EMPLOYEE REACTION TO COMPUTER IMPLEMENTATION:
AN INTERPRETIVE STUDY OF THE POLITICS OF ORGANIZATIONAL CHANGE

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INTRODUCTION

Change within organizations has been recognized as one of the most powerful generators of conflict. Often the occurrence of conflict is attributed to a perceived threat to employees' security; change may threaten to undermine traditional work practices and lead to the disintegration of well-established and valuable relationship patterns. Change may also induce ambiguity about work load, expected behaviors, and reward systems; status and income could be threatened (Gallie, 1978). The purpose of this investigation is to explore employees' responses to the threat which organizational change poses to workers' security.

The infusion of computer technology into the work place drastically alters organizational life. Employees' main activities shift from producing goods to producing, processing, and distributing information (Rogers and Kincaid, 1981). The implementation of computers increases workers' access to information; control over information distribution is shifted out of the hands of management and into those of computer users. Information systems, the function of which is to facilitate the distribution and processing of information, could disrupt the security of workers whose status is dependent on the information they control. The interests of different groups could be affected by implementation (Keen, 1981). Thus, the implementation process, (the adoption, training on, and use of computers) can be seen as a political process. Control could be held over the system's use in ways
which modify or protect an individual's or group's system of controlling the redistribution of information resources (Margulies and Raia, 1984). Those whose security is threatened may thwart the implementation while those who benefit may facilitate the change.

The impacts of and responses to the adoption of innovations in organizations has been investigated by Leavitt (1965). He maintains that many innovations have threatened the interests of individuals and groups by intruding on their territory, limiting their autonomy or control, or adding to their work load. He found there are inevitable attempts by employees throughout the hierarchy to cope with changes initiated by the new technology. The impacts of the new technologies on other components of the organization are illustrated in the Leavitt's Diamond shown below.

![Leavitt's Diamond](image)

**Figure 1:** Leavitt's Diamond

In this diamond, the people, the tasks, the structure, and technology are interrelated and mutually adjusting in the process of implementation. Leavitt proposed that the other three components (the task, people, and structure) will
often adjust to minimize the impact of the innovation. For example, an attempt to freeze up and maintain the status quo is a reaction of employees who are threatened by the new role of information (Keen, 1981). Change can be minimized through social inertia, a response to the implementation of information technologies.

A cause of social inertia...is that) data are a central political resource. Many agents and units in organizations get their influence and autonomy from their control over information. They will not give that up. In many instances, new information systems represent a direct threat and they respond accordingly (Keen, 1981, p. 26).

This thesis will investigate how employees respond to the perceived threats imposed by newly introduced computer technology. Political strategies by which employees resist change to maintain the status quo and/or facilitate change to serve their best interests will be investigated. Through surveys investigating managers' perspectives about change and through the analysis of employees' talk about the change in their organization, the relationship between change, technology, and organizational politics will be clarified. Chapter One will review literature on the role of information and information systems in the maintenance or subversion of the organizational hierarchy. Why and how management works to sabotage the implementation process is examined. The three specific explorations of organizational members' responses to change investigated in this study will be presented. Chapter Two will formalize the methodology used in this investigation, and Chapter Three will present an analysis of the survey and story data collected. In the fourth and final chapter, findings will be summarized, and the relevance to current research and implications for future research will be discussed.
Chapter 1

THE ROLE OF INFORMATION IN THE HIERARCHICAL ORGANIZATION

Information functions as a political tool in organizations. Computer systems compound the political role of information by facilitating the redistribution of information and altering of the hierarchy. Often management attempts to minimize the threat posed by office automation. This chapter will review research investigating the political role of information in organizations, the threat computer systems pose to established political positioning, and management's attempts to minimize organizational change through information control. Specifically, change instigated by computer implementation will be the major focus. This review will lead to the specific research questions explored in this study, presented in the chapter's conclusion.

Information access is a fundamental building block of hierarchical organizations. Traditional organizations are built around formal roles and statuses which typically constrain and regulate communication across hierarchical levels. Relationships are structured around the information that flows between the participants. The organizational hierarchies emerge because they provide an economic mechanism for exchanging information (Williamson, 1980).
Carnall (1986) holds that the maintenance of the political social order is based on the exchange relations between different groups. Organizational change, which alters relationship dynamics and shifts power positions, threatens the established political order. The use of information systems alters the distribution of information by allowing many more people to access more information. Its distribution is facilitated through the linkages the computer systems afford (Rogers and Balle, 1985). This change of information access will threaten the political structure as it has been established.

The wider dissemination of information and accessibility of data through data base management systems has reduced the ability of top managers to sequester proprietary data. The extension of data access will mean more (employees) will be more knowledgeable about the strengths and weaknesses and activities of the firm and they will be able to influence decisions before they are made (Clinton, 1984, p. 39).

The status quo will be disrupted by automation as it loosens the control of the information on which the organizational power structure has been established. As the following review of research illustrates, information, a political resource of organizational members, plays a vital role in defining the political structure, and information systems alter how this resource is used. This clarifies why office automation is often met with resistance by those who formerly controlled information resources.

1.1 Information as a Political Resource

Information functions as a powerful political resource in organizations (Danzinger et al., 1982). Those in control of information use it as a substitute for other resources like money, energy, or other rewards. Wildavsky (1974) defined
information as a resource that symbolizes status and enhances authority. Information can be used for attacking, advancing, or defending status (Burns and Stalker, 1961). Further, Pettigrew (1973) proposed that gatekeepers use their advantageous position to either increase their own status or thwart the status-related moves of others.

Establishing and building upon a data base can also be seen as political moves allowing management to monopolize organizational information (Wildavsky, 1974). As a result of these monopolies, Mechanic (1962) found that employees who need information become dependent on management who controls information flow. The increased dependence further reinforces management's position of authority.

Similarly, Danzinger et al. (1982) found that information is used as a political tool to reinforce dominant coalitions within organizations. Built into and maintaining the existing hierarchical structure are mechanisms for controlling and withholding information resources; the structure functions to impede the flow of information, increasing subordinates' dependence. Further, hierarchy, and centralization of power in the organizational structure have been found to be the major sources of distortion and blockage of information, illustrating the power management has in controlling information flow to its own advantage (Wildavsky, 1967).

Clearly, groups, as well as individuals, have vested interests in maintaining control over information. In some cases, individuals or departments only have influence because of their monopoly on data (Keen, 1981). Keen postulated
that many public sector agencies protect data on their operations as a means of maintaining their independence.

Through political bargaining of information resources, the structure of the organization is defined. The establishment and maintenance of the political order is an interactive process based on the exchange of resources. The definition of organizations presented by Gray and Arias (1985) clarifies the importance of information exchange to political structures:

Organizations are coalitions of participants with differing motivations, who choose organizational goals through a process of continual bargaining (p. 708).

1.2 Computer Systems Redistribute Valuable Information

The implementation of computer systems could function to alter the bargaining process and change the ways in which information resources are controlled. Computer systems can break up management monopolies of the data base by redistributing information. This redistribution may serve to redesign parts of the organization, disrupt patterns of communication, and reallocate authority (Wildavsky, 1974). Since management may have less control of information flow, the very nature of the exchange relationships making up the hierarchy could be threatened, and the security some positions may afford may be at stake.

The alteration of communication networks has been examined and found to be disadvantageous to those formerly in control. Free-flowing information has the potential to break down office status symbols (Hiltz and Turoff, 1978). If free communication is restricted, highly centralized or hierarchical net-
works are supported. They define centrality as the degree to which an individual, group, or organization controls the communication of others. Hiltz and Turoff found that, if totally free communication is permitted, computer-mediated networks tend to decentralize. These authors have found it is more difficult for management to control employees' contacts with computer systems. The user has a greater potential to communicate with other systems' members; thus the flow of communication will become increasingly decentralized, and disparity between the formal structure and information flow will characterize the organization (Hiltz and Turoff, 1978).

1.3 Managerial Strategies Serve to Preserve the Status Quo

Decentralization and the equalizing effects accompanying it could be threatening to management personnel who have a vested interest in maintaining the hierarchy and distribution of information as it is. Because of the threat new information access may pose to status security, it can be anticipated that management will respond with resistance in a way to protect its information stronghold. As Leavitt's Diamond illustrates, management adjusts to minimize the impact of change. In support of this hypothesis, Curley (1983) has linked management's resistance to change to the low implementation rate of computers in organizations. She has found that, despite the needs and apparent benefits of technology to organizational effectiveness, its adoption has not been tremendously successful. Due in part to management's resistance, the systems are not used to their full potential. Their resistance may influence the "implementation gap," the gap between the technology's potential and its actual use.
Rogers and Balle (1985) hold that management may have a vested interest in sustaining the gap because of the ability of the innovation to process information, change existing patterns of corporate communication, and support or subvert the present structure as it channels information flow. To use the systems at full capacity could severely disrupt the status quo.

Many researchers base their analysis of the implementation process on the rational assumption that management should and does facilitate change. Rationalism maintains that change occurs in formal, rational and neatly controlled ways (Pettigrew, 1973). From this perspective, change towards computer automation occurs because people make rational choices based on the perceived benefits of the technology over old processes of handling information. Rationalists may attribute the implementation gap to insufficient training or to the computer program's incompatibility with employees' specific needs and tasks. However, as Keen (1981) points out, the process by which decisions are made to use or not use computers does not remotely approximate the rational ideal:

Pettigrew's analysis of a decision to purchase a computer reveals innumerable territorial disputes, maneuvering of positions, conflicts over goals and irreconcilable differences in perspectives among organizational units (as cited in Keen, 1981, p. 27).

Thus, the implementation gap may be attributed to management's resistance to the change of information distribution. The efficient use of computers by employees may be sabotaged by management's political strategies to preserve what is meaningful to them.
A review of organizational literature reveals that most change does not proceed rationally. Because change threatens to disrupt the status quo, managers work to impede the change process by taking advantage of their inherently powerful positions. Basically, employees adjust in ways which promote their own self-interests through continual bargaining with valuable resources available.

Organizational politics consists of intentional acts of influences undertaken by individuals or groups to enhance or protect their self-interests when conflicting courses of action are possible (Gray and Ariss, 1983, p. 707).

Through political bargaining and acts of influence, management stabilizes its positions and preserves or redefines what is meaningful. How managers come to define their positions as insecure and how they respond with political strategies will be explored. Following this, management's role in computer implementation and specifically how management responds to changes of computer implementation will be addressed.

Carnall (1986) holds that management adjusts to organizational change through political tactics in response to their perception of their disadvantaged position. He posits that it is imperative to examine organizational members' "subjective realities" to better understand how they work to minimize the threat of change. These individual and group realities are constructed to meet the needs of specific members through exchange relations. When the exchange relationships are altered, the organizational order based on subjective realities is threatened:

Change creates a new balance of advantage as seen by people within the organization. Pressures will be created disturbing the established order (p. 707).
Carnall (1986) holds that since relations are based on participants' relative power, members form attitudes and beliefs based on their perceived relative advantage. When resources are redistributed, members' belief systems are shaken and need to be redefined through political interaction. Through the comparison of their own current treatment with past treatment, comparisons with the treatment of others by the organization, or comparisons with organizational norms about equity, rewards, needs and reciprocity, perceptions of injustice may develop. Based on employees' beliefs of unjust positioning, Carnall found they respond in a variety of ways. Some act with resistance or opposition. These members are usually passive and delay change by not making needed resources available. Also, members accept the change yet work to modify their conditions. In another response, the "ritualistic response," employees present the pretense that the change has been implemented without actually doing so. Acquiescence is a response of reduced commitment to the organization, and leaving is an alternative at the far end of the spectrum. Basically, through these responses, managers attempt to turn their perceived disadvantageous position to one of advantage.

Thus, during times of change, managers may be faced with changes in power and exchange relations which alter the status quo, and their rewards, monopolized resources, as well as their positions in the organization may be threatened. Members redefine their position as one of advantage or disadvantage through the comparison of their position to organizational norms and respond strategically to preserve their security. Carnall's analysis of the change process clarifies why organizational members strategically work to minimize the negative impact of change.
Another investigation of how organizational members stabilize the social order through political strategies focuses on politics across the organizational life cycle (Gray and Ariss, 1985). This study further illustrates that change may not proceed rationally; employees cope with natural change through strategic bargaining and resource control in ways which preserve their security. An organization's progress through its Birth, Maturity, and Decline/Redevelopment stages, is influenced by how members negotiate the political order through the control and exchange of resources.

