DOT/FAA/AM-97/12

Office of Aviation Medicine
Washington, D.C. 20591

Baseline Assessment of the National Association of Air Traffic Specialists/Federal Aviation Administration Partnership

Richard C. Thompson
Thomas F. Hilton
Lydia D. Behn

Civil Aeromedical Institute
Federal Aviation Administration
Oklahoma City, Oklahoma 73125

May 1997

Final Report

DISTRIBUTION STATEMENT A
Approved for public release
Distribution Unlimited

This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161.

U.S. Department of Transportation
Federal Aviation Administration

DTIC QUALITY INSPECTED 2

19970701 090

NOTICE

This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for the contents or use thereof.

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
DOT/FAA/AM-97/12		

4. Title and Subtitle	5. Report Date
Baseline Assessment of the National Association of Air Traffic Specialists/Federal Aviation Administration Partnership	May 1997
	6. Performing Organization Code
7. Author(s)	8. Performing Organization Report No.
Thompson, R.C., Hilton, T.F., and Behn, L.D.	
9. Performing Organization Name and Address	10. Work Unit No. (TRAIS)
FAA Civil Aeromedical Institute P.O. Box 25082 Oklahoma City, OK 73125	11. Contract or Grant No.
12. Sponsoring Agency name and Address	13. Type of Report and Period Covered
Office of Aviation Medicine Federal Aviation Administration 800 Independence Avenue, S.W. *Washington, DC 20591*	14. Sponsoring Agency Code

15. Supplemental Notes

16. Abstract

The Federal Aviation Administration's (FAA's) Flight Service Station (FSS) management and the leadership of the National Association of Air Traffic Specialists (NAATS) requested a baseline assessment of organizational climate prior to full implementation of NAATS/FAA Partnership (NFP) teams. The stated purpose of the NFP teams is to increase employee empowerment and improve decision-making and coordination within the organization. Fifty-eight percent of FSS personnel returned surveys assessing eight dimensions of organizational climate. These dimensions include purpose, structure, leadership, helpful mechanisms, relationships, attitude toward change, partnership, and environment/quality. The results indicate that the respondents are satisfied with relationships in the workplace, understand the purpose of FSS, and report there are resources available to help them at work. In addition, NFP non-participants and lower tenure FSS employees indicate that the facility may be resistant to change; the same employees reflect less belief in adequate leadership to achieve the stated goals of NFP, rate as less adequate communication of organizational goals and priorities, and report less satisfaction with the organization's structure. Finally, most respondents "agree" that participation is an effective way to resolve problems.

17. Key Words	18. Distribution Statement
Organizational Climate, Partnership, Organizational Change	Document is available to the public through the National Technical Information Service, Springfield, VA 22161

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	34	

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

BASELINE ASSESSMENT OF THE NATIONAL ASSOCIATION OF AIR TRAFFIC SPECIALISTS/FEDERAL AVIATION ADMINISTRATION PARTNERSHIP

Federal agencies are tasked with reducing the size of the federal workforce while simultaneously improving efficiency, effectiveness, and customer satisfaction. To accomplish these divergent goals, agencies have been directed to cut red tape, put customers first, empower employees, and re-engineer programs and core business processes. The philosophy for these changes has been specified by the Clinton Administration in the *National Performance Review* (NPR; Gore, 1993). One step taken by Federal Aviation Administration (FAA) Flight Service Station (FSS) management and the leadership of the National Association of Air Traffic Specialists (NAATS) to attain the objective of employee empowerment is the establishment of NAATS and FAA Partnership (NFP) teams.

The NFP consists of regional and facility level teams made up of Air Traffic management and NAATS bargaining unit representatives. At the region level, the partnership consists of the Air Traffic division manager, or assistant manager, and the NAATS regional director. At the facility level, the partnership consists of at least the facility manager and the facility NAATS bargaining unit representative. The regional partnership oversees the facility partnerships within that region. Regional and facility level partnerships serve a coordinating and decision-making function for FSS facilities. The regional and facility level partnerships meet biweekly, make all decisions by consensus, and the minutes of all meetings, resolutions, and implementation plans are posted and communicated to facility employees.

The facility partners may establish ad hoc problem-solving groups and nonresolution authority groups. The problem-solving groups are tasked by the facility partnership to address specific problems identified for that facility. The nonresolution groups, which can include nonbargaining unit employees, are created to consider issues and disseminate information, but they may not generate binding resolutions.

Regional Air Traffic management and the NAATS regional directors coordinate all NFP activities. Issues for consideration by NFP may be generated by anyone in a facility; however, the facility partners determine whether the issue will be given further consideration. If an issue is rejected for consideration, the partnership is required to explain why the issue will not be addressed. Moreover, individual grievances, equal employment opportunity complaints, hiring, and promotion issues may not be considered by NFP.

In 1995, the NFP National Council requested that a survey be conducted to assess the progress in implementing NFP. A brief climate survey, previously used elsewhere in the agency, was used to benchmark the present perceptions of FSS employees. This survey would establish a baseline that could be used to assess future effects of the NFP program on employees.

Baseline surveys serve at least three important functions. First, they provide information about the organization's readiness for change. Second, they help to identify barriers to change. Third, they provide a benchmark against which future changes in the organization may be measured (Pasmore, 1988). This report describes the present state of the FSS organization and discusses issues related to NFP implementation.

HYPOTHESES

Because the NFP program was still in its infancy, several hypotheses were tested as a means to identify readiness to change and potential barriers to change. The third purpose of the baseline surveys, serving as a benchmark, depends on the future assessment of similar constructs so no hypotheses are possible at the present stage of NFP, however this report serves as the baseline. Identification of readiness to change and barriers to change depend on the size of average differences, and the degree of respondent agreement regarding ratings of climate dimensions. Specifically,

DTIC QUALITY INSPECTED 3

a group may be more likely to resist change (a barrier) if their average score on a dimension is very high, or there is a high degree of agreement (a smaller standard deviation). Readiness to change is likewise indicated by a low level of agreement (a larger standard deviation) and lower average scores. Such scores indicate the respondents are not strongly committed to the current state of the organization.

Comparisons were based on gender and ethnicity because the relevant workforce is primarily male and white. The gender and ethnic disparity could lead to differences in the perceptions of males and females, with males primarily rating the organization higher than females, and likewise for nonminority and minority ratings. This hypothesis is based on research that suggests people prefer groups and organizations that consist primarily of similar others (McGrath, 1984).

Union membership is another area where differences are likely to emerge (Brett, 1980). Research has shown that lower ratings of satisfaction are related to the propensity to vote for union representation (Schriesheim, 1978), and those who actively participate in union activities provide lower ratings of supervisors and managers (Hamner & Smith, 1978). These studies also show that active union members tend to have less favorable attitudes and perceptions of the organization compared to those who are not active in the union. Therefore, it was predicted that union members would generally report lower ratings than nonmembers of the organizational dimensions.

Supervisors and managers have been found to report higher ratings of organizational dimensions such as trust, willingness to change, and understanding need for change (Bliese, Macy, & Sander, 1992), and report higher levels of job satisfaction (Locke, 1976). In general, people with more influence or control report higher levels of satisfaction with procedures, compared to people with less control or influence (Thibaut & Walker, 1975). Because managers and supervisors typically have more influence over procedures and processes in an organization, it was expected they would report higher ratings of most organizational dimensions.

Another common organizational finding is for higher tenure respondents to report lower levels of satisfaction compared to lower tenure respondents. This relationship, however, is often confounded with age and cohort effects (Kacmar & Ferris, 1989). Other relationships (e.g., positive, U-shaped, and inverted U-shaped) have also been found (Rhodes, 1983). However, it is expected that high tenure respondents will generally rate organization dimensions less favorably than lower tenure respondents.

Additional differences were expected for NFP participants and nonparticipants. Research has shown that employees who are willing to participate in programs similar to NFP report higher ratings of organizational dimensions compared to those who do not participate (Leana, Ahlbrandt, & Murrell, 1992). Also, other research suggests that positive effects of such programs are limited to direct participants (Mohrman & Lawler, 1984). Therefore, it was expected that people who were participating, or preparing to participate in NFP would report higher ratings of most organizational dimensions.

METHOD

Respondents and Procedure

A survey was mailed to all (3,560) FSS personnel. A total of 2,069 people responded to the survey for an overall response rate of 58%. To determine how well the sample represented the FSS population, the sample demographics were compared to those of the FSS employee population. Of the respondents, 79.6% were male and 20.4% were female. The gender distribution of all FSS employees is 78% male and 22% female. Seventy-nine percent of the sample's respondents were white, compared to 83.9% of the FSS population. In the sample, 3% had worked for the FAA for less than 5 years, 19% for 6 to 10 years, 27% for 11 to 15 years, 21% for 16 to 20 years, and 30% for more than 20 years compared, to 7%, 24%, 28%, 20%, and 20%, respectively for all FSS employees. The distribution of survey respondents did not significantly differ ($p < .05$) from the FSS population and reasonably represents the FSS workforce.

Measures

Air Traffic management requested that the Organization Culture Diagnostic (OCD) survey (Bentson et al., 1995) be used to baseline the FSS climate. The OCD had been used in 1994 as a baseline survey elsewhere in the Air Traffic organization. Four items were added to the survey to assess additional aspects of the NFP program. Several items were reworded to use terminology common to FSS worksites. Responses to each item were made using a five-point, Likert-type scale (1 = strongly disagree to 5 = strongly agree). The more an individual agreed with an item, the more his or her organizational climate reflected the ideal for that dimension. OCD dimension scores were formed by averaging items within each dimension. The OCD measures FSS employee perceptions of eight organizational dimensions: purpose, structure, leadership, helpful mechanisms, relationship, attitude toward change, partnership, and environment/quality. These dimensions are described below, and the items that measured each dimension are presented in Appendix I.

Purpose. The purpose dimension assesses the level of employee commitment to the mission and goals of the organization. For an organization to succeed, individual goals and efforts must contribute to the attainment of the organization's objectives (Nadler & Tushman, 1992). To ensure that all employees know and understand the mission and goals of the organization, the organization's leaders must communicate and demonstrate commitment to the mission and goals (Schneider & Rentsch, 1988).

Structure. The structure dimension assesses how work is organized to align tasks with valued organizational outcomes. Both the structure of tasks and the roles of those who perform the tasks determine the processes and procedures in getting work completed and for decision-making (Hackman & Oldham, 1975). For an organization to be effective, its structure needs to be aligned with the espoused values and goals of that organization (Mohrman & Lawler, 1984). Organizational structures that are tall and narrow exhibit numerous management layers with narrow spans of control. Tall organizations result in centralized decision-making and strict reporting relationships. On the other hand, organizations that are relatively flat and wide exhibit few management layers with wide spans of control. Flat organizations often foster empowerment and formation of work teams whose members are given decision-making accountability and responsibility formerly held by supervisors and middle managers (Goodman, Devadas, & Griffith-Hughson, 1988).

Leadership. The leadership dimension assesses perceptions of how well management (immediate supervisors, facility management, Air Traffic management) and labor (NAATS representatives) promote the successful accomplishment of valued FAA goals. This dimension is intended to assess whether these groups provide leadership, as well as the degree to which they: (1) understand the work environment; (2) are supportive of employees; and (3) help employees complete assigned tasks. Leadership is important in the day-to-day functioning of an organization, but leadership is critically important during organizational change. The leadership of the organization must demonstrate that the changes are for the benefit of both the employees and the organization (Carr & Littman, 1990). Many change efforts fail because they lack either the support of top management or senior management at individual facilities. Indeed, Covin and Kilmann (1990) found that top management's support of a change program was perceived to be the most important positive influence on that program's success.

Helpful Mechanisms. This dimension assesses how well procedures, policies, and other resources assist an organization's members in the attainment of its stated goals (Weisbord, 1976). According to Weisbord, these mechanisms include such things as budgeting, planning, control, and measurement systems. Weisbord further suggests that helpful mechanisms need to be continually assessed and revised to ensure that they are truly helping, and not hindering, the attainment of the organization's vision. Weisbord's helpful mechanisms are similar to Schneider's conception of logistical resources (Schneider, Gunnarson, & Niles-Jolly, 1994). Logistical resources include staff members whose work supports the change, and needed technology and training to use the technology required by the change. The support provided for the change, in terms of logistical resources, provides employees with a gauge of the extent to which management's actions match their words.

