and received organisational support are significantly correlated with organisational technical subsystem.*

So far as the organisational technical subsystem was concerned, Pearson’s correlation coefficient between the organisational technical subsystem and managerial job characteristics, work technology support, and received organisational support was significant at the significance level of .01. Therefore, it can be concluded that there was a strong positive correlation between the organisational technical subsystem and its constituent factors in Indian organisations. Accordingly, research hypothesis 4 was strongly accepted (see Appendix, Table 21).

Null hypothesis = The Variance / Means between the two groups do not differ significantly and are same / equal. $H_0: \mu_1 = \mu_2$

Alternate hypothesis = The Variance / Means between the two groups differ significantly and are not the same / equal. $H_a: \mu_1 \neq \mu_2$

Hypothesis 5: *There is no significant difference in the technical subsystem of managerial level jobs of the public and private organisations in the manufacturing sector.*

It was hypothesised that there was no significant difference in the technical design of managerial level jobs with reference to the various constructs viz. – managerial Job

characteristics, work technology support, and received organisational support when compared between: *the managerial level personnel of the public and private organisations in the manufacturing sector*. Independent samples t-test revealed significant differences in the technical subsystem between public manufacturing and private manufacturing organisations. A review of the results in Table 22 (see Appendix) indicated that the resulting t-statistic was 4.12 ($p < .01$). Mean value of the technical subsystem was higher for private manufacturing firms (3.36) than the public-manufacturing firms (3.28). The associated values of significance (p-values) were again less than .05, and thus, the null hypothesis got rejected, i.e. the difference in the means is significant (See Table 22).

Hypothesis 6: *There is no significant difference in the technical subsystem of managerial level jobs of the public and private organisations in the service sector.*

It was hypothesised that there was no significant difference in the technical design of managerial level jobs with reference to the various constructs viz. – managerial job characteristics, work technology support, and received organisational support when compared between: *the managerial level personnel of the public and private organisations in the service sector*. Independent samples t-test revealed significant differences in the technical subsystem between public and private organisations in the service sector. A review of the results in Table 23 (see Appendix) indicated that the resulting t-statistic was 3.86 ($p < .01$). Mean value of the technical subsystem was higher for public enterprises (3.36) than the private enterprises (3.17) in the service sector. The associated values of significance (p-values) were again less than .05, and thus, the null hypothesis got rejected, i.e. the difference in the means is significant (See Table 23).

FINDINGS AND DISCUSSION

The major findings from this study can be summarised as follows:

- a) The comparison of descriptive for pooled and group samples (public, private; manufacturing, service) showed that the score of peer-group interaction was the highest or nearer to the highest for almost all categories of organisations like public and private manufacturing; and public and private service firms. It implies that in Indian organisations, in general, be it in public or private sector, the employees at the same level/unit share a healthy relationship among them.
- b) Whereas, consistently the score was found low in almost all categories of organisations for the variable person-organisation fit. So far as the relatively low score in person-organisation fit was concerned, it indicated that the Indian organisations are mostly driven by seniority based recognition and promotions, hierarchical decision making, lack of sharing organisational information at levels down the line, undue conflict and non-cooperation among various departments/units in the organisation, lack of experimentation with new things, and absence of concern to the diversity of employees in terms of their socio-cultural background, gender and race.
- c) The results of independent t-test by comparing separate group samples showed that the social sub-system was found significantly different for the public and private manufacturing organisations, as well as for the public and private service

organisations. It indicated that the social subsystem variables comprising supervisory relationship, peer–group interaction and person–organisation fit for the employees at the managerial level jobs varied in these two sets of organisations.