In the Birth and Early Growth stage, the entrepreneur, because of his or her position of power in relation to others, influences organizational meaning. He or she builds a symbolic reality for others which advances his or her self-interests through "symbolic management," the legitimization of self-interests in rational, conventional, and institutionalized processes of decision-making. Through the allocation of resources, based on the guise of rationality, his or her values are reinforced. How resources are distributed indicate to organizational members what and who is of value to the organizational mission. In this stage, through the exchange of resources, the entrepreneur stabilizes his or her position of power and ensures the pursuit of his or her self-interests.

Social order is again stabilized through the political resource exchanges in the Maturity stage. This stage is usually characterized by the replacement of the entrepreneur by an administrator who can better make decisions and delegate responsibility. The new leader's role is to "recast the symbolic rationalizations made during stage one" (p. 714) by translating self-interests to concrete policies
and procedures. Rules and standard operating procedures are formalized, and the allocation of resources and rewards, as regulated by such procedures, are used as vehicles to maintain power. The concretion of organizational values is an important step in which the political players define organizational meaning to maintain their advantages.

Power is most effective when power holders have constituted and institutionalized their provinces of meaning in the very structure of organizational structure (page 714).

The evolution to the second phase threatens the self-interests of those in leadership positions, and strategic steps are taken to ensure their security. Budget is controlled so as to foster dependence on the more powerful units. Other tactics used to stabilize power positions are the bargaining for and withholding of resources needed by other units. Also, units may try to maintain expertise which renders them unique or manage information inaccessible to other units. Clearly, in this stage, the stability of one's position is negotiated through the control of resources as has been deemed legitimate in the formalized policies.

The third stage described by Gray and Ariss (1985) is characterized by the threat of decline or the need to redevelop. The organization's atmosphere changes to a turbulent one with strong competition. During Decline, scarce resources are depleted, and there are struggles to preserve levels of resource allocation. Political relationships are disrupted by the redistribution of power and authority. Change in this stage is responded to with overt and intense politics aimed at securing individual and group self-interests which were disrupted. Political bargaining is frequent as members try to strengthen their positions. Often
there is a power struggle between those who want to preserve the status quo and those who want to redefine the organization's strategy (Gray and Ariss, 1985).

Politics in each of these evolutionary stages functions to secure self-interests. Through the interactive process of bargaining and controlling resources, members work to negotiate an advantageous political order. These two studies of managerial response to change (Carnall, 1986; Gray and Ariss, 1985) illuminate the means by which members respond to the threat of change away from the status quo. While these did not address the response to change brought about by computer implementation, management's response to implementation has been found to be similarly laden with political maneuvers. Before reviewing these findings, however, it is essential to examine the role management plays in the implementation process. Because subordinates are dependent on management for successful implementation, management is afforded the control of many resources which impact how successfully the information systems can be utilized. Implementation research reveals that making a variety of resources available to subordinate users facilitates the change. A review of this literature clarifies how dependent subordinates are on management for resources and how management could stifle change through resource control.

1.4 Management's Vital Role in the Implementation Process

Rogers and Balle (1985) have found several attributes which explained 49-87% of the variance in the rate of the adoption of technology. The ways in which management presents the technology impact the subordinates' perceptions of the systems and likelihood that they will use them. The perceived advantages,
complexity, trialability, and observeability of computers influenced the degree to which subordinates use the technology. If users were encouraged to use the computers, given time to learn the systems, and provided role models, they were more likely to adopt the computers.

Rice (1984) discussed similar factors which influence subordinates' acceptance of computer systems. The number of people the employees knew who used computers, particularly those people of high status, influenced the rate of adoption. Subordinates needed to feel that use was a high priority and needed to have ready access to the system. Rice found that the change was more easily accomplished if there was a group member appointed to act as advocate for the group to monitor and maintain the group on the system. Rice concluded that in order to tap the full potential, wide managerial perspectives and concentrated attention to employees and the system were required.

Rice (1984) reports that, in his study of 290 organizations, increased levels of communication between management and system users facilitate the change. Similarly, Rogers and Picot (1985) hold that it is necessary for management to help reduce fears and resistance to change, and motivate subordinates to use the computers in order to ensure later acceptance and cooperative use. They advocate the use of a participative strategy and the involvement of employees early in the implementation process.

Curley (1983) clarified the characteristics of managers who facilitated implementation. They paid significant attention to users, provided training sessions, allocated time for experimentation, and praised users for learning and using
them. The managers who were successful in implementation stressed the development of new abstract and cognitive skills needed for the new information work. Instead of holding a constrained view of the technology, they treated the technology as one which would contribute to the long term goals of the organization. Generally, managers facilitating change freely afforded resources of time, attention, energy, encouragement and support, training, and rewards for use (Curley, 1983).

Managers play a very active role in implementation, and their involvement is essential in maximizing the benefits of computer use. Thus, through the subtle control of needed resources, management has the potential to impede the change in information distribution and maintain the implementation gap. Keen (1981) holds that, while there is an adequate understanding of successful implementation, we have much less understanding of strategies which impede it. However, it is clear that, through the control of and bargaining with resources, management may work to sustain a safe position, untainted by the threat of computer technology.

1.5 Management's Strategies Impede Implementation

As Gray and Ariss (1985) reveal, management negotiates a secure position throughout the evolution across the organizational life cycle through political bargaining and resource control. Similarly, others have found management works to minimize organizational change instigated by computer implementation through resource control. Clearly, change which is potentially threatening does not proceed rationally.
Many of the strategies by which management impede the efficient use of technologies rely heavily on "social inertia." Since the degree to which subordinates learn to use the computer system is dependent on management's involvement, change resisters simply remain removed from or uncommitted to the implementation process (Keen, 1981). Withholding resources of attention and involvement works to sustain the status quo.

A central lesson to be learned from examples of counter-implementation is that there is no need to take the risky steps of overtly opposing a project. The simplest approach is to rely on social inertia and use moves based on delay (Keen, 1981, p. 28).

Bardach (1977) also observed how management coped with this perceived threat. Strategies of counter-implementation worked to impede and undermine the adoption of new technology systems, simply by maintaining the status quo. Relying on inertia and resistance served to minimize change. Laying low and being passive were found to hinder usage since implementation is so dependent on management's resources. He describes implementation as a game comprised of moves and counter-moves in which management utilizes its position of power and control of resources to thwart change. These moves function to reduce risks and possible losses threatened by the change. Strategies include keeping projects complex, difficult to coordinate, and vaguely defined. Another is minimizing the legitimacy and influence of outside consultants assisting the implementation process, while exploiting the consultants' lack of inside knowledge. He found that tactics generally functioned to impede progress by diverting resources, deflecting goals, and dissipating energies of the implementation.
Keen (1981) found that programs with unclear goals which rely on high levels of competence and coordination are easy targets for skilled game players. He holds that a political perspective on information systems is needed in research, and that to better understand the process of counter-implementation, case studies could offer a particularly fruitful perspective.

1.6 Purpose of this Investigation

When the redistribution of information by computer systems breaks up information monopolies, thereby changing workers' relationships to information and to each other, their organizational relationships, based heavily on their degree of information access, will be disrupted. Because of this, management will attempt to minimize change, maintaining the hierarchical structure. An element neglected in prior research is the subordinate's role in the implementation process. Based on their new relation to information, it can be anticipated that subordinates will not want to damp out the impacts of change since they will have access to resources with which they can negotiate a stronger position in the hierarchy. Having the capacity to equalize the hierarchy, subordinates may facilitate the change. Strategies will develop by the two interdependent groups functioning to maintain or strengthen their own power position. Through political interaction of resource control, a new social order will be constructed. The consensual reality and belief system which is negotiated through strategies can be observed through the interpretive analysis of their communication, and political strategies can be understood within the context of their organizational experience.
Based on a symbolic interactionist perspective, this case study will examine how employees talk about and make sense of computer stimulated change. The basic tenets of this perspective are that meaning is created and negotiated through interaction. A shared reality is created among interactants who make sense of things in terms of the meanings those things have for them in their negotiated reality. People's reactions are based on those shared meanings (Blumer, 1969). This investigation will explore the shared reality of organizational members and determine how employees respond to changes politically in the construction of the shared social order. These changes, and the threats associated with them, will be evident in stories they tell and descriptions they give about their responses to change. Through an analysis of the communication of organizational members, this study specifically investigates the strategies by which employees in a specific organization cope with the changes of computer implementation.

The specific purposes of this investigation are to 1) explore how managers and subordinates perceive the implementation as a change threatening the status quo, 2) explore how management copes with changes induced by the redistribution of information by computer systems, with strategies which function to minimize change, and 3) to explore how subordinates, who are empowered through their use of the new computer systems, use strategies which function to equalize the power structure and facilitate change. The examination of the two groups will clarify how they negotiated a new political order with each other. Interactions based on the exchange or control of valuable resources will be examined as they influence power distribution.
The basic topics of exploration emerged after preliminary examination of the data. Upon investigation of the organizational shared reality it became evident that the change posed some threat to the status quo. The data revealed that managers and subordinates simultaneously adjusted to the change through strategies which strengthened their positions within the hierarchy. A closer investigation of the survey and story data affords a rich description of employees' perceptions of change, management's strategies which minimized change, and subordinates' strategies which simultaneously facilitated it.
Chapter 2

METHODOLOGY

The focus of this investigation is the impact the implementation of a new technology has on the people within the political structure of an organization. The process by which the maintenance or subversion of the existing structure takes place will be analyzed by using both quantitative and qualitative methods. The use of a combination of methodologies, termed triangulation (Faules, 1982), is aimed in this study at exploring a problem using two different methodologies. The technique is used to obtain a wholistic view of the relationship between change, technology, and the power structure of this organization. In this investigation, surveys were administered addressing management's perception of change, and interviews were conducted to clarify the perceptions of managers and subordinates and obtain insights into employees' organizational reality.

2.1 Participants

Participants were members of a research department in an organization of approximately 20,000 employees located in Pennsylvania. Within the specific department studied, six subordinates and their three managers were interviewed. Of the nine, two subordinates were women. The three managers had been working at the organization for about 25 years and had been using computers for six months in a limited capacity. One of the group members emerged in the story
data as playing an instrumental role in facilitating computer use within the department. He and his manager negotiated that he would spend 20% of his time training group members. He explained that he negotiated this role as part of his job content because he found himself spending a significant amount of time helping others and wanted this to be recognized as legitimate. Also, he felt the group members needed assistance using the computers. He held a moderately strong position in the organization, mostly because of his facilitator role, but also because he had been with the organization about 25 years. He had been using computers for approximately five years. Of the five remaining subordinates, two had been with the department ten years, and three were new to this specific department yet had been with the company ten years. In terms of subordinates' computer skills, two of the company veterans had been using computers for their entire ten years, and three had been trained within the two years prior to this study. Generally, the subordinates' computer skills were greater than the managers'.

While some subordinates had been familiar with computers, just prior to this investigation, the entire department underwent automation. Each member received a computer for his or her office. An electronic mail system and other communication packages had been set up on the system in the past year, which facilitated the exchange of information within and outside the department. The organization had also recently developed data base files which were pools of information accessible to particular users. The information systems were introduced to coordinate the department and increase its efficiency.
2.2 Data Collection

The quantitative data were collected through surveys, and the qualitative data were obtained through interviews generating employees’ stories about the organization. The following sections will elaborate on these data collection processes.

2.2.1 Survey Data Collection

Twenty questionnaires (see Appendix A) were given to the group facilitator who administered them to management level executives throughout the organization. In order to clarify management's perspective toward change across the organization, they were administered to a large sample of managers, some outside the department studied. Because the study was limited to computer users, five questionnaire were returned; most managers did not use computers to any extent, so the sample was limited.

2.2.1.1 Survey Instrument

The questionnaire was composed of 43 questions measuring the managers' perceptions of nine different dimensions of possible change occurring since the installation of computers approximately six months earlier. Generally, the questionnaire was designed to subtly investigate the perceived threat of computer use to managers and their perceived need to control subordinates' usage. The general topics to which managers were to respond were manager's perceptions of security in their jobs, changes since implementation, threat of information accessibility and threat of expanded communication networks. Further, the survey inquired
about the subordinates' and their own proficiency on the computer, subordinates' autonomy and the manager's need to control information availability. They were to respond to statements concerning these variables on a seven-point Likert scale ranging from strongly agree (1) to strongly disagree (7). A neutral category (4) allowed respondents who were undecided or neutral on the statement to reply.

Managers' perceived security in their jobs was the focus of four questions. Five questions investigated their perceptions of the changes in information's role in the organization. Six questions were designed to measure the perceived threat of information availability. Managers' perceived competence on the computer was the focus of one question, and managers' perceptions of subordinates' computer competency was the focus of two questions. The perceived increase in subordinates' autonomy, the increase in information availability and increase of subordinates' contacts through new communication networks were the foci of two questions each. Seven questions addressed managers' perceived need to control information access, and two addressed the need to control subordinate's communication with other employees. Ten questions functioned as fillers to make the survey less transparent.

