The Implementation of Satellite Offices: Initial Recommendations Based on Observations from One Site

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Abstract

Information was gathered in an organization conducting a pilot study of the satellite office concept. The goal of the information gathering was to document adjustments and changes taking place to permit inferences regarding the need for more advanced communication technologies, such as videoconferencing and coordination systems. While there is some evidence for the need for advanced technologies, there appears to be a greater need for change management, for job redesign, and for changes in the interactional patterns between employees. Further, the cost-benefit relationships associated with the implementation of satellite offices is potentially inequitable, i.e., the benefits appear to accrue to one stakeholder group while the risks are being borne by a second group.

1. Introduction

Innovative organizational designs resulting from the rapid advances in technology have been predicted for over a decade (Huber, 1984; Bell, 1973). Information scientists and communication scholars tend to view the successful transition to such organizations as a function of the availability of sophisticated communication technologies (Venkatesh and Vitalari, 1992; Rice and Associates, 1984; Hiltz and Turoff, 1993). However, there has been no systematic study to provide evidence for the need for the more advanced technologies. The current study was initiated to gather such evidence.

A large organization was in the process of doing a pilot study of the satellite office concept. One of the stipulations of the trial was that the employees at the satellite office would be limited to the same technology that would have been available to them at the main office, i.e., telephone, voice mail and e-mail. This created a potential opportunity to observe instances of problems that may arise as a result of limited communication technology in a live organizational environment. The intent was to use such instances to assess the need for more advanced communication technologies, such as desktop videoconferencing, videoconferencing, coordination systems and so on.

As has happened in other field studies (e.g., Markus, 1983), the issues that surfaced were broader than the narrow initial focus of the study. In this paper, some of the observations and the issues inferred from them are discussed.

The paper begins by providing background information on the company and the pilot study. Then each of the issues is discussed. They are change management, job redesign, interactional patterns, new technology needs and cost-benefit issues. The discussions include the observations, some preliminary inferences and supporting information from the literature. The limitations of the study are stated, followed by the concluding remarks.

2. The Project Background

The data were gathered at a large regulated utility, which was/is simultaneously undergoing changes on many fronts. The most significant change is the possible transition of the organization from a regulated environment to a deregulated environment. In an effort to make the transition (and for other reasons), the company is exploring many changes. The satellite office is one of the changes in organizational design. Others include (a) downsizing by offering voluntary separation incentives, (b) spinning off certain groups into independent organizations, and, (c) giving managers and supervisors the discretionary authority to implement flexible work arrangements, such as work at home, and self-managed teams.

The satellite office in the pilot program would classify as a non-traditional satellite office, as defined by Fritz, Higa and Narasimhan (1994).

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Employees assigned to that office lived in close proximity to the satellite office. They belonged to job classifications ranging from accounts receivable personnel to programmers / analysts to customer support personnel.

It is appropriate to mention that the company wished to demonstrate that the satellite office concept could be implemented without any significant incremental investment. In keeping with this goal, employees were provided only the same technology that was available to them when they were at the main office, i.e., telephones, voice mail and electronic mail. Also, no significant budget allocation was made. Expenses related to an employee were mostly charged to the budgets of the employee's manager or division.

The paper is based mostly on data gathered as a supplement to internal studies that were being done at the company. The internal studies focused on issues such as, the reduction in employee travel, the lowering of stress in satellite office employees, the reduced pollution effects and so on. The current study was initiated with the primary intention of identifying the need for more advanced communication technologies.

The data were gathered by conducting interviews and asking respondents to complete structured questionnaires. Respondents included satellite office participants (13 of 20), participants in main offices who performed comparable jobs (10) and supervisors (8). Participation was voluntary in all cases.

The current report is mostly a summary of the responses at the interviews. The structured questionnaires have not been analyzed yet and results from that will be included in a later report.

3. The Issues

Five issues are discussed. They are as follows: change management, job redesign, interactional patterns, advanced communication technologies and inequitable cost-benefit relationships.

3.1 Change Management

The underlying issue in organizational design implementation appears to be one of managing organizational change (Nadler and Tushman, 1988). The implementation of a satellite office is a change in the organizational design and hence the need for managing the change is to be expected. Nadler and Tushman point out that the problems associated with implementing organizational changes relate to power, anxiety and organizational control. It should be pointed out that these are not mutually exclusive. Other authors indicate the source of resistance to change to be politics, misunderstanding and a lack of trust, different assessments of the situation and fear (Kotter, 1986).