- d) The results of independent t-test by comparing separate group samples showed that the technical subsystem was found significantly different for the public and private manufacturing organisations, as well as for the public and private service organisations. It implied that the managerial job characteristics performed by employees at managerial levels, the nature of work technology that they used to execute their assignments, and the organisational support facilities that they received to discharge their official duties and responsibilities were different for two sets of organisations.
- e) It was also observed that in the case of manufacturing organisations, the mean scores were found higher in private firms for both technical and social sub-system of managerial jobs. It implies that the managerial jobs in the sample private manufacturing organisations were designed in a better manner through balancing the technical and social elements of the jobs than that in the public manufacturing organisations under this study.
- f) Whereas in the case of service organisations, the mean scores were found higher in private firms for both technical and social sub-system of managerial jobs. It implies that the managerial jobs in the sample public organisations in the service sector were designed in a better manner through balancing the technical and social elements of the jobs than that in the private organisations in the service under this study.

LIMITATIONS AND CONCLUSION

The growing importance of managers to the achievement of organisational goals and objectives has become a critical prerequisite to organisational success. The contributions from individual managers can be extracted by having better job satisfaction and involvement. Hence, the managerial expectations from their individual job assignments have to be fulfilled in a proper manner. This leads to the effective design of managerial jobs in organisations by balancing both the social and technical components of their jobs. This sociotechnical design/re-design of managerial jobs in organisations would also benefit the organisations by reducing the level of turnover and withdrawals at managerial levels.

This study empirically establishes the point that in the case of Indian organisations, the sociotechnical design of managerial jobs varies among different sets of organisations viz. – public and private sectors, and manufacturing and service sectors. Based on the review of literature and the previous research studies conducted in the area, supervisory relationship, peer group interaction, and person–organisation fit were identified to measure the construct organisational social sub-system. Managerial job characteristics, work technology support, and received organisational support together formed the construct organisational technical subsystem. The analysis of descriptive aspects indicated that while peer group interaction was consistently found in the higher rank order, variables like received organisational support and person–organisation fit were ranked consistently below for both pooled and cross–sectional samples in Indian

organisations. The correlation analysis in the study established that all the measuring variables had a significant correlation with their respective measured constructs. The comparative analyses of cross-sectional samples showed that the organisational social and technical subsystem variables were significantly different for public and private sector organisations in the manufacturing and service industries. As part of the sociotechnical job design approach, the presence of different technical and social constructs also differ among the organisations as have been responded by the people at managerial levels. Efforts should be made continually by the organisations to strike a balance among various technical and social constructs in the course of designing jobs for managerial levels from the view of Sociotechnical approach to generate better job satisfaction, employee morale and retention, and quality of work life.

The major limitation of this study is the limited sample size through the selective Indian organisations surveyed in various industries, and hence the generalisation of the findings has been affected to some extent. In future scope and extension of this research, the study can be carried out in more number of Indian organisations representing samples at junior and middle levels of managerial personnel. Despite the limitation, this study throws some light and indicates the trend of designing managerial jobs in Indian organisations through extending the application scope of sociotechnical system theory.