2.2.2 Story Data Collection

In the following sections, the methods by which the interviews were conducted and story data were generated are presented. The qualitative part of the study focused on how organizational members reconstructed the organization's social order disrupted by change. The interviews were structured to generate stories about employees' consensual organizational reality. Stories could shed light
on the impacts of the new technologies and how members responded to it. Faules (1982) maintains that, with considerable probing, the shared reality of employees can be uncovered through stories. As Mitroff and Kilman (1975) point out:

Stories are like dreams. Most of us have to be trained not only to recognize them but also to appreciate their significance. For this reason, it is almost impossible to get at the stories that govern organizations directly. Like dreams, they have to be gotten at indirectly (Mitroff and Kilman as cited in Faules, 1982, p. 154).

The recurrent stories and themes which "show the way symbols are linked into meaningful relationships between people and activities" become important (Faules, 1982, p. 153) to an understanding of organizational reality. Through the meanings which emerge in stories, the understandings that employees have of change and the strategies by which they negotiated a position of advantage are observable.

2.2.2.1 Story Collection Instrument

Nine members of a staff department were interviewed for an average of forty-five minutes following the collection of questionnaire data. Three of the people interviewed had filled out a questionnaire. The interviews were conducted face-to-face. Questions were structured yet open-ended, and the interviewer began with a set of preplanned questions designed to generate story telling. The preplanned questions were used only to organize the interviews around the topics of change and technology and were chosen to stimulate the participants' communication about computers role in organizational changes. Participants were asked to give examples and tell stories about changes they or other organizational members had experienced. The respondents were free to answer questions in any manner they wanted. The preplanned questions included the following:
1. Describe changes which have occurred in the past year.

2. What would you need to make full use of your computer?

3. What factors determine who is given a computer to use with his or her job?

4. How did you learn to use computers?

5. Why do you think managers do not use computers?

6. What are the advantages and disadvantages to computer use in your job?

Interviews were taped and transcribed for later interpretive analysis. The following chapter will include both a quantitative and qualitative analysis of the data.
Chapter 3
DATA ANALYSIS

The first focus of this chapter will be the quantitative data analysis. The findings of the survey data will be reviewed and their implications discussed. The analysis will then turn to the qualitative investigation of employees' response to change.

3.1 Analysis of Survey Data

Descriptive statistics were performed on the survey data to obtain a general understanding of management's perception of change. A frequency analysis was performed on each question to reveal how similar the five respondents' perceptions were for each question. The frequency analysis of each question offered little generalizeable information because of the small sample size; however, a description of each of the ten categories was provided by analyzing mean scores for those categories. The overall mean score was found by averaging the participants' responses in each of the individual ten categories.

The combined measure of the subjects' responses offered insight into managers' perceptions about technology and change in the organization. A review of the perceptions of these managers, three of whom were members of the department interviewed, provided insight to their organizational reality in terms of the impact of the implementation on organizational members.
The means and standard deviations of the managers' responses are reviewed in the following section, and the findings for the ten categories are summarized in Table 1. First, on the Perceived Change Measure, the mean score was 2.68, falling between moderately agree and agree on a Likert scale ranging from (1) strongly agree to (7) strongly disagree (standard deviation=.729); the participants were in agreement that the organization had changed since the implementation. On the second measure, Perceived Security, the combined mean score was 2.5, falling between moderately agree and agree on the scale (standard deviation=.771). Generally, the participants indicated they believed their jobs were fairly secure; thus, they may not have perceived the change to be threatening to their jobs. On the Perceived Increase in Available Information measure, the mean score was 1.4, falling between strongly agree and moderately agree (standard deviation=.894). Subjects strongly agreed that the availability of information had increased. Similarly, on the Perceived Increase in Contacts Measure, their average response was between strongly agree and moderately agree, at 1.8 (standard deviation=1.037); managers strongly believed that subordinates could more easily contact other members of the organization via the computer. On the Increase Subordinates' Autonomy Measure, their mean answer was a score of 2.8 (standard deviation=1.15). Managers indicated they generally agreed that computers played a role in the increase in subordinates, autonomy.

In the Subordinates' Computer Skill category, the mean response fell between moderately agree and agree at 2.6 (standard deviation=.548). Managers believed that subordinates were skilled at the computer. In the seventh category, the Perceived Skill of Managers, managers' mean score was 4.1 on their belief that
they were skilled at using the computer (standard deviation=2.16); the range of managers' skills varied. The mean responses to questions in the Perceived Threat of Information category was 5.0 (disagree) (standard deviation=1.198). Managers did not believe that subordinates' new access to information was threatening. In the next category, Need to Control Information Access, the mean score was 4.9 (standard deviation=.258). Managers slightly disagreed that there was a need to control the subordinates' access to and use of information. On the Need to Control Contact's measure, the mean score was 5.3 (standard deviation=1.204); the managers demonstrated disagreement in the belief that subordinates' contacts with others across the organization should be controlled.

In summary, managers felt fairly secure in their job positions and perceived some change in the organization since implementation. They perceived an increase in information availability and subordinates' autonomy. Managers perceived subordinates had a greater ability to communicate to employees across the organization. They indicated the subordinates were skilled with the computer, while responding the level of their own skills was not high. Generally, the managers did not perceive these changes to be threatening and did not believe access to information and employees should be controlled.
Table 1: Management's Perception of Change Since Implementation.

<table>
<thead>
<tr>
<th>Category</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change</td>
<td>2.68</td>
<td>0.729</td>
</tr>
<tr>
<td>Job Security</td>
<td>2.50</td>
<td>0.771</td>
</tr>
<tr>
<td>Increase in Information Availability</td>
<td>1.40</td>
<td>0.894</td>
</tr>
<tr>
<td>Increase in Subordinates' Contacts</td>
<td>1.80</td>
<td>0.464</td>
</tr>
<tr>
<td>Increase in Subordinates' Autonomy</td>
<td>2.80</td>
<td>0.515</td>
</tr>
<tr>
<td>Subordinates' Skill</td>
<td>2.60</td>
<td>0.245</td>
</tr>
<tr>
<td>Managers' Skill</td>
<td>4.10</td>
<td>0.967</td>
</tr>
<tr>
<td>Threat of Change</td>
<td>4.80</td>
<td>1.198</td>
</tr>
<tr>
<td>Need to Control Information</td>
<td>4.08</td>
<td>0.258</td>
</tr>
<tr>
<td>Need to Control Contacts</td>
<td>5.30</td>
<td>1.200</td>
</tr>
</tbody>
</table>
3.2 Discussion of Survey Data

The survey data provided insight into both management's perceptions of change and their responses to change. Management's perceptions of the threat of change will be discussed first. The data clarified that managers did perceive a change in the nature of information distribution. They perceived an increase in information access and networks increased and recognized that subordinates had become more autonomous and were skilled at computer use. However, managers did not perceive that these changes were threatening which can be explained in several ways. Survey questions inquiring about perceived threat may have been transparent, invoking defensive responses. Possibly, management may not have consciously perceived the threat because change improving subordinates' positions was facilitated in covert ways. This may have been possible because of subordinates' superior knowledge of the computer systems. Another explanation may be that questions inquiring about the perceived threat predominantly focused on information availability and the threat may have come less directly from information availability, and more from subordinates' exclusive knowledge about the use of computer systems. Finally, managers may not have felt threatened because they had little awareness of the benefits available to subordinate users.

Next, the survey was also designed to investigate how management coped with change. The data demonstrated that management did not believe that they attempted to cope through strategies functioning to impede the implementation process. They reported that they did not, and should not, control the subordinates' access to information and other employees. The fact that management did
not feel they responded through strategies may again be accounted for in several ways. First, managers may have chosen the socially desirable answers. Second, management may not have been aware of how their strategies worked to subvert subordinates' growth and thus responded negatively. Further, although management may have perceived threat, the threat may not have been translated to behaviors impeding change. Generally, the analysis of the survey data revealed that, while manager's perceived change, it was not perceived as a threat which needed to be controlled. The survey contributed to the understanding of how management perceived change and how they coped with it.

3.3 Analysis of Story Data

The story data provided valuable insights into the investigation of how managers and subordinates perceived the change and how they responded to it. Generally, computer use was found to challenge the old role of information in the department; changes were perceived as threatening to the organizational status quo evident through employees' talk about change and the explanations they gave about the nature of the changes. A look at managers' and subordinates' use of explanations provided insight into their perceptions of change, and an analysis of the employees' stories provided insight into the investigation of how managers and subordinates coped with change through interactive bargaining. Stories revealed that management clearly attempted to maintain the status quo through the use of strategies of resource control while subordinates simultaneously used strategies of resource control which equalized their positions with management. Following the discussion of explanations given about change, the strategies by which manag-
ers and subordinates negotiated the social order to their advantage will be presented. The interpretive analysis provides a description of the consensual reality of this group of managers and subordinates and examines their strategies of maximizing security. First, however, a description of the organizational context is imperative to the understanding of employees' perceptions and coping strategies.

3.3.1 The Organizational Context

The organizational context prior to the adoption of computers in this department influenced employees' perceptions of the implementation and their responses to it. An understanding of the prior shifts in power dynamics within the organization clarifies why and how management may have used strategies to protect their security, and subordinates may have used them to enhance their positions. Many changes in power dynamics had occurred within the organization with which both management and subordinates necessarily had to cope. Within the three years prior to the study, consultants implemented plans flattening the hierarchy. A once tall, multi-layered corporation had become a very flat organization with few levels of management. Hundreds of jobs were cut while the responsibilities of remaining employees dramatically increased. Individual employees assumed jobs which had previously been performed by several people. Opportunities to advance were reduced, and the company's position in the market was not secure. Employees described the state of the company:

This company is barely keeping its head above water.

This company has survived by accident, only because of its sheer size.
The shifts in the power structure contributed to the tenuous position of managers. Changes in the structure resulted in an increase in subordinates' responsibility, a decrease in manager's information control, and an increase in managers' dependence on subordinates for information. The employees' discussion of structural change revealed the problems faced by management. Managers were losing responsibility, power, and control, and were being laid off.

The style of management is changing. The company is changing. I mean the whole company is changing with fewer levels of management and more people reporting to each manager, and more delegating of responsibility and decision making down to the lower levels of the organization. More autonomy— that has been happening at an ever increasing rate.

I think with middle management there is an awful lot of jobs cut out. When someone retires or is transferred, they completely abolish his job. Middle management and some senior managers have lost their jobs. I am sure they feel threatened.

Avenues for upward mobility have been pulled right out from under them.

People have less mobility than before, less vertical mobility because management positions are radically reduced. Opportunities are not as great for most. Promotions are scarce. Right now there are very few being promoted. Managers will have to recognize that getting to the top may not be a realistic goal.

Not only was management losing control, the hierarchical collapse had strengthened the position of subordinates.

With shrinking manpower and the shrinking head count in this company, people picked up a lot more responsibility.

3.3.2 Computer Use Further Altered Power Dynamics

So given the structural changes in the organization before the computer adoption, managers were already in a tenuous position and subordinates in one
of advantage. The implementation of computers further threatened management's security and bolstered subordinates' position which clarifies why management subverted computer use and subordinates facilitated it. The use of computer systems became a clear avenue through which subordinates' could increase their responsibilities. Information that people needed to do their newly enriched jobs was now available through computer use rather than management. This broke up management's information monopoly and increased subordinates' autonomy. Subordinates obtained new access to information once controlled by management, thus reducing their dependence.

Subordinates have all the access to information they need.

So you have access to information you never had before. Communication is faster and improved.

More information comes through here to help out and increased global access. What has happened is that there is a much greater sharing of data between people of the organization. Access to more data, much, much faster. I see that as the biggest change. People are more effective in their jobs.

It gives me more to do and different things. It is another responsibility and the more responsibility I take on the better chances I have in moving up.

It cuts down on the fact that you have to go and check with other people.

Subordinates' new access to information even allowed them to move beyond their job assignment. The content of their jobs were expanded contributing to management's need to be protective of their position.

People use the system to help them out with their jobs and the more they are familiar with it, the easier it is, the more options they have to do their jobs. They may move beyond what their job assignment is.
Managers also had reason to be threatened because suddenly they were dependent on the subordinates to channel information to them. They had little control of their own access to information since most did not use computers.

It makes your (the subordinates') job a more responsible one. You will find people will come to you for the information. Management will come and ask questions because they know the kind of information I can supply. So they ask me more questions to get the information they need.

Dependencies could be set up...I think it is a healthy dependency because what they are doing is letting go of something. It is my job and they really don't need to have control of it. It is my job and therefore let me do it.

Use of the computer system posed an even greater threat because management did not know how to use computers and were rendered virtually powerless in the retrieval of computer generated information.