The resistance of the stakeholder groups will be discussed in terms of the factors mentioned. The stakeholders in this instance were: the satellite office employees, their co-workers in the main office, the supervisors / managers, the union, and the upper management.

Satellite office employees: The satellite office employees were enthusiastic to begin with. Nothing they have experienced has diminished their enthusiasm. The employees were the high performers in their respective groups in the main office. As such, they had few anxieties about their performance. They were asked specifically if they were afraid of being overlooked for promotions. There was no concern about this issue. In fact, some said they would decline promotions if it meant working at the main office. Also, since they were high performers, they had considerable latitude in the performance of their jobs at the main office. So, the lack of close supervision at the satellite office was not a change in organizational controls for them. Their only concern appeared to be that the company would close the satellite office at the end of the trial.

Co-workers: A few co-workers expressed some muted concerns, but seemed wary of saying anything negative. Minor inequities had arisen in the distribution of excess workload. The concern, presumably, was that such inequities would continue and increase to an unacceptable level. But, for the major part co-workers were supportive of the satellite office. Many of them appeared to be waiting for the concept to expand, so that they could also have the opportunity to take advantage of its benefits.

The union: No union officer was interviewed. But one of the concerns of the unions did surface during the interviews with others. The concern related to the process by which employees would be assigned to the satellite office subsequent to the pilot phase. The union would like the employees to be able to bid for the satellite office positions on the basis of seniority. The company would like to designate which employee will be allowed to work at the satellite office.

Middle management: The main point of resistance to the satellite office concept appears to be the concerns of the middle management. Participation in the pilot by employees required

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the consent of the managers. Some managers refused to participate. They constitute the real resistance to any large scale implementation of the project. Among those that participated, some of them frankly admitted having reservations to begin with, but their experiences have been positive and they are now more positive, if not enthusiastic, about the idea. They are not willing to give the arrangement blanket approval, though. They believe that it is viable for certain kinds of jobs and for certain kinds of employees. However, some of the employees perceive middle management support as less than wholehearted.

Much of the resistance of the middle management appears to be related to issues of power and organizational control. Literature reports increased workload on middle management as a result of the new work arrangements (e.g., Muir and Robertson, 1993), but this was not mentioned as a serious concern in this study.

Power issues: A few issues of power surfaced during the trial. The original stipulation was that the manager had the final authority to recall an employee to the main office. Any attempt to recall, however, was strongly resisted by the employees concerned. There was also some resistance to traveling to the main office to attend group meetings. The manager concerned found it irksome to have to deal with this challenge to his prerogative to expect his subordinates to attend meetings. Other managers were willing to reschedule meetings, so that the satellite office employee could minimize travel to the main office. Similar experiences have been reported in another study (Muir and Robertson, 1992). Muir and Robertson report supervisor complaints of difficulties in scheduling meetings. They also report that some telecommuters stuck to their original telecommuting schedule and missed meetings.

Organizational controls: For the major part, the concern of the middle management appeared to be one of organizational control. The single centralized office concept of the past had led to a culture where supervisory patterns were based on the ability of supervisors to see their staff working. The satellite office concept required different supervisory patterns, i.e., from visual control to result-oriented control. This is consistent with the statements of Fritz *et al* (1994), who argue that 'The implementation of telework requires....a shifting of ...from the traditional command and control management style to employee empowerment and self-managed teams' (p. 149). There was an intuitive sense of what some of these new patterns (e.g., have clear milestones for employees to accomplish) should be among the managers, but there was the anxiety factor until the new controls were actually tried.

Workload issues: The satellite office probably placed increased demands on the supervisors in terms of planning the work and developing new techniques to monitor status of assigned work. There was no serious mention of this issue. However, literature does consistently report the increase in managerial workload as a result of teleworking arrangements (Fritz *et al*, 1994; Muir and Robertson, 1993). Such increases in managerial workload, whether real or perceived, may have the unfortunate consequence of biasing the supervisors' evaluation of telecommuters' job performance (Muir and Robertson, 1993).