References

- Brandes, P., Dharwadkar, R. & Wheatley, K. (2004) Social exchanges within organizations and work outcomes: The importance of local and global relationships. *Group and Organization Management*, **29**, 276–301.
- Cherns, A.B. (1976) The principles of sociotechnical design. *Human Relations*, **29**, 783-792.
- Cherns, A.B. (1987) Principles of sociotechnical design revisited, *Human Relations*, **40**, 153-162.
- Cronbach, L.J. (1951) Coefficient alpha and the internal structure of tests. *Psychometrika*, **16**, 297-335.
- Davis, L.E., Cherns, A.B. & Associates (1975) *Quality of working life: Problems, prospects, and state of the art*, Vol. 1. Free Press, New York.
- Davis, L. (1979) Optimizing organization-plant design: a complementary structure for technical and social systems, *Organizational Dynamics*, **8**, 2-15.
- Davis, L.E. & Taylor, T. (1979) Technology and job design. In *Design of Jobs* (ed. by L.E., Davis and J., Taylor). Goodyear, Santa Monica, California.
- de Sitter, L.U., den Hertog, J.F. & Dankbaar, B. (1997) From complex organizations with simple jobs to simple organizations with complex jobs. *Human Relations*, **50**, 497-534.
- Deluga, R.J. (1998) Leader-member exchange quality and effectiveness ratings. *Group and Organization Management*, **23**, 189-217.
- Dierendonck, D. Van, Blanc, Pascale M. Le Blanc & Breukelen, Wim van (2002) Supervisory behaviour, reciprocity and subordinate absenteeism. *Leadership and Organization Development*, **23** (2), 84-92.
- Eby, L.T. & Dobbins, G.H. (1997) Collectivistic orientation in teams: an individual and group-level analysis. *Journal of Organizational Behaviour*, **18**, 275-295.
- Eijnatten, F.M. (1998) Developments in Sociotechnical systems design. In *Handbook of Work and Organizational Psychology* (ed. by P.J., Drenth and H., Thierry). Vol. 4, 2nd edn. Psychology Press, Hove.
- Eisenberger, R., Huntington, R., Hutchison, S. & Sowa, D. (1986) Perceived organizational support. *Journal of Applied Psychology*, **71**, 500-507.
- Emery, F. (1959) *Characteristics of sociotechnical systems*, Doc 527. Tavistock Institute of Human Relations.
- Emery, F. (1962) *Technology and social organization*, Doc T-42. Tavistock Institute of Human Relations.
- Emery, F. & Trist, E. (1965) The causal texture of organizational environments. *Human Relations*, **18**, 21-31.
- Engelstad, P. (1979) Sociotechnical Approach to Problems of Process Control. In *Design of Jobs* (ed. by L.E. Davis and J.C., Taylor). 2nd edn. Goodyear: Santa Monica, CA, pp. 184-205.
- Fornell, C. & Larcker, D. (1981) Structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, **18**, 39-50.
- Fox, W.M. (1995) Sociotechnical system principles and guidelines: Past and present. *Journal of Applied Behavioural Science*, **31**, 95-105.
- Fullen, M. (1970) Industrial technology and worker integration in the organization. *American sociological Review*, **35**, 1028-1039.
- Graen, G.B. & Uhl-Bien, M. (1991) Relationship-based approach to leadership: development of leader-member exchange (LMX) theory over 25 years: applying a multi-level, multi-domain perspective. *Leadership Quarterly*, **6**, 219-247.

- Hackman, J.R. & Oldham, G.R. (1977) Development of the job diagnostic survey. *Journal of Applied Psychology*, **60**,159-170.
- Hair, J.F., Anderson, R.E., Tatham, R.L. & Black, W.C. (1995) *Multivariate Data Analysis*, 4th edn. Prentice-Hall, Englewood cliffs, NJ.
- Hendrick, H.W. (1991) Ergonomics in Organizational Design and Management. *Ergonomics*, **34**, 743-756.
- Hunter, J.E., Schmidt, E.L. & Judiesch, M.K. (1990) Individual differences in output variability as a function of job complexity. *Journal of Applied Psychology*, **75**, 28-42.
- Johlke, M.C., Stamper, C.L. & Shoemaker, M.E. (2001) Antecedents to boundary-spanner perceived organizational support. *Journal of Managerial Psychology*, **17**, 116-28.
- Klein, L. (1994) Sociotechnical / organizational design. In *Organization and Management of Advanced Manufacturing* (ed. by W., Karwowski and G., Salvendy). Wiley, New York, pp. 197-222.
- Kozlowski, S. & Doherty, M.L. (1989) Integration of climate and leadership: Examination of a neglected issue. *Journal of Applied Psychology*, **74**, 546-553.
- Lawler, E.E. (1996) *High-involvement management: Participative strategies for improving organizational performance*. Jossey-Bass, San Francisco.
- Lawler, E. E. (1998) *From the ground up*. Jossey-Bass, San Francisco.
- Le Blanc, P., de Jong, R.D., Geersing, J., Furda, J. & Komproe, I.H. (1993) Leader member exchanges: distinction between two factors. *European Work and Organizational Psychologist*, **3** (5), 297-309.
- Lim, K.Y., Long, J.B. & Silcock, N. (1992) Integrating human factors with the Jackson System Development method: An illustrated overview. *Ergonomics*, **35**, 1135-1161.
- Macy, B.A., Thompson, R. & Farias, G.F. (1995) Describing and assessing high performance work practices in innovative organizations: A benchmarking study of 82 North American organizations. In *National Academy of Management Meetings*, August. British Columbia, Vancouver, Canada.
- Medsker, G.J. & Campion, M.A. (1997) 'Job and team design', *Handbook of Human Factors and Ergonomics*, Salvendy, G., Wiley, New York.
- Older, M.T., Waterson, P.E. & Clegg, C.W. (1999) *A new method for allocating tasks amongst humans and machines*. Institute of Work Psychology, University of Sheffield.
- O'Reilly, C.A.III, Chatman, J. & Caldwell, D.F. (1991) People and organization culture: A profile comparison approach. *Academy of Management Journal*, **34**, 302-328.
- Palvia, S.C., Sharma, R.S. & Conrath, D.W. (2001) A Sociotechnical Framework for Quality Assessment of Computer Information Systems. *Industrial Management and Data Systems*, **101**, 237-251.
- Pasmore, W. & Sherwood, J. (1978) *Sociotechnical Systems: A Sourcebook*. University Associates, San Diego.
- Pasmore, W. (1988) *Designing effective organizations: the sociotechnical systems perspective*. Wiley, New York.
- Reese, R. (1995) Redesigning for Dial Tone – A Sociotechnical Systems Case – Study. *Organizational Dynamics*, **24**, 80-90.
- Shani, A.B., Grant, R.M., Krishnan, R. & Thompson, E. (1992) Advanced manufacturing systems & organizational choice: Sociotechnical system approach. *California Management Review*, **34**, 91-111.
- Shore, L.M., & Tetrick, L.E. (1991) A construct validity study of the Survey of Perceived Organizational Support. *Journal of Applied Psychology*, **76**, 637-643.