I think they are scared about what some people can do. So I think they feel threatened. I think that if not the machines at least what some people can do on them and what information they had, but I don't think overtly. There does not seem to be a circling of the wagons because the natives have certain information. They don't. But I guess if I were in their shoes, I don't know, if somebody knew how to do something a lot better than I did, then I would be at least envious. So I think that the least emotion is envy.

If a person makes themselves...if I know everything, and I am the only one that they can come to, I think they panic, as far as I am concerned. If you are the only one that knows it then how are they going to use it? How can they get into the system? Who do you call when something goes wrong?

Besides being dependent on subordinates' exclusive knowledge of computers' capabilities, management had no way of knowing what subordinates were doing with their computers in their jobs which could have further fueled manager's insecurities.
You can do a job a hell of a lot faster and that is a suspicion management has. "Well they have got that computer—what the hell are they doing on it?!" They don't know, they don't check.

The computers posed a potential threat to management's control and power monopoly by affording subordinates more responsibility and exclusive access to needed information. Clearly, the use of computers threatened to further alter the organizations' power distribution, exacerbating the insecure position of management. As has been discussed, power positions are negotiated through political bargaining; management's position could be secured through resource control. Resources able to be controlled by managers were readily available: the subordinates were dependent on the distribution of certain resources in order to use computers in a manner advantageous to their positioning. Management could control subordinates' growth through strategic resource control which sabotaged efficient computer use. Several examples clarify subordinates' dependencies which made the subversion possible by the control of needed resources:

There were people that I knew who were not going to be able to do what they were asked to do without a computer, there was just no way.

It has made manageable a task that would have been unmanageable.

A lot of people are really strapped without a computer in how they would do their job. The computer has allowed people to pick up what they were supposed to be doing in their jobs.

In summary, the computers were introduced into an environment in which the power distribution had been altered; computer use fueled the preexisting anxieties of management. Computer use posed a threat to the status quo because it afforded subordinates more autonomy, more information, and easier
access to other members of the organization. Management had become dependent on the subordinates for information yet were unable to monitor their work. Management was able to impede organizational change through strategies such as withholding the resources necessary for successful implementation. The computer systems' implementation served as a mechanism by which managers could cope with the organizational changes because it was something which they could impede covertly.

In the following section, a discussion of the interview data will reveal how both managers and subordinates perceived the change as threatening the existing power structure, the first exploration of this study.

3.4 Explanations

During the interviews, both managers and subordinates described changes brought about by computer implementation. While some employees, primarily the subordinates, clearly perceived the change as threatening to those in power, others did not define it in such terms. However, through the analysis of employees' talk, their shared reality was evident. Throughout the interview data, a pattern emerged in how members talked about computers' new role in the department. The pattern which emerged was the use of explanations about the appropriateness of management's use and lack of use of computers. That there were discrepancies in the role of computers in management's jobs revealed that the redistribution of information threatened the status quo.
Managers and subordinates provided explanations for behaviors which were incongruent with past role expectations. These explanations were based on the past shared reality in which managers held a position of power in which they had exclusive control over information availability. Computer use clearly altered management's and subordinates' role in information control which violated past role expectations. Employees' talk revealed that management perceived changes in their role as threatening their security while subordinates perceived the change in their role as advantageous. Explanations reduced the incongruencies which emerged between the traditional way and the new way of managing information and served as a means by which employees could make sense of the changes in a way congruent with their past reality. Management gave explanations that revealed their view that computer use was a form of "play" and thus insignificant to the redistribution of power. This allowed them to make sense of their loss of control of the information flow. Subordinates provided explanations for why management was not using and should not use computers, based on their perceptions that manager's positions were inherently powerful. These explanations allowed subordinates to make sense of their perception that using offered great advantages.

3.4.1 Management's Explanations

Management down-played the computers' potential strength by referring to them as "toys," and further believed that the use of toys was detrimental to a manager's status. This explanation served to make sense of the incongruencies brought about by the change in power positions. The threat of managers' loss
was trivialized, and their high status position in the organization was reinforced by their toy analogy. Computers were trivial and unnecessary, more a past-time or hobby than an essential organizational tool.

Well this is a hobby for a lot of people. It has hobby-like elements around here.

One manager trivialized the utility of the computer. He explained that manager's resistance to use was not due to computer anxiety but to his or her ability to play.

I don't think that people are afraid to use computers. You know it is a toy and some people, everyone of these people, is a technical person. Most have degrees in some kind of science. So really it is a technical toy.

Similarly, another manager held that use was dependent on one's ability to tinker.

A lot of people are scared of the things, particularly people my age that didn't grow up with them. Some of us that are not tinkerers don't like them, are afraid to use them. Some of us who are tinkerers like I am get a kick out of playing with them the first time we get our mits on them. Some people use it as a hobby kind of thing. I am not a hacker.

The utility of the computer for the distribution and control of information did not emerge as a basis on which managers decided to use them. What was perceived to influence computer use was the manager's ability to tinker with the technology. The importance of the computer to the manager's job was minimized. The trivialization functioned to resolve the discrepancy between the managers' powerful position and their resistance to use computers. Further trivializing the computers' utility, one manager held that playing with computers could be detrimental to managers' positions:
We have had other people that, a couple of these in higher offices, every time you would walk by their doors, they would be sitting there looking at their screens. But we have got people in there now that have the same jobs that don't. Well I am not convinced those guys were not playing with those things to the detriment of what they were doing. I think because it is new and hobby-like.

Thus, some managers explained that using was actually detrimental; the potential of computer use to equalize the power hierarchy in the organization was denied. The extent to which they could now control information flow was considerably reduced; their traditional role of controller of information was not congruent with their new role or lack of role in information control. Thus, the legitimacy of computer use was reduced.

The following example illustrates that this explanation allowed managers to make sense of the incongruencies between their lack of access to information and their high position in the hierarchy:

I think there is a debate that we all go through and that is how much time does a senior manager have to physically spend working on a computer to develop data or communicate, verses all the other duties he has to do. I think there is a struggle going on about managing on one hand and becoming a computer techie on the other. I think that is a balance we are all struggling with. For instance a manager could get himself into some serious difficulties with his organization if everyday he came into his office, shut the door and spend almost the whole day working on the computer, whether it is writing letters, communicating with people, looking at data bases or analyzing spread sheets. In doing so you might get so sucked into a computer technology that you could be neglecting a lot of other human interfaces and other duties they might have.

While this manager may have perceived computers as a necessary tool for growth, management as a whole maintained that computers had a limited place in a responsible manager's job. This explanation that computers were not
necessary for managers' success was consistent with its belief that management held a strong position in the hierarchy, and revealed management's role expectations were violated. Management perceived a discrepancy between its old status in the company in which it controlled information flow, and its new status in which it had less control over the distribution of information. Managers' explanations which provided congruency were in reaction to the change in their relationship to information.

3.4.2 Subordinates' Explanations

Subordinates gave many explanations about why management was not using the computers. Since management had apparently lost some of its strength as information distributor, subordinates provided explanations which were congruent with their traditional perception that management controlled information flow. The explanations were reactions to discrepancies which emerged between the former and present role of information within the organization. The explanations functioned to make sense out of their perceptions that their own use of computers was empowering, and because managers were not using them, managers were losing control over information. The three explanations which clarified that role expectations were violated were 1) managers were afraid to use computers, 2) managers saw computer's use as demeaning, and 3) managers had no functional need for them in their jobs. While managers were traditionally in control of the information flow, through these explanations, subordinates made sense of managers' violation in role expectations, evident in their resistance to use the technology. The use of explanations revealed that implementation of the computer system
posed some threat to the status quo. Each of the subordinates’ explanations will be discussed in the following sections:

3.4.2.1 Explanation 1: "They are afraid of them."

Fear of the computer was a common explanation by which subordinates could make sense of the incongruency. Particularly since many employees had experienced computer anxiety, this explanation seemed congruent with their own initial fears about computers.

I can see how they are trying to get upper management into computers and they don’t like it too much, the older men and all. They just seem to be afraid of it. They have never worked with them before. It is something completely new to them. They had their secretaries do everything for them until now. I would say that management doesn’t understand computer systems. Management doesn’t know what they can do, and what they don’t know they are afraid of.

A lot of people are scared of these things. Particularly people my age, people that didn’t grow up with them...they don’t like them, they are afraid of them. Well in some cases I think it is still...people out there who have computer phobia, they don’t want that black box in front of them. They would rather stick to the tried and true method of either writing themselves or giving something to the secretary to type.

People who haven’t used them before are going to have some computer anxiety. I had a little bit of it and my boss had a lot of it. You are going to have the anxiety. By definition someone with anxiety, you can’t even, don’t even want to be in the room with the thing.

Postulating computer anxiety as a reason for resistance, subordinates could explain the apparent resistance to use a tool which subordinates perceived to be empowering.
3.4.2.2 Explanation 2: "Managers perceive them as demeaning"

Subordinates also made sense of the inconsistency in management's role as controller of information by explaining that use of the computer was menial and therefore reduced their status. By defining use as a duty more appropriate for lower status employees, they may have been better able to make sense of why management was not making use of them. Following are several subordinates' explanations of why managers saw use as demeaning:

He might have thought that it reduced his stature in some way, punching in stuff like a secretary...

The guys who run the business, none of them use the computers. I don't know, maybe they see them as demeaning...

They are a threat. Big guys don't use them. They have no need to. They are too manual and associated with lower status.

Maintaining managers were too powerful to use computers worked to make sense of their loss in information power.

3.4.2.3 Explanation 3: "They have more important things to do".

Subordinates also explained that using was not essential for managers' jobs. The nature of their position in the hierarchy absolved them of the necessity to be computer proficient. In essence, they had more important and critical things to do.

They have so many personal things to be concerned with. They are the ones responsible for making sure the business is profitable and finding ways to do that. Now, they also have people to depend on for that but they have to keep it in check. They have to be the ones available to those customers outside the organization that keep our business going. So I think they are making a lot of big decisions, how to spend money, make money. They have to be sure their employees are happy and that morale is okay. Those kind of things.
I am not sure the way we structure the managers' jobs in this corporation that the use of computers would make them better managers or enable them to make better decisions. They have enough people providing them information so they don't have to use them or they don't have time.

Another example of a subordinate's explanation that computer use was not necessary for management follows:

I don't really think that, for example, the director of research needs a computer except for electronic mail, which would probably be better accessed by the secretary who knows how to use it better than he does. But outside of that, what the hell is he going to use it for?

Generally, the subordinates held that managers, based on their decision making responsibilities, did not need computers.

Both subordinates' and management's explanations worked to make sense of the incongruencies in role expectations. Explanations that managers were too powerful to play, and subordinates' explanations that managers had no need to use computers clarify the perceived threat changes were to the status quo. The explanations were reactions to the redistribution of power facilitated by computer use which violated the employees' role expectations. Thus, through their talk, we see employees' shared reality of the changing environment. The explanations provided insight into management's and subordinates' perception of the threatening nature of change imposed by the implementation.

3.5 Strategies

Managers and subordinates sometimes talked explicitly about how they coped with organizational changes. The use of these strategies, the primary focus
of this study, emerged in the interaction and served to protect and reinforce power coalitions. That both groups saved, controlled, and withheld their resources, illustrates a power struggle resulting from the redistribution of information in the department. In the following two sections, I will present the strategies used by management which functioned to impede growth and maintain the status quo, and the strategies used by subordinates which functioned to equalize the power structure. The analysis of employees' talk revealed how managers and subordinates coped with the change, the second and third foci of this investigation. Each group used strategies of resource control and responded to the other's strategies in ways which further secured its own position by weakening and undermining the position of the other. This interactivity defines these responses as strategies in a political power game.

3.5.1 Management's Strategies

Management subverted the distribution of information power to subordinates through strategies managing resources available to them. One major resource was the budget, yet attention, training and help, compassion and involvement in implementation were others which were awarded sparingly to the subordinates, functioning to complicate the implementation process.

3.5.1.1 Strategy 1: Withholding Attention

Management often withheld attention from subordinates' computer problems and thereby limited computer use. Little attention was paid to subordinates when they approached managers with computer problems which limited sub-
ordinates' proficiency on the computer. Employees perceived that management had the ability to fix the problems yet did not prioritize them.

Some of the systems could be improved because I find sometimes that I have to adjust myself to the system. Instead of the system working for me, I find that I have to work for the system, and I think that is ridiculous. I don't think we should have to do that. The system should work for us. Whenever there is a problem with the system, we have an additional thing to do to make the system work for us the way it is set up for us. Instead of saying, okay we are going to fix the system so that you don't have to do the additional thing... If this is the need of everybody then we will change the system so that it will work that way. I don't think the system should be made to work for us, not with us. Why do we have to keep going in and out of extra systems and keep pushing extra buttons when one change would do it.