Upper management: Upper management supported the pilot project in principle, but since no significant budget was allocated for trial, the signals from upper management are mixed at best.

In reviewing the concerns of each set of stakeholders, it is clear that the union and the middle management may prove to be the roadblocks to any large scale implementation. Since no union officers were interviewed, the role of the union will not be discussed further.

The observation that teleworkers were generally positive about the project while the managers viewed the project negatively is consistent with other findings (Klein and Froshchle, 1988). Middle managers often take the brunt of the criticism for their resistance. For instance, Huws, Korte, and Robinson (1990) feel that the primary barrier to the implementation of the telework is the reluctance of the managers to depart from existing practices. The unwillingness of the middle managers to depart from proven and organizationally-sanctioned existing practices is not surprising. In most change situations, there is a lack of attention to the needs of the middle managers. Much attention is paid to the needs of the employees. Comparable attention needs to be paid to the needs of the middle managers. For instance, the implementation of new organizational designs, such as satellite offices, calls for new, untried organizational controls. It is necessary for top management to express support for the new controls and to allow middle managers the time to get used to the new controls.

The process to deal with issues related to power, anxiety and organizational controls are discussed at length in organizational change literature (e.g., Nadler and Tushman, 1988). The informal assessment of this study is that change management issues constitute the single most important issue in the transition to the

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implementation of new organizational designs, such as satellite offices.

3.2 Job Redesign

The possible need for job redesign is recognized by most authors. For instance,. Fritz *et al* state 'The implementation of telework often requires work process redesign..'. Other authors have found that moving a function to a remote location has a substantial impact on the design of that function (Judkins, 1988; Klein, 1988; Mehlmann, 1998). The task-design requirements are fundamental for understanding issues relating to 'job-specialization, job enlargement, job enrichment and job characteristics (Griffin, 1987). Examples of how job designs respond to changes in technology have been reported (Billings, Klimoski, and Breaugh, 1977; Rousseau, 1977; Clegg, 1984; and Pierce, 1984).

There are two dimensions of job design that are significant to the implementation of a satellite office: structuring of tasks and the clustering of responsibilities/assignments. Structuring involves the specification of clear milestones and performance objectives. The clustering of responsibilities involves grouping the tasks that the team has to be perform such that remote offices are possible. Literature discusses structurability but makes no mention of clustering responsibilities.

Structuring jobs: The need to structure jobs to enable remote work has been mentioned by several authors (e.g., Fritz *et al*, 1994; Becker *et al*, 1993a). In fact, the structurability of a job is often suggested as a criterion for selecting jobs that can be performed from a remote location (Finlay and Rouse, 1992; Muir and Robertson, 1993). Judkins (1988) reports that productivity increases from the additional planning and more exact job specifications that telecommuting required. However, the suggestion to structure jobs must be considered with care. Zuboff (1982) mentions that articulating a less-than-optimal model of the job when automating the task will lead to codification of sub-optimality. A similar danger exists when structuring jobs to facilitate the implementation of satellite offices. In fact, Olson and Primps (1984) report that the most dissatisfied participants in a home telecommuting project were persons who experienced a serious loss of autonomy as a result of more stringent control policies. It would appear judicious to allow enough flexibility to enable the employee to handle unexpected situations and show some initiative.

In the current study, one of the criteria for selecting participants for the satellite office was the extent to which their job could be structured, i.e., if clear milestones and performance objectives could be specified. Some employees felt that there was further potential for structuring jobs.

Clustering responsibilities: The concept of clustering is best illustrated with a hypothetical example based on a systems development group. System development activities would include analysis of user requirements, systems design, programming, testing and training. Assuming that all employees in the group have overlapping skills and can perform all the functions, an employee can be assigned responsibilities by project or by activity. When responsibilities are assigned by project, the employee will be responsible for all activities for a project. When responsibilities are assigned by activity, one employee may be responsible for user requirements analysis and systems design for many projects or training for all projects. Assuming that the users are in the main office, clustering by activities allows those employees performing activities that require minimal interaction with users (such as, programming) can be located at the satellite office. If the responsibilities are clustered by project, it will be more difficult to locate any of the employees at the satellite office. In the current study, employees at the satellite office had the same set of responsibilities that they had had at the main office, i.e., there had been no change made to the clustering of responsibilities.

