AD-A078 285 NAVAL POSTGRADUATE SCHOOL MONTEREY CA F/G 5/1
THE APPLICATION OF ORGANIZATION DEVELOPMENT TO THE NAVAL AIR TE--ETC(U)
SEP 79 J F LYNCH , R H SELTZ

UNCLASSIFIED NL

1 OF 2
ADA 078285



LEVEL II

2

NAVAL POSTGRADUATE SCHOOL

Monterey, California

AD A078285



DDC
DEC 18 1979
E

THESIS

THE APPLICATION OF ORGANIZATION DEVELOPMENT TO THE NAVAL AIR TEST CENTER

by

John Francis Lynch

and

Roger Henry Seltz

September 1979

Thesis Advisor: C.K. Eoyang

Approved for public release; distribution unlimited

DDC FILE COPY

79 12 17 086

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO. (9) 3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) (6) The Application of Organization Development to the Naval Air Test Center.	5. TYPE OF REPORT & PERIOD COVERED Master's Thesis, September 1979
	6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) (10) John Francis Lynch, Roger Henry Seltz	8. CONTRACT OR GRANT NUMBER(s) (12) 180
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Postgraduate School Monterey, California 93940	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS (11) Naval Postgraduate School Monterey, California 93940	12. REPORT DATE Sept[redacted]979
	13. NUMBER OF PAGES 179
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)	15. SECURITY CLASS. (of this report) UNCLASSIFIED
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Organization Development
Management
Contingency Theory Analysis

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This thesis introduces the practicing manager to the field of Organization Development. The purpose of the thesis is five fold: To create awareness of the change forces facing the manager, to describe a new technology for organizational adaption to change (Organization Development), to provide a foundation of knowledge of Organization Development theory and applications, to demonstrate the theory and application of the

DD FORM 1 JAN 73 1473 (Page 1) EDITION OF 1 NOV 65 IS OBSOLETE S/N 0102-014-6601

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

251 450 Gm

20. (continued)

Navy planned change approach (Survey Guided Development) and to suggest methods, techniques and strategy for the improvement in management of human resources through the application of Organization Development concepts. An Organization Development analysis of the Naval Air Test Center is presented using the Contingency Model Theory and specific recommendations are made for Naval Air Test Center management's consideration.

Accession For
NTIS GRA&I ☑
DDC TAB ☐
Unannounced ☐
Justification
By
Distribution/
Availability Codes
Dist | Avail and/or special
A

Approved for public release; distribution unlimited

The Application of Organization Development to the Naval Air Test Center

by

John Francis Lynch
B.S. University of Detroit, 1955

and

Roger Henry Seltz
B.S. Michigan College of Mining and Technology, 1956

Submitted in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
Sept. 1979

Authors _____

_____

Approved by: _____
Thesis Advisor

_____
Second Reader

_____
Chairman, Department of Administrative Sciences

_____
Dean of Information and Policy Sciences

ABSTRACT

This thesis introduces the practicing manager to the field of Organization Development. The purpose of the thesis is five fold: To create awareness of the change forces facing the manager, to describe a technology for organizational adaptation to change (Organization Development), to provide a foundation of knowledge of Organization Development theory and applications, to demonstrate the theory and application of the Navy planned change approach (Survey Guided Development) and to suggest methods, techniques and strategy for improving the management of human resources, through the application of Organization Development concepts. An Organization Development analysis of the Naval Air Test Center is presented using the Contingency Model Theory and specific recommendations are made for Naval Air Test Center management's consideration.

TABLE OF CONTENTS

I. INTRODUCTION---------- 9

A. THE PROBLEM OF CHANGE---------- 9

1. Change Forces----------10

2. Need for Adaption----------13

3. Organization Development----------13

B. ORGANIZATION OF THESIS----------15

II. SCOPE AND NATURE OF RESEARCH----------17

A. OBJECTIVES----------17

B. SCOPE----------17

C. METHODOLOGY----------18

1. Literature Search----------18

2. Historical Data----------19

3. Survey Data Collection and Analysis--------19

III. REVIEW OF MANAGEMENT THEORY----------20

A. GENERAL----------20

B. CLASSICAL MANAGEMENT----------20

1. Weber's Bureaucracy----------22

2. Fayol's Functionalism----------22

3. Urwick's Techniques Application----------23

4. Barnard's Administration----------23

5. Critique----------23

6. Application to Naval Air Test Center-------24

C. SCIENTIFIC MANAGEMENT----------24

1. Fredric Taylor----------24

2. Frank and Lillian Gilbreth----------25

3. Henry L. Gantt----------25

4. Critique----------25

5. Application to Naval Air Test Center-------26

D. HUMAN RELATIONS MANAGEMENT----------26

1. Elton Mayo----------26

2. Douglas McGregor----------27

3. Abraham Maslow----------28

4. Robert Blake and Jane Mouton----------29

5. Critique----------30

6. Application to Naval Air Test Center-------30

E. MANAGEMENT SCIENCES----------31

1. Critique----------32

2. Application to Naval Air Test Center-------32

F. BEHAVIORAL SCIENCES----------33

1. Organization Development----------34

a. What is OD?----------35

b. Value Beliefs in Organization Development----------36

(1) Value Beliefs about People---------37

(2) About People in Groups----------37

(3) About People in Organizational Systems----------37

c. Organizational Effectiveness----------39

d. Importance of Human Relations and Organization Development----------45

e. Critique----------46

G. CONTINGENCY THEORIES OF MANAGEMENT----------47

IV. PLANNED CHANGE----------51

A. THE CONCEPT OF PLANNED CHANGE---------- 51

B. THE PROCESS OF PLANNED CHANGE---------- 52

C. THE TECHNOLOGY OF ORGANIZATION CHANGE---------- 54

D. NAVY PLANNED CHANGE EFFORT---------- 59

1. Survey Guided Development---------- 63

V. APPLICATION OF ORGANIZATION DEVELOPMENT TO THE NAVAL AIR TEST CENTER---------- 67

A. CONTINGENCY MODEL ANALYSIS---------- 68

1. Overview---------- 68

2. Mission and Goals---------- 71

3. Structure---------- 78

4. Human Resources (People)---------- 86

5. Technology---------- 94

6. Environment----------102

7. Summary----------106

B. ORGANIZATIONAL DIAGNOSIS AND PLANNING PROCESS----------113

1. Identifying Information----------120

2. Historical Data----------120

3. Structural Data----------121

4. Internal Influences----------124

5. External Influences----------125

6. Organization Knowledge----------126

7. Emotional Atmosphere of the Organization---126

8. Attitudes and Relationships----------127

9. Authority/Power/Responsibility----------128

10. Analysis/Appraisal/Conclusions----------129

11. Summary/Recommendations----------130

C. HRM SURVEY ANALYSIS (TSD)---------- 130

1. Overall Index Mean Graph---------- 133

2. Dimension/Index Analysis---------- 133

3. Demographic Analysis---------- 137

4. Individual Item Analysis---------- 139

5. Frequency Distribution Analysis---------- 142

6. Supplemental Questions---------- 145

7. Summary---------- 146

VI. CONCLUSIONS AND RECOMMENDATIONS---------- 148

A. GENERAL---------- 150

B. SPECIFIC---------- 152

APPENDIX I THE HUMAN RESOURCE MANAGEMENT SURVEY (SHORE)---------- 156

APPENDIX II STATEMENT OF MISSION FOR THE NAVAL AIR TEST CENTER---------- 166

BIBLIOGRAPHY---------- 172

INITIAL DISTRIBUTION LIST---------- 178

I. INTRODUCTION

A. THE PROBLEM OF CHANGE

Powerful changes in social responsibility, moral standards, economic pressures, educational requirements, and man's search for identity are but a few of the forces causing stress in today's organizations. Man's organizations are faced with dissensions, high turnover, strikes, work slow-downs, sick-outs, and equal opportunity suits. The manner in which organizations cope with change will determine whether they remain a viable entity or become a casualty of the changing times. "Change is avalanching down upon our heads, and most people are utterly unprepared to cope with it," states Alvin Toffler, author of Future Shock. Preparing managers to cope with today's accelerating rate of change is a major element in the success of today's organizations.

The Navy is representative of large organizations which are faced with the problem of coping with the general social problems of the nation and the problems unique to the military. The Navy has become increasingly involved in coping with the consequences of the multifaceted change process occurring within society. Rapid change, particularly in the areas of social values, technology, and economic conditions, have produced stress that could destroy the Navy as a viable fighting force.