- Smith, P.C., Robie, C., Ryan, A.M., Schiemeder, R.A. & Parra, L.F. (1998) The relation between job level and job satisfaction. *Group and Organization Management*, **23**, 470-496.
- Taggar, S. & Haines, V.Y.III. (2006) I need you, you need me: a model of initiated task interdependence, *Journal of Managerial Psychology*, **21** (3), 211-230.
- Taylor, J.C. & Felten, D.F. (1993) *Performance by design: Sociotechnical systems in North America*. Prentice-Hall, Englewood Cliffs, NJ.
- Thompson, J. & Bates, F. (1957) Technology organization and administration. *Administrative Science Quarterly*, **2**, 325-343.
- Treiman, D.J. (1977) *Occupational prestige in comparative perspective*. Academic Press, San Diego.
- Trist, E. & Bamforth, K. (1951) Some social and psychological consequences of the long wall method of coal-getting. *Human Relations*, **1**, 3-38.
- Trist, E., Higgin, C., Murray, H. & Pollock, A. (1963) *Organizational choice*. Tavistock Publications, London.
- Trist, E. (1981) The sociotechnical perspective: The evolution of sociotechnical systems as a conceptual framework and as an action research program. In *Perspectives on Organization Design and Behaviour* (ed. by A.H., Van de Ven & W.F., Joyce). Wiley, New York, pp. 19-75.
- Van Der vanquet, E. & Van Der Evert, B (1998) Motivating effects of task and outcome interdependence in work teams. *Group and Organization Management*, **23**, 102-113.
- Van Dierendonck, D., Le Blanc, P.M. & van Breukelen, W. (2002) Supervisory behaviour, reciprocity and subordinate absenteeism. *Leadership and Organization Development*, **23**, 121-146.
- Wagner, J.A. & Moch, M.K. (1986) Individualism-collectivism: concept and measure. *Group and Organization Studies*, **11**, 280-303.
- Warr, P.B. (1987) *Work, unemployment and mental health*. Oxford University Press, Oxford.
- Wayne, S.J. & Liden, R.C. (1997) Perceived Organizational Support and Leader-Member Exchange: A Social Exchange Perspective. *Academy of Management Journal*, **40** (2), 82-111.
- Woodward, J. (1958) *Management and technology*. Her Majesty's stationery Office, London.
- Zwaan, A.H. & Molleman, E. (1998) Self-organizing Groups: Conditions and constraints in a Sociotechnical Perspective. *International Journal of Manpower*, **19**, 301-318.