Relationships. This dimension assesses the quality of interpersonal interactions within and between teams, and between teams and supervisors. The way employees are treated can affect the quality of service that internal and external customers receive (Schneider & Rentsch, 1988). Specifically, the way that upper and middle management interacts with supervisors is likely to affect how supervisors treat employees. Such treatment, in turn, can influence how employees treat other employees and customers (Schneider, Gunnarson, & Niles-Jolly, 1994).

Attitude Toward Change. This dimension assesses the degree to which employees desire change and believe that changes are needed. Because people generally dislike change and uncertainty, it is often necessary prior to the implementation of change to convince those who will be affected that the changes are needed (Carr & Littman, 1990). Understanding how people feel about a proposed change can help the sponsors of that change determine the degree of encouragement and communication required to overcome resistance and to help employees commit to the change. If people are satisfied with the current state of affairs, they are less likely to want changes (Nadler, 1981).

Partnership The partnership dimension assesses the level to which the NFP is perceived to increase employee empowerment. Empowerment results from participation in decision-making. The partnership plan for NFP includes bargaining unit members and managers in the decision-making process for FSS facilities. As such, the NFP teams allow for representative participation in decision making by bargaining unit members. For the NFP teams to be effective, it is necessary to determine how both bargaining unit and nonbargaining unit employees perceive the plan and its intended benefits (Nadler, 1981). Thus, the partnership dimension examines perceptions of present bargaining unit and management cooperation. In addition, the partnership dimension focuses on the benefits respondents expect from NFP.

Environment/Quality. This dimension assesses to what extent the FSS organizational environment promotes a customer service orientation. An organization's environment often provides an impetus for change. In the FAA, the need for change has come from the Clinton Administration's NPR (Gore, 1993). One of the necessary changes cited includes increasing internal and external customer satisfaction. Other research suggests the quality of products and services, and the resulting customer satisfaction, should be the defining criterion of an organization's success (Carr & Littman, 1990). As such, the environment/quality dimension focuses on customers and the quality of service that customers receive from the FSS organization.

RESULTS

Initial Analyses

Internal consistency reliability estimates were calculated for the set of questions intended to measure each organizational dimension. Internal consistency reliability estimates how well items intended to measure a particular dimension interrelate. Evidence that items reliably assess their targeted dimension would consist of coefficients ranging between 0.65 and 0.85. Scores above 0.85 indicate that more items may have been used than were necessary to reliably measure that dimension. Scores below 0.65 indicate that too few items were used or that items were ambiguous (Ghiselli, Campbell, & Zedeck, 1981). The reliability estimates presented in Table 1 indicate all OCD dimension scores are internally consistent. To aid interpretation of the reliability estimates, the number of items that composed each dimension is reported in Table 1.

In addition to examining the reliability of the measures, an exploratory principal components factor analysis with varimax rotation was also conducted. This analysis provides an indication of whether the questions used on the survey are measuring the dimension they are intended to measure. This analysis yielded six factors, rather than the eight specified a priori. In this analysis, 23 of the 46 items loaded on a single factor. Because these items were intended to assess different organizational dimensions, a second factor analysis was conducted to determine if sub-factors emerged when the items making up the first factor were analyzed separately. This analysis failed to yield any sub-factors, suggesting all 23 items are measuring a similar construct or cannot distinguish among the dimensions.

Six of the seven items that made up the second factor were partnership items. This indicates the measures for partnership, the focus of the present study, formed an interpretable factor. The third factor consisted of six items from five a priori dimensions. The next factor consisted of four items, two of which were relationships items. Factor five was made up of 3 items. Two of these items were measures of the environment/quality dimension. Finally, factor six was also made up of three items, with two of these assessing the purpose dimension. Overall, these results indicate that partnership, relationships, environment/quality and purpose are the most interpretable dimensions.

There are several reasons why the items may not have loaded on unique a priori factors. First, the constructs may be conceptually distinct, but statistically correlated. This occurs when responses to the items are correlated because the perceived level of each dimension is similar. Such correlation can occur when respondents do not understand the questions, or utilize a limited portion of the response anchors. Another possibility is that the measures were poor, and did not differentiate among dimensions. One generally cannot determine the cause of less than desirable factor structures. Based on the factor analysis, however, additional analyses and interpretations based on the eight a priori dimensions must be made with caution.

OVERALL SUMMARY

Table 1 presents average OCD dimension scores and their standard deviations. These data can provide an agency-wide benchmark for the FSS community against which future survey scores might be compared. Figure 1 provides a line graph representing the average scores in Table 1. Scores are monotonically ordered from highest to lowest. The shaded area behind the line graph in Figure 1 plots the distribution of scores falling fi 1 standard deviation from the average score (approximately 67% of respondents). As can be seen in Table 1 and Figure 1, all of the organizational dimensions fall in the moderate range. Appendix I presents the distribution of item-by-item responses to aid in interpreting the scores in Table 1. For each item, the appendix shows the item average and standard deviation, as well as the response frequency. As such, the appendix demonstrates how responses differed from item to item.

The dimension rated highest was relationships ($\underline{M}$ = 3.35, $\underline{SD}$ = .78), suggesting that employees were most satisfied with their interpersonal work relationships. These relationships included other workgroup members, other workgroups, and supervisors. The relatively high rating of interpersonal relationships indicates the level of open communication and coordination.

The dimension with the second highest score was purpose ($\underline{M}$ = 3.20, $\underline{SD}$ = .77). This score suggests that efforts to increase goal awareness and commitment have been reasonably successful. Interestingly, the score for understanding the facilities goals is low, while the expressed degree of understanding how one's job contributes to facility goals is quite high. However, because all organization members should know and understand the goals and priorities of the organization, facility, and workgroup, this organizational dimension can be improved.

The helpful mechanism dimension ($\underline{M}$ = 3.03, $\underline{SD}$ = .80) score indicates that FSS employees have adequate information and can rely on their supervisors for help. Also, other workgroups are generally believed to be a useful resource. The overall average was reduced by items addressing perceptions of morale (see Appendix I) that were rated relatively lower by many of the respondents, and the facility's ability to plan is generally perceived to be low.

The environment/quality score suggests FSS employees focus on customers and their needs ($\underline{M}$ = 2.92, $\underline{SD}$ = .70). Inspections of the item means in Appendix I indicates that the overall score was lowered due to moderately lower ratings of the adequacy of planning for technological change, the adequacy of planning for other changes created by the external environment, and the adequacy of methods for obtaining information from external customers.

Scores for the attitude toward change dimension suggest respondents are only moderately willing to accept changes in their work ($\underline{M}$ = 2.91, $\underline{SD}$ = .89). Inspection of item means shows the facilities are perceived to have the ability to change; however, employees generally do not report a high degree of alignment between the goals of change and incentives

Figure 1. Distribution of Responses to the Eight Organizational Dimensions.

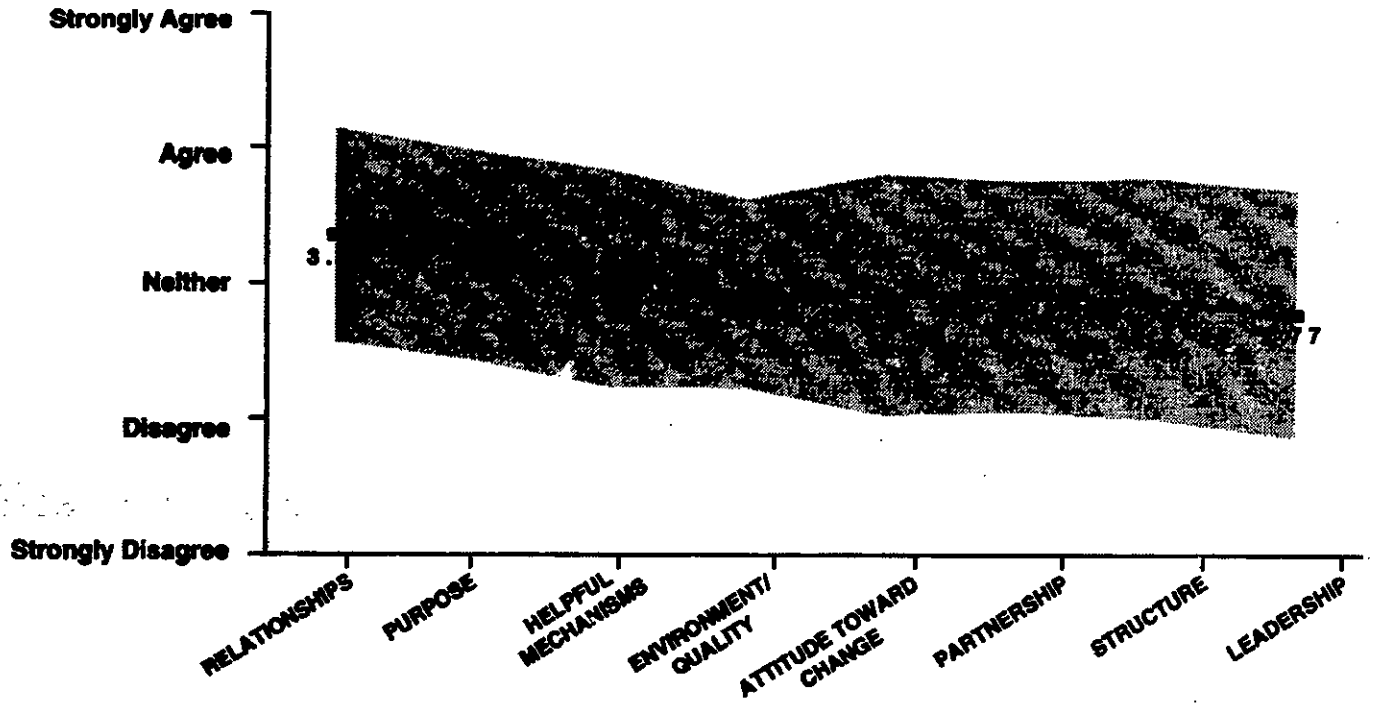


Table 1. Number of Survey Items, Reliability Estimates, and Sample Descriptive Statistics

Culture Dimension	Number of Items	Reliability Estimate	Mean	Standard Deviation
Relationships	5	.79	3.35	0.78
Purpose	6	.78	3.20	0.77
Helpful Mechanisms	5	.78	3.03	0.80
Environment/Quality	5	.70	2.92	0.70
Attitude Toward Change	6	.90	2.91	0.89
Partnership	9	.90	2.90	0.85
Structure	5	.87	2.88	0.89
Leadership	5	.79	2.77	0.91

to change, such as the encouragement of creativity or rewarding extra effort. Employees also report that changes are generally in policies or procedures. The relatively high standard deviation for this dimension indicates disagreement among respondents regarding their attitudes toward change.

The partnership dimension score indicates most respondents perceived only a moderate degree of bargaining unit/management cooperation and trust (M = 2.90, SD = .85). The score for this dimension was decreased by items that examined cooperation. There was one item, however, that addressed the effectiveness of participative decision-making for solving problems: more than 75% of the respondents indicated that participation was an effective means of making decisions.