1. Change Forces

The change forces operating on the Navy are both external and internal to the organization. The external forces include such items as changing moral standards, changing work ethics, complexity of weapons technology, concern for environment, high cost of living, high cost of technology, energy conservation, budget and personnel cuts, women in the military, liberalization of drug laws, and loss of public esteem, just to name a few.

The internal stresses in the Navy include: a perceived erosion of traditional personnel benefits, adaption to the "All Volunteer Force," low retention rates, abuse of drugs, time away from the family, hardship tours, low pay, racial incidents, poor housing, and a reduction in the skill level of enlisted personnel whereas the need for more highly skilled personnel to operate and maintain complex weapon systems.

The Naval Air Test Center as a shore activity of the Navy is faced with these same stresses. In addition, because of its large civilian work force, it has other internal and external stresses. These stresses include military-civilian role conflict, military-civilian management policy differences, and short versus long term action orientation of the military/civilian management. The civilian work force stresses include; the effects of manpower ceilings, the allocation and control of high grade positions, average grade level restrictions, promotion restrictions, and hiring freezes.

The implementation of these manpower policies has created other problems. For example, the control of high level positions has resulted in a tremendous increase in the number of mid-level positions in the General Schedule grades GS-9 through GS-12 (especially at the GS-12 level). After years of expansion, the past few years brought stringent controls on the number of employees available to the manager, yet the amount of work he was expected to accomplish with this workforce was not reduced, and in most cases the workload has increased. Technology keeps changing faster than ever requiring more college trained employees, yet grade level restrictions limit the ability of managers to hire, promote, and thus retain the professional personnel needed to keep up with technology.

It is not only the grade level, promotion, and manpower policies that effect todays government managers. The tone of recent proclamations made by political leaders, industry executives, feature writers, and the national media leaves the government worker with little incentive to excell in his work or to even remain in the employment of government institutions. Evidence of the wholesale attack on the government worker abounds. A U.S. News and World Report (1976) survey noted that the federal bureaucracy rated last among 26 institutions in the ability to get things done. A recent column in The Boston Globe said, "The bureaucratic life rewards conspiracy, sycophancy, ideological conformity, caution and class solidarity. It punishes innovation, originality, and the work

ethic." President Carter wrote in the National Journal Public Forum on Oct. 8, 1976, "The word bureaucrat has become a purely pejorative term connoting, in the public mind, inefficiency, ineptitude, and even a callous disregard for the rights and feelings of ordinary people. It shouldn't be that way." But since taking office President Carter has taken several steps that could hardly have been more calculated to depress employee morale; salary freezes, abandonment of pay comparability, pay raise caps significantly below the rate of inflation and industry raises, reduction of grade levels, and the proposed merger of federal retirement plans with Social Security. The present morale of the government worker is at an all time low, at a time when the nation needs maximum responsibility and productivity from its workforce.

Organizations are becoming more dependent on people because they are increasingly involved in more complex technologies and are attempting to function in more complex economic, political, and social culture environments. The more different the technical skills required, the more vulnerable the organization will be to critical shortages of the right kind of human resources. The more complex the process the higher the interdependence among the various specialists. The higher the interdependence, the greater will be the need for the effective integration of all the specialties because each element in the process is dependent on the outputs of the other elements. The more complex the organizational processes become, the more they become vulnerable to human error and

mistakes. The price of low motivation, turnover, poor productivity, and interorganizational conflict will be higher in such an organization.

2. Need for Adaption

Thus the Navy like any organization finds itself faced with the problem of adopting to the changing conditions of society, internal stress, economic change, and individual changes. It must successfully adapt to these changes while continuing to carry out its national missions.

Organization adaption to changing conditions may come about by reactive change (unplanned) or by anticipative change (planned). Reactive change refers to a style of reacting to a stimulus after conditions in the environment have changed. It is a short-term, crisis type of adaption often involving replacement of key people, hasty reorganization, and drastic changes in the work force. Anticipative management, on the other hand, refers to the introduction of change to deal with the future conditions before they actually come about.

3. Organization Development

Over the past decade a growing body of knowledge has emerged that is concerned with the ways in which organizations can better adapt to rapid change. This new and rapidly evolving discipline has been named Organization Development (OD). Organization Development is an example of anticipative management action.

Most managers assume that Organization Development is related to organization planning processes with its emphasis

on organization charts, functional relationships, and lines of authority. Others have associated it with specific programs designed to improve management such as; executive development, management development, employee training, etc., or with particular techniques such as; Job Enrichment, Job Enlargement, Managerial Grid, and Management by Objectives. Any one, or all, of these activities can be a part of Organization Development, but they are not Organization Development. Organization Development is a systemic approach to managing change. OD activities are undertaken with the implicit goal of improving organizational effectiveness through "facilitating change and development in ... people ... in technology ... and in organization processes and structure." (Friedlander and Brown, 1974, pg. 314)

Thus Organization Development is substantially more than the individual programs, techniques, and organization charts. Successful OD is systems oriented, focusing on the aggregate or total organizational system. A meaningful change in a complex organization system may take a long time to accomplish, thus OD involves a long term commitment to change. Those organizational changes that are conscious and deliberate efforts are referred to as planned change, and the persons attempting to bring about this change are called change agents. The organization being changed is called the client system, and the change actions are referred to as change interventions.

The manager of the future will most likely be acting as the change agent. He will be involved in initiating,

designing, or implementing organization change programs. The material in this thesis will provide the manager with new knowledge, methodologies, and techniques for implementing change within his organization.

B. ORGANIZATION OF THESIS

Most managers are pragmatists. They are more concerned with obtaining practical aids in solving immediate problems than with the fine points of theoretical concepts and theory. Those who read this thesis will not get specific answers to what should be done in every kind of management problem associated with change, however having knowledge of Organization Development theory, principles, and techniques should help the reader become a better manager. To assist the reader with an understanding of the flow of the thesis the following scheme is presented:

MANAGERS QUESTION	THESIS SECTION	
Why consider Organization Development?	I	INTRODUCTION The Problem of change
How does OD fit with present concepts of management?	III	REVIEW OF MANAGEMENT THEORY
What is the theory behind OD?	III	BEHAVIORAL SCIENCES What is OD? Value beliefs in OD
What are the techniques of OD?	IV	PLANNED CHANGE Concept of Change Process of Change Technology of Change Navy Change Effort

How can OD be applied to NATC?	V	APPLICATION OF OD TO THE NAVAL AIR TEST CENTER
		Contingency Model
		Guide for Organizational Diagnosis/ Planning Process
		HRM Survey Analysis (TSD)
What actions should be taken as a result of this thesis?	VI	CONCLUSIONS AND RECOMMENDATIONS
		General
		Specific

II. SCOPE AND NATURE OF RESEARCH

A. OBJECTIVES

The primary objective of this study is to improve the human resources management of the Naval Air Test Center.

Secondary objectives of the study are as follows:

1. To contribute to Naval Air Test Center management's understanding of Organization Development,

2. To provide a review of management theory, including Organization Development, which can serve as an information resource for management personnel,

3. To gain personal knowledge of the scope and nature of Organization Development, and the skills to perform managerial actions in this area,

4. To provide Naval Air Test Center managers with methodologies and techniques for applying Organization Development technology to their organizations.

B. SCOPE

The subject thesis attempts to define and clarify Organization Development theory and concepts for practicing managers. This research is written not so much for the expert on organization theory, but rather for the working manager who may have had only a fleeting introduction to the body of knowledge contained in the literature. An attempt has been made to minimize the special terms known only to Organization Development specialists and behavioral scientists, in order to

increase the readability and to facilitate the transfer of knowledge.

A review of management theory and organization theory is presented in order to bring into perspective the bewildering array of subjects that have innundated the manager over the last twenty years, and to orient the manager with respect to organization development's place in management theory.

The organization development analysis presented is applicable to the Naval Air Test Center, however the methodology developed has application to any organization.

C. METHODOLOGY

The methods used in this research consisted of: literature search, historical data analysis and organization survey data analysis.

1. Literature Search

The literature search consisted of two phases. The first was to review the textbook material available at the Naval Postgraduate School Library. Literature in the fields of sociology, psychology, management, administrative sciences, industrial relations, organizational theory, and behavioral sciences were reviewed. Second, the general public oriented literature such as Harvard Business Review, Management Review, Human Relations, Business Horizons, California Management Review, the Academy of Management Journal, and the Journal of Business was searched for appropriate material.

2. Historical Data

Diagnostic material was retrieved directly from historical documents, e.g., management policy and procedures, organization descriptions, functional statements, personnel statistics, memoranda, and policy statements. The authors have a combined experience of over forty years of employment at the Naval Air Test Center and this experience was used to supplement historical data.