Clustering responsibilities by activities does not resolve all potential problems. Supervisors lose some of the flexibility in assigning tasks that they had with employees with overlapping skills, who were all in the main office. Continuing with the hypothetical example, if a trainer has an emergency and is not able to come to work for a day, then it is not possible to ask a programmer at the satellite office to perform training duties for a day to help with an unexpected situation.

Two such instances were reported. In one, downsizing of a group had led to an increase in the number of overlapping responsibilities among group members to the point where the manager considered it necessary to recall the satellite office employee to the main office to handle the fluctuating and unexpected work demands on the group. In the second instance, the person at the satellite office was seldom called on to help during the emergencies, mostly because it was not always clear what other responsibilities were being discharged by the person. There appeared to be a reluctance to inquire. Presumably, had the

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employee been at hand, the supervisor and other group members would have a more intuitive sense of what the employee was doing and how busy he/she was instead of having to initiate a specific interaction to find out. Muir and Robertson (1993) report similar complaints from employees at the main office about having to cover for telecommuters on urgent matters.

The cluster of responsibilities associated with each job title needs to be examined when implementing a satellite office. In the past, the responsibilities for a job title could be uniform, and responsibilities could be assigned by matching skills of the individuals to the needs of the task. When implementing distributed organizational arrangements, a further constraint comes into play, i.e., the geographical availability of the person. In effect, it may be necessary to change the clusters of responsibilities of individuals in a group to make the distributed arrangement feasible.

Thus, on the issue of job redesign, the structurability of the jobs and the clusterability of the responsibilities need to be examined.

3.3 Interactional Patterns

Employees are involved in work-related interactions and in social interactions in the workplace. The implementation of satellite offices disrupts existing interactional patterns in both categories.

Work-related interactions: An analysis of the comments on work-related interactions indicates the need for greater structuring of interactions, the need to enhance mutual awareness of employees in different offices, and the lower levels of distractions.

Structuring interactions: Employees who need to interact for work-related activities tend to interact in a organized fashion or in a somewhat informal, *ad hoc* fashion. In centralized work arrangements, i.e., when employees are at the same location, either the organized or the *ad hoc* mode of interaction is effective. The proximity of the employees allows multiple contacts of short duration to deal with issues as they come up. In distributed arrangements, there is a greater need to organize the interactions. All issues of relevance need to be raised at one time, if possible, when employees make contact either in person or over the telephone.

Examples of such adjustments were reported by some of the study participants. One manager said, while she is normally an organized person, she had to organize herself further to make the interactions with the satellite office employee more productive. For instance, she would make a list of issues that she wished to discuss with the satellite office employee in anticipation of their daily phone contact. She went further to accommodate the needs of the satellite office employee. If the satellite office employee was making an unscheduled visit to the main office, the manager would move the weekly group meeting to the same day to save the employee a second trip later in the week.

Mutual awareness: Both employees and managers admitted to forgetting the satellite office employees on occasions. The forgetfulness took the form of neglecting to inform the employee of the minor changes in work requirements that happen every so often. It also took the form of forgetting the remote presence of the satellite office employee in audio-conference meetings, particularly if the satellite office employee was not active in the meeting.

Reduced distractions: Among most managers and employees, there is a sense of having given something up by losing the ability to interact spontaneously on an *ad hoc* basis. But there is also the admission that the frequent *ad hoc* interactions tended to diminish productivity. There were two specific instances when the productivity changes were noticeable. One, a computer support personnel, mentioned that the requests for help came over e-mail and he could attend to them in appropriate priority as opposed to the previous process of receiving the help requests on phone or in person, which led to an interruption of his work while he noted the nature of the problem. Second, an employee preparing documentation for educational sessions mentioned that there were days when she had completed all her assignments and had to go looking for work, in contrast to her previous experience of always feeling behind. This is consistent with other reports that fewer distractions and the ability to work at one's peak period led to increased productivity in remote locations (Katz, 1987).

The observations reflect a need for more structuring of individual habits if distributed environments are to be implemented. The spontaneous interactions that are adequate in a centralized organization are not adequate in a distributed environment. The observations also suggest that the structuring of interactions may provide benefits even in centralized organizations.