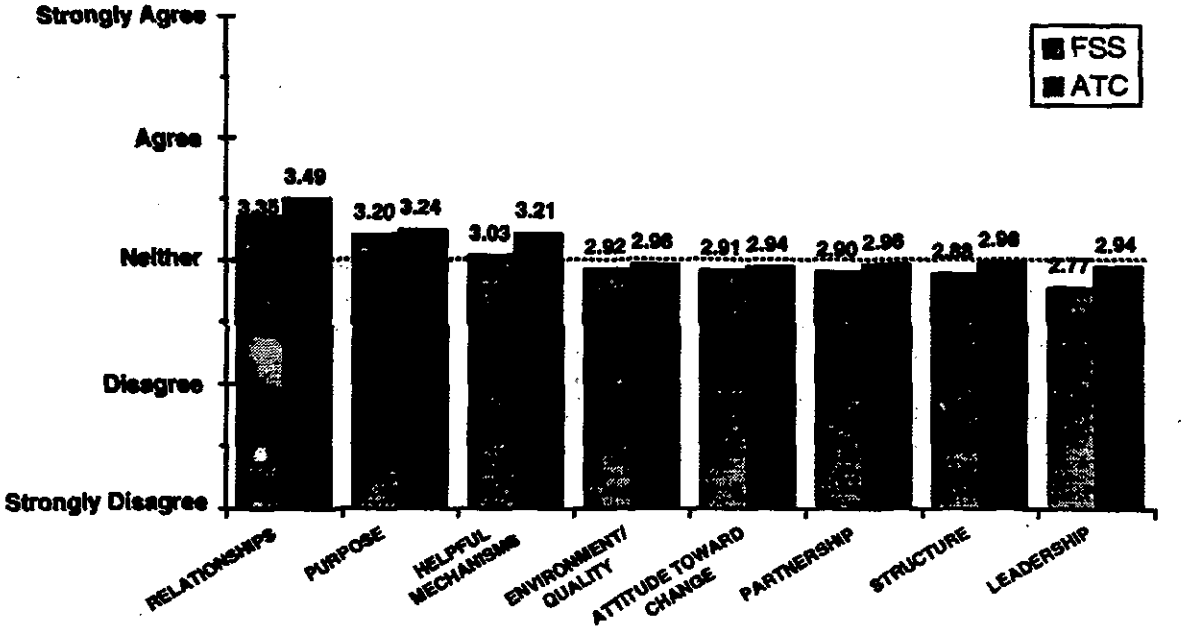
Scores for the structure dimension suggests that many employees are generally dissatisfied with the way work is organized (M = 2.88, SD = .88). The score for this dimension is decreased by a lack of agreement regarding decisions being made at the most appropriate organizational level. The low level of satisfaction suggests employees may be willing to support changes in structure. This dimension also had a relatively high standard deviation (0.89), indicating disagreement among respondents.

The organizational dimension rated lowest was leadership (M = 2.77, SD = .91). Employees believe supervisors are supportive but generally do not believe facility management is helpful, or understands how work is done. Also, it is widely believed that Air Traffic management is not interested in employees. The more positive perceptions of supervisors and less positive perceptions of upper management probably contributed to the large standard deviation for the leadership dimension.

Work Environment Context

The analyses of the overall sample provide an indication of the current organizational climate. The overall climate, however, does not indicate how the organization compares to other similar organizations. To this end, the results from the present survey are compared to the results of the Organization Culture Diagnostic survey that was previously administered to Air Traffic Control (ATC) personnel in 1994. The average responses for the ATC data were obtained from an unpublished report (International Computers and Telecommunications, 1994). The data for both samples are summarized in Figure 2. While it appears that the ATC sample scores slightly higher for each dimension, the overall climate for the FSS and

Figure 2. Comparison of Flight Service Station (FSS) and Air Traffic Control (ATC) Average Responses for the Eight Organizational Dimensions.



ATC sample does not differ significantly (Mann-Whitney $U = -1.63, p > .05$). The similarities between the two samples suggest that both organizations have very comparable climates. Indeed, the pattern for both organizations shows that relationships were a strong component of both climates, and that both organizations rated leadership as the weakest dimension. The authors are aware of no other organizations that have used the OCD.

OCD Implications for Culture Change

In addition to overall climate and comparison with a similar organization, it is often useful to compare the climate perceptions of identifiable subgroups. Such comparisons show whether there are differences in the average ratings for organizational dimensions and differences in degree of agreement, as reflected by standard deviations. While the subgroup perceptions of some organizational dimensions may differ in terms of the average rating, there may be no difference in the degree of agreement among the subgroups. On the other hand, there may be no difference in the average rating, while there are differences in the degree of agreement. Finally, both the average ratings and degree of agreement may differ. Each of these patterns of the perceptions of the organizational dimensions have different implications for interpreting the overall climate of the organization.

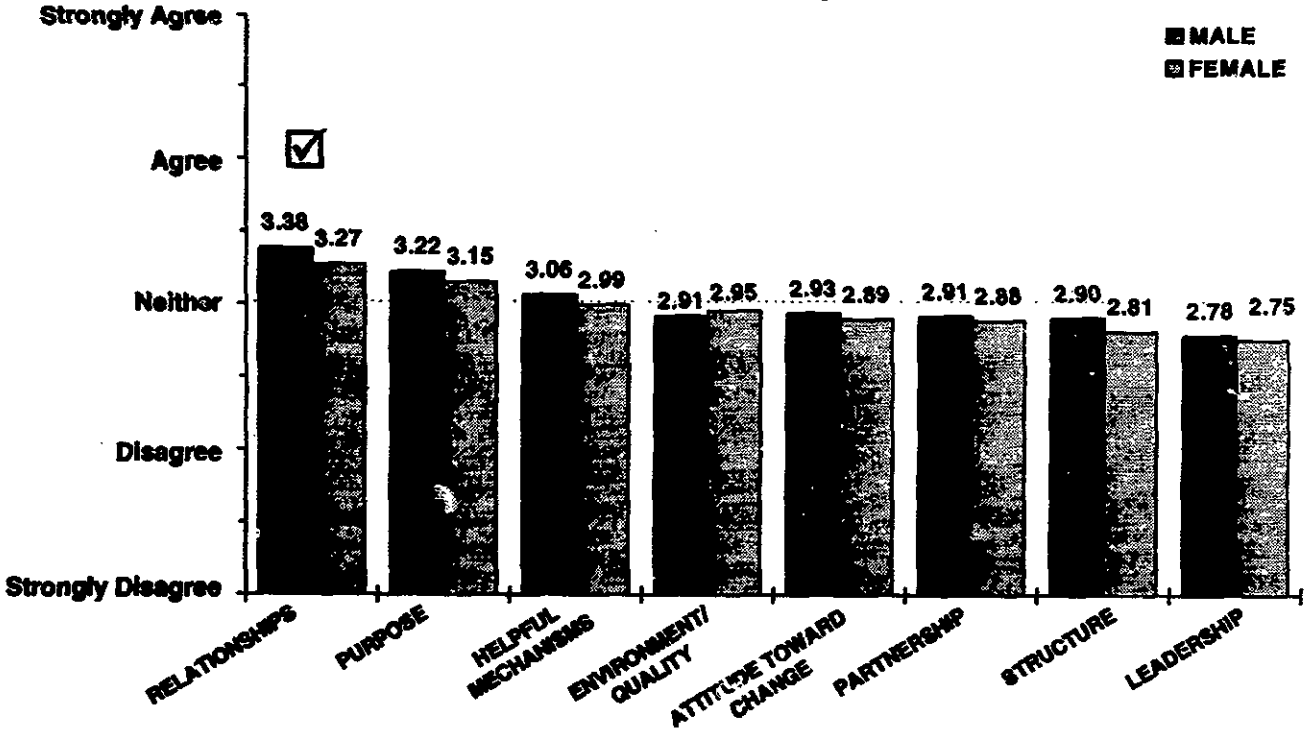
Analyses were conducted to determine if differences existed in the perceptions of respondents based on gender, ethnicity, membership in NAATS, supervisory status, tenure in the FAA, and NFP participation. Several of these categories were recoded from multiple response categories into dichotomous categories. Ethnicity was categorized into minority and nonminority due to the small number of respondents in each of the minority categories. Managers and first line supervisors were categorized as supervisors. FAA tenure was categorized as either low or high (i.e., 5 years or less versus 6 or more years). Supervisors were excluded from analyses of the bargaining unit, which contrasted members and nonmembers of the union. People who were previous and current members of NFP teams were compared to those who were never members. The number of respondents who reported being previous members was small ($n = 65$); and preliminary analyses indicated that previous members did not significantly differ from current members on any of the eight organizational dimensions.

Analyses of the categorical respondent groups were conducted in two steps. The ability of the eight organizational dimensions to distinguish between dichotomous groups was first tested using multiple discriminate analysis (MDA) to control for Type I error. The MDA item loadings were then interpreted on the basis of univariate analysis of variance (ANOVA). In addition to assessing group differences, the discriminate function analyses provided tests of homogeneity of variance for the organizational dimensions and an indication of the effect of the set of organizational dimensions on group membership. The size of this effect for the eight dimensions as a whole is indicated by the canonical correlation (R_c), and the effect size of an individual dimension is indicated by the discriminate function loading for that dimension.

Gender. Figure 3 presents the average scores for the eight OCD dimensions broken down by gender. Females scores were slightly lower than those of males on every dimension except the environment/quality dimension. Results of the MDA summarized on Table 2 indicate that males and females differed significantly ($Rc = .10, \chi^2(8) = 20.49, p < .009$). Discriminant function loadings show that the relationships dimension most accounted for between-groups differences. Univariate F-tests indicate that no other dimension distinguished between males and females to a significant extent. Table 2 also provides the standard deviations for the organizational dimensions for both males and females. There are no statistically significant differences between the standard deviations for male and female responses.

Ethnicity. Figure 4 presents the average scores for the eight OCD dimensions broken down by ethnicity. Nonminority scores were slightly lower than or equal to minority scores on all dimensions except the relationships dimension. Results of the MDA summarized in Table 3 indicate that minorities and nonminorities differed significantly ($R_c = .12, \chi^2(8) = 24.64, p < .002$). Discriminant function loadings show that the environment/quality dimension most accounted for between-groups differences, with minorities rating this dimension higher than nonminorities.

Figure 3. Gender Differences for the Eight Organizational Dimensions



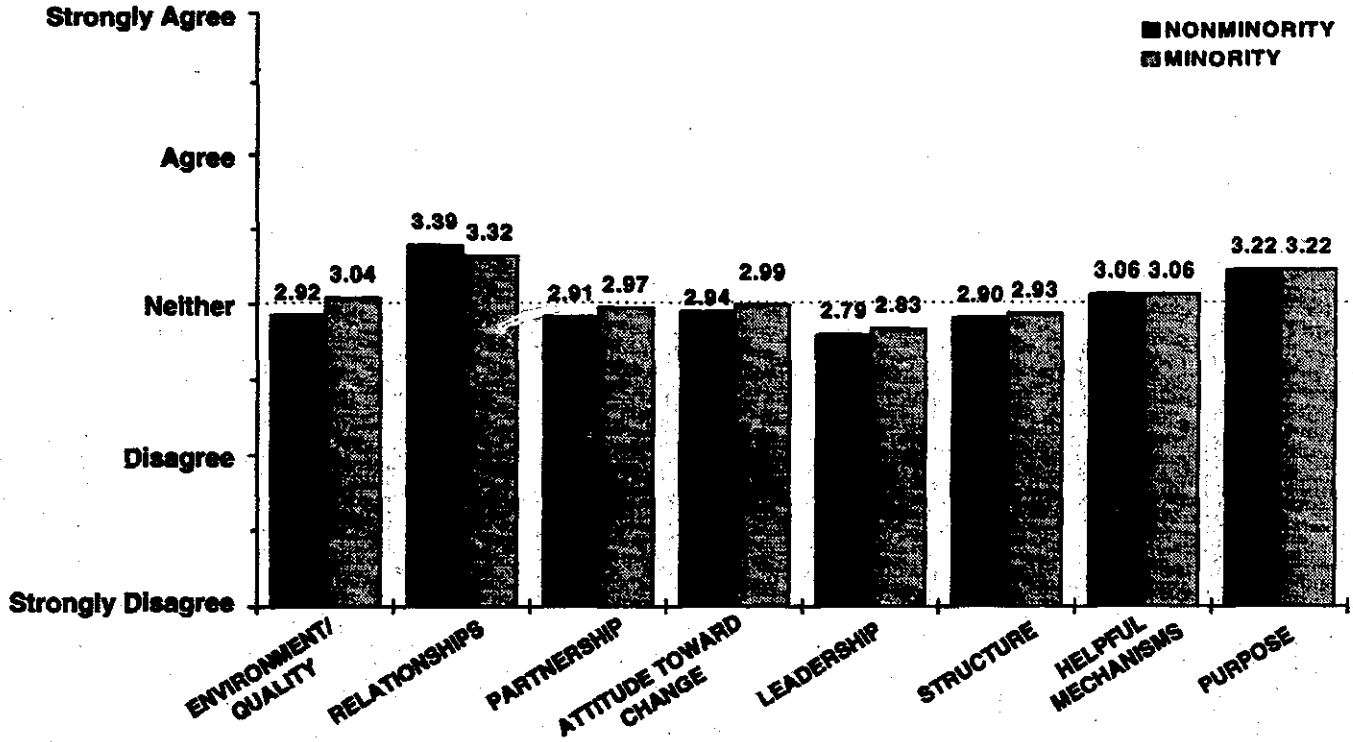
☑ Indicates a statistically significant difference between groups.