3. Survey Data Collection and Analysis

During the planning of the thesis it was expected that a complete Human Resources Survey of the Naval Air Test Center would be conducted by the Human Resource Management Center, Washington, D.C. One key organizational element of the NATC failed to participate in the survey program thus complete organizational survey data was not available for analysis. However, one organizational element, the Technical Support Directorate, provided its complete data. A brief analysis of this data was conducted to demonstrate the techniques and concepts utilized in analyzing HRM Survey data.

III. REVIEW OF MANAGEMENT THEORY

American society has been strongly influenced by the legacy of the Industrial Revolution, the religious work ethics, and the theories of management put forth by men of the era. Improvements in economic, educational, and social conditions have modified the society into a new and different society requiring different concepts of management and organizations. The conflict between the "old" theories and the "new" concepts creates confusion concerning the "right way" to manage and organize the efforts of others.

The purpose of this section is to present a review of management and organization theory, and to critique each from today's behavioral concepts of management.

A. GENERAL

There are many schools of thought about management of which five are discussed: (1) Classical Management (2) Scientific Management (3) Human Relations (4) Management Sciences and (5) Behavioral Sciences. Figure 1 depicts the development of management concepts and lists prominent contributors from each school.

B. CLASSICAL MANAGEMENT

The principles of management presently regarded as the foundations of the classical school are common to state, church, military and industrial organizations. Four of the

CLASSICAL MANAGEMENT	SCIENTIFIC MANAGEMENT	HUMAN RELATIONS	MANAGEMENT SCIENCES
(STRUCTURE)	(TECHNOLOGY)	(PEOPLE)	(QUANTITATIVE)
WEBER	TAYLOR	MAYO	CHURCHMAN
FAYOL	GILBRETH	McGREGOR	ACKOFF
URWICK	GANTT	MASLOW	DANTZIG
BARNARD		HERZBERG	BELLMAN

BEHAVIORAL SCIENCES
(STRUCTURE) (TECHNOLOGY) (PEOPLE) (QUANTITATIVE)

ARGYRIS
BENNIS
LEWIN
BECKHARD
SCHEIN

CONTINGENCY THEORY

SLOCUM
FIEDLER
VROOM
YETTON
LAWERENCE
LORSCH

Fig. 1

Theories of Management

best known classical management theorists are Max Weber (bureaucracy), Henry Fayol (administration), Lyndall Urwick (techniques) and Chester Barnard (Administration).

1. Weber's Bureaucracy

Max Weber, a well known nineteenth-century German sociologist and student of organizations looked at the organization from top management's point of view, and designed a rational structure of management. Weber considered the ideal organization to be a bureaucracy having the following characteristics: (1) Tasks are distributed among various members of the group as official duties, usually accompanied by a division of labor and specialization of function, (2) Office or roles are organized in a hierarchical structure where the scope of authority is clearly defined, (3) a formal set of rules governing behavior is specified which ensures uniformity of organization, and (4) officials are required to assume an impersonal attitude in contacts with others. (Weber 1947)

2. Fayol's Functionalism

Henri Fayol was a mining engineer who accomplished a distinguished career in French industry. He is best known for his functional breakdown of administrative activities into the elements of; planning, organizing, command, and control. He distinguished management activities from technical, pointing out that managerial activities increased in importance and technical activities decreased in importance as one moved from the lowest to the highest levels of an organization. (Fayol 1929)

3. Urwick's Techniques Application

Urwick dealt with the same organizational elements as Weber and Fayol, however he also added to the analysis of span-of-control, line-staff relationships and functionalism.

4. Barnard's Administration

Chester Barnard is identified with the administration of organizations. He added much to the thinking about organizations with such concepts as "the linking pin," "the zone of indifference," and "the acceptance theory of authority." The "linking pin" concept is a way of thinking about organizational relationships. Barnard maintained that authority works when it is accepted as falling within the recipient's "zone of indifference" which means that the recipient is willing to comply. (Barnard 1948)

5. Critique

Classical management theorists assumed that man was an irrational component of the organization. They based their theory of organization on the premise that an organization must be able to achieve its objectives and goals in spite of the irrationality of man. Thus in relation to the organization man was reduced to an instrument by means of hierarchical authority relationships, written procedures, and rules, and precise position descriptions. Classical Management hoped to minimize or eliminate from organizational life the independent, unpredictable, and irrational human behavior governed by feelings and emotions and to substitute therefor rational calculation and predictable human behavior.

6. Application to NATC

The Naval Air Test Center is a typical bureaucratic organization with each individual assigned specific functions, duties, and standards of performance in accordance with detailed Civil Service regulations. The grade level of management and supervisory personnel are determined largely by: (a) the formal structure of the immediate organization, (b) the functional relationship of the position with respect to similar positions throughout the command and (c) the type and number of employees supervised. The planning, preparing, issuing, monitoring and enforcement of rules, regulations, and procedures are a major portion of the manager's workload.

C. SCIENTIFIC MANAGEMENT

The principles of management which are regarded as the foundations of scientific management are common to industrial organizations, technical laboratories, and research institutes. The best known scientific management theorists are; Fredric Taylor, Frank and Lillian Gilbreth, and Henry L. Gantt.

1. Fredric Taylor

Fredric Taylor is known as the father of scientific management. He felt that a scientific approach (experimentation, observation, measurement and analysis) was essential to good management. His basic approach was to observe the separate elements or motions for each task a worker performed. After carefully analyzing the job, he would redesign it to develop the "one best way" for all workers. He was interested

in increasing worker efficiency through measurement and analysis of work practices.

2. Frank and Lillian Gilbreth

Frank and Lillian Gilbreth refined and advanced the scientific approach made popular by Taylor. Whereas Taylor had studied relatively gross bodily motions, Gilbreth's developed the use of motion pictures in studying work. For example he identified seventeen basic motions by which a job could be analyzed, (such as search, find, grasp, lift, transport, position). These basic units of motions were called "Therbligs," a slightly altered, backward spelling of Gilbreth.

3. Henry L. Gantt

Another of Taylor's associates, Henry L. Gantt "discovered" production planning and control. His control system, the "Gantt Chart," is still in use today. The Gantt Chart not only helps the manager make optimal use of his resources by carefully scheduling jobs among available resources, but helps to ascertain at a glance whether certain jobs were on schedule or not.

4. Critique

The scientific management school tried to promote efficiency through technical and technology proficiency, and a disregard for personal feelings. It considered man as machine-like in which man is mechanical and motivated only by economic considerations (wages). Their implicit assumptions were that workers are essentially lazy, passive, and unambitious and thus require tight supervision and policing of their

behavior before they will give their best to the organization.

5. Application to NATC

The mission of the Naval Air Test Center is to conduct Research Development Test and Evaluation of aircraft/aircraft weapons systems and their components. The primary output of NATC is technical reports and other services for customers. The scientific management concepts of time-motion studies, standard work methods, standard work times and wage incentives based on work quotas are not applicable to the majority of employees. Scientific management concepts of planning, control and scheduling are used in the management of individual programs and projects.

D. HUMAN RELATIONS MANAGEMENT

In the early years of the scientific management movement behavioral scientists were deeply involved. Their concern was with problems such as worker fatigue, boredom, accidents, and job redesign to obtain maximum efficiency from the employee.

1. Elton Mayo

The "Hawthorne Experiments" gave rise to the "Human Relations management approach. The Hawthorne studies (started in 1927) were prompted by an experiment carried out by the company to determine the effect of different levels of illumination on worker performance. In one group the illumination was increased and in the other it was not. They found that when the illumination was increased, the level of performance increased. But productivity also increased when the illumination level was decreased! Under the guidance of Elton

Mayo the researchers began examining other factors - among them weather conditions, room temperature, rest cycles, wage payments and the workers' physical and emotional condition. It became clear that no single physical factor - least of all the level of lighting - could account for the difference in productivity. The researchers concluded that the way people were treated made an important difference in performance. The net result of the experiment was that the human relations surrounding the work group were more important than physical factors in affecting productivity, thus the Human Relations management method was "discovered."

The human relations management philosophy embraces many well known practices and concepts. Douglas McGregor in The Human Side of Enterprise presented his "Theory X and Theory Y" assumptions of human nature. Fredric Herzberg invented the "Motivational-Hygiene Theory," Abraham Maslow the "Hierarchy of Needs Theory," Blake and Mouton evolved the "Managerial Grid," Rensis Linkert derived his "System 4" and many other human relations concepts have been touted to the manager as the right way to manage.