I expressed the problem to them and that I have tried to work with the system. And that isn't a priority. I mean there are so many little things that they are doing to make sure the big system is up and running. Things go on the back burner as far as they are concerned. And I don't know when it ever gets to the front.

Subordinates were forced to function within the computer systems' limits. Management was unresponsive, thus perpetuating the problem and limiting everyone who had that problem. Management had a vested interest in everyone pushing extra buttons. Changing the system to accommodate them would serve to ease up their work load. Keeping the subordinates tangled up with computer problems worked to subvert their growth.

3.5.1.2 Strategy 2: Withholding Training

Management provided little training for computer users. This minimized subordinates' skill and limited what they could accomplish on their computers. It also took up their time while they struggled to solve computer problems on their own. Thus, the degree to which they could use the computers to enhance
their jobs was limited. Management took the perspective that "having the tools was sufficient."

Subordinates have all the access to information they need. They have always had all the communication tools they needed.

Maintaining this perspective and not providing training functioned to limit the subordinates' development of computer skills and limit job performance. Management provided the bare minimum - introductory training programs. No one was available to help users with problems which arose in their jobs. Employees were on their own in learning how to fund and manage computer resources. Now there are some training programs that the corporation runs, a bunch of courses. You can learn to run Lotus and use data base, but on a day to day operation of the things, you can't keep calling them.

There are no efficient training or resources available.

Computers can be very stressful. If you are trying to accomplish something and it's not working for you and you don't have any resources to help you get through, you have got a problem...

The equipment and tools were available; however, since subordinates could not use the computers at full capacity, the technology was not as valuable as it could potentially be.

Down on the second floor we have the Information Services Room which probably has 15 different pc combinations, and there is nobody there who is experienced in installing equipment and solving cabling problems. But they have a lot of software that they tell you a little about. But if you say I need a cable to go from here to there, they look at you blindly. So you keep shopping around and shopping around and finally end up with corporate electronic services who may or may not condescend to help... Its hard to provide services on the computer. I think it would be a beneficial service. You would probably need a group of three or four people who would do nothing but make themselves available to the departments...Management looks at that and says "Jesus Christ!!"
Computer-implementation and use was not prioritized by management. Not providing training and knowledgeable experts functioned to impede subordinates' growing proficiency and limit the responsibility and autonomy the workers could earn through their computer use. The following quote clearly exemplifies subordinates' training needs and the stifling consequences which resulted from lack of training:

Everyone thinks that... whoever doesn't use the computer, thinks you put the computer down, open the box of software and you don't need time to become proficient at it. No one understands that it takes time, energy, and effort, and sometimes actually you can't learn a package, it is too much effort.

In addition to the lack of adequate training, users were not afforded time to practice. Learning became an additional task which they were responsible for in their job. This functioned to make it difficult, if not impossible, to use the computer.

I am not given time to practice. You have to make time. You always get the computer first and then you get the training. Like I had my computer for three to four weeks because I couldn't get scheduled for a class. That wasn't management's fault, but in a sense, if they knew about it this long before I did, it should have been one of the first things on the list.

The following example perfectly illustrates how management's lack of emphasis on training served to stunt the growth and limit the opportunity of a subordinate who was advancing:

A guy I know downstairs, nice guy, he had a chance for a promotion, and it turned out he would mostly be involved with the computer. He had never worked with a computer before, and he had one week to learn from the person that was up here what to do. And after three days, he decided that he couldn't 1) learn how to use the computer and 2) learn how to do the job. And they were stunned, stunned! A bright intelligent guy.
3.5.1.3  Strategy 3: Not Showing Empathy

Another strategy of resource control which functioned to abruptly curtail growth was remaining unempathetic to new users. Employees were placed into new positions which were heavily dependent on computer skills. Overwhelmed with the new responsibility and fear of the new systems, employees success with the change was limited.

When a system is brand new to a person, it is very scary. You are afraid to push buttons for fear that you are going to lose the whole program you just put in. What they did was cut personnel and then put the computer in. What would have worked better was to put a computer in and then cut personnel.

The ease with which employees handled the increased responsibility could have been facilitated had management recognized and helped employees resolve their computer anxieties before starting them in their new positions. Through their lack of compassion, change was clearly minimized. In the following case, the employee revealed that subordinates' reaction to overwhelming responsibilities was reverting back to the old system:

It is easy to say "Don't be afraid of it, you can't erase a program." But you can. So once a system is familiar to those working, then they can start shifting people around. But we do it in reverse. We cut and then you get a whole new system. So now you have got two new things to deal with: less people, more work and a new computer. You don't know how to use it. It's scary, it's scary. So you find yourself reverting back to the old system instead of using what is available, until the time comes that you can practice on it.

By subordinates reverting to their old way of doing things, the threat of change and the inevitable increase in the subordinates' responsibility were minimized.
3.5.1.4 Strategy 4: Remaining Uninvolved

Management maintained that it was not its responsibility to facilitate implementation. It was subordinates’ responsibility to get their needs met. Management’s involvement in policies and decision-making for across-the-board-training and use would have greatly benefited the subordinate users. Remaining uninvolved functioned to sustain their position of control. Management did not utilize their power to guide the implementation successfully. There was no standardized hardware or software through which all employees could communicate easily. It was virtually impossible to link the myriad systems throughout the organization. Many problems emerged because it was so difficult to communicate and send information from one type of computer to another. Management remained uncommitted to the implementation and did not provide buying guidelines for all the users to follow. Because they were not all linked, on the whole, subordinates were weakened. Subordinates remained divided in their computer technology and thus could not unite in their organizational efforts.

We had an IBM system and unfortunately we couldn’t talk to all the research labs which were all DEC based systems or sales offices which were overseas on DEC. For almost a year we couldn’t communicate. Now we can with difficulty. Even in the city which uses all IBMs and IBM pcs you now see some Macs, HPs and other stuff that crap them up. But it still is very much a personal choice, either the person or the division or the department.

The coordination of computer users was not possible because management did not take responsibility for it, but delegated the task of implementation to a department which had no power to enforce the standardization of equipment across the company. The department which was responsible merely made suggestions for implementation:
The information services department though it was coordinated when they said 'you ought to buy this', and the departments said 'Fine, we hear you'. And the departments went out and did something else. The information services department doesn't have the power to enforce, its only a staff department. It sees itself as a guideline issuer and doesn't enforce. So essentially each department is free to choose things that they want, instead of 'across the board everybody gets...'

And people went out and did what they wanted. So now the next wonderful thing we are going to have is networking. They are going to link the pos and work groups together and that will be a horrible failure because everyone will use a different brand of networking part with the software and none of them will be compatible with the other.

There is no core, no body that is pushing that (the coordination). There is a proliferation of software and hardware...

Besides the proliferation of many different kinds of incompatible hardware and software, there were many subordinates who had never been set up on the system. Management had not mandated uniform computer use across the company. Thus, the utility was minimized since the relay of information was limited to only those who were set up. Those who were not set up were forced to use their old means of communicating.

I don't think networks have really changed much because not everybody uses it. Once everybody does, I think we will use it more. People still depend a lot on paper. It will be much better when everyone starts using it. One of the shortcomings... there are people who I'd like to communicate with that are not on the system yet and that means I either have got to make a phone call or give the secretary something to type. I could send it out to several people simultaneously when you have developed a distribution list, but if they are not on the system, you are back to square one.

The lack of coordination made it difficult to communicate with other members of the company. There were few organized user directories available, so it was subordinates' responsibility to access the user number of the recipient of their message.
I try to use the electronic mail but there are still a lot of problems. To access the electronic mail you have to know their user name and if you want to find out their user name, what we have here is easy, just type in the guy's name. But we don't have access to the other directories for other parts of the system, they are not on there. So you either have to know the guy's user number to get it or to have called him before and remembered the number...just now I was talking to a fellow I have been trying to send a note to for several days cause I couldn't reach him by phone. I had his user number incorrect.

This lack of coordination clearly functioned to waste time and limit contacts via the computer. Again, change was minimized, and people reverted back to their old means of processing and distributing information. Since computers were not exclusively used to send information to all employees, and since managers were not skilled in sending information via the computer, all the information which management dispersed had to be sent through the old slow process.

The old process revolved heavily around written messages and "paperwork."

So much paperwork keeps getting passed through. It's a hassle to go through a ton of paper and sign off your name. They haven't figured out a way to do this and to be sure that everybody sees it. At the time I was transferred up here, one of the directors said "I didn't know you were transferred here. How come I didn't hear about it?" Well he didn't get the paper or something. Now how you put all that kind of stuff on the computer I don't know.

There are all kinds of papers that we have to spend time looking through, but a lot of the stuff could probably be on a computer where you wouldn't have to handle it and pass it along, put it over here and pick up some more...

If the computer was being fully utilized the employees' time and energy would have been saved. Management's involvement and commitment to computerizing was withheld. Their resistance to making decisions and taking responsibility for the implementation functioned to displace the responsibility onto the
employees who were helpless in the coordination and regulation of use by all employees. Thus the implementation process was subverted and change was minimized.

Management had a vested interest in remaining uncommitted to the development of a company training resource which would build users' knowledge and expertise and possibly cohesiveness and strength. Management kept avenues closed which worked to minimize change and secure its position. Subordinates were forced to find information through other avenues which were not based on resources held within hierarchical control (as will be discussed later). Management held it was not its responsibility to provide training, and thereby sustained their information monopoly.

3.5.1.5 Strategy 5: Withholding Rewards

Another management strategy which served to undermine subordinates' emergent force within the hierarchy was the withholding of promotions. The growth and success of a computer user could be repressed by curtailing users' advancement to positions of greater power. One employee described how this happens:

I don't know of any cases where anyone has been punished because they have a computer screen, except perhaps kept in that area. We have a lot of that going on. People who tend to be good at things tend to be left in that place, because they have become valuable. If you have a good financial analyst, you don't want to necessarily promote him, if he is good at it, keep him there. And certainly people who have developed computer skills to a high level in result have learned how to do their jobs a lot faster, a lot better and probably end up doing more than they have before so their output is up.
While we may assume hard work, increased responsibility, and computer expertise would warrant promotion, keeping subordinates stuck functioned to minimize change and maintain management’s control. The risk of allowing subordinates to take over highly responsible jobs and equalizing the power structure was reduced.

3.5.1.6 Strategy 6: Withholding Computer Funding

Finally, management functioned to squelch growth by controlling and withholding money for computer funding. The indisputable claim "It's just not in the budget" immediately put an end to requests for new or better equipment and training programs. Managers could easily control growth this way because spending money and purchasing equipment was their responsibility and up to their discretion. Following are some examples of management's overt power to minimize use based on the perceived availability of funds.

Another strategy is ... to squelch expenditures for a program that might do things better. There are lots of games they can play; probably the worst ones are just based around budgeting—in terms of hardware programming costs. Those are probably the worst.

I think I have a pretty up to date system. I am pretty fortunate to have what I have. Certain departments can't afford to have the latest. You know it all depends on money.

Many plant sites probably have terminals but (some employees) are not on the computer. It's a matter of telling one's manager to spend two thousand dollars to get the machine and the guy says "Do you really need the thing?"

If you are working in a group, and you want computer access, you would make a request, and your supervisors would either deny it for budgetary reasons or grant it. The only restriction that I know of would be a monetary one. I don't know any other reason there would be any other restriction.
These examples illustrate how powerful and effective control of the budget was in managing the implementation. The subordinates held to this explanation of budgetary constraints because budgets can be finite, and they themselves were helpless when given this explanation. They could perceive this as a legitimate explanation because it was congruent with their perception that management traditionally was in control. Limiting spending functioned to maintain management's own monopoly on information and prevent subordinates from building up their resources.

Withholding funding also minimized the subordinates' group cohesiveness which contributed to the subordinates' strength, as will be described in detail later. The group was empowered through the use of computer systems; computers allowed them to communicate among themselves and served as a common topic of conversation which drew them closer together:

Group cohesiveness would have been a lot more if they were not so cheap in buying. Not everyone has them.

Management had a vested interest in impeding the development of the group. The pooling of computer knowledge functioned to weaken management's monopoly of power while empowering the subordinate groups. Being "cheap in buying" served to limit the degree to which information could be shared among group members.