Table 2. Descriptive Statistics and ANOVA Summary of Gender Differences

	Females (n = 399)		Males (n = 1588)		Assessment of Differences	
Culture Dimension	Mean	Standard Deviation	Mean	Standard Deviation	Univariate F-Value	Discriminate Function Loadings
Relationships	3.27	.78	3.38	.77	6.56*	0.56
Structure	2.81	.88	2.90	.89	3.20	0.39
Purpose	3.15	.76	3.22	.77	2.74	0.36
Helpful Mechanisms	2.99	.77	3.06	.81	2.24	0.33
Environment/Quality	2.95	.67	2.91	.70	0.76	-0.19
Attitude Toward Change	2.89	.86	2.93	.90	0.65	0.18
Partnership	2.88	.83	2.91	.86	0.51	0.16
Leadership	2.75	.90	2.78	.92	0.37	0.13

* $p < .05$

Figure 4. Minority Status Differences for the Eight Organizational Dimensions



☑ Indicates a statistically significant difference between groups.

Table 3. Descriptive Statistics and ANOVA Summary of Ethnic Differences

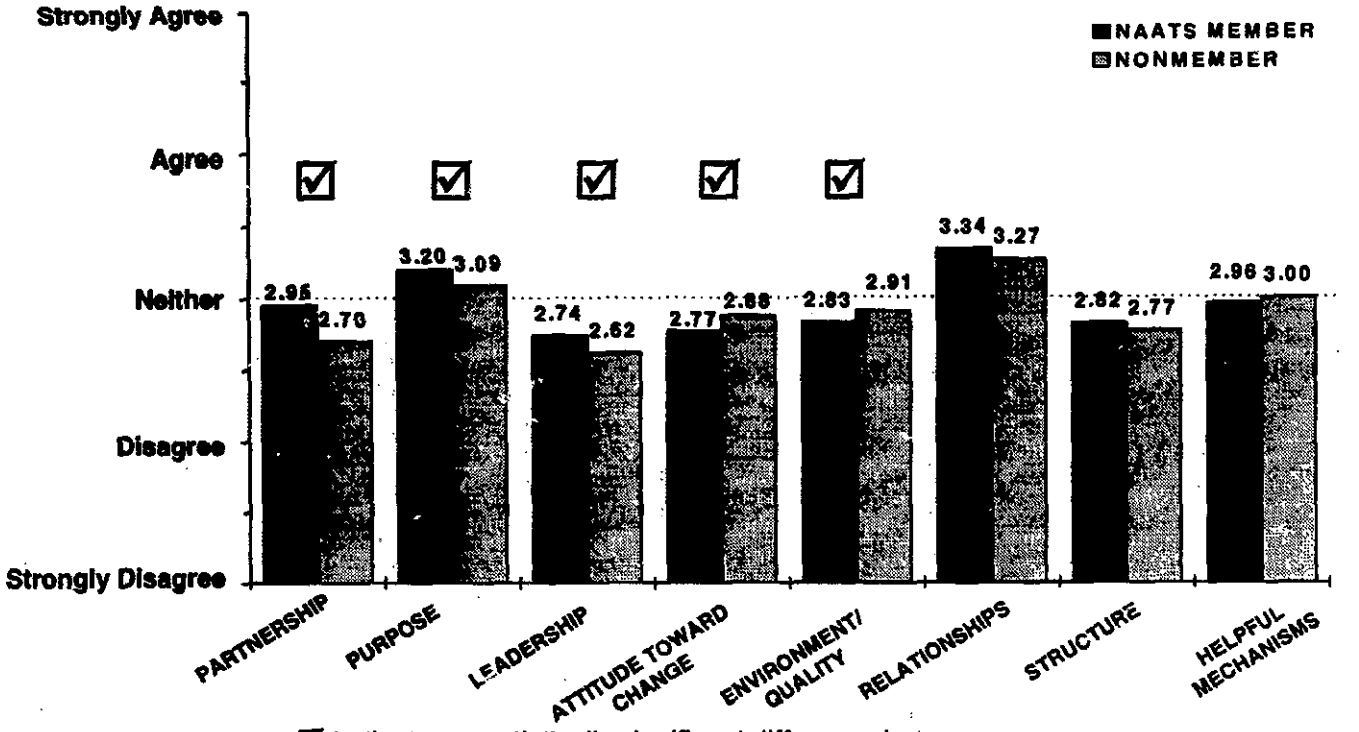
	Nonminority (n = 1489)		Minority (n = 287)		Assessment of Differences	
Culture Dimension	Mean	Standard Deviation	Mean	Standard Deviation	Univariate F-Value	Discriminate Function Loadings
Environment/Quality	2.92	.69	3.04	.73	7.26*	.54
Relationships	3.39	.77	3.32	.81	1.87	-.27
Partnership	2.91	.85	2.97	.88	0.97	.20
Attitude Toward Change	2.94	.89	2.99	.92	0.86	.19
Leadership	2.79	.91	2.83	.97	0.56	.15
Structure	2.90	.89	2.93	.92	0.27	.10
Helpful Mechanisms	3.06	.79	3.06	.85	0.02	-.03
Purpose	3.22	.76	3.22	.81	0.00	-.00

* $p < .01$

Univariate F-tests indicate that no other dimension significantly distinguished between minority and nonminority respondents. Table 3 also provides the standard deviations for the organizational dimensions for nonminority and minority respondents. There are no statistically significant differences between the standard deviations for ethnicity.

Union Membership. Figure 5 presents the average scores for the eight OCD dimensions, broken down by union membership. Scores of NAATS members were slightly higher than those of nonmembers on five dimensions. Results of the MDA summarized on Table 4 indicate that union members and nonmembers differed significantly (Rc=.37, $\chi^2(8) = 247.57$,

Figure 5. Bargaining Unit Member Differences for the Eight Organizational Dimensions



☑ Indicates a statistically significant difference between groups.

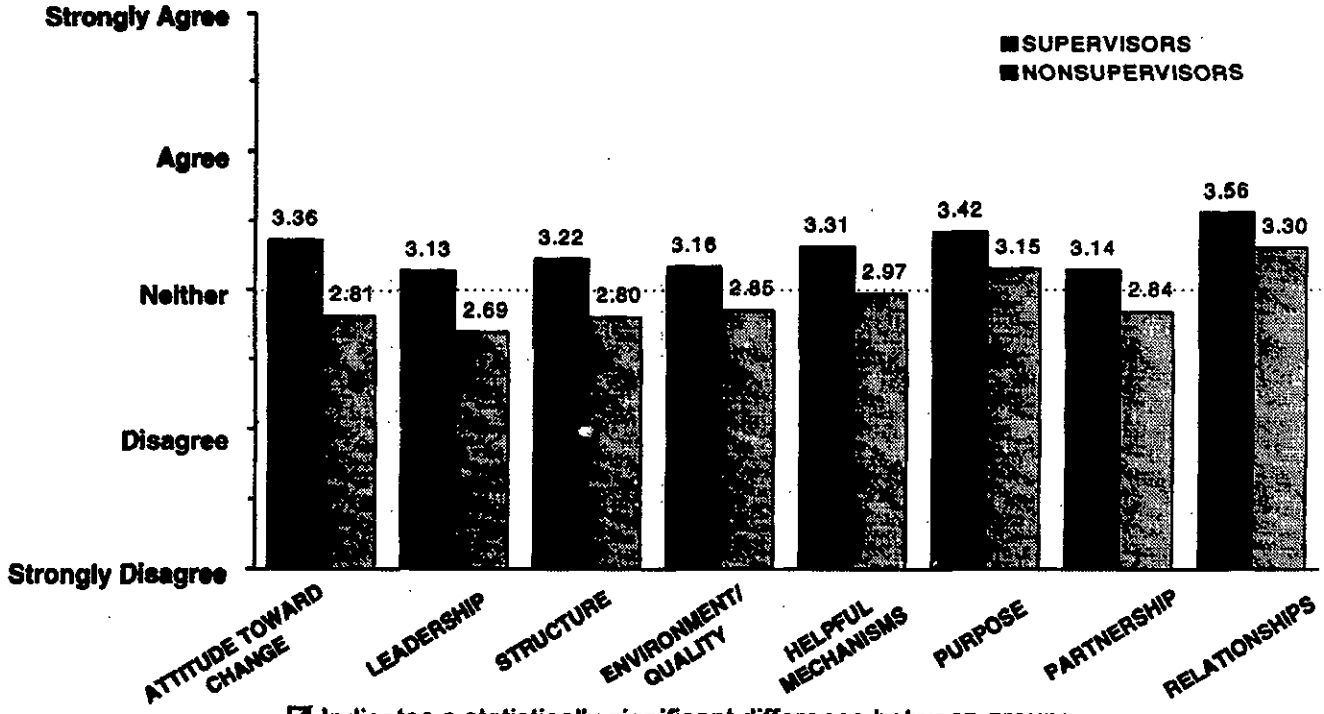
Table 4. Descriptive Statistics and ANOVA Summary of Bargaining Unit Member Differences

	Member (n = 965)		Nonmember (n = 699)		Assessment of Differences	
Culture Dimension	Mean	Standard Deviation	Mean	Standard Deviation	Univariate F-Value	Discriminate Function Loadings
Partnership	2.95	.82	2.70	.83	38.67**	.38
Purpose	3.20	.73	3.09	.80	7.93**	.17
Leadership	2.74	.86	2.62	.93	7.42**	.17
Attitude Toward Change	2.77	.86	2.88	.88	5.43*	-.14
Environment/Quality	2.83	.65	2.91	.73	5.39*	-.14
Relationships	3.34	.75	3.27	.80	3.51	.11
Structure	2.82	.84	2.77	.92	1.36	.07
Helpful Mechanisms	2.96	.77	3.00	.84	1.09	-.06

* $p < .05$
** $p < .01$

$p<.0001$). Discriminant function loadings show that the partnership dimension most accounted for between-groups differences. As shown in Table 4, univariate F-tests indicate that, in addition to partnership, several other dimensions significantly distinguished between union members and nonmembers. Table 4 also provides the standard deviations for the organizational dimensions for both union members and nonmembers. Multivariate heterogeneity of variance was found, with differences in variance occurring for purpose, leadership, environment/quality, structure, and helpful mechanisms. Table 4 shows union members standard deviations were smaller than nonmembers for all five of these dimensions.

Figure 6. Supervisory Status Differences for the Eight Organizational Dimensions



☑ Indicates a statistically significant difference between groups.

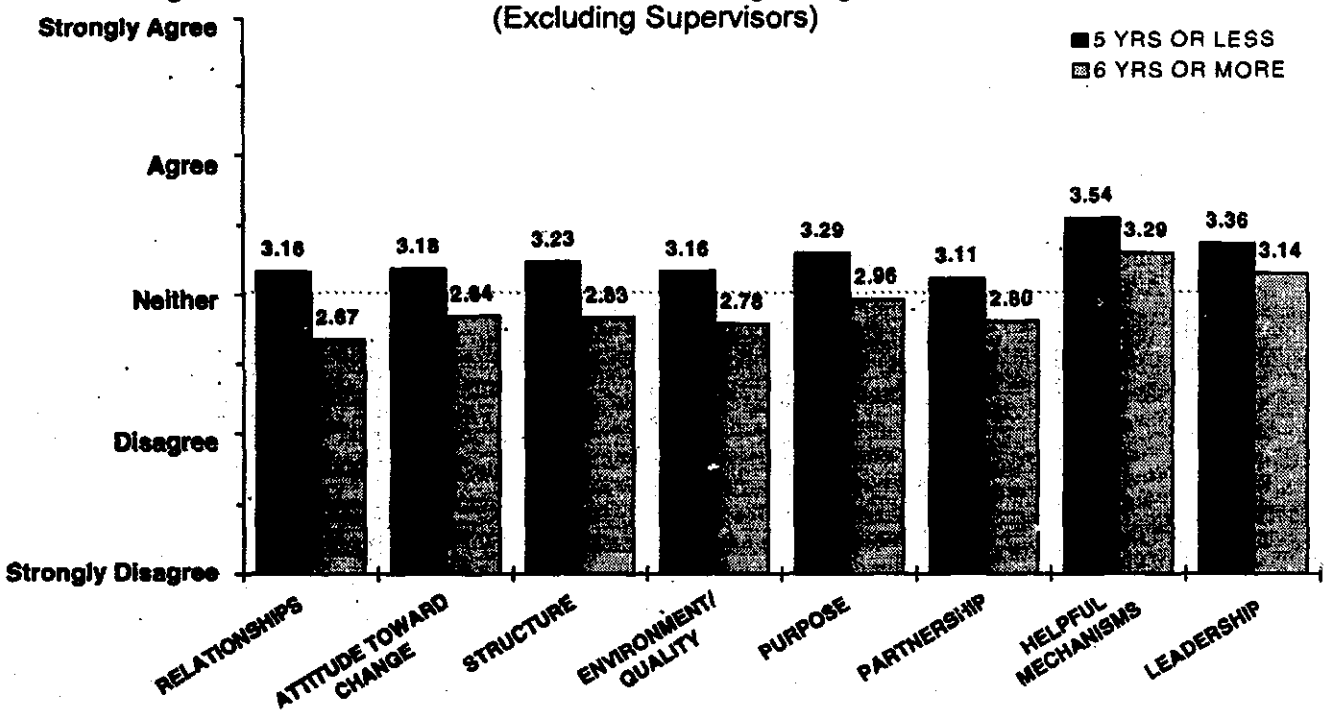
Table 5. Descriptive Statistics and ANOVA Summary of Supervisory Differences