2. Douglas McGregor

Douglas McGregor, in The Human Side of Enterprise, said that most managers made a set of incorrect assumptions about those who work for them. He called these assumptions, collectively, Theory X and Theory Y. Theory X assumed that man was lazy, personal goals ran counter to the organizations,

and that, because of this, man had to be controlled externally. Theory Y assumptions on the other hand, were based on greater trust in others. Man was more mature, self-motivated, and self-controlled than Theory X gave him credit for. From this theory, McGregor draws several implications for management: (Ref. 50)

> "Management must seek to create conditions (an organization environment) such that members of the organization at all levels can best achieve their own goals by directing their efforts towards the goals of the organization ... Since management controls these rewards, and can therefore both give and withhold them, this task also involves the equitable administration of extrinsic punishments for negative contributions. ... With respect to higher ego needs (and some middle-level social needs) management's task is to provide opportunities for members of the organization to obtain intrinsic rewards from contributions to the success of the enterprise."

3. Abraham Maslow

Abraham Maslow's theory of motivation "need hierarchy" became very popular with managers who tried to incorporate them into their management styles. Maslow's concept of the motivational needs of man are as follows:

1. Basic physiological needs
2. Safety
3. Love
4. Esteem
5. Self-actualization.

The basic physiological needs are first in priority. Man must have food, water, clothing, shelter and air for maintenance of his existence. Once these needs are satisfied man becomes aware of his other needs. Security is the second

in the sequence. Man wants to assure himself that satisfaction of his basic needs will continue: In effect, he desires safety. Once the conditions of safety have been fulfilled, the other higher needs come into prominence. Maslow suggests that the need for love is next, a need that includes desire for affection and association with others. Next man feels the need for self esteem, which is derived from social approval, self-assertion, and self-approval, and finally the need for self-actualization or self-fulfillment.

4. Robert Blake and Jane Mouton

Blake and Mouton are well known for their Managerial Grid concept of management. They developed the Managerial Grid after analyzing industrial managerial behavior. In their studies they found that most manager's actions could be categorized into two areas - concern for people and concern for production. By placing the "people concern" on a vertical axis and "production concern" on a horizontal axis, and each having a scale from one (low) to nine (high) they developed the Managerial Grid. Within this framework Blake and Mouton describe the five basic Grid styles of management: (Ref. 6)

"9,1 Authority-obedience
Efficiency in operations results from arranging conditions of work in such a way that human elements interfere to a minimum degree.

"1,9 Country Club Management
Thoughtful attention to the needs of people for satisfying relationships leads to a comfortable friendly organization atmosphere and work tempo.

"1,1 Impoverished Management
Exertion of minimum effort to get required work done is appropriate to sustain organization membership

"5,5 Organization Man
Adequate organization performance is possible through balancing the necessity to get work out with maintaining morale of people at a satisfactory level.

"9,9 Team Management
Work accomplishment is from committed people: interdependence through a "common stake" in organization purpose leads to relationships of trust and respect."

Blake and Mouton feel that there is "one best way" to manage and that is the 9,9 Team Management style.

5. Critique

The human relation school concepts are concerned with the relationship between the worker and his work situation. The human relations theorists were discontented with the traditional organizational concept of man. They abhorred the mechanical treatment of workers and hoped to create an era of more humanistic industrial relations between management and the worker. Among their beliefs were that the workers were motivated by emotion as well as economic (wage) considerations; that employees brought their attitudes, values, and goals to their organizations; that the employees must be persuaded to participate in the organization; and that goal conflicts between the organization and the employees must be reconciled.

6. Application to NATC

The Civil Service has made supervisory training (including human relations) a mandatory requirement for all civil

service supervisors. The supervisory training requirement at the Naval Air Test Center includes forty hours training in Civil Service rules and regulations and forty hours of training in supervisory knowledge and skills. The supervisory training is a one time requirement and no provisions are made for periodic updating or retraining.

Middle management training is available from Civil Service organizations and from private industry. However, this training is on a voluntary basis and no program exists to ensure that present and prospective middle managers receive appropriate management training.

E. MANAGEMENT SCIENCES

The management sciences method of management finds its roots in the scientific approach to problems. The management sciences are a product of developments in a number of disciplines. Developments in the field of industrial engineering, the application of statistics to the area of quality control, and new mathematical tools of analysis were developed and applied to problems of management efficiency. These and other more sophisticated techniques gave birth to what has been commonly known as "Operations Research." More recently managers have been exposed to computer systems and complex Management Information Systems as methods contributing to the efficiency of management.

In addition to the methods and techniques already indicated, current methods to improve and change management processes

include "Project Management," "Planning Programming and Budgeting System," "Program Evaluation Review Techniques," to name only a few. The major emphasis of this management school has been in analytic techniques such as; Operations Research, Decision Theory, Linear Programming, Distribution Models, Dynamic Programming, Game Theory, Inventory Models, Waiting Lines, and Simulation. Important contributors to promoting the philosophy and application of management sciences include C. West Churchman, Russel Ackoff, George Dantzig, Richard Bellman, among many others.

1. Critique

Management science is characterized by: (1) the system approach, (2) interdisciplinary teamwork, (3) application of the scientific method, and (4) the use of quantitative data and models. The essence of this approach is, first, that problems must be expressed in quantitative terms, and, second, that symbolic (as opposed to verbal) modes of expression and reasoning are to be preferred. In recent years there has been a great increase in the delivery of management sciences trained business administration students into the industrial world. However there has been general disenchantment with the hard-nosed number-oriented emphasis in decision making.

2. Application to NATC

The Naval Air Test Center is a technical organization with the vast majority of its managers having engineering or

science degrees. Few of these managers have formal training in management theory or management sciences and have been hired, and promoted to management positions based upon technical competence. Very little management sciences techniques (linear programming, operations research, system analysis, simulation, etc.) are used in management decision making. The Naval Air Test Center has not adopted quantitative techniques as an aid to making analysis concerning basic management decisions regarding operational performance, program evaluation, resource allocation, planning and budgeting, and for developing operational and strategic strategies.

F. BEHAVIORAL SCIENCES

The contributions of the four management schools described thus far (classical management, scientific management, human relations, and management sciences) pushed the frontiers of management into wider and wider areas of both human and organizational conflicts. A tremendous interest was generated in the integration of the best elements of these schools and applying the results to the management problems of an ever increasingly complex world. These efforts resulted in the evolution of the behavioral science school. The behavioral science school built essentially on the foundations of the scientific method and the concern for human behavior in organizations. It concentrates on that area of management which deals with individual behavior, group behavior, and behavior of organizations. The behavioral science approach is rooted

in the belief that actual human behavior in organizations, at whatever level, can be understood only if it is described, and explained on a scientific and humanistic basis. Specific areas of interest that have attracted the interest of behavioral scientists include such topics as employee morale, job satisfaction, motivation, and interpersonal relations. Behavioral sciences is essentially descriptive in nature (it describes what is: how people do behave). Organizations are simultaneously economic, technical, psychological, and social systems, thus a truly effective management concept should pay sufficient attention to all the subsystems of an organization. Thus the behavioral science school integrates the other management concepts (structural, technology and human) into a new systems framework.

1. Organization Development

The point has been constantly made in this thesis that traditional organizations work on the assumption that people are essentially opposed to work and lack the capacity for self-direction and personal responsibility. Modern theories of organizations take a contrasting view, i.e., people do have the capability to become psychologically involved in cooperative activity and, under certain conditions, to be virtually self-motivated and self-controlled. This new concept of the behavior of people requires that management change its way of doing business with respect to organizations and people in the organization. Organization Development (OD) is an emerging

behavioral science discipline that provides a set of methodologies for systematically bringing about organizational change and improvements.

a. What is OD?

Organization Development is a process which attempts to increase organizational effectiveness by integrating individual desires for growth and development with organizational goals. The focus of OD, is on innovation and change. Warren Bennis provided one of the first definitions:

> Organization Development (OD) is a response to change, a complex educational strategy intended to change the beliefs, attitudes, values, and structure of organizations so they can better adapt to new technologies, markets, and challenges, and the dizzying rate of change itself. (Ref. 5)

The emphasis is on OD as an educational strategy for changing the culture of an organization. It also suggests the importance of education and training in organizational change processes, however it does not provide any indication of how to make change, and it describes OD as "a response to change." This implies that OD is reactive rather than proactive strategy.

Richard Beckhard provided further insight into OD in his definition:

> Organization Development is an effort (1) planned, (2) organization-wide, and (3) managed from the top, to (4) increase the organizational effectiveness and health through (5) planned interventions in the organizations "processes," using behavioral-science knowledge. (Ref. 3)

He relates OD to planned organization change, which implies change goals and strategies, and that the approach is both systemic and systematic. He also stresses the use of behavioral science knowledge to facilitate the process. On the other hand there are several limitations to Beckhard's description. OD cannot always be "managed from the top," other strategies must be used.