3.5.1.7 Summary of Management's Strategies

The analysis of the story data clearly demonstrated that management functioned to minimize change and maintain the current hierarchical structure
through strategies which controlled the distribution of resources needed by subordinates to improve their computer skill. Six strategies worked to subvert change. First, subordinates were forced to deal with computer problems to which managers were not attentive. Second, management limited change by not providing training programs. Another strategy was that management remained unconcerned about computer anxiety; withholding their compassion made the implementation process more difficult. Management remained uninvolved with implementation and coordination which was their fourth strategy which served as an impediment to growth. The fifth strategy minimizing change and maintaining the current structure was the withholding of promotions, and the sixth strategy was the strict control of computer funding. In summary, through these six strategies management minimized change and curtailed development of computer skills and power among subordinates. The strategies which emerged in response to organizational change initiated by computer implementation lessened the impacts of the change. The story data clearly provided insight into how management coped with change in the organization initiated, in part, by the implementation of computers.

3.5.2 Subordinates' Strategies

Just as management's use of resources served to reinforce the power hierarchy and minimize change, subordinates managed resources in ways which strengthened their position and facilitated change. Subordinates' use of strategies was in response to management's strategies which impeded their growth. Through analysis of the employees' talk, the interdependence of the two groups became clear. In an ongoing power struggle, each group responded to the other's strat-
egies with their own. Management tightened control of their resources as subordinates found ways to obtain the resources they needed. Through the use of strategies, subordinates and managers were constantly negotiating their positions of power.

Subordinates used strategies which strengthened their position in the hierarchy and worked to counteract management's. As were management's, subordinates' strategies were based on the sharing and withholding of resources. While, because of their subordinated position, they did not control resources of attention, empathy, and involvement, they were in control of valuable resources of information which facilitated their computer proficiency. The employees' talk revealed four strategies based on the sharing and withholding of resources of information and computer equipment, which strengthened their position in the hierarchy by counteracting management's. First, sharing knowledge among subordinate group members functioned to empower the group. The second strategy which emerged was keeping their job easy by withholding information about the computers full capabilities from management. Subordinates strengthened their position through the use of strategies which controlled the flow of information about system capabilities and equipment access. Third, information shared by the skilled group members built up a monopoly of information inaccessible to management. Fourth, subordinates were able to access equipment through their own means, not directly subject to management control. And because management was not familiar with computers, it was dependent on facilitators for information when ordering equipment. Facilitators took advantage of this to obtain equipment.
3.5.2.1 Strategy 1: Sharing Information

The first strategy serving to equalize power was the exchange of information about the computer system with fellow subordinates. It functioned to greatly empower the group. While information was not available through training programs, subordinates' response was to share information with and train each other.

Well, I tell you one thing, I guess some people don't use the computer, but for those who do, you develop a rapport. It becomes a topic and a means for general discussion.

It has helped relations because everyone initially had the same problem: nobody knew what they were doing. But you did have a few people that did, they could share with the group.

So as each new system comes on line, that is a new thing, and that person can show another person how to do that. So we share with each other little quirky things that you find out about the system.

And since computers transfer information, say to me, that I know may help some other guy here...someone may hear something on his computer and tell me about it. The use of the computer or access of similar data seems to be a tie that naturally binds people together. They will develop a distribution list and they will constantly get information from that group. It tends to build a group mentality or group development. So there is an interesting cross-organizational group developing that is tied together by its use of software packages.

If we have got a problem. We have got a good team around here. My system was down Monday, the keyboard wouldn't work. I was ready to jump out the window. I looked up Joe...it was a mainframe problem.

When I first came here, everybody in the group has their own little thing and hardly anybody talked to each other. And since that time, I have seen a lot more, I talk to this guy and he is talking to me and the whole nine yards.
Strong relationships functioned to facilitate the flow of other information and increase group rapport. The more information they shared, the more knowledgeable the group could become. Sharing information helped to empower them in ways which otherwise would not have been possible.

If you work with people you will develop a respect for that person, in terms of the ability to get things done and execute, etc. The computer is an area where you can develop expertise, develop recognition- the ability to work with the system or operate within it.

I think that one of the things with this organization- to develop another bonding "Hey this guy is pretty knowledgeable. I am going to go to him." Also, you know if he can help you, you are going to help him in other aspects besides computers. In that respect, maybe that has given another linkage a bond within the organization to tie a team closer together.

You have to have contacts. You have to have people to help you, because I don't have anyone that I directly report to, so I have to get my job done and the more people you know, the more people you have to work through and to call... it is a real help, a real help.

The more information they shared with each other, the more they supported and helped each other cope with the problems with the system which were wasting their time and limiting their performance. The degree to which they had to revert back to old ways of accomplishing their jobs was minimized. The redistribution of power outside of the formal hierarchical structure was accomplished through the sharing of knowledge and computer expertise of the computer systems within the group. Interestingly, management had previously attempted to build the rapport of this group yet was unsuccessful through their means.

We had organization effectiveness meetings in this group trying to come up with a mission for the group. If you were a smart manager, you would have grasped at anything that could have been a focal point (computers). And they haven't done that yet; they haven't seen it that way before. It could be a tool for cohesiveness, but nobody has figured that out.
Maintaining a bond based on the sharing of information about the systems, a resource to which management did not have access, served to empower the group.

3.5.2.2 Strategy 2: Creating a Cushion

A second strategy which functioned to enhance subordinates' positions of power and facilitate change was the creation of a "cushion" around their jobs. The cushion existed because their jobs were easier with the computer; they could take on more responsibility and perform their job in less time, leaving them free time.

You find you can do your job a hell of a lot faster on the computer. There are times when you relish that free time and you won't take on more responsibility. It allows you to create your own cushion. And that is a suspicion management has "Well what are they doing on it? Are they playing games, what are they doing on it?" They don't know, they don't check.

Subordinates took advantage of management's unfamiliarity with the computer by controlling the difficulty of their job through the maintenance of this cushion. They were advantaged by keeping management unaware of the computer's role in their jobs. Subordinates were in a delicate situation because management controlled advancement and growth, and determined their job status. Creating this cushion served as a response to this; while they couldn't totally control their own upward mobility, with this strategy they could safely control the difficulty of their jobs and secure their position.
3.5.2.3 Strategy 3: Sharing Expert Knowledge

The first and second strategies of sharing information and maintaining a cushion emerged as subordinates' responses to management's strategies of withholding attention, training, empathy, promotions and remaining uninvolved. The third and fourth, sharing expert knowledge and accessing equipment, involved a particular subordinate group member. He emerged as having a primary role in the group's empowerment. Because there was little training provided, a knowledgeable computer user became a powerful and valuable resource to the group and management. Thus, in response to limited training, subordinate "facilitators" emerged.

The group facilitator had a special role in the group's empowerment. He clearly saw how management hindered their growth, and he served as primary strategist for the group.

As you develop a skill, you find more and more people come to you who have problems for answering questions...There is so little organized help and resources that by default the people who have the smallest knowledge get asked a lot of questions.

He deliberately shared his knowledge, motivated group members to learn, and accessed valuable computer information available only through other facilitators. He played an instrumental role in equipment access, the fourth strategy.

Facilitators became resources for the group and played a central role in the training of other subordinates. Through the facilitator, subordinates became proficient at the computer and were able to tap into the inherent power
information access afforded. The subordinate group members clearly saw how valuable the facilitator was to the group. They described his role in their development. The facilitator channeled important information about computers systems to the group which was the single most critical factor in the group's development.

I started using the computer in June of 86, and Jim taught me everything I know, and he still does.

We have people who are experts in some areas, and they are willing to share what they know.

When something goes wrong, we all go running to Jim.

The facilitator of the group studied was even defined by his group members as their "resource." His shared knowledge clearly empowered and advantaged them; without the resource, the subordinates had little opportunity to accomplish their job using the computer. Change toward implementation would have been minimized; old methods of information processing would have had to be used because the training programs provided were too fundamental.

Basically, I learned from the person in the group, he is our resource. He has been very helpful in getting the right equipment in. He says "What do you want to do?" "Well, I want to learn word processing, type some billing, and I want to get on the electronic mail system." So he says "Here is what is going to work for you." He works with you individually to say "This is how it works." And I have got the instruction books, but I have never gone to any of the courses they offer.

Having a resource for the group really facilitates things. Things happen faster and easier and if you have a problem, you don't have to sit there by yourself and try to figure it out alone. You have somebody to talk to. So that is a new role that has emerged that didn't exist before, having a resource.
Facilitators often took the place of training programs or picked up where the programs left off. Thus, group members had exclusive access to information about the systems which was not available to management.

Jim is more helpful than the training programs, as I learned. Questions happened. I would just walk right down the hall "Hey Jim, how do you..." and when Jim tells me something, I write it down so I don't have to ask these things anymore.

If I were to go to Jim, he is our expert on computer, and express a need, he would be more than willing to...in fact he helped me set this up because just with the training programs, unless you can practice with them, you just can't sit down and do it.

The sharing of knowledge by the facilitator functioned to strengthen the group's skills despite the lack of training provided. The more skilled they became, the greater the computer benefited their job.

One of the staff was starting to develop data bases of information so that he could get in control of some activities and start measuring performance and productivity better than he could before, and that certainly gave him power having that kind of data.

The facilitator strengthened the group even further; in addition to providing training, he/she also provided incentives to change which increased their computer efficiency.

The incentive to change comes from either the person themselves, which is not very frequent, or from someone in the organization who views themselves as the facilitator, in bringing software or something else, and I have played that role deliberately in this group for some time.

He did not just train his group; his role moved beyond that. The facilitator had the ability to motivate the individuals in the group to learn new systems to increase their coordination. He saw it was necessary to make software and
hardware compatible. He compensated for management's resistance to take responsibility for the coordination because he saw its utility for the group as a whole. He motivated the group to use the computer to maximize their potential growth in a way that benefited the subordinate group as a whole.

The subordinate group was advantaged further because all the facilitators shared their knowledge with each other which broadened their knowledge base. Facilitators had emerged throughout the organization, and the "facilitator subgroup" built up their own information monopoly. Experts helped one another facilitate changes which were beneficial to the subordinates and themselves.

The subculture's emergence just happened. Those people just stuck up a little bit above the height of the grass. And by default tend to start communicating with each other, so they learn how to do things. It forms naturally, the overt forms, to get together just happens. You tend to know people who know how to get things done for you. That is really the way this corporation runs...

Management was resistant to change and used strategies to impede it, and in response, subordinates found ways to break away from the oppression of the formal structure. Group members were greatly advantaged because of their exclusive access to information through the "facilitator network."

There is an expert on lotus and there is a guy who uses data base a lot. I use communication packages a lot and people who are interested in doing more with the computers have a list written down. I go to this guy for this and this guy for this...there is no real efficient training available to us.

Only through the experts was the richest information about the systems available. Management was at the mercy of the facilitators if it needed information about the computers. The facilitators valued their network; the network
itself had become a valuable resource of computer knowledge. Control over the information the group held functioned to combat management's resistance to change and its stronghold on power. Facilitators were consciously maintaining a monopoly on the information.

There is a subculture of facilitators. I talk to some people who are installers of equipment and some people who do this and that. There is a subculture of facilitator. That is where we get our information and there is a fair amount of sharing between that group. And we generally know who they are and we generally know what they are good at. We generally see our role as making our own jobs easier and using it as a tool to make people that we are associated with, their jobs easier. And never do we push information up. Only down. And those facilitators tend to operate at a very low level of the organization. There are no facilitators that I know of that are managers, that have people reporting to them. Again it is a question of those that have a vested interest in finding out better ways of doing things on the computer.

Clearly, facilitators were advantaged by their membership and saw the benefits of maintaining information within the group. They greatly empowered the subordinates by sharing knowledge, providing training, and motivating them to change. The facilitator of the group studied held a powerful role in the execution of strategies which counteracted management's attempts to undermine their growth.

3.5.2.4 Strategy 4: Accessing Equipment

The facilitator was instrumental in executing the fourth empowering strategy of resource control, the controlling of the distribution of equipment. Because management did not spend lavishly, equipment was a precious commodity which the subordinates found ways to access. Once management had put out the money for and purchased it, subordinates accumulated whatever equipment they
could get their hands on. In this example, a subordinate had immediate access to two printers:

I have my own printer here, and the one outside the office. Because first this printer served three of us, and when we moved down here they had a printer and they did not want to put that one outside, so I said "I am not going to get rid of it, I'll put it in my office."

However, subordinates did not hoard equipment but shared it amongst themselves. The means by which subordinates accessed extra equipment was through the underground facilitator network. It was difficult to obtain through legitimate channels; however, the use of the facilitator network increased access. The network functioned to help them meet their needs for equipment without having to depend on management.

It is a matter of commitment. Not taking no for the first answer, but looking for a way to get a yes or whatever it is you need.

I found that if I needed a modem, even at home, to communicate here... I can talk around and find that several people have excess modems stored away that are not in use. So if you check around you can get a piece of equipment already in existence. If it is important enough, there is a network.

This access network functioned as a means by which they could dodge organizational red tape which delayed and obstructed equipment access.