APPENDICES

Table 1: Original Scale by Dierendonck et al. (2002) viz a viz Scale used in this Study

Original dimension	Scale item developed for this study and (dimensions)
Development	My supervisor gives me feedback that helps me improve my performance. (Sharing feedback)
Openness	My supervisor consults and openly shares information on important matters with people working under him or her. (Sharing information)
Reliability	I feel my supervisor as reliable and trustworthy. (Trustworthiness)

Source: Dierendonck, D. Van, Blanc, Pascale M. Le Blanc & Breukelen, Wim van (2002) Supervisory behaviour, reciprocity and subordinate absenteeism. *Leadership and Organization Development*, 23 (2), 84-92.

Table 2: Original Scale by Deluga (1998) viz a viz Scale used in this Study

Original Scale item	Scale item used in this study and (dimensions)
Recognition for performance	I receive credit from my supervisor for a job well done. (Recognition)
Reciprocity and exchange of opinions	My supervisor tries to understand my point of view when he or she discusses problems or projects with me. (Reciprocity)
Fair performance evaluation	I feel my job performance is fairly evaluated. (Performance appraisal)
Consideration of job constraints	My supervisor understands my job problems and needs well. (Cooperation)

Source: Deluga, R.J. (1998) Leader-member exchange quality and effectiveness ratings, *Group and Organization Management*, 23, 189-217.

Table 3: Original Scale by Van der Vegt et al. (1998, 2002) viz a viz Scale used in this Study

Original Scale item	Scale item used in this study and (dimensions)
To what extent do you depend on your colleagues for doing your work well?	I tell people in my department how the quality of their work affects me. (Sharing feedback, self => others)
To what extent do your colleagues depend on you for doing their work well?	People in my department tell me how the quality of my work affects them. (Sharing feedback, others => self)
To what extent do you depend on your colleagues for information, advice, materials, means, and other things you need?	I get cooperation from people in my department to do the job well. (Cooperation)

Source: Van Der vanquet, E. & Van Der Evert, B (1998) Motivating effects of task and outcome interdependence in work teams. *Group and Organization Management*, 23, 102-113.

Table 4: Original Scale by Taggar and Haines (2006) viz a viz Scale used in this Study

Original Scale item	Scale item used in this study and (dimensions)
Teams can more thoroughly evaluate options than any one individual can	We feel we can collectively influence many important issues in this department. (Collectivist orientation)
I prefer to work with others in my work group rather than to work alone	Members of the work group work closely together and during the same time frame. (Group proximity)
To what extent do you depend on the presence, help, and support of your colleagues?	I am satisfied with the friendliness of the people I work with. (Harmony)

Source: Taggar, S., and Haines, V.Y.III, (2006), I need you, you need me: a model of initiated task interdependence. *Journal of Managerial Psychology*, 21(3), 211-230.

Table 5: Self – developed items for Peer – Group Interaction

Scale item used in this study and (dimensions)
We interact informally with each other within our department. (Informality)
I socialise with my co-workers even outside the job. (Socialization)

Table 6: Original Scale by O'Reilly et al. (1991) viz a viz Scale used in this Study

Original Scale item	Scale item used in this study and (dimensions)
Concern for diversity	Individual differences (e.g. gender, race, physical disability, social background etc.) are respected in my organization. (Diversity)
Working in collaboration with others	We discuss with people in other departments how the quality of their work affects us. (Sharing feedback, own unit => others)
Working in collaboration with others	People outside my department discuss with us how the quality of our work affects them. (Sharing feedback, others => own unit)
Sharing information freely	Each department knows enough about other related departments within the company. (Inter-unit information sharing)
Sharing information freely	Information about the organization's long-range plan and financial status are shared with us. (Organizational information sharing)
Achievement orientation	Achievement and competence are more important than hierarchical status. (Performance based recognition)
Willingness to experiment	We are encouraged to try new ways of doing things, even if they always might not work out. (Willingness to experiment)

Source: O'Reilly, C.A.III, Chatman, J. & Caldwell, D.F. (1991) People and organization culture: A profile comparison approach. *Academy of Management Journal*, 34, 302-328.