Wendell French added a number of useful dimensions to the definition:

> Organization Development refers to a long-range effort to improve an organization's problem-solving capabilities and its ability to cope with changes in its external environment with the help of external or internal behavioral-scientist consultants, or change agents, as they are sometimes called. (Ref. 22)

Included in this definition is the idea that OD involves long-range activities rather than short-term activities, and that OD means continual effort and ongoing commitment to change. This definition also stresses the use of "behavioral-scientist consultants" as the agents of change. The emphasis on behavioral scientists and consultants as change agents tends to be limiting. Engineers, scientists, administrators and many others who are not behavioral scientists can also serve as agents of change.

b. Value Beliefs of Organization Development

Organization Development, like other disciplines, is value-based. That is, its theory and practices are based on a set of humanistic values about individuals and their work in organizations. These values provide the basis of what

is to be changed and how; they determine the nature and source of data to be used to plan and implement the changes; they influence the methods and techniques used to change the organization.

(1) Value Beliefs About People (Ref. 23)

- Most people have drives toward personal growth and development, and these are most likely to be actualized in an environment which is both supportive and challenging.
- Most people desire to make, and are capable of making, a much higher level of contribution to the attainment of organization goals than most organizational environments will permit.

(2) About People in Groups (Ref. 23)

- Most people wish to be accepted and to interact cooperatively with at least one small reference group, and usually with more than one group, e.g., the work group, the family group.
- One of the most psychologically relevant reference groups for most people is the work group, including peers and the superior.
- Most people are capable of greatly increasing their effectiveness in helping their reference group solve problems and in working effectively together.
- For the group to optimize its effectiveness, the formal leader cannot perform all of the leadership functions in all circumstances at all times, and all group members must assist each other with effective leadership and member behavior.

(3) About People in Organizational Systems (Ref. 23)

- Organizations tend to be characterized by overlapping, interdependent work groups, and the "linking pin" function of supervisors and others needs to be understood and facilitated.
- What happens in the broader organization affects the small work group and vice versa.
- What happens in one subsystem (social, technological, or administrative) will affect and be influenced by other parts of the system.

- The culture of most organizations tends to suppress the expression of feelings which people have about each other and about where they and their organizations are heading.
- Suppressed feelings adversely affect problem solving, personal growth, and job satisfaction.
- The level of interpersonal trust, support, and cooperation in most organizations is much lower than is necessary or desirable.
- "Win-lose" strategies between people and groups, while realistic and appropriate in some situations, are not optimal in the long run to the solution of most organizational problems.
- Viewing feelings as data important to the organization tends to open up many avenues for improved goal setting, leadership, communications, problem solving, intergroup collaboration, and morale.

Numerous special characteristics of OD distinguish it from conventional human relations programs. Some of these characteristics are:

(1) An emphasis on the work team and organizational processes in contrast to individuals.

(2) An emphasis on the work team as the key unit for learning more effective modes of organizational behavior.

(3) An emphasis on the collaborative management of work team culture.

(4) An emphasis on the management of the culture of the total system.

(5) A view of the change effort as an on-going process.

Organization Development has a goal of increasing the organizational <u>effectiveness</u> and <u>health</u>. These two goals are of sufficient importance to be discussed in greater detail. OD concepts of organizational effectiveness and organizational health are somewhat foreign to concepts normally held by managers.

c. Organizational Effectiveness

At the present time there is a lack of clear understanding of the definition and conceptualization of the term "organizational effectiveness." Campbell, Peterson and Dunnette (1974) point out that organizational effectiveness, as discussed in the literature, is discursive or theoretical in nature and is not empirical, and that this is a recognition of the difficulty in doing systemic research in a domain where an entire organization is counted as just one degree of freedom. Based on their extensive review of the literature on organizational effectiveness they suggest three general points of view, with variations, as to how one should assess organizational effectiveness. These views are the goal centered, and natural system, and the human organization.

The goal centered view makes a reasonable explicit assumption that the organization is in the hands of a rational set of decision makers who have a set of goals in mind which they wish to pursue. Further, these goals are few enough in number to be manageable and can be defined well enough to be understood. Given that goals can be thus identified it should be possible to plan the best management strategies for attaining them. Within this concept the way to assess organizational effectiveness would be to develop criterion measures to assess how well the goals are being achieved. Typical goal criteria of business organizations are listed in Table 1.

The natural systems view makes the assumption that, if an organization is of any size at all the demands placed

TABLE 1

ORGANIZATIONAL EFFECTIVENESS CRITERIA OBTAINED
FROM LITERATURE ON MANAGEMENT OF BUSINESS ORGANIZATIONS

Typical Criteria
Cost-Benefit
Overall Efficiency
Profit
Quality of Output
Growth
Stability
Absenteeism
Turn over
Satisfaction
Conflict/Cohesion
Rate of Return on Invested Capital
Rate of Return on Sales
Number of New Products Developed
Ratio of Cash to Accounts Receivable
Ratio of Current Assets to Current Liabilities
Ratio of Total Assets to Total Liabilities
Administrative Cost Per Unit Produced
Research and Development Cost Per New Product Developed
Number of Complaints
Number of Service Calls
Number of New Customers

upon it are so dynamic and so complex that it is not possible to define a small number of organizational goals in any way that is meaningful. Rather, the organization adopts the overall goal of maintaining its viability or existence through time without depleting its environment or otherwise fouling its nest. Thus to assess an organization's effectiveness one should try to find out if an organization is internally consistent within itself, whether its resources are being judiciously distributed over a wide variety of coping mechanisms, whether it is using up its resources faster than it should, and so forth.

The human organization focus is on "people," and not on the organization's technology or physical assets, as a measure of effectiveness. While the Organizational Development model of organizational effectiveness is not clearly stated by most authors, it is apparent that OD has a fairly specific kind of model in mind, which serves as a standard of an "effective/healthy" organization. Most OD researchers operate with some specific organizational characteristics that define a healthy system. Several lists of such characteristics are presented in Table 2. The listed characteristics are only a sample of the many variables identified by OD researchers.

French (1972) lists seven such desirable end states: an increased level of trust and support among organizational members, confrontation rather than avoidance of problems,

TABLE 2

ORGANIZATIONAL EFFECTIVENESS CRITERIA OBTAINED FROM LITERATURE ON ORGANIZATION DEVELOPMENT

	Criteria	Source
1.	High trust and support among organizational members	French (1972)
2.	Confrontation (not avoidance) of problems	"
3.	Knowledge based on authority as well as assigned roles	"
4.	Open communications	"
5.	High satisfaction and enthusiasm for organizational members	"
6.	Frequent synergistic solutions	"
7.	Presence of group responsibility for planning and implementation	"
1.	Open, problem solving climate	Bennis (1969)
2.	Role authority supplemented with authority based on competence	"
3.	Decision-making responsibility is located close to information source	"
4.	High trust among persons and groups throughout organization	"
5.	Competition is relevant to work goals and collaborative efforts are maximized	"
6.	The reward system recognizes both achievement of organizational goals (profit or services) and development of people	"
7.	High sense of ownership of organizational objectives throughout work force	"

TABLE 2 (Cont.)

	Criteria	Source
8.	Managers manage according to relevant objectives rather than according to past practices	Bennis (1969)
1.	Organization managers work against goals	Beckhard (1969)
2.	Form follows function	"
3.	Decisions are made by and near the source of information	"
4.	Reward systems rewards all of the following short-term profit & productivity subordinate growth creation of viable work group	"
5.	Communications are open in all directions	"
6.	Conflict and conflict situations treated as problems to be solved	"
7.	High conflict over ideas, none over interpersonal difficulties	"
8.	Organization is an <u>open</u> system	"
9.	Values and management strategy places emphasis on maintaining of integrity and uniqueness in an interdependent environment	"
10.	"Action research" is the way of life for organization, feedback mechanisms are built in	"
1.	Communication of information is reliable and valid	Schein (1965)
2.	Internal flexibility and creativity in accordance with information	"

TABLE 2 (Cont.)

Criteria	Source
3. High integration and commitment to goals of organization	Schein (1965)
4. Internal climate is characterized by support and freedom from threat	"

authority based on knowledge and skill as well as assigned role, increased openness in lateral, vertical, and diagonal communications, increased enthusiasm and satisfaction for organizational members, increased frequency of synergistic solutions to problems (creative solutions in which all parties gain more through the cooperation than through conflict), and increased levels of self and group responsibility for planning and implementation. Bennis (1969) lists nine normative goals which overlap Franch's a great deal but include more specificity.