	Supervisor (n = 359)		Nonsupervisor (n = 1653)		Assessment of Differences	
Culture Dimension	Mean	Standard Deviation	Mean	Standard Deviation	Univariate F-Value	Discriminate Function Loadings
Attitude Toward Change	3.36	.85	2.81	.87	119.92*	.87
Leadership	3.13	.91	2.69	.90	71.16*	.67
Structure	3.22	.87	2.80	.87	68.17*	.65
Environment/Quality	3.16	.68	2.85	.68	59.92*	.61
Helpful Mechanisms	3.31	.75	2.97	.80	53.03*	.58
Purpose	3.42	.75	3.15	.77	38.02*	.49
Partnership	3.14	.88	2.84	.83	36.44*	.48
Relationships	3.56	.75	3.30	.77	32.35*	.45

* $p < .01$

Supervisory Status. Figure 6 presents the average scores for the eight OCD dimensions broken down by supervisory status. Supervisors expressed more positive views than nonsupervisors on every organizational dimension. Results of the MDA summarized in Table 5 indicate that supervisors and nonsupervisors differed significantly ($R_c = .27$, $\chi^2(8) = 152.72$, $p < .001$). Discriminate function loadings show that the main differences were in the attitude toward change and leadership dimensions. Univariate F-tests indicate that, in addition to attitude toward change and leadership, all other dimensions significantly distinguished between supervisors and nonsupervisors. The consistent direction and size of the differences suggests that the perceptions of supervisors and nonsupervisors are very divergent. Table 5 also provides supervisor and nonsupervisor standard deviations for the organizational dimensions. There were no significant differences in the size of the standard deviations.

Figure 7. FAA Tenure Differences for the Eight Organizational Dimensions (Excluding Supervisors)



☑ Indicates a statistically significant difference between groups.

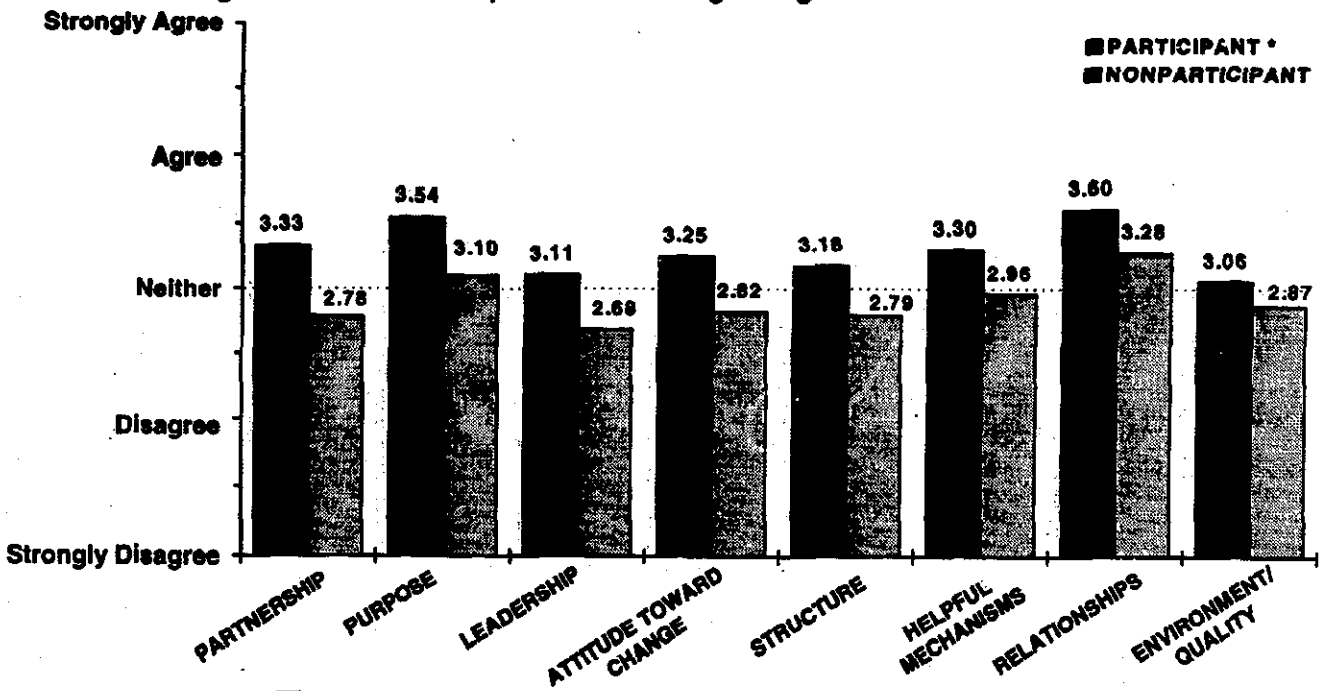
Table 6. Descriptive Statistics and ANOVA Summary of FAA Tenure Differences (Excluding Supervisors)

	Low Tenure (n = 57)		High Tenure (n = 1588)		Assessment of Differences	
Culture Dimension	Mean	Standard Deviation	Mean	Standard Deviation	Univariate F-Value	Discriminate Function Loadings
Leadership	3.16	.85	2.67	.89	16.77**	.82
Environment/Quality	3.18	.58	2.84	.68	13.68**	.74
Partnership	3.23	.78	2.83	.83	12.59**	.71
Structure	3.16	.77	2.78	.88	10.45**	.65
Helpful Mechanisms	3.29	.66	2.96	.80	9.42**	.62
Attitude Toward Change	3.11	.73	2.80	.87	7.02**	.53
Relationships	3.54	.60	3.29	.78	5.78**	.48
Purpose	3.36	.55	3.14	.77	4.66*	.43

* $p < .05$
** $p < .01$

FAA Tenure. Figure 7 presents the average scores for the eight OCD dimensions, broken down by tenure in the FAA, with supervisors excluded from the analysis. An initial tenure analysis which included supervisors, found low tenure respondents provided lower ratings of every dimension than high tenure respondents, except for the relationships dimension, where there was no difference ($R_c = .10$, $\chi^2(8) = 21.38$, $p < .007$). However, because of the supervisor/nonsupervisor differences noted above, the analyses were conducted again, this time excluding supervisors. Results of the MDA, summarized on Table 6, indicate that low and high tenure respondents differed significantly ($R_c = .12$, $\chi^2(8) = 24.68$, $p < .002$). The discriminant function loadings and univariate F-tests show that all of the dimensions significantly differed for high and low tenure respondents. Table 6 also provides the standard deviations for the organizational dimensions for low

Figure 8. NFP Participation for the Eight Organizational Dimensions



☑ Indicates a statistically significant difference between groups.

Table 7. Descriptive Statistics and ANOVA Summary of NFP Participation Differences

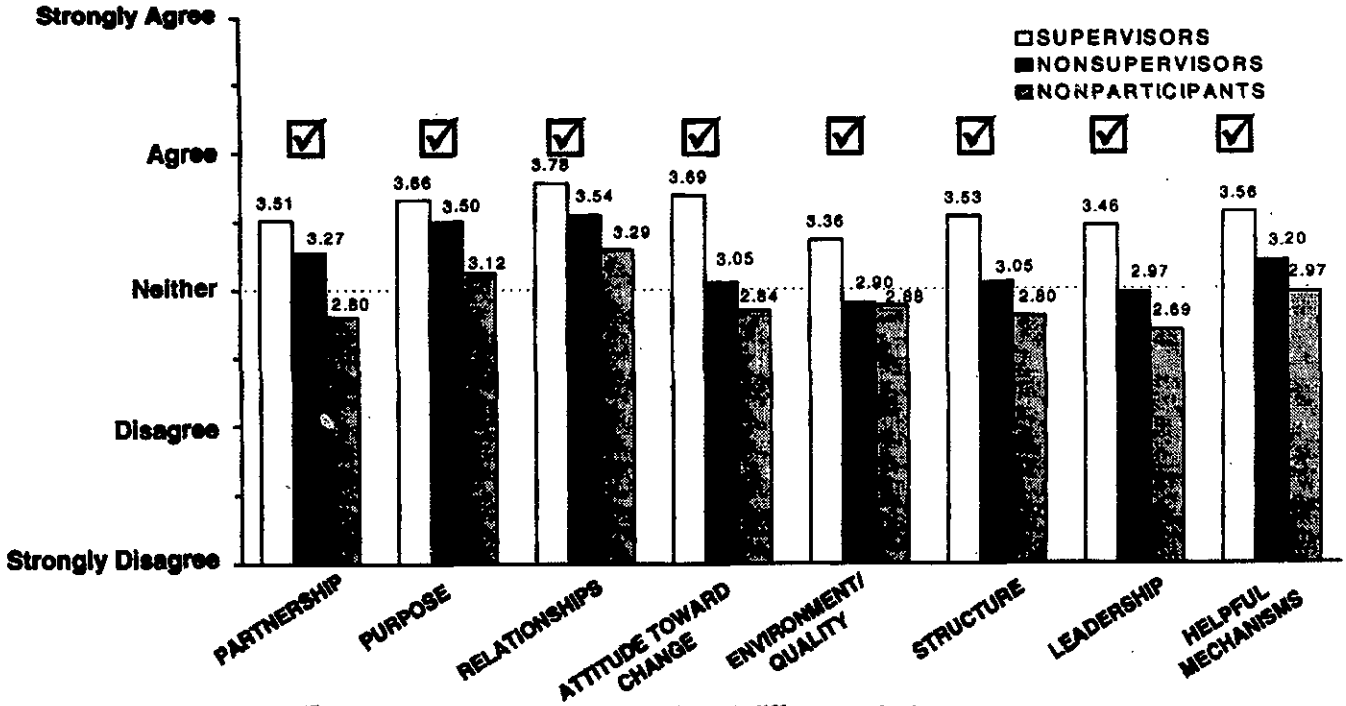
	Participant (n = 371)		Nonparticipant (n = 1632)		Assessment of Differences	
Culture Dimension	Mean	Standard Deviation	Mean	Standard Deviation	Univariate F-Value	Discriminate Function Loadings
Partnership	3.33	.83	2.78	.82	151.27*	.88
Purpose	3.54	.71	3.10	.76	113.63*	.77
Leadership	3.11	.88	2.68	.91	77.39*	.66
Attitude Toward Change	3.25	.88	2.82	.88	82.89*	.65
Structure	3.18	.84	2.79	.89	66.06*	.62
Helpful Mechanisms	3.30	.76	2.96	.80	64.21*	.58
Relationships	3.60	.73	3.28	.78	60.10*	.58
Environment/Quality	3.06	.70	2.87	.69	23.87*	.34

*$p < .001$

and high tenure respondents. Multivariate heterogeneity of variance was found, with differences in variance occurring for purpose and relationships. Table 6 shows that the standard deviations were smaller for the low tenure respondents on both dimensions. This result could be due, in part, to the greater diversity of tenure in the high tenure group, and due to the very discrepant sample sizes of the two groups.