Table 7: Original Scale by Smith et al. (1998) viz a viz Scale used in this Study

Original Scale item	Scale item used in this study and (dimensions)
Job is simple and repetitive	My Job is simple, repetitive and does not require a great deal of thought. (Non – complexity and repetitiveness)
Scheduling and planning are important	Staying on schedule and planning for the future are important for jobs in my area. (Planning and timeliness)
Have authority to make decisions	I have authority commensurate with my position to make the decisions necessary for accomplishing assigned task. (Authority for decision making)
Teamwork	A number of employees diagnose, solve problem, and collaborate together to deal with the work in my department. (Teamwork)
Job flexibility	We are allowed to determine job sequence in our department. (Flexibility)

Source: Smith, P.C., Robie, C., Ryan, A.M., Schiemeder, R.A. & Parra, L.F. (1998) The relation between job level and job satisfaction. *Group and Organization Management*, 23, 470-496.

Table 8: Original Scale by Palvia, Sharma, and Conrath (2001) viz a viz Scale used in this Study

Original Scale item	Scale item used in this study and (dimensions)
Coordination within unit / department	To get the job done, I am required to coordinate my work with others in my department. (Intra – unit task linkage)
Coordination with other units / departments	My job requires coordinating my work with people in other departments also. (Inter – unit task linkage)
Specialisation in job skills	My job requires expertise and specialised skills that may not be readily available with people. (Task specialisation)

Source: Palvia, S.C., Sharma, R.S. & Conrath, D.W. (2001) A Sociotechnical Framework for Quality Assessment of Computer Information Systems. *Industrial Management and Data Systems*, 101, 237-251.

Table 9: Original Scale by Shani et al. (1992) viz a viz Scale used in this Study

Original dimension	Scale item developed for this study and (dimensions)
Team technology	The technology that I use makes it easy for me to work with others as part of a team. (Team facilitation)
Skill level	The technology that I use in this department requires high level of technological skill. (Operational skill)
Complexity	The technology that I predominantly use is complex and advanced by nature. (Complexity)
Usefulness	The technology that I use helps to reduce the complexities of routine operating procedures. (Usefulness)

Source: Shani, A.B.; Grant, R.M.; Krishnan, R.; Thompson, E. (1992) Advanced manufacturing systems & organizational choice: Sociotechnical system approach. *California Management Review*, 34, 91-111.

Table 10: Original Scale by Palvia et al. (2001) viz a viz Scale used in this Study

Original dimension	Scale item developed for this study and (dimensions)
Effectiveness	The technology that I use is effective and reliable to turn out work as fast as possible. (Effectiveness)
User acceptability	I feel comfortable to work with the technology used in this department. (User acceptability)
Flexibility	The technology that I use for my work is flexible to keep up with change arising out of job requirements. (Flexibility)

Source: Palvia, S. C.; Sharma, R. S.; Conrath, D. W. (2001) A Sociotechnical Framework for Quality Assessment of Computer Information Systems. *Industrial Management and Data Systems*, 101, 237-251.

Table 11: Original Scale by Johlke et al. (2001) viz a viz Scale used in this Study

Original Scale item	Scale item used in this study and (dimensions)
My workstation is comfortable	Workstations in our department are comfortable. (Infrastructure)
I have both fixed and performance based pay.	I think I am fairly paid in this organisation. (Compensation)
My workload is fair	The amount of work I am expected to do on my job is reasonable. (Workload)
This firm cares about my career	There are opportunities available for me to develop career and learn new skills within this company. (Career development)

Source: Johlke, M.C.; Stamper, C.L.; Shoemaker, M.E. (2001) Antecedents to boundary-spanner perceived organizational support. *Journal of Managerial Psychology*, 17, 116-128.