Taking the assumptions and normative statements outlined above, a picture of the "effective organization," according to OD, begins to emerge. Such an organization will be aware of, open to, and reactive to change. It will be searching for new forms and methods of organizing. It will have an optimistic view of its members, allowing them room to self-actualize and trusting them with the responsibility for their own efforts.

d. Importance of Human Relations and Organization Development

The reasons for the greater emphasis upon human relations in management are numerous. Foremost is the thesis that serious recognition of these relationshipw will contribute to the greater creativity, productivity and effectiveness of both the organization and the workers in the organization.

The second reason for devoting greater attention to the human relations in management is somewhat negative. If management does little or nothing in the area of human relations, or on the other hand gives evidence of a negative attitude toward the human aspects of the work, there is the possibility of counter organizations being created to oppose the management group. Much of the force behind the Union movement can be traced to the lack of attention to the human aspects of the work in favor of an economic focus.

The third basis for increased activity in the field of human relations is the increased governmental intervention in the affairs of the firm. History has shown that the mismanagement of the human resources of the firm has led to greater governmental participation in the firm's business. A prime example is the Fair Labor Standards Act and the Fair Employment Practice Laws which attempt to prohibit discrimination by employers, because of race, religion, creed or color. The Civil Rights Act prohibits such discrimination by employers, labor unions, employment agencies, government, etc. Society feels that its members, who are under the control of

management, have certain rights and privileges which cannot be transgressed.

Fourth and foremost, the final argument for greater emphasis on the human relations in management rests on moral grounds. The attainment of economic goals of an organization should not under any circumstances trample moral values.

e. Critique

The OD process involves a reorientation of management thinking and behavior. OD advocates assume employees have the capability to grow through learning how to improve their own work climate, work processes, and the resulting work outputs. They also assume that conflict among the needs of individuals, groups, and organizations are inevitable but advocate openly confronting these conflicts using problem-solving strategies and techniques. The goal of OD is to optimize the use of organizational resources in solving work problems to the optimal use of human potential.

Negative reactions to OD have been voiced by many managers. Managers of the old school are wary of anything they consider to be emotional or sentimental. They tend to lump together sensitivity training, encounter groups, transactional analysis, touching, etc. and, by association some OD activities. They suspect that OD is neither scientific, nor an art, that it is a mystical process not to be engaged in by hard nosed managers. They often label the behavioral sciences concepts as "goody-goody," "hand holding," "soft,"

or "permissive." But if one looks deeper into OD it is a relatively hard-nosed, practical form of management, and asks more of the employee than do most other forms of management.

G. CONTINGENCY THEORIES OF MANAGEMENT

By its very nature, managerial practice requires that managers take into account the realities of the situation when they apply theory, principle or techniques. Management sciences and theory cannot successfully advocate the "one best" way to do things in every situation. Contingency management and situational management has been proposed in the recognition that application of theory to practice must necessarily take into account a given set of circumstances.

Selnick in TVA and Grass Roots (1949, Ref. 58) showed how various organizations and interest groups in the outside environment of an organization can affect managerial decisions. The structure of any organization is subjected to many such outside restraints, he claimed, so the organization develops both formal and informal systems which help it to adapt to the outside environment, and thus to survive.

In 1961, Burns and Stalker (Ref. 9) published a study of British industry. They found differences in the structure of the firms they studied, and traced these differences to the nature of the technology used and the markets served. When the technological and market environments were uncertain, a loose organization was found. When the environment was more predictable, a more traditional bureaucracy seemed to

be more effective. Another study reported by Joan Woodward (1965, Ref. 10) showed that the type of organizational structure used was related to economic performance when the type of technology was taken into account.

Lawrence and Lorsch (Ref. 38) studied a highly efficient and a less efficient organization in three different industries: plastics, food, and container. They concluded that the closer the organization structure matched the requirements imposed on it by the environment, the more successful it was. The work of Burns and Stalker, Woodward, and Lawrence and Lorsch dealt primarily with organization structure and its effect on management practices.

A similar contingency approach to management practices and theory was beginning to take place in the behavioral sciences. In 1961 Vroom reported research which showed that there was not a single relationship between job performance and the individual's degree or participation in determining the job requirements. He found that the personality of the individual made a difference in how participation and job performance were related. Thus, the way one managed a subordinate should depend on the characteristics of the subordinate.

An even stronger impact was found by Fred Fiedler. He had been involved for a number of years in the study of leadership. In 1967 his Theory of Leadership Effectiveness presented a contingency (situational) theory of leadership. Many scholars are busy trying to understand the situational

complexity and to provide managers with tools to analyze the complex issues in each specific situation and to decide on appropriate action. Examples of these efforts are listed in Table 3.

TABLE 3

EXAMPLES OF SITUATIONAL THEORY

AUTHOR	PUBLICATION	MAJOR FOCUS
Fred Fiedler	A Theory of Leadership Effectiveness	Leadership of a Work Unit
John Kotter	Organizational Dynamics	Organizational Change
Edward Lawler	Pay and Organizational Effectiveness	Employee Motivation
Paul Lawrence and Jay Lorsch	Organization and Environment	Organizational Arrangements to Fit Environment
Harry Levinson	Men, Management and Mental Health	Employee Motivation
Jay Lorsch & John Morse	Organizations and Their Members	Organizational Arrangements and Leadership in Functional Units
Edgar Schein	Career Dynamics: Matching Individual and Organizational Needs	Life Career Stages and Organizational Arrangements
Robert Tannenbaum and Warren Schmidt	How to Choose a Leadership Pattern	Leadership
Victor Vroom and Philip Yetton	Leadership and Decision Making	Leadership Behavior for Different Types of Decisions
Joan Woodward	Industrial Organization: Theory and Practice	Organizational Design

IV. PLANNED CHANGE

A. THE CONCEPT OF PLANNED CHANGE

Almost all definitions of OD include the notion of planned change. The most contemporary definitions of planned change are found in the work of Lipitt, Watson, and Westly. (Ref. 44) They have distinguished between spontaneous or developmental change, fortuitous or accidental change, and planned change. The first two types of change are unplanned. Unplanned change, according to this definition, originate outside of the system experiencing the change. Planned change, on the other hand, originates with a decision by the system (or social organism) to deliberately change its functioning.

The characteristics which describe planned change and distinguish it from other forms of social change, as noted by Margulies and Raia (Ref. 48) are as follows:

1. Planned change involves a deliberate, purposeful, and explicit decision to engage in a program of problem solving and improvement. The critical words in this dimension are "deliberate" and "purposeful." Planned change is change which is intended.

2. Planned change reflects a process of change which can apply to a variety of human client systems. The notion of planned change can be used to implement change whether the client system is an individual, a group, an organization, or a community.

3. Planned change almost always involves external professional guidance. Planned change generally involves the intervention of someone who has professional skills in the particular technologies used to direct and implement the change.

4. Planned change generally involves a strategy of collaboration and power sharing between the change agent(s) and the client system.

5. Planned change seeks utilization of valid knowledge or data to be used in the implementation of change. Planned change, then, is an extension of the scientific method. It is the conscious application of knowledge as an instrument or tool for examining and modifying existing practices, or simply in the solution of social problems.

B. THE PROCESS OF PLANNED CHANGE

There have been many attempts to develop an overall strategy for planned change. Many have similar underlying concepts of diagnosis, planning, action, and evaluation. Kurt Lewin viewed planned change as consisting of a three-step procedure: Unfreezing the present level, Moving to new behavior levels, and Refreezing at the new desired level.

Lippitt, Watson and Westley (Ref. 44) expanded the three-step process into seven phases : development of a need for change, establishment of a change relationship, diagnosis of the client system's problems, examining alternatives and goals of action, action implementation, generalization and stabilization of change, and terminating the change agent relationship and evaluation. Lawrence and Lorsch (1969) see four stages: diagnosis, planning action, implementation action, and evaluation. The Navy planned change approach is roughtly patterned after the organizational development model developed by Kolb and Frohman (Ref. 36). The Kolb-Frohman model involves seven phases as shown in Figure 2.