NFP Team Participation. Figure 8 presents the average scores for the eight OCD dimensions, broken down by participation in NFP. NFP participants provided higher ratings than nonparticipants on every organizational dimension. Results of the MDA, summarized on Table 7, indicate that NFP participants and nonparticipants differed significantly ($R_c = .29$, $\chi^2(8) = 170.02$, $p < .001$). Discriminant function loadings show that the partnership and purpose dimensions most accounted for between-groups differences. Univariate F-tests, reported in Table 7, show that all of the remaining dimensions also significantly distinguished

Figure 9. Supervisor NFP Participant, Nonsupervisor NFP Participant, and Nonparticipant Differences for the Eight Organizational Dimensions.



☑ Indicates a statistically significant difference between groups.

NFP participants and nonparticipants, but to a lesser extent. Table 7 also provides the standard deviations for the organizational dimensions for both NFP participants and nonparticipants. NFP participants and nonparticipants were found to have multivariate heterogeneity of variance; however, when the groups were examined using separate variance-covariance matrices, the results of the MDA were identical. In addition, the univariate assessments of heterogeneity of variance did not yield any significant differences. Therefore, such heterogeneity of variance is not a concern.

Because the partnership relies on management and labor pairs, it was possible that the differences found for NFP were due to the presence of supervisors and managers in the NFP participant category. Therefore, NFP participants were divided into supervisor and nonsupervisor participants, and further analyzed to determine if the supervisors were primarily responsible for the higher ratings of the eight dimensions that emerged for NFP participants. Figure 9 presents the average scores for supervisor participants, nonsupervisor participants and nonparticipants. Table 8 provides the means and standard deviations for each of these three groups. Figure 9 shows that supervisor participant scores are consistently higher than nonsupervisor participant scores, which in turn are higher than nonparticpant scores. Table 9 provides a summary of the discriminate function analysis and follow-up post hoc comparisons. Two significant discriminate functions were found: The first function (R_c = .28, $\chi^2(16)$ = 260.87, $p < .001$) appears to distinguish supervisor and nonsupervisor participants from the nonparticipants. Within the first function, the partnership dimension most distinguished these groups. The second function (R_c = .21, $\chi^2(7)$ = 93.09, $p < .001$) appears to distinguish the supervisor participants from the nonsupervisor participants and nonparticipants. The dimension that most distinguishes these groups is leadership. Univariate F-tests, reported in Table 9, show that there were significant between-group differences for all the dimensions. Bonferonni post hoc analyses, also in Table 9, show supervisor participants differed from nonsupervisor participants on all dimensions except purpose, and differed from nonparticipants on all dimensions. Nonsupervisor participants significantly differed from nonparticipants on all dimensions except environment/quality. Again, the consistent pattern of results suggests real differences in climate perceptions. The standard

Table 8. Descriptive Statistics for NFP Participant and Nonparticipant Differences

Culture Dimension	Supervisor Participants (n = 118) Mean	Supervisor Participants (n = 118) Standard Deviation	Nonsupervisor Participants (n = 246) Mean	Nonsupervisor Participants (n = 246) Standard Deviation	Nonparticipants (n = 1639) Mean	Nonparticipants (n = 1639) Standard Deviation
Partnership	3.51	.76	3.27	.85	2.80	.83
Purpose	3.66	.63	3.50	.74	3.12	.76
Relationships	3.78	.59	3.54	.77	3.29	.78
Attitude Toward Change	3.69	.71	3.05	.89	2.84	.88
Environment/Quality	3.36	.63	2.90	.69	2.88	.69
Structure	3.53	.72	3.05	.85	2.80	.89
Leadership	3.46	.75	2.97	.89	2.69	.91
Helpful Mechanisms	3.56	.63	3.20	.79	2.97	.80

* $p < .01$

Table 9. ANOVA Summary of Supervisor and NFP Participation Differences

Culture Dimension	Assessment of Differences: Univariate F-Values	Assessment of Differences: Discriminate Function 1 Loadings	Assessment of Differences: Discriminate Function 2 Loadings	Bonferroni Mean Differences and Standard Errors[1]: Supervisor Participants and Non-supervisor Participants	Bonferroni Mean Differences and Standard Errors[1]: Supervisor Participants and Non-participants	Bonferroni Mean Differences and Standard Errors[1]: Non-supervisor Participants and Non-participants
Partnership	69.32*	.84**	.44	.24* (.092)	.71* (.079)	.48* (.056)
Purpose	49.78*	.72**	.34	.16 (.084)	.54* (.072)	.38* (.051)
Relationships	30.74*	.52**	.39	.24* (.086)	.49* (.073)	.25* (.052)
Attitude Toward Change	41.91*	.55	.79**	.64* (.097)	.85* (.083)	.21* (.060)
Environment/Quality	26.80*	.24	.68**	.47* (.077)	.48* (.065)	.02 (.047)
Structure	42.78*	.54	.62**	.48* (.098)	.73* (.083)	.25* (.060)
Leadership	47.35*	.59	.62**	.48* (.100)	.77* (.085)	.29* (.061)
Helpful Mechanisms	36.23*	.51	.54**	.37* (.088)	.59* (.075)	.22* (.054)

deviations for all the groups are displayed in Table 8. There was multivariate heterogeneity of variance, with significantly different standard deviations found for all dimensions except partnership and environment/quality. Inspection of the standard deviations in Table 8 indicates that these differences are due primarily to smaller standard deviations for the supervisor participants.

DISCUSSION

The stated purpose of the NFP is to increase the degree of employee empowerment in the Flight Service Stations (Jeffers, 1995). The present survey was intended to: (a) assess readiness for change; (b) help identify potential barriers to implementing the NFP program; and, (c) provide a baseline for assessing change in the FSS organization at some point in the future.

Readiness for Change

Average ratings for all of the organizational dimensions fell within a moderate range, indicating an overall openness to change. The data suggest that the FSS workforce is satisfied with relationships in the workplace. In addition, employees understand the purpose of FSS and report there are resources available to help them at work. Moreover, for all eight dimensions, the degree of agreement within the workforce, as indicated by the standard deviations, is also moderate. The moderate baseline dimension averages and standard deviations indicate that the employees are not highly committed to business practices that affect the present climate and are open to change in the Flight Service Stations.

In addition to the overall analysis, some additional opportunities for change are indicated by the group analyses. Two differences related to opportunities are most meaningful. First, non-union members rated attitude toward change higher than members, indicating that they are more open to change than members. Ironically, nonmembers are not directly included in NFP. It might be that NFP will receive wider support if a way can be found to include non-union bargaining unit members in the partnership process. Second, the higher moderate ratings provided by management suggests a willingness to serve as champions of the partnership and, possibly, future change efforts.

Barriers to Change

The overall analyses indicate employees are less satisfied with the environment/quality dimension. In addition, the lower score for attitude towards change suggests most employees perceive their facility to be resistant to change. Partnership is not strongly opposed, but neither is it strongly advocated. Employees appear least satisfied with structure and leadership. The low level of satisfaction with structure and leadership combined with the high level of the reported belief that participation is an effective means of making decisions, suggests that employees support changes in leadership, or structure, or both. Such changes would result in a flatter structure and a more participatory work environment.

Just as the group analyses identified some opportunities for change, these analyses also identified some potential barriers. One possible barrier is related to gender. The only gender difference in climate perceptions in the FSS organization was the perceptions of relationships. This difference is likely influenced by the larger number of males in the organization. Because males make up approximately 80% of the workforce, both males and females are more likely to work directly with, and for, males. Since males vastly outnumber females in the FSS work environment, males may feel little social pressure to accommodate to common interactional styles and other preferences unique to female members (Lach & Gwartney-Gibbs, 1993; Levine & Russo, 1987). These gender-related interactional differences may be problematic.

Another possible barrier is related to partnership and participation. Given the consistent pattern of differences based on this grouping variable, these differences are probably the most important. All of the climate dimensions were rated higher by NFP participants than nonparticipants. In addition, when comparing supervisor and nonsupervisor participants, the results indicate that the supervisor participants had the highest dimension ratings. The differences between

NFP supervisor participants, nonsupervisor participants, and nonparticipants may be interpreted in several ways. It is unlikely that membership in NFP teams lead to improvements in climate perceptions because the survey was administered prior to all teams being formed and trained. However, it is possible that supervisors, who had been shown to have higher dimension ratings were, driving up the NFP participant scores. When supervisor and nonsupervisor participants were compared, a clear supervisor participant bias emerged. However, the nonsupervisor participants also had higher ratings on seven of the dimensions compared to nonparticipants. These data suggest there is something besides a supervisor bias leading to the higher NFP participant scores. Another possible explanation is that people who generally possessed more favorable attitudes toward the organization (both supervisors and nonsupervisors) were more likely to be willing to participate in the NFP process (see, for example, Bruning & Liverpool, 1993). This explanation seems to be the most reasonable. If people who are members of the partnership have better overall perceptions of the organization, it is important that participation maintains or enhances these perceptions. There is a risk that, if the program does not fulfill the participants' expectations, they may become less satisfied than they were prior to participating in NFP (Leana, Ahlbrandt, & Murrell, 1992; Covin & Kilmann, 1990).

The interpretation of the survey results presented above are based on analyses of the eight a priori dimensions measured by the OCD. Initial analyses indicate the items measuring each dimension had adequate internal consistency reliability. However, the exploratory factor analysis did not reproduce the measured dimensions. The results of the factor analysis raise some questions about the adequacy of the measures and require caution when interpreting the dimension scores. While the conclusions based on the dimensions are believed to be reasonable, it is necessary to alert the reader of the limitations of the measures and further caution against over-interpretation.

CONCLUSIONS

Empowering employees is not as simple as assigning decision-making responsibility to other groups in the organization or employees at lower levels of the organization (see, for example, Thorlakson & Murray, 1996). Instead, increasing empowerment requires a carefully planned and implemented strategy that increases employee influence at work (Conger & Kanungo, 1988) through some form of participation in decision-making. Heightened influence increases perceptions of task impact and meaning, and employee competence (Thomas & Velthouse, 1990). Task impact and meaning, and employee competence and control each contribute to the employee's overall perception of empowerment in an organization (Spreitzer, 1995). Thus, empowerment is a cyclical process where early successes increase perceived empowerment, and perceived empowerment increases the likelihood of additional attempts to influence decisions at work.

The purpose of NFP is to promote employee involvement in decision-making about matters that affect day-to-day business practices. Employee involvement is the cornerstone of workforce empowerment (Cotton, 1993). The climate data presented here indicate that FSS employees are open to change, and that they desire greater participation in decision-making. Like most organizational development initiatives, there are both benefits (if successful) and costs (if unsuccessful). When employees perceive that their participation matters and their suggestions and opinions are given serious consideration, change programs produce beneficial outcomes for the participants (Covin & Kilmann, 1990). Conversely, when programs are oversold and fail to meet employee expectations, frustration is inevitable, and morale is negatively affected (Leana, Ahlbrandt, & Murrell, 1992). To ensure success, top management in both the FAA and NAATS will need to monitor NFP progress and provide support and encouragement.

REFERENCES

Bentson, C., Endsley, C., Martinetz, C., Condon, P., Koenig, K., Nahay, S., Cox, J., Longey, S., & Petree, D. (1995). *Organization Culture Diagnostic.* Unpublished manuscript.

Bliese, P. D., Macy, B. A., & Sander, J. (1992). *Employee involvement in change programs: The role of expectations, clarity of the need for change, organizational trust, and job level.* Paper presented at the 52nd Annual Academy of Management Meeting. Las Vegas, NV.

Brett, J. M. (1980). Behavioral research on unions and union management systems. In B. M. Staw & L. L. Cummings (Eds.) *Research in Organizational Behavior,* (Vol. 2, pp. 177-213). Greenwich, CT: JAI Press.

Bruning, N. S. & Liverpool, P. R. (1993). Membership in quality circles and participation in decision making. *The Journal of Applied Behavioral Science,* 29, 76-95.

Carr, D. K. & Littman, I. D. (1990). *Excellence in government: Total quality management in the 1990s.* Arlington, VA: Coopers & Lybrand.

Conger, J. A. & Kanungo, R. N. (1988). The empowerment process: Integrating theory and practice. *Academy of Management Review,* 13, 471-482.

Cotton, J. L. (1993). *Employee involvement: Methods for improving performance and work attitudes.* Newbury Park, CA: Sage.

Covin, T. J. & Kilmann, R. H. (1990). Participant perceptions of positive and negative influences on large-scale change. *Group and Organization Studies,* 15, 233-248.