Table 12: Original Scale by Brandes et al. (2004) viz a viz Scale used in this Study

Original Scale item	Scale item used in this study and (dimensions)
I frequently consult employees outside my work group to help me on work problems	There is good alignment between my department and others with whom we need to coordinate. (Inter – unit support)
I believe that senior staff members have high integrity	I believe that top management has high integrity and commitment to the growth of the organisation. (Image of top management)
Help is available from top management when I have a problem	Senior staff members are willing to extend cooperation in order to help me perform my job to the best of my ability. (Support from seniors)
This company really cares about my well – being	This company really cares about employee well-being. (Organisational care)
This company shows concern for my family welfare	Time-off policies are flexible enough to let me take care of my personal and family needs. (Work – family balance)

Source: Brandes, P., Dharwadkar, R., Wheatley, K. (2004) Social exchanges within organizations and work outcomes: The importance of local and global relationships. *Group and Organization Management*, 29, 276-301.

Table 13: Results of Factor Analysis and Item Reliability Scores of Indicator Variables of Social Subsystem Construct

Variable and Measuring Items	Factor Loadings	Item Reliability Scores	Composite Reliability (Cronbach's Alpha)
Supervisory Relationship (SR)			.88
SR1	.89	.81	
SR2	.88	.83	
SR3	.92	.81	
SR4	.92	.84	
SR5	.89	.82	
SR6	.93	.83	
SR7	.94	.83	
Peer Group Interaction (PGI)			.72
PGI1	.78	.66	
PGI2	.75	.68	
PGI3	.75	.61	
PGI4	.68	.65	
PGI5	.78	.67	
PGI6	.79	.70	
PGI7	.77	.69	
PGI8	.71	.67	
Person – Organisation Fit (POF)			.76
POF1	.71	.66	
POF2	.76	.68	
POF3	.78	.65	
POF4	.81	.72	
POF5	.78	.71	
POF6	.74	.68	
POF7	.74	.69	

Note: Acceptable factor loadings and reliabilities (guidelines used $\lambda > .5$ and reliability $> .5$ respectively).

Table 14: Results of Factor Analysis and Item Reliability Scores of Indicator Variables of Technical System Construct

Variable and Measurement Items	Factor Loadings	Item Reliability Scores	Composite Reliability (Cronbach's Alpha)
Managerial Job Characteristics (MJC)			.68
MJC1	.74	.64	
MJC2	.69	.63	
MJC3	.64	.61	
MJC4	.72	.63	
MJC5	.74	.66	
MJC6	.71	.62	
MJC7	.68	.62	
MJC8	.79	.65	
Work Technology Support (WTS)			.78
WTS1	.83	.72	
WTS2	.84	.72	
WTS3	.81	.71	
WTS4	.81	.67	
WTS5	.83	.77	
WTS6	.82	.73	
WTS7	.82	.74	
Received Organisational Support (ROS)			.75
ROS1	.79	.68	
ROS2	.80	.67	
ROS3	.80	.71	
ROS4	.77	.61	
ROS5	.77	.64	
ROS6	.66	.58	
ROS7	.83	.71	
ROS8	.66	.59	
ROS9	.77	.61	

Note: Acceptable factor loadings and reliabilities (guidelines used $\lambda > .5$ and reliability $> .5$ respectively).

Table 15: Demographic Profile of Sample Used for Data Analysis

Category	Number/Percentage
<u>Gender</u>	
Male	407 (91.66%)
Female	37 (8.34%)
<u>Level</u>	
Junior managerial level	202 (45.49%)
Middle managerial level	242 (54.51%)
<u>Age Groups</u>	
Under 30	78 (17.56%)
30 – 40	187 (42.11%)
41 – 50	133 (29.95%)
> 50	46 (10.38%)
<u>Job Experience in the Company</u>	
< 24 months	64 (14.41%)
24 – 60 months	120 (27.02%)
61 – 120 months	124 (27.92%)
> 121 months	136 (30.63%)
<u>Nature of Organisational Ownership</u>	
Public Sector	209 (47.07%)
Private Sector	235 (52.93%)
<u>Nature of Organisational Business</u>	
Manufacturing	233 (52.47%)
Service	211 (47.53%)
<u>Sales Turnover</u>	
10,000 cr. and above	6 (66.67%)
Below 10,000 cr.	3 (33.33%)