PROCESS OF PLANNED CHANGE

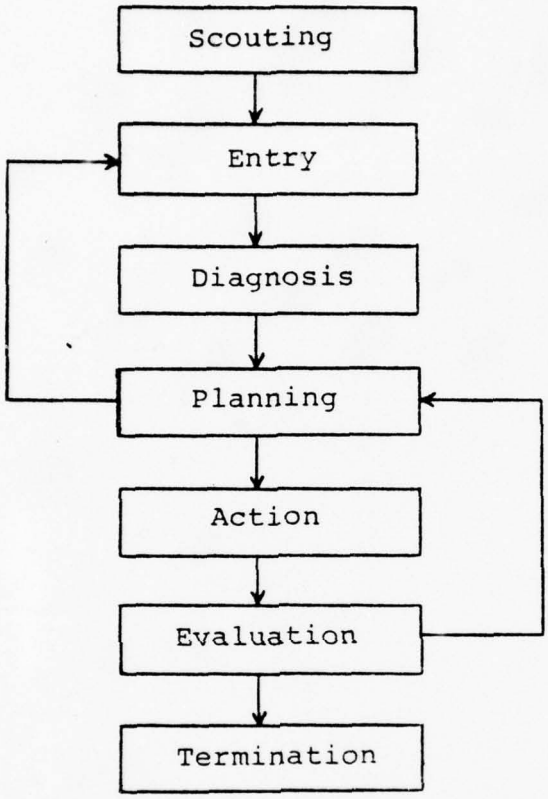


Figure 2. Kolb-Frohman Model of OD Intervention

Scouting In the scouting phase, neither the client nor the consultant has committed himself to working with the other. Each is free to explore the potential relationship in order to obtain some preliminary data about the other. The client system is searching for resources and solutions to its problems. An invitation to a consultant to work with the client is based on the client's perception that the consultant can help in some way.

Entry Once the entry point has been selected, the consultant and the client system, through the entry representative, begin to negotiate a contract. In its use here, the word "contract" implies more than a legal document agreed upon at the outset of the project. The contract will define if and how the succeeding stages of the planned change process will be carried out. The emphasis is on a continuing process of sharing the

expectations of the consultant and the client system and agreeing on the contributions to be made by both parties.

Diagnosis The diagnostic phase focuses on four elements: the client's felt problem, the client's goals, the client's resources, and the consultant's resources. Starting the diagnosis with the client's felt problem means something more than simply copying his words. It involves appreciating the client system's culture and language, seeing events the way the client sees them.

Planning The creation of plans for change should proceed cooperatively with the client to insure that the plans are appropriate to his needs, and that he will understand them and be committed to their execution. The first planning step is to define the specific behavioral objectives to be achieved by the change.

Action In the action phase, the best change strategy developed in the planning phase is implemented. If the work of the previous four phases has been done well, the action plan should proceed smoothly.

Evaluation The tradition in the scientific evaluation of change projects has been to separate the evaluation phase from the action phase. To insure unbiased results, an independent researcher is often hired to evaluate the change efforts. While this approach has some benefit from the standpoint of scientific objectivity, it has some cost in terms of the effective implementation of change.

Termination The consultant-client relationship is by definition temporary. Yet most consulting relationships are conceived to bring about some permanent or far-reaching improvement in the client system's functioning. The issue of termination must therefore be given attention throughout the relationship.

C. THE TECHNOLOGY OF ORGANIZATION CHANGE

Despite the apparent overall consensus in the philosophy of OD, and the benefits to be gained from the application of OD to organizations, there is a noticeable lack of agreement on the appropriate means of applying change strategies. Various specialists have advocated a number of potentially successful strategies. To undertake an in-depth examination of all of the possible strategies is not practical; conse-

quently only the more widely practiced techniques will be discussed in any detail.

The choice of the particular change techniques should depend upon the diagnosis of the problem. Given the nature of the available technology and the state-of-the-art in OD at any particular time, there has been a natural tendency to focus on one strategy, depending upon the expertise of the change agent. OD practitioners in the past tended to view OD as a specific interventional approach, or a set of techniques, rather than as an overall process involving the total organization.

Huse (Ref. 34) using the work of Harrison (1970) presents a typology of change according to the depth individual emotional involvement. This typology is presented in Table 4.

French and Bell (Ref. 24) developed a typology of change strategies based on the size and complexity of the client group. Their typology is shown in Table 5.

Other writers have classified change methods by differentiating between the formal roles and functions in organizations (structure) from the patterns of interpersonal behavior among individuals in the organizations (process). OD interventions aimed at changing the former are called structural approaches while interventions aimed at changing the latter are called process methods.

Examples of structural approaches include Role Analysis Technique (Dayal and Thomas, 1968), role negotiations (Harrison, 1973), responsibility charting (Galbraith, 1973), temporary

TABLE 4

A TYPOLOGY OF CHANGE ACCORDING TO DEPTH OF INTERVENTION

- Systemwide Approaches
  - Contingency theories of organizational design
  - Survey feedback
  - Organizational confrontation meetings
  - Grid organizational development (The six-phase Grid OD program covers almost every level, but it is placed here for the sake of convenience and clarity, since it does not involve a total, systemwide effort.)
- Individual/Organizational Interfaces
  - Job design
  - Decision centers
  - Role analysis
  - Management by Objectives
- Concern with Personal Work Style
  - Process Consultation
  - Third-Party Intervention
  - Team Building
  - Family Group Diagnostic Meeting
  - Family Group Team Building Meeting
  - Improving Interdepartmental A Intergroup Intervention
- Intrapersonal Analysis and Relationships
  - Life and career-planning interventions
  - Laboratory training
  - Encounter groups
  - Personal consultation

French and Bell (Ref. 24) developed a typology of change strategies based on the size and complexity of the client group. Their typology is shown in Table 5.

TABLE 5

TYPOLOGY OF INTERVENTIONS BASED ON THE SIZE AND COMPLEXITY OF THE CLIENT GROUP

Client Group	Types of Interventions
Interventions designed to improve the effectiveness of individuals.	Life and career-planning activities. Role analysis technique. Coaching and counseling. T-group (sensitivity training). Education and training to increase technical skills, relationship skills, group process skills, or decision-making, problem-solving, planning, goal-setting skills Grid OD phase 1.
Interventions designed to improve the effectiveness of Dyads/Triads.	Interviews or questionnaires. Process consultation. Third-party peacemaking. Grid OD phases 1, 2.
Interventions designed to improve the effectiveness of Teams and Groups.	Interviews or questionnaires. Team-building Family T-group. Survey feedback. Process consultation Role negotiation subgrouping Role analysis technique. Collages. "Start-up" team-building activities. Education in decision making, problem solving, planning, goal setting in group settings.
Interventions designed to improve the effectiveness of intergroup Relations.	Interviews or questionnaires. Intergroup activities. Organizational mirroring (three or more groups). Process consultation Subgrouping. Third-party peacemaking at group level. Grid OD phase 3. Survey feedback.

TABLE 5 (continued)

Client Group	Types of Interventions
Interventions designed to improve the effectiveness of the Total Organization.	Interviews or questionnaires. Sensing. "Confrontation" meetings (Beckhard). Subgrouping. Strategic planning activities. Grid OD phases 4, 5, 6. Survey feedback. OD strategy planning.

task forces (Beer, 1976), revision of structures and roles (Lawrence and Lorsch, 1976), and job design (Beer, 1976).

Examples of process approaches include Gestalt (Herman, 1972), Transactional Analysis (Rush and McGath, 1973), process consultation (Schein, 1969), third party consultation (Walton, 1969), team building (Dyer, 1977), goal setting (Bechard 1969) and facilitating group meetings (Schein, 1969).

French (1978) classify both the Managerial Grid OD and Survey Feedback OD as a comprehensive strategy because if they are carried our through all of their phases it will be a comprehensive, longitudinal effort involving the total organization. He further states, "Survey feedback is also included under the rubric of comprehensive strategies because it frequently includes the administering of a questionnaire to all organizational members followed by an exploration of the data in intact work groups throughout the organization. Thus survey feedback can be a massive OD intervention over a relatively short time span. In itself it is not a long term strategy. When coupled with a long-range approach to the development of interpersonal and group dynamics skills, and coupled with intergroup and other interventions, it can be a part of a long-term comprehensive strategy for organization improvements."

D. NAVY PLANNED CHANGE EFFORT

The U.S. Navy has been involved in organization development since 1971 (Forbes 1977). In response to the turbulent social conditions of the late 1960's and early 1970's the

Navy recognized and responded to the real need to improve the state of relations among military personnel of different racial and ethnic background. There was widespread dissatisfaction among minority group members over the treatment they were receiving both from whites as individuals and from the white-oriented system. This dissatisfaction led to deep hostility toward the system and resulted in threatened and actual inter-racial violence, with confrontations occurring between minority enlisted personnel and with the military authority structure.