Ghiselli, E. E., Campbell, J. P., & Zedeck, S. (1981). *Measurement theory for the behavioral sciences.* San Francisco, CA: W. H. Freeman and Company.

Goodman, P. S., Devadas, R., & Griffith-Hughson, T. L. (1988). Groups and productivity: Analyzing the effectiveness of self-managed teams. In J. P Campbell and R. J. Campbell (Eds.), *Productivity in organizations: New perspectives from industrial and organizational psychology* (pp. 295-327). San Francisco, CA: Jossey-Bass.

Gore, A. (1993). *The National Performance Review: Creating a government that works better and costs less.* Washington, DC: Government Printing Office.

Hackman, J. R. & Oldham, G. R. (1975). Motivation through the design of work; Test of a theory. *Organizational Behavior and Human Performance,* 16, 250-279.

Hamner, W. C. & Smith, F. J. (1978). Work attitudes as predictors of unionization activity. *Journal of Applied Psychology,* 63, 415-421

International Computers and Telecommunications (1994). *Quality through partnership 1994 organizational diagnostic national report.* Oxnard, CA.

Jeffers, B. P. (1995) U. S. Department of Transportation/Federal Aviation Administration Order 3710.17. Washington, DC.

Kacmar, K. M. & Ferris, G. R. (1989). Theoretical and methodological considerations in the age-job satisfaction relationship. *Journal of Applied Psychology,* 74, 201-207.

Lach, D. H. & Gwartney-Gibbs, P. A. (1993). Sociological perspectives on sexual harassment and workplace dispute resolution. *Journal of Vocational Behavior,* 42, 102-115.

Leana, C. R., Ahlbrandt, R. S., & Murrell, A. J. (1992). The effects of employee involvement programs on bargaining unit workers' attitudes, perceptions, and preferences in decision making. *Academy of Management Journal,* 35, 861-873.

Levine, J. M. & Russo, E. M. (1987). Majority and minority influence. In C. Hendrick (Ed.) *Group processes* (pp. 167-188). Newbury Park, CA: Sage.

Locke, E. A. (1976). The nature and causes of job satisfaction. In M. Dunnette (Ed.) *Handbook of industrial and organizational psychology* (pp. 1297-1350). New York: John Wiley & Sons.

McGrath, J. E. (1984). *Groups: Interaction and performance.* Englewood Cliffs, NJ: Prentice-Hall.

Mohrman, S. A. & Lawler, E. E. (1984). Quality of work life. In K. M. Rowland and G. R. Ferris (Eds.) *Research in Personnel and Human Resources Management,* (Vol. 2, pp. 219-260). Greenwich, CT: JAI Press.

Nadler, D. A. (1981). Managing organizational change: An integrated perspective. *The Journal of Applied Behavioral Science,* 17, 191-211

Nadler, D. A. & Tushman, M. L. (1992). Designing organizations that have good fit: A framework for understanding new architectures. In D. A. Nadler, M. S. Gerstein, and R. B. Shaw (Eds.), *Organizational architecture: Designs for changing organizations* (pp. 39-56). San Francisco, CA: Jossey Bass.

Pasmore, W. A. (1988). *Designing effective organizations: The sociotechnical systems perspective.* New York: John Wiley & Sons.

Rhodes, S. R. (1983). Age-related differences in work attitudes and behavior: A review and conceptual analysis. *Psychological Bulletin,* 93, 328-367.

Schneider, B., Gunnarson, S. K., & Niles-Jolly, K. (1994). Creating the climate and culture of success. *Organizational Dynamics,* 23, 17-29.

Schneider, B. & Rentsch, J. (1988). Managing climates and cultures: A futures perspective. In J. Hage (Ed.). *Futures of organizations: Innovating to adapt strategy and human resources to rapid technological change* (pp. 181-200). Lexington, MA: Lexington Books.

Schriesheim, C. A. (1978). Job satisfaction, attitudes toward unions, and voting in a union representation election. *Journal of Applied Psychology,* 63, 548-552.

Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement and validation. *Academy of Management Journal,* 38, 1442-1465.

Thibaut, J. & Walker, L. (1975). *Procedural justice: A psychological analysis.* Hillsdale, NJ: Lawrence Earlbaum.

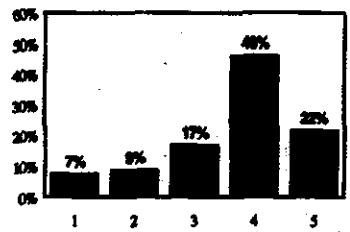
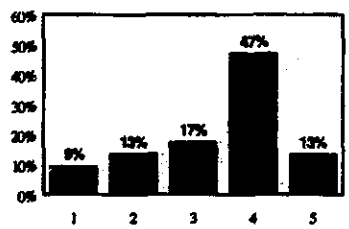
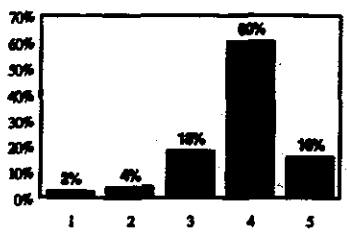
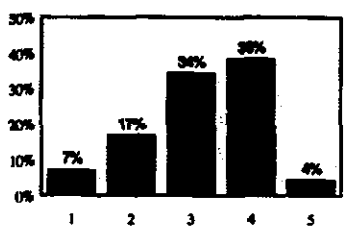
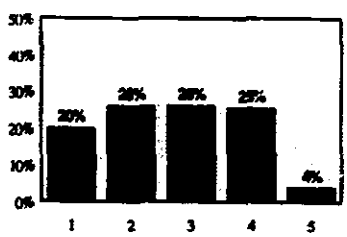
Thomas, K. W. & Velthouse, B. A. (1990). Cognitive elements of empowerment: An "interpretive" model of intrinsic task motivation. *Academy of Management Review,* 15, 666-681.

Thorlakson, A. J. H. & Murray, R. P. (1996). An empirical study of empowerment in the workplace. *Group and Organization Management,* 21, 67-83.

Weisbord, M. R. (1976). Organizational diagnosis: Six places to look for trouble with or without a theory. *Group & Organization Studies,* 1, 430-447.

Appendix A. Item Analysis for the 1995 Organizational Culture Diagnostic Survey

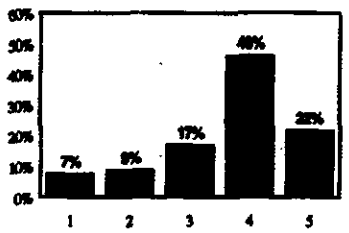
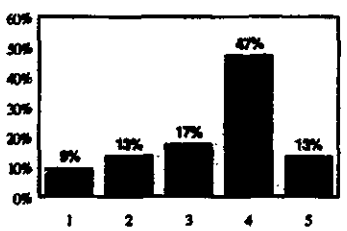
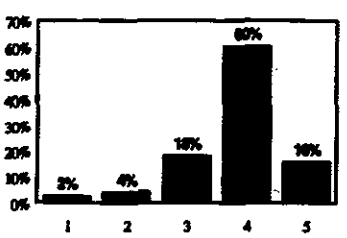
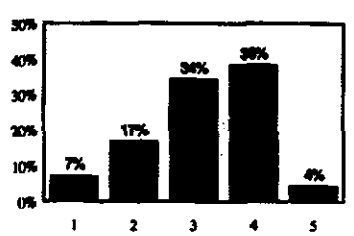
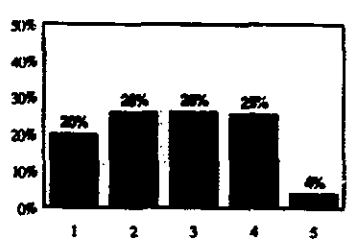
RELATIONSHIPS

Item	Mean	StdDev	Response Distribution
I have an effective working relationship with my supervisor.	3.66	1.12	
I feel free to talk to someone at work if I have a work-related problem.	3.41	1.15	
My relationships with members of my workgroup are good.	3.83	.82	
There are good working relationships among workgroups in my facility.	3.16	.99	
In my facility, conflicts are managed appropriately.	2.68	1.16	

[1] Percentages may not sum to 100% due to rounding.

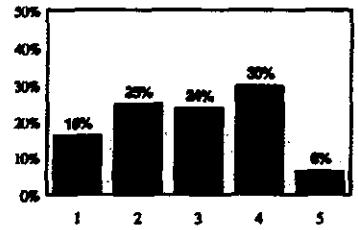
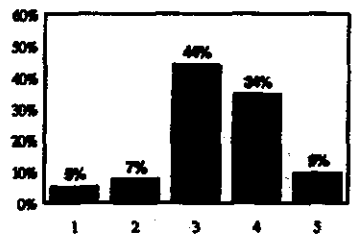
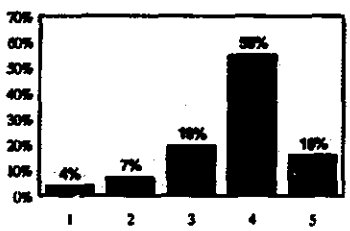
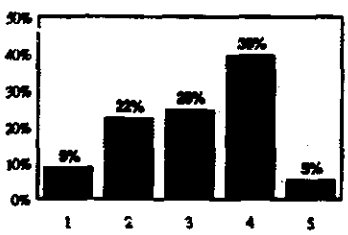
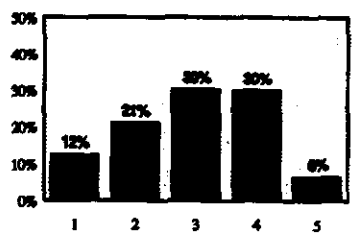
Appendix A. Item Analysis for the 1995 Organizational Culture Diagnostic Survey

RELATIONSHIPS

Item	Mean	StdDev	Response Distribution
I have an effective working relationship with my supervisor.	3.66	1.12	
I feel free to talk to someone at work if I have a work-related problem.	3.41	1.15	
My relationships with members of my workgroup are good.	3.83	.82	
There are good working relationships among workgroups in my facility.	3.16	.99	
In my facility, conflicts are managed appropriately.	2.68	1.16	

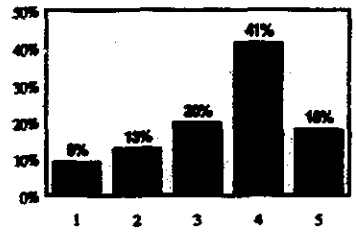
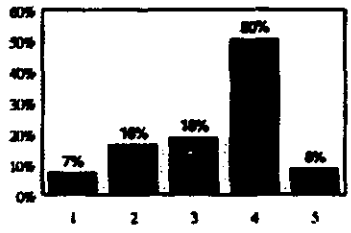
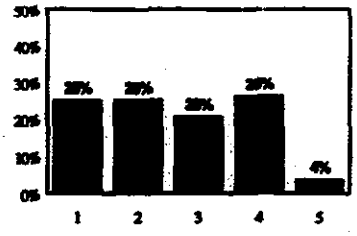
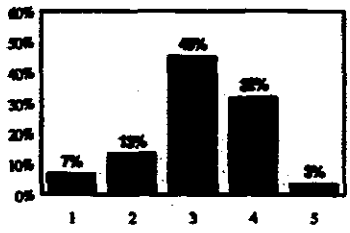
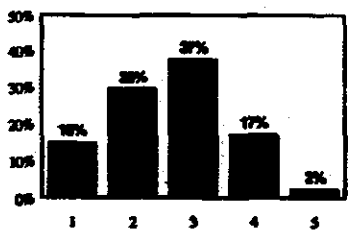
[1] Percentages may not sum to 100% due to rounding.