Table 16: Descriptive for 'Pooled' and 'Classified' Sample

<u>Variables</u>	<u>Pooled Sample</u>		<u>Public Manufacturing Service</u>				<u>Private Manufacturing Service</u>			
	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.
Managerial Job Characteristics	3.39	.43	3.43	.38	3.40	.52	3.47	.50	3.30	.33
Work Technology Support	3.46	.57	3.49	.49	3.26	.63	3.49	.59	3.59	.51
Received Organisational Support	3.17	.48	3.13	.44	3.33	.56	3.24	.60	3.04	.28
Supervisory Relationship	3.34	.64	3.27	.62	3.45	.66	3.46	.81	3.23	.51
Peer Group Interaction	3.55	.46	3.54	.46	3.60	.51	3.56	.57	3.52	.32
Person Organisation Fit	3.09	.60	2.72	.55	3.44	.51	3.19	.63	3.03	.50

Table 17: Relative Ranking of Variables (in the order of mean values)

Variables	Pooled Sample	Public Sector (Manufacturing)	Public Sector (Service)	Private Sector (Manufacturing)	Private Sector (Service)
Supervisory Relationship	4	4	2	4	4
Peer Group Interaction	1	1	1	1	2
Person-Organisation Fit	6	6	3	6	6
Managerial Job Characteristics	3	3	4	3	3
Work Technology Support	2	2	6	2	1
Received Organisational Support	5	5	5	5	5

Table 18: Correlation Analysis of Organisational Social Subsystem Variables

Variables/ Construct	Supervisory Relationship (SR)	Peer Group Interaction (PGI)	Person – Organisation Fit (POF)	Organisational Social Subsystem (OSS)
SR	1.00			
PGI	.47**	1.00		
POF	.42**	.36**	1.00	
OSS	.67**	.65**	.64**	1.00

** Correlation significant at .01 level (2 tailed), * Correlation significant at .05 level (2 tailed)

Table 19: Result of Separate Variance t test for Comparison of Mean Difference of Social Design of Managerial Jobs in Manufacturing Organisations (Public and Private)

Dimension	Public Manufacturing	Private Manufacturing	t – value
Social Subsystem of Managerial Jobs	3.17	3.40	2.90**

** $p < .01$

Table 20: Result of Separate Variance *t* test for Comparison of Mean Difference of Social Design of Managerial Jobs in Service Organisations (Public and Private)

Dimension	Public Service	Private Service	t – value
Social Subsystem of Managerial Jobs	3.50	3.26	4.61**

** $p < .01$ **Table 21: Correlation Analysis of Organisational Technical Subsystem Variables**

Variables/ Construct	Managerial Job Characteristics (MJC)	Work Technology Support (WTS)	Received Organisational Support (ROS)	Organisational Technical Subsystem (OTS)
MJC	1.00			
WTS	.45**	1.00		
ROS	.45**	.26*	1.00	
OTS	.59**	.64**	.69**	1.00

** Correlation significant at .01 level (2 tailed), * Correlation significant at .05 level (2 tailed)

Table 22: Result of Separate Variance *t* test for Comparison of Mean Difference of Technical Design of Managerial Jobs in Manufacturing Organisations (Public and Private)

Dimension	Public Manufacturing	Private Manufacturing	t – value
Technical Subsystem of Managerial Jobs	3.28	3.36	4.12**

** $p < .01$ **Table 23: Result of Separate Variance *t* test for Comparison of Mean Difference of Technical Design of Managerial Jobs in Service Organisations (Public and Private)**

Dimension	Public Service	Private Service	t – value
Technical Subsystem of Managerial Jobs	3.36	3.17	3.86**

** $p < .01$