The Navy, in the aftermath of the USS Kittyhawk and Constellation racial incidents (October and Nov. 1972) had to face the realities of racial unrest by instituting programs intended to guarantee equal opportunity for minorities and women. This program required that all commands in the Navy develop and actualize Affirmative Action Plans aimed at the eradication of racism from Navy life, and ensuring equal treatment for all Navy personnel regardless of race, creed, color, religion or national origin.

The earliest of the Navy race relations programs focused on individual racism, and tended to operate on an individual basis only. Minorities aired their grievances, from their perspective, and whites were compelled to listen. Interracial confrontations were staged or created, in a controlled environment with the intent of increasing white awareness of the status and treatment of minorities in American society.

The second phase of the race relations program employed a different approach. It was based on more of an "intellectual" than an "emotional" basis. A more traditional educational mode of change was used to supplement or replace confrontation as a learning tactic. The scope of the program was increased to take into account the concept of institutional discrimination as well as individual discrimination. The objective was to create an attitude change and increase the level of relevant knowledge in the general population, with the hope that behavior change would result in the long run. In addition, sex discrimination as well as racial discrimination was included in the program and the civilian work force of the Navy began to be included in the target audience.

During this same time frame a major change in the philosophy of Navy manpower and management policies and practices were being undertaken. Under the leadership of the then Chief of Naval Operations, Admiral Elmo Zumwalt, the whole Navy structure, traditions, procedures, and policies were being carefully examined for their appropriateness and relevancy in the realities of the changing society. The formal Navy organizational development program was initiated by Admiral Zumwalt in his personal message NAVOP Z-55. This message stated in part (Zumwalt, 1970):

> My deep belief that the Navy's greatest resource lies in our Human Assets has been previously stated and is the backbone of my efforts in the personnel areas to date. Feedback from recent field trips, the retention studygroups, and many other sources indicate the desirability of adapting some of the contributions of the behavioral

> sciences to the effective management of these vital assets. To this end, I have directed the establishment of a pilot program, involving approximately 24 selected personnel, who will develop and evaluate new ideas and techniques in the Human Relations area. My objective is to improve the management of our Human Resources by enhancing our understanding of and communications with people.

This pilot group, known as the Human Resources Management Program (HRMP), began the initial work that led to the present program. Forbes (Ref. 19) states:

> The pilot group, in attempting to carry out its broad organizational charter, examined a wide range of past, existing, and projected ideas from both the military and civilian sectors. After much deliberation, investigation, and analysis, the basic strategy which appeared to show the greatest promise for meeting the objectives of the Chief of Naval Operations was -- Organization Development.
>
> An intensive search was then carried out into the current forms and practices of OD. Finally, four avenues were considered to be potentially both realistic and effective:
>
> (1) The Grid Managerial and Organization Development System developed by Drs. Robert Blake and Jane Mouton (Blake and Mouton, 1963),
>
> (2) The Instrumented Survey-Feedback Method utilized by the Institute of Social Research at the University of Michigan (Bowers and Franklin, 1975),
>
> (3) The Team Development Method, as influenced by McGregor's work at the Massachusetts Institute of Technology (Bennis, 1969), and
>
> (4) The Laboratory Learning Method, an approach to individual change featuring the sensitivity training or T-Group (Schein and Bennis 1965).

The first Navy-unique organization development effort incorporated features of all of the selected techniques with the program emphasis on Navy leadership. The program was called "Command Development" and it contained a Navy leadership approach called the "N-man-concept."

1. Survey Guided Development

In 1973 a new Human Goals program was conceived which consolidated many existing Human Resources Management programs into one unified effort, including Command Development. The Human Goals Plan (Weisner 1973) called for major reorganization of efforts and a change in program focus. The Command Development Program was restructured into a mandatory, formally scheduled, organizational improvement system entitled, "The Human Resource Management Cycle." The Human Resource Management Cycle employs as its basis a process known as "Survey-Guided Development." The process is a modification of the instrumented survey approach to organization development created by the members of the Institute of Social Research, University of Michigan (Likert, 1967).

The Human Resources Management Cycle (HRMC) is a chronologically sequenced series of overlapping action steps tailored to assist commanding officers in improving the overall mission effectiveness of their units. The change approach is patterned after the organization development consultant model developed by Kolb and Frohman (1970). The program relies upon a survey feedback change strategy; is primarily aimed at the development of individual units; uses internal

consultants as the principal agents of change; and strives toward a goal of increased organizational effectiveness. (Forbes 1977). It is a highly structured, time-bound, mandatory program managed by the line structure of the Navy.

The principal diagnostic tool of the HRM Program is the HRM Survey. The primary purpose of the survey is to assess the quality of the organizational climate along a variety of dimensions, e.g., communication, motivation, satisfaction, etc.

The cornerstone of survey-guided development is the diagnosis of the organization which focuses on the social-psychological aspects. This diagnosis of the organization is based upon information obtained from the survey questionnaire. This information provides the organization members with the kind of descriptive picture which will help them to monitor and adapt to changing demands and situations more smoothly and to anticipate and solve problems more effectively.

Survey-Guided Development is based upon the theory that three factors need to be taken into account in an organizational development effort: the behavior(s) which are problematic, the conditions which created those behaviors, and the interventions or activities which will correct the conditions creating the problems. These three factors may be stated in the form of three simple questions: What is it that people are doing, or not doing, that is a problem? Why are they doing or not doing these particular things? Which of the many possible interventions or activities would be most likely

to solve the problems by focusing upon why the problem exists? It is crucial that these three questions be answered, and answered correctly, since it would be of no help to the organization if the organization development effort focused upon changing behaviors which were not the problem behaviors. Nor would it help if a great deal of effort were directed toward solving the right problem by changing the wrong conditions or using the wrong interventions to change them. Thus it is important that changes be based upon an accurate diagnosis of problems and their causes.

Survey-Guided Development relies upon a standardized questionnaire to gather the needed information for assessing how well an organization functions. That is a machine-scored survey with a standard set of questions shown to be relevant and meaningful in many types of organizations is administered to organization members. The responses are stored and can be re-called when the organization wants to compare its present with its past functioning. An organization can also compare itself with all, or various kinds of other organizations which have used the survey. The survey data is made available to organization members, thus it provides tangible, manageable information which members themselves can use as a tool for identifying strengths and weaknesses of their command or group. The data encourages personnel to look at specific examples of concrete conditions and behavior which can be improved. They can plan, on the basis of what their data show, to work toward an increased

level of effective functioning.

The single survey question is the most basic unit of data and provides the most specific information. The Navy Human Resources Management Survey contains 88 questions. (See Appendix I) The questions measure respondent perceptions along a five choice Likert-type scale (Likert, 1961). The questions are further arranged into indices, and the indices further ordered into dimensions.

V. APPLICATION OF OD TO THE NAVAL AIR TEST CENTER

In an attempt to improve human resource management at the Naval Air Test Center, this thesis has provided a summary review of management theory, including a description of behavioral science as it has emerged in the last two decades. OD is defined as a planned effort to improve the organization's effectiveness, using behavioral science knowledge. Its goal is to maximize the use of the organization's resources in solving work problems through the optimal use of human potential. Recognizing its usefulness, OD techniques have been embraced by numerous organizations, including the Navy. This chapter now focuses on the applicability of OD to the Naval Air Test Center. The following sections are intended to introduce and orient the NATC managers to the techniques and tools available for improving organizational effectiveness.

Section A. Develops a Contingency Model Analysis of NATC

Section B. Develops a generalized guide for Organization Diagnosis/Planning

Section C. Provides a sample HRM Analysis - TSD

The objective of this chapter is to provide the NATC managers with methodologies and techniques for applying OD to their organizations. Rather than solving problems, the intention is to assist NATC personnel in identifying problems and developing strategies for organization improvement.

A. CONTINGENCY MODEL ANALYSIS

1. Overview

Contingency Theory is a relatively new and innovative approach to Organization Development (Lawrence and Lorsch, 1967). Concluding that there is no best way to manage, contingency theories make use of a wide variety of OD techniques. The basis for the contingency approach is a careful analysis of the organization and its environment. The Lawrence and Lorsch model is based on three action premises:

* There is no "best way" to design an organization.
* The design of an organization and/or its subsystems must "fit" its environment.
* The needs of individual organization members are better satisfied to the extent that the organization is properly designed.

In effect, the classical theorists who proposed rigid rules and hierarchical controls may well have been correct for the type of organizations with which they were familiar; more recent theorists who have strongly argued for more participative decision making may, in many situations, be equally correct. The contingency theory of management attempts to bring together the contributing ideas of various management theories in an integrated and systematic way. As is pointed out in this thesis, the diagnostic activities are the basic foundation that underlies organization development. The diagnosis