Social interactions: There are also adjustments occurring in the social interactions. The importance of social communities in the workplace has been stressed by some researchers (e.g., Zuboff, 1982).

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In this study, most satellite office employees acknowledge that the social bonding is important. There are reports of satellite office employees not attending social functions. In groups where social functions were/are a norm, the absence of an employee seems to create a sense of pain in the employees at the main office. However, other social bonds are forming at the satellite office, with parties for birthdays and so on. In effect, the social interaction patterns in the organization are changing, with new ones replacing the old ones. The nature and importance of the changes in the social interactions needs further examination.

While the social structure is changing, existing social bonds continue to be maintained for the most part. The visits to the main office, telephone and email contact all serve to sustain relationships built up over a period of time. The greater concern arises when one considers social bonding between new employees at the main office and the existing employees at the satellite office.

One satellite office employee pointed out that social bonding is just as dependent on individual personalities as proximity. He mentioned instances when he found it easier to bond with someone at a different office than with the person in the next office. He further mentioned that most satellite office employees made special efforts to get to know new employees in their group at the main office.

The changes in social interactions are real, but not unique to the satellite office project. The reality is that any time work situation changes, it changes the social relationships that go with it. Promotions, transfers, changes in work assignments and so on, all change existing social relationships among employees. Such changes carry with them an inevitable sense of loss. So the pain being experienced by the main office employees is no more than the pain experienced on other occasions of change.

In sum, some changes in interactional patterns are inevitable as distributed work arrangements are implemented. Some of these may be beneficial, some detrimental. In either case, employees will have to make a conscious attempt to adapt to the changes.

3.4 The Need for New Technology

One of the goals of this study was to examine the extent to which advanced communication technologies, such as desktop videoconferencing, videoconferencing and coordination systems are necessary in a satellite office environment. In this section, the following issues are discussed: the extent of use of technology in previous studies, observations in the current study, and the possible need for new technology.

Technology and distributed work arrangements. Decentralized organizational structures and geographically distributed facilities have existed for many years. The rapid advances in information technologies has radically increased the ability of organizations to distribute their work processes feasibly (Venkatesh and Vitalari, 1992). Technology has been considered a facilitator in the trend toward remote work arrangements (Nakamura and Tsuboi, 1990; Olson, 1988). Some studies have also shown that a major part of the growth in work at home is attributable to the presence of computers at home (Olson, 1986; Vitalari, Venkatesh and Gronhaugh, 1985; Rogers and Jun, 1987; U.S. Bureau of Census, 1988). But telework projects (in particular, non-traditional satellite offices) are mostly motivated by problems associated with traffic congestion or air pollution, and only sometimes by the need to demonstrate new telecommunication technologies (Becker *et al*, 1993b). One reported exception would be F International Group, the UK software development company, which has been a telecommuting organization since its inception in 1962 (Shirley, 1986). In general, organizations have been tentative about the implementation of the newer distributed organizational forms even with the growing availability of the technologies.

Further, even in instances when distributed arrangements are tried on a trial basis, only nominal equipment appears to be provided. For instance, Becker *et al* (1993a) report that the standard technology at most telework centers include phone (including voice mail), PCs w/ modems including email, printers, fax machines and copy machines. Only Japanese offices tended to have more sophisticated telecommunication equipment, including videoconferencing, videophones, large format fax machines, and high speed data transmission units.

In the present study, one of the stipulations of the trial was that the satellite office employees will not receive any more equipment than would have been available to them at the main office. The office infrastructure equipment, such as printers, copying machines and fax machines were of nominal quality and were the source of some complaints. Communication technology was restricted to phones, voice mail and email. In particular, there was no significant budget allocation for the pilot study. Most or all of the funds were made available from the divisional budgets of managers whose employees were at the satellite office.

Observations at this site: The written questions posed to the employees by the researchers during data gathering avoided explicit leading queries about the need for advanced communication technologies. Instead, they focused on eliciting perceived problems and possible solutions to the problems. In no instance did any of the employees or managers feel that advanced communication technologies were necessary.

The inferences regarding the possible need for further technologies are made on two bases. First, the participants in the study were asked in oral interview sessions to state what criteria they applied to decide if face-to-face contact was necessary. Then they were asked if advanced technologies would be a good substitute for travel. Second, the problems mentioned by the participants are examined to see if advanced technologies could resolve the problem.

In probing into when the managers and employees considered face-to-face interaction necessary, two lines of thinking emerged. First, when the coordination needs increased, people felt a need to be face-to-face. This is reflected in the frequency of travel to the main office by the different satellite office employees. Employees who had tasks that needed greater interaction with main office employees traveled more often to the main office to handle coordination issues. These were mostly systems engineers working on team projects. They went to the main office about twice a week. Employees whose tasks were not highly interwoven with the tasks of others traveled less to the main office. These included customer service agents and accounts receivable personnel. One customer service agent had sole responsibility for a single client and most of his interactions with client personnel. He went to the main office about once a week. Accounts receivable personnel received their assignments over computers and sent in their regular reports the same way or via company mail. Some of them traveled to the main office once in two months.

Second, managers expressed a need to be face-to-face when making informal observations of employee performance or responding to questions. This was reflected in the observation of most managers who felt that they could not supervise from the satellite office, and also in the statements of some managers that they had not been able to go to the satellite office often enough to meet their employee.

When asked if advanced communication technologies would help reduce the amount of travel, most people concurred, but did not consider it essential. They thought that much could be done with proper planning and clearer identification of goals. Also, they were not sure that the technology could be cost justified. The more technologically sophisticated employees felt that not only would technology help, but that it would see light of day in the next three to four years.

The Possible need for technology: In examining the problematic issues raised, there are four that surface that technology could address. They include attendance at meetings, ignoring remote participants, forgetting to keep satellite office employee updated, distribution of emergency workload among group members. Much has been said about the need to eliminate meetings altogether. If meetings must be held, many of the group support systems available on the market permit remote participants. Videoconferences can further reduce the need to travel. Videoconferencing can be used not just as technology for formal work meetings, but can be used as a mechanism to permit continued informal contact. This will ensure that all group members, including the satellite office employees, are aware of the emergencies of the day and can be enlisted to help. The issue of keeping all employees current on changes in policies is a simple matter of coordination. The electronic mail network along with a few mailing lists should be adequate to overcome this oversight.

Many of the interviewees who anticipated limitations to the extent to which dispersed arrangements could be implemented assumed that the organization would continue to operate with current practices for the near or medium term. For instance, it was considered important to have a secretary at the same location as the manager, so a handwritten memo could be typed. Most managers who use computers could easily draft the letter on line, email it to the secretary wherever he/she is, who can format it and either retransmit it electronically, or give the command for the document to be printed on the manager's printer.

It would appear that there is a three-way relationship between technology, the amount of travel and the extent of planning and structuring. With proper planning and structuring, the need or interaction can be minimized. This is particularly feasible when the work environment is relatively predictable. The use of technology can further reduce the need to travel. Technology becomes economically competitive and otherwise attractive as the distance to be traveled increases. Currently, in this case the satellite office is within reasonable commuting distance. Hence, technology may not appear to be necessary or critical. But at some point, the commute becomes onerous enough to the point where higher bandwidth communication technologies become attractive.

3.5 Inequitable Cost-Benefit Relationships

There are two inequitable cost-benefit relationships, one internal and the other external.

The internal cost-benefit relationship: The first inequity deals with the costs and benefits to the organization, the middle managers and the employees. For the organization, the implementation of the satellite office concept involves certain investments in terms setting up the necessary infrastructure, possible productivity losses in the transition to the new organizational culture, and some economic consequences of duplication of facilities during the transition. The benefits to the organization are somewhat ambiguous. First, there are reported increases in productivity from the highly motivated self-starting group in the pilot phase (Finlay and Rouse, 1992), but whether one can hope to see this across the board from all employees in subsequent expansions of the program will not be known until after the fact. Second, in most large urban areas, rent, insurance and taxes may be lower in outlying regions, where satellite offices are usually located. In the current study, there was no significant difference in these costs between the main office and the satellite office. Third, it may be argued that the organization retains access to a larger pool of skilled employees. In the current instance, there is no evidence to suggest that any of the employees were in imminent danger of resigning if the satellite office was not implemented, or that such employees could not have been replaced with equally skilled employees. In sum, the organization is taking some obvious risks, without any easily identifiable direct benefit, but with the promise of possible productivity benefits and the ability to retain access to a larger pool of skilled employees.

Similarly, the managers have a more complex arrangement of employees to manage, with the risks inherent in managing the more complex group and in the transition process. The direct or indirect gains to the managers are not evident. While greater productivity of the group benefits the organization, the direct benefits to the managers are not clear.

The employees on the other hand have easily identifiable benefits. There is the very tangible gain of not having to spend 2 to 3 hours on the daily commute to work, and the savings in the associated commuting expenses. There is the intangible gain of lowered stress. Against these benefits, there are the possible indirect risks of being ignored for promotions or important projects, and the risk of harsher evaluations on the basis of bad outcomes, even when such outcomes are beyond their control.

On the whole, it would appear that the organization is bearing risks with the hope of long term productivity gains, the managers are bearing risks without easily identifiable gains, and the employees have minimal risks with the easily identifiable immediate gains. Any change where the risks are being borne by one group, while a second group derives the benefits is likely to meet strong resistance. This needs to be considered in any larger plan to expand the program.

The external cost-benefit relationship: The second inequity stems from relative costs and benefits to commercial organizations versus governmental agencies. The larger scale implementation of satellite offices has benefits to the populace at large. It should reduce the need for transportation infrastructure and the need for government supported pollution control projects. Roads and public work projects have normally been funded by taxes. The electronic network that will substitute this will have to be funded by private agencies. Presumably, the private agencies providing the networks will recoup their investments through service charges for the use of such networks. The private companies using the networks will have to pay for them, whereas they did not have to pay for the construction of the roads, their maintenance or the costs of using the roads. So, in effect, they will pay for a new service (i.e., communication network) which replaces an old service (i.e., roads) for which they were not paying. The government (or the population at large) reaps the benefits of lower construction and maintenance costs. The private companies pick up the cost of using the high-tech communication infrastructure.

The analyses of the internal and the external cost-benefit relationships are somewhat simplistic, but they point to issues that have to be wrestled with before the distributed organizational arrangements can expand.

4. Limitations

Most satellite office employees and their counterparts in the main office were wary of saying anything negative. The satellite office was in the pilot phase when the interviews were conducted. The satellite office employees did not want it closed down. The main office employees were waiting for the concept to be expanded so

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they could also benefit, else did not want to jeopardize the benefits to friends or colleagues. Their portrayal that the satellite office was functioning effectively is a fair portrayal. However, their concerns made it difficult to determine if any further needs existed.

As mentioned earlier, the organization was undergoing changes on many fronts. All recommendations in this paper are mostly pertinent to an organization that is limited to implementing only the satellite office. As such, the suggestions that have been made may or may not be appropriate to the organization studied. They are presented for consideration by other organizations who plan to implement satellite offices without other major parallel changes.

5. Concluding Remarks

In the current study, the success reported is partly attributable to the selection of highly motivated employees performing structurable activities. It is the author's belief that the satellite office concept has much greater scope, but only if a wholistic approach is used. The wholistic approach must include issues pertinent to the five areas discussed in this paper, i.e., change management, job redesign, changes in interactional patterns, new technologies and cost-benefit analysis. The list of areas may not be comprehensive.

Most organizations are going through complex changes in an effort to cope with new regulatory, technological and globalization trends. A range of organizational redesign initiatives have been suggested by academics and consultants as the means to cope with the changes. These include downsizing, self-managed teams, market-based interactions between units in the company and so on. Organizations tend to choose the initiatives that are most likely to benefit them at a given time. It would appear that satellite offices are perceived (rightly or wrongly) to have relatively lower potential than other options. Such organizations as are examining this option appear to be examining it along with a whole host of other options. In such instances, where several changes are taking place, all the interventions should, preferably, form an integral pattern.

Satellite offices require a complex set of changes, i.e., structural, human resources and technological. Any serious attempt to implement satellite offices on a large scale must be undertaken with a wholistic approach. Macy and Izumi (1993), on the basis of a meta-analysis of organizational redesign initiatives, indicate that the simultaneous use of action-levers (i.e., organizational interventions) in all three areas (structural, human resources and technological) leads to the most benefit for the organizations. In particular, they indicate that the structural issues (i.e., power relationships) must be addressed first for the other action-levers to be effective.

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