PURPOSE

Item	Mean	StdDev	Response Distribution
The goals of this facility are clearly stated.	2.85	1.18	
I am personally in agreement with the stated goals of my workgroup.	3.36	.93	
I understand how my job contributes to the facility's goals.	3.72	.94	
The employees of this facility understand its priorities.	3.11	1.08	
I participate in deciding my workgroup's goals/objectives.	2.98	1.15	

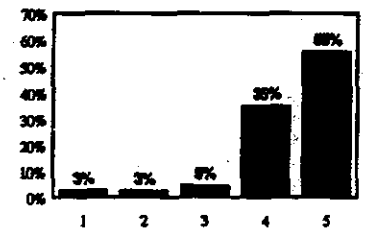
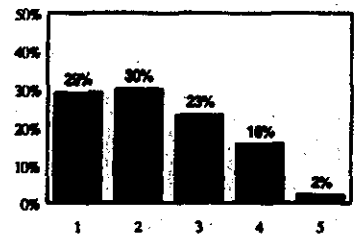
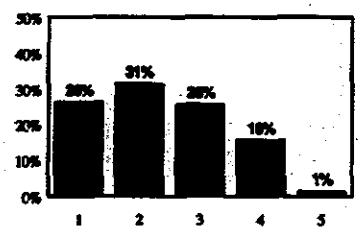
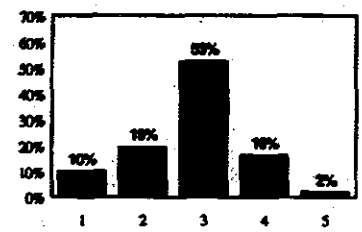
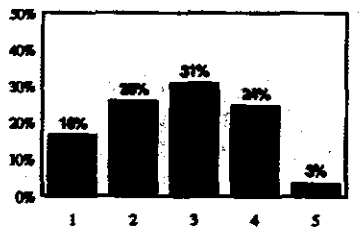
[1] Percentages may not sum to 100% due to rounding.

HELPFUL MECHANISMS

Item	Mean	StdDev	Response Distribution
I can rely on my supervisor to help me and my workgroup when we need it.	3.48	1.17	
I have the information I need to do a good job.	3.37	1.07	
The morale in my facility is good.	2.59	1.22	
Other workgroups are helpful to my workgroup whenever assistance is required.	3.12	.92	
This facility uses its plans to prepare for all its future needs.	2.63	.99	

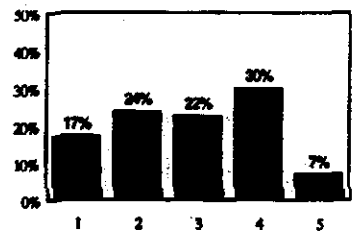
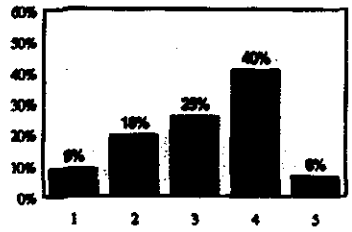
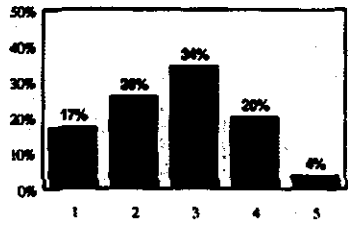
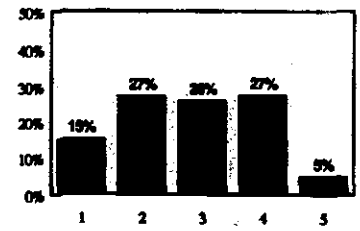
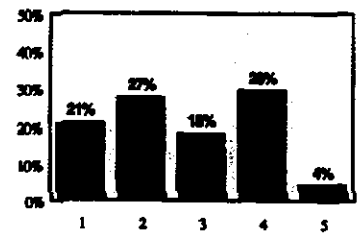
[1] Percentages may not sum to 100% due to rounding.

ENVIRONMENT/QUALITY[1]

Item	Mean	StdDev	Response Distribution
It's a regular part of my job to consider my customers and their needs.	4.38	.88	
Air Traffic tries to plan ahead for changes created by external forces that might impact on our future.	2.32	1.11	
Air Traffic plans for technological changes.	2.34	1.07	
Other people in this facility consider my needs as a customer.	2.81	.89	
Effective methods are used to obtain input from our external users on issues that affect them.	2.73	1.10	

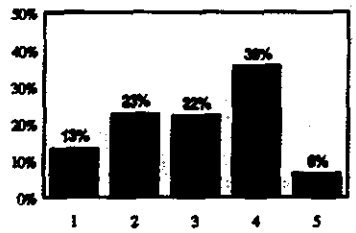
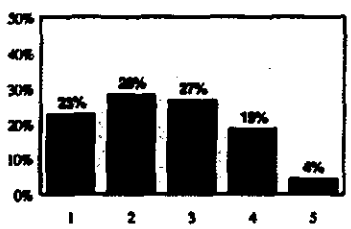
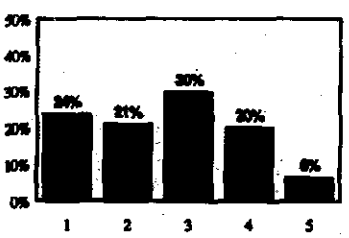
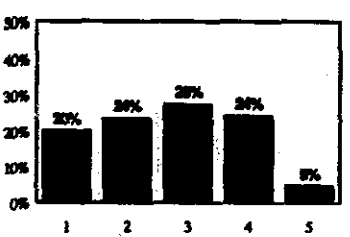
[1] Percentages may not sum to 100% due to rounding.

ATTITUDE TOWARDS CHANGE[1]

Item	Mean	StdDev	Response Distribution
This facility is receptive to new ideas.	2.86	1.22	
This facility introduces new policies and procedures when needed.	3.16	1.08	
This facility favors change.	2.67	1.08	
Creativity is actively encouraged.	2.80	1.14	
Extra efforts are recognized in this facility.	2.69	1.22	

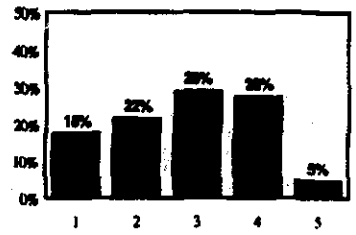
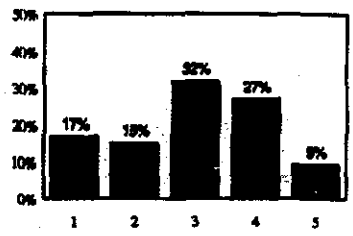
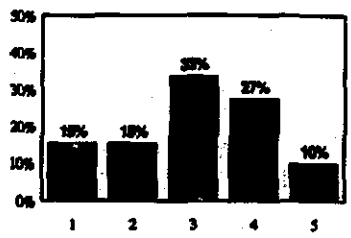
[1] Percentages may not sum to 100% due to rounding.

PARTNERSHIP[1]

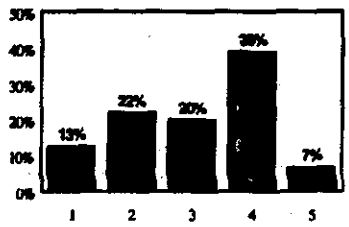
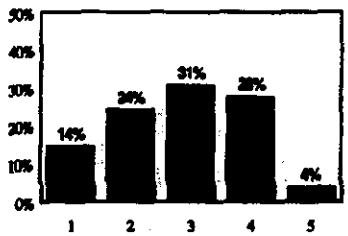
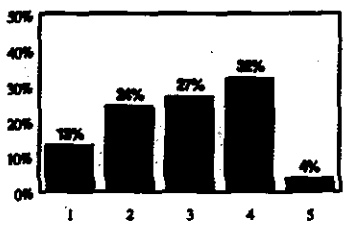
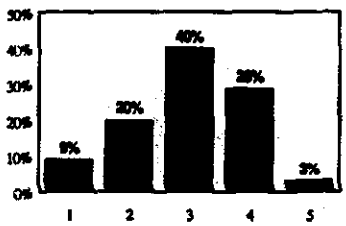
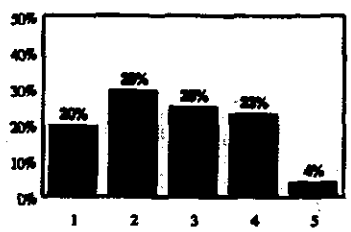
Item	Mean	StdDev	Response Distribution
NAATS and Air Traffic Management are working together to achieve a common purpose.	2.99	1.17	
An effective way to solve problems is through participative decision-making.	4.07	.92	
We are recognized and rewarded for working together.	2.54	1.15	
The labor management relationship in my facility is a true partnership.	2.65	1.23	
NAATS and management in this facility take responsibility for what goes on, whether or not it is a success.	2.70	1.73	

[1] Percentages may not sum to 100% due to rounding.

PARTNERSHIP (Continued)

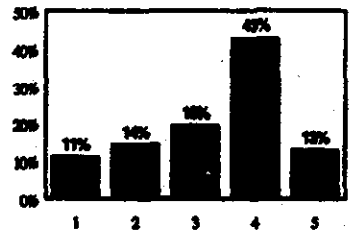
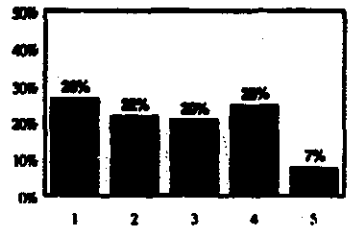
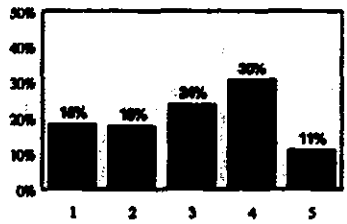
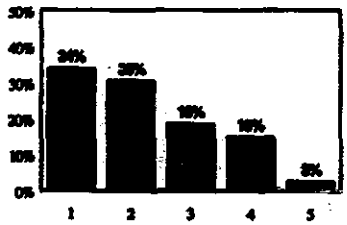
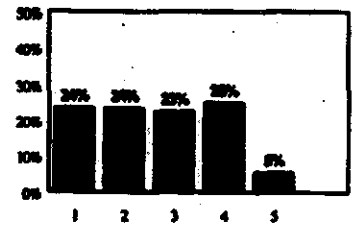
Item	Mean	StdDev	Response Distribution
My facility uses participative management to develop policy, plans and programs, procedures, and goals.	2.80	1.15	
I anticipate good things from the partnership.	2.97	1.21	
The partnership will have a positive impact on how we conduct business.	3.01	1.18	

[1] Percentages may not sum to 100% due to rounding.

Item	Mean	StdDev	Response Distribution
The way work is distributed in this facility is flexible.	3.05	1.17	
The distribution of work in this facility helps it to reach its goals.	2.82	1.10	
Work tasks are divided in a logical way.	2.89	1.11	
The way my workgroup is structured makes it easy to focus on producing quality work.	2.97	.98	
Decisions in this facility are made at the most appropriate level.	2.63	1.15	

[1] Percentages may not sum to 100% due to rounding.

LEADERSHIP

Item	Mean	StdDev	Response Distribution
My area supervisors are supportive of my efforts.	3.34	1.46	
The leadership style of management in this facility helps to get the job done.	2.65	1.30	
NAATS in this facility helps to get the job done.	2.99	1.28	
In general, Air Traffic management at all levels demonstrates a real interest in its employees.	2.22	1.14	
Management in this facility really understands what it takes to get my job done.	2.65	1.23	

[1] Percentages may not sum to 100% due to rounding.

☆U.S. GOVERNMENT PRINTING OFFICE: 1997 - [illegible]

NTIS does not permit return of items for credit or refund. A replacement will be provided if an error is made in filling your order, if the item was received in damaged condition, or if the item is defective.

Reproduced by NTIS

National Technical Information Service
Springfield, VA 22161

This report was printed specifically for your order from nearly 3 million titles available in our collection.

For economy and efficiency, NTIS does not maintain stock of its vast collection of technical reports. Rather, most documents are printed for each order. Documents that are not in electronic format are reproduced from master archival copies and are the best possible reproductions available. If you have any questions concerning this document or any order you have placed with NTIS, please call our Customer Service Department at (703) 487-4660.

About NTIS

NTIS collects scientific, technical, engineering, and business related information — then organizes, maintains, and disseminates that information in a variety of formats — from microfiche to online services. The NTIS collection of nearly 3 million titles includes reports describing research conducted or sponsored by federal agencies and their contractors; statistical and business information; U.S. military publications; audiovisual products; computer software and electronic databases developed by federal agencies; training tools; and technical reports prepared by research organizations worldwide. Approximately 100,000 *new* titles are added and indexed into the NTIS collection annually.

For more information about NTIS products and services, call NTIS at (703) 487-4650 and request the free *NTIS Catalog of Products and Services*, PR-827LPG, or visit the NTIS Web site **http://www.ntis.gov**.

NTIS
Your indispensable resource for government-sponsored information—U.S. and worldwide