The contacts you have, the contacts you make, I come across it all the time. There is a good programmer who acts as a facilitator and there was a guy who wanted two printers and he didn't have the switches and cables to do it. And the guy brings them down and the thing was done. Rather than having to go through purchasing, figure out what you need, buy the thing, process it and everything else...and so you learn who has stuff stashed away either in their head or in their filing cabinet. And that is how it happens around here.

You know the people who can get things done for you... you can take a piece of paper here and send a request for a new telephone line and you might wait eight weeks, nine weeks, ten weeks, or you can
get off your duff and go and see this guy Joel. And you say "How is it going Joel? blah, blah, blah, I could use a phone", and two weeks later, its installed. Cause he's the guy, not his boss, to where the paper goes. Joel is the guy who knows how to install the phone, so that is how it works.

Employees subverted structural barriers to obtain what they needed, and kept their private access quiet, so as not to risk the sabotage of their covert operations. The facilitator functioned to disrupt management's attempt to subvert growth by accessing needed equipment by manipulating the budget to maximize the advantages for his group. He recognized that budgetary constraints limited access to equipment. Because he was the authority on computers, he was in the position to consult management on the needs of the group. Thus, in departments which were automated, management was dependent on the facilitator when ordering and supplying equipment for the group: the extent to which managers could withhold the budget was limited. The facilitator was aware of management's role in the suppression of computer implementation and could counteract its withholding strategies.

It is an excuse ("It is not in the budget") because first of all they did not ask when they set up the budget how many people might need computers, that is why it is an excuse. If they went around before hand and said "What do you need for equipment?" then I would believe it. But I go around before budget time and say "What do I need. I need another couple of printers, another p.c." I make sure that enough money goes into the budget.

He took advantage of his position to empower his group and members of the facilitator network.

I make sure that enough money is in the budget when I get at it in January with all the purchase orders for the year, I get my equipment. And if there is none left (money) tough shit. Because I feel an obligation to at least get enough of what I need for the group. But there are lots of people who sit around with no printers, no computers.
But unless you have figured out how to get at the money or get at the people who buy the stuff, you do without. I have got about ten printers, I buy directly for reasons that I don't understand. They have let me go outside of the normal routes, maybe because I tend to be cranky. So I know how much money we have available. I buy the stuff. This group of mine is so well equipped we have stuff loaned out.

While management kept a tight control of the budget and refused direct requests, the facilitator found ways to obtain the needed equipment by helping management with ordering. He took advantage and purchased whatever he could, then controlled the distribution of the equipment throughout his group or stored it for later use. This strategy of managing the computer budget empowered him and broadened the group's capabilities.

However, having some say in purchasing did not ensure the facilitator would obtain all the equipment he wanted or needed. So, there were other avenues which he could use because he was so familiar with the organizational system.

Overestimate the budget? Sure, not by much. You have got to be careful. I figure that through the year something will come up that I would really like to have. Like I didn't anticipate buying a fax machine, but at this point I think I need one. I have gone down and amongst this group there is really no surprise to say "I have no money in this department," but I will go down to maintenance and say "Look, would you guys buy this equipment? I'll pay you back in January with this equipment." So we swap. And it depends on how bad you want this thing and how well you know the system.

Working around the system and the impediments the system yielded enabled facilitators to obtain and accumulate equipment and build up their power base without management's knowledge.
If management found out what was going on, they would be a trifle irritated. That is another reason we don't push information up. We try to do the jobs that we have been asked to do easily, well, and how we do that shouldn't be an issue. The process isn't important. The outcome is what is important, as far as I am concerned.

The above quote illustrates the subordinates' use of manipulative strategies which facilitated change and growth, despite management's strategies to impede them.

3.5.2.5 Summary of Subordinates' Coping Strategies

Subordinates in the department studied managed to facilitate the implementation and empower themselves through controlling information about the computer systems. The subordinates' first strategy, sharing information with each other, served to build up their strength as a group. The second strategy securing subordinates' position was the creation and maintenance of a cushion around their jobs which enabled them to control their level of difficulty without management's knowledge. Third, the exclusive distribution of computer knowledge to the subordinates by the facilitator functioned to strengthen the subordinates' position. The fourth strategy, accumulating equipment, combated management's strategy of withholding resources for equipment. Their access to new and necessary equipment through the facilitator network allowed them to go around management's subversion tactics. Change was expedited by the facilitator's strategy of manipulating the budget. Helping management order equipment and trading computer funds with other departments ensured the group's acquisition of equipment.
The interpretive analysis of story data clarified how subordinates facilitated change and thus provided insights on the third focus of this investigation. Subordinates clearly managed the change through the use of strategies which functioned to strengthen their position and equalize the power distribution in their department. Through the analysis of the group member's talk, their shared reality of how they accomplished change was revealed.

Studying the employees' talk, from a symbolic interactionist perspective, revealed the strategies and interactivity of management and subordinates. The whole process by which meaning was created was clear in the interaction, characterized by the use of strategies. Both groups vied for power through the control of resources valuable to the other group in response to the other group's strategies. Management maintained the status quo by withholding resources of attention, empathy, involvement, promotions, and money. As subordinates' manipulative strategies worked to subvert the hierarchy, management tightened their control which in turn exacerbated subordinates' strategic responses.

3.5.3 Summary of Interpretive Data: Explanations and Strategies

This interpretive analysis of managers' and subordinates' communication provided understanding to this exploratory study. The analysis of employees' talk reveals their perceptions of the changing environment. Explanations shed light on the incongruencies in the employees' world influenced in part by the implementation of the computer systems. Also, strategies of resource control emerged which clarified how the change was managed within the management/subordinate relationship. Management's strategies of withholding resources
impeded the implementation of computers and sustained the status quo; subordinates' growth was hindered, and organizational change was minimized. Subordinates' strategies, at the same time, functioned to facilitate change and equalize the power distribution. Computer use altered employees' relationships with information because of the redistribution of information and break-up of information monopolies. Changes in the organizational structure by the implementation instigated attempts by each group to control the information resources to benefit their own position.
Chapter 4

CONVERGENCE OF SURVEY AND INTERPRETIVE DATA

In the following three sections, the analysis will be summarized in terms of the convergence of the two data sets. The ways in which they supported and or complemented each other will be discussed. When considered together, the survey and story data provided a wholistic picture of organizational life and provided insight into the three primary foci of this investigation. The survey data clarified management's perceptions of change while the story data exposed management's and subordinates' perceptions of change and revealed the interactive process by which the two groups coped with the threat the changes posed.

4.1 Exploration 1: Manager's and Subordinates Perceptions

The first area of exploration was the perceived threat of the implementation to the status quo. The employees’ perceptions that the organization was changing and that the changes were threatening were revealed in both the survey and story data. First, survey data generally demonstrated that management saw a change in the role of information in the organization. The story data also revealed, through the subordinates' and managers' explanations, that the role of information was changing for both groups of employees. A common finding was that information access increased, and employees were in contact with more people. Both data sets clarified that subordinates were advantaged by the changes.
Managers perceived an increase in subordinates' autonomy. Story data revealed that subordinates were empowered through the use of computers since their responsibility and autonomy increased. Roles were somewhat equalized as management became dependent on subordinates for information.

This study also explored how the change was perceived as threatening by management. The findings of the two data sets were not in convergence. The survey data revealed that managers did not perceive the change to be threatening while the story data revealed that they responded in ways that functioned to defend their status. Their behaviors indicated the threatening nature of change. Manager's explanations revealed they made sense of the changes by treating the computer as a toy. Managers' explanatory and strategic responses revealed the nature of the meaning that change had for management. It is an assumption of our theoretical perspective that people respond to things based on the meanings those things have for them. Manager's consensual reality can be understood within the context of their responses to change, and thus we can surmise from the emergence of defensive responses that the changes indicated some threat to management.

Subordinates' explanations as to why management did not use the computer revealed that changes were occurring which caused incongruencies in their consensual reality. Their explanations clarified the incongruencies in role expectations instigated by change in the status quo. Again, their reactions were in response to the meanings which the changes had for them. However, while the change disrupted the subordinates' status quo, they did not perceive the changes as
threatening. Their strategies functioned to facilitate the change because they were empowered by the implementation. Therefore, the data revealed that, while both groups of employees perceived a change in the role of information, to management that change posed a threat, while to subordinates it meant opportunity.

4.2 Exploration 2: Management's Response

The data provides insight into the second aspect of this exploration, how managers coped with change. Indications emerged in the data which revealed that management dealt with the changes by developing strategies which maintained the status quo, despite the fact that the survey data indicated management did not feel the increased information was threatening or that it needed to be controlled. It is reasonable to assume that the contradiction between the two types of data is not so much a failure to perceive the "correct" answer, as it is a reflection of human inconsistency. There are often differences between what we say and what we do. In this case admitting that we are threatened by a loss of power is not something which comes easily. The story data supports this possibility. Strategies clearly emerged by which management minimized change and sustained the hierarchical structure. Subordinates revealed that management strategically controlled resources of attention, compassion, involvement, promotions, and money, which functioned to facilitate the equalization of power. Subordinates responded as if these strategies were repressing their own growth through strategies counteracting management's hinderances. Also, while management claimed they did not control computer use in the surveys, the story data revealed that subordinates developed strategies in response to management's control of resources which facilitated growth.
4.3 Exploration 3: Subordinates' Response

The data provided insight into the third exploration of this study: how subordinates strengthened their position and equalized the power distribution through strategic resource control. The survey data did not directly address this question; however, management indicated that they perceived that subordinates were gaining autonomy through computer use. Managers perceived that subordinates were more proficient at computer use than they were. This finding was supported by the story data which clarified that subordinates believed they gained power because of their exclusive use and knowledge of the computer's capabilities. The story data clearly illustrated how subordinates worked to equalize the power distribution and facilitate change minimized by management's strategies. Through exploration of the subordinates' talk, four strategies which subordinates used to expedite change were revealed.

The two groups strategically used tactics in the renegotiation of political order. The use of the symbolic interactionist perspective afforded an understanding of the process by which new meaning was negotiated. The interaction of the two groups indicated that both were vying for stronger and more secure positions.

4.4 Discussion

This investigation provided insight into the impact of the implementation of computer systems on the existing hierarchical structure in organizations. Employees perceived the change as a challenge to the status quo to which they
responded with strategies minimizing or facilitating the change depending on their organizational position. While interviews provided valuable stories which illuminated the employees' organizational reality, the results of the survey data were not as clear. In order to maximize the benefits which the use of triangulation could afford, the collection of survey data could be approached differently. A much larger sample than the one used is needed. Surveys should address the perceptions of both managers who used and those who did not use computers. The inclusion of nonusers could offer further insights into the threatening nature of computer use. Limiting the sample to only users could have skewed results; these managers may have overcome their computer anxiety and discovered the benefits of computer use. Thus, the degree to which they felt threatened would be less than nonusers. A broader sample could provide further insight into the threat to managers posed by computer systems.

This investigation of the impact of organizational change brought on by the adoptions of technology, from an interactionist perspective, fills in some of the gaps left by prior research. Traditionally, research has taken a narrow approach to the study of implementation. Its focus has been on the techniques which maximize the benefits of computer technology. This current research extends beyond that type of investigation and clarifies the wholistic process by which employees cope with change through symbolic interaction. This study specifically sheds light on four aspects of the implementation process and organizational change previously unaddressed by traditional functionalistic research.
First, while management's behaviors in response to change have been observed and categorized, the perceived threat to their security has only been assumed. The actual meaning change has for management has not formerly been revealed. The analysis of stories told by employees and the explanations given by managers to make sense of the change clearly demonstrate that the changes were perceived as threatening by management. Because of the threatening nature of change, their perceptions were difficult to measure quantitatively. Through the use of probing questions and the analysis of communication patterns, their consensual understanding became clear. By examining management's talk about change, the threat it posed was apparent.

A second weakness of traditional research is that it has not addressed how change impacts all members of the organization, regardless of their hierarchical position. The impacts the change has, the meaning subordinates have for the change, and subordinates' role in the computer implementation process have not been addressed. Since subordinates are the primary users of the computers, the impact on them must be understood in order to get a clear perspective on the implementation process. The analysis of story data illuminated the impact of implementation on subordinates. Subordinates were clear about the advantages gained through computer use, and the perceived changes in their roles and relationships were evident in their stories and explanations. They perceived this change as beneficial, offering them more autonomy, responsibility, and status. Their use of strategies revealed their power to implement and facilitate the change.
Third, traditional research has neglected the investigation of the process of negotiating the organization's political order. This study clarified the interdependence of management and subordinates and their mutual influence in the implementation process. Traditional functionalistic studies regard the organization as a concrete entity; a container in which managers and employees work. Assuming the perspective that an organization is created and maintained through employees' interaction allows researchers to understand the nature of the interdependence of organizational members. Subordinates and managers cannot be observed as separate and independent variables since their roles are defined in relation to each other. Research has not examined how the implementation process has been influenced by both groups. This study examines computer implementation as a political process, involving strategies by which both groups use limited resources to negotiate their position to one of advantage. The continual bargaining defined the political social order, a process only theorized about by Carnall (1988).

Similarly, while Bardach (1977) mentions moves and counter-moves, subordinates' role in the game was unacknowledged. This study revealed that subordinates were aware of the threat posed to management and that the counter-implementation strategies functioned to impede their growth. The subordinates' power to facilitate change in response to management's subversive tactics has been overlooked. Subordinates clearly played a role in the facilitation of implementation which management simultaneously attempted to hinder. Because both managers' and subordinates' roles were defined in relation to each other, it was clear their strategies to minimize the other's strength was an important process in
the definition of the organizational reality and in the implementation process. The conflict between the two groups was an important process by which the existing hierarchy was simultaneously subverted and maintained. The strategies evident in the employees' communication in this analysis clarified the interdependence of the two groups. Since the strength of their own position was dependent on the weakness of the other group, many of the strategies focused on the sabotage of the other group's strategies.

Fourth, an important insight into the implementation process has been revealed in this study. Through an interpretive analysis, the actual process by which managers and employees coped with change became apparent. Conventional investigations of the impact of change can reveal what changes have taken place and employees' perceptions of those changes and descriptions of behavior, but looking at employees' communication can reveal the political strategies underlying the change since both the subversion and facilitation of change was accomplished through their communicative behavior. The actual strategies of subverting and facilitating change through the sharing or withholding of resources were evident as organizational members talked about their organizational reality.

Traditional research does not afford such a thick description of the actual processes of organizational life. The talk revealed that management sabotaged subordinates' change tactics by strategies of withholding attention and compassion from subordinates, remaining uninvolved in the computer implementation and training, controlling the advancement of computer-proficient subordinates, and withholding money needed to enhance computer efficiency. These
strategies emerged in response to those used by subordinates to enhance their positions. Subordinates' strategies, which emerged in response to management's tight reins, also became evident in the talk about change. Strategies which empowered them included helping each other with problems and sharing information about computer systems. Also, withholding information about systems from management allowed them to control the level of difficulty of their jobs. Managers who were interested in using computers were at a great disadvantage because they had few information resources available to them. The deliberate involvement of the facilitator in the empowerment of the subordinate group ensured their security. He provided training and motivated others to remain computer proficient to keep an edge on management. His use of contacts afforded subordinates access to valuable information. Finally, the control of computer equipment and its distribution was possible because management was unfamiliar with the computers.

The continual vying for security created an ongoing, destructive cycle of resource control. The more each group controlled resources, the more they impeded their own opportunities. For instance, managers' move to limit training programs, commitment to across the board adoption, and promotions of skilled users limited the resources available to them. Thus, they increased their dependence on subordinates. The more the subordinates obtained what they needed by manipulation, and the more they fostered management's dependence on them, the more apt they were to increase management's suspicion and defensiveness, thereby limiting the resources they were afforded.
This study clarifies how organizational members may respond to threatening change to the status quo, and points to the importance of understanding the political implications of computer implementation in a hierarchical structure. The control of computer-related resources for these department members was a means by which change away from the status quo was minimized. Looking at employees' shared reality, we can see how the strategies became an integral part of the negotiation of the organizational reality. This process of defining political relationships is essential to the understanding of this organization and of organizational politics as a whole.

4.5 Implications For Future Research

The interdependence of the management and subordinate groups in the implementation process was apparent. Future research would benefit by additional observation of the formal role of the two groups in the process. Observing and analyzing how different groups of subordinates and managers strategically cope with change in the organizational setting would add further clarification to organizational politics. A particularly fruitful approach to the study of change would be a longitudinal study of an organization or department. Analysis of members' perceptions and communication before implementation, during the implementation process, and after employee-use could provide insight into the impact the new role of information has on the organizational reality. The emergence of coping strategies in response to change would be apparent in their communication. Also, quantifying managers' and subordinates' perceptions of change could help to clarify specific variables influencing the change process. Taking an unorthodox per-
spective of a problem which has specifically been the focus of quantitative research could provide further insight into the impacts of organizational politics and change.

The emergence of the use of strategies between organizational power groups may shed light on strategic resource control within groups and interpersonal relationships characterized by unequal power positioning. Understanding how individuals respond to each other through strategies designed for their advantage may be a primary step to understanding the negotiated reality of most interactions.
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Appendix A

QUESTIONNAIRE

1. I believe my job with this organization is fairly secure.

   _Strongly  _Mildly  _Agree  _Neutral  _Disagree  _Mildly  _Strongly
   Agree      Agree    Neutral  Disagree  Disagree  Disagree

2. I believe my organization feels I am replaceable.

   _Strongly  _Mildly  _Agree  _Neutral  _Disagree  _Mildly  _Strongly
   Agree      Agree    Neutral  Disagree  Disagree  Disagree

3. I believe the nature of my job has changed since using the computer system.

   _Strongly  _Mildly  _Agree  _Neutral  _Disagree  _Mildly  _Strongly
   Agree      Agree    Neutral  Disagree  Disagree  Disagree

4. I believe most supervisors need to work hard at maintaining their status in this organization.

   _Strongly  _Mildly  _Agree  _Neutral  _Disagree  _Mildly  _Strongly
   Agree      Agree    Neutral  Disagree  Disagree  Disagree

5. I believe using the computer increases my job security.

   _Strongly  _Mildly  _Agree  _Neutral  _Disagree  _Mildly  _Strongly
   Agree      Agree    Neutral  Disagree  Disagree  Disagree

87
6. I believe the amount of communication within the organization has increased since adopting the computer system.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Mildly Agree</th>
<th>Agree</th>
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<th>Disagree</th>
<th>Mildly Disagree</th>
<th>Strongly Disagree</th>
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7. I believe most employees prefer to communicate via the computer rather than face-to-face.

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<thead>
<tr>
<th>Strongly Agree</th>
<th>Mildly Agree</th>
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<th>Neutral</th>
<th>Disagree</th>
<th>Mildly Disagree</th>
<th>Strongly Disagree</th>
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</table>

8. I believe my relationships with my subordinates have changed since adopting the computer system.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Mildly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Mildly Disagree</th>
<th>Strongly Disagree</th>
</tr>
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</table>

9. I believe I have had to manage my subordinates less since adopting the computer system.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Mildly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Mildly Disagree</th>
<th>Strongly Disagree</th>
</tr>
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</table>

10. I believe information gained through a computer system could be used with detrimental effects.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
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</tr>
</thead>
</table>

11. I believe information in the wrongs hands could jeopardize my job.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Mildly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Mildly Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>
12. I believe my subordinates are well versed on the computer system.

   ___ Strongly ___ Mildly ___ Agree ___ Neutral ___ Disagree ___ Mildly ___ Strongly
      Agree                Agree                Agree                Agree

13. I believe I know as much about the computer system's capabilities as my subordinates do.

   ___ Strongly ___ Mildly ___ Agree ___ Neutral ___ Disagree ___ Mildly ___ Strongly
      Agree                Agree                Agree                Agree

14. I believe I am not familiar with the computer system's capabilities.

   ___ Strongly ___ Mildly ___ Agree ___ Neutral ___ Disagree ___ Mildly ___ Strongly
      Agree                Agree                Agree                Agree

15. I believe I make full use of the computer system's capabilities.

   ___ Strongly ___ Mildly ___ Agree ___ Neutral ___ Disagree ___ Mildly ___ Strongly
      Agree                Agree                Agree                Agree

16. I believe I my subordinates make full use of the system's capabilities.

   ___ Strongly ___ Mildly ___ Agree ___ Neutral ___ Disagree ___ Mildly ___ Strongly
      Agree                Agree                Agree                Agree

17. I believe the use of computer is more appropriate for the clerical staff than supervisors.

   ___ Strongly ___ Mildly ___ Agree ___ Neutral ___ Disagree ___ Mildly ___ Strongly
      Agree                Agree                Agree                Agree

18. I believe the computer system allows subordinates to be more autonomous.

   ___ Strongly ___ Mildly ___ Agree ___ Neutral ___ Disagree ___ Mildly ___ Strongly
      Agree                Agree                Agree                Agree
19. I believe subordinates should have the freedom to use the computer system as they wish.

   _Strongly__ _Mildly__ _Agree__ _Neutral__ _Disagree__ _Mildly__ _Strongly
   Agree    Agree    Agree

20. I believe some subordinates withhold information from their supervisors.

   _Strongly__ _Mildly__ _Agree__ _Neutral__ _Disagree__ _Mildly__ _Strongly
   Agree    Agree    Agree

21. I believe our computer system has increased employees' access to information.

   _Strongly__ _Mildly__ _Agree__ _Neutral__ _Disagree__ _Mildly__ _Strongly
   Agree    Agree    Agree

22. I believe our computer system may give employees access to information they should not have.

   _Strongly__ _Mildly__ _Agree__ _Neutral__ _Disagree__ _Mildly__ _Strongly
   Agree    Agree    Agree

23. I believe in some situations it is important to withhold some information from other employees.

   _Strongly__ _Mildly__ _Agree__ _Neutral__ _Disagree__ _Mildly__ _Strongly
   Agree    Agree    Agree

24. I believe it is the supervisors' responsibility to restrict employees' access to privileged information.

   _Strongly__ _Mildly__ _Agree__ _Neutral__ _Disagree__ _Mildly__ _Strongly
   Agree    Agree    Agree
25. I believe in some situations having more information than others could help to secure one’s position in the organization.

Strongly _Mildly _Agree _Neutral _Disagree _Mildly _Strongly
Agree Agree

26. I believe most of the information within this organization is common knowledge.

Strongly _Mildly _Agree _Neutral _Disagree _Mildly _Strongly
Agree Agree

27. I believe my subordinates should have the ability to contact any other employee in this organization via the computer system.

Strongly _Mildly _Agree _Neutral _Disagree _Mildly _Strongly
Agree Agree

28. I believe subordinates should not communicate about business matters with others outside of the formal chain of command.

Strongly _Mildly _Agree _Neutral _Disagree _Mildly _Strongly
Agree Agree

29. I believe employees have contacts through the computer system which they would not otherwise make.

Strongly _Mildly _Agree _Neutral _Disagree _Mildly _Strongly
Agree Agree

30. I believe computer systems may change the structure of this organization.

Strongly _Mildly _Agree _Neutral _Disagree _Mildly _Strongly
Agree Agree
31. I believe the computer system allows employees to contact employees across all hierarchical levels.

- Strongly Agree _Mildly Agree _Neutral Disagree _Mildly Disagree _Strongly Disagree

32. I believe the computer system affords me the opportunity to communicate with more members of the organization.

- Strongly Agree _Mildly Agree _Neutral Disagree _Mildly Disagree _Strongly Disagree

33. I believe the networks of communication in this organization have changed since implementing the computer system.

- Strongly Agree _Mildly Agree _Neutral Disagree _Mildly Disagree _Strongly Disagree

34. I believe a change of communication networks would benefit this organization.

- Strongly Agree _Mildly Agree _Neutral Disagree _Mildly Disagree _Strongly Disagree

35. I believe subordinates' use of the computer system should be restricted to word processing.

- Strongly Agree _Mildly Agree _Neutral Disagree _Mildly Disagree _Strongly Disagree

36. I believe supervisors should control how extensively their subordinates use the computer system.

- Strongly Agree _Mildly Agree _Neutral Disagree _Mildly Disagree _Strongly Disagree
37. I believe this organization must quickly learn to adapt to the new information processing system.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
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<th>Neutral</th>
<th>Disagree</th>
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<th>Strongly Disagree</th>
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</table>

38. I believe subordinates' access to information should be restricted.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Mildly Agree</th>
<th>Neutral</th>
<th>Disagree</th>
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<th>Strongly Disagree</th>
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</table>

39. I believe employees should have restricted contact with other employees.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
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<th>Neutral</th>
<th>Disagree</th>
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</table>

40. I believe supervisors may withhold information from their subordinates about the computer system's capabilities.

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<tr>
<th>Strongly Agree</th>
<th>Mildly Agree</th>
<th>Neutral</th>
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41. I believe supervisors feel a need to stay one step ahead of their subordinates in their computer skill.

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<thead>
<tr>
<th>Strongly Agree</th>
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<th>Neutral</th>
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42. I believe it is the subordinates' responsibility to learn to use the computer system.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
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</table>
43. I believe some supervisors may feel threatened if a subordinate is more knowledgeable about the computer system than they are.

<table>
<thead>
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<th>Strongly Agree</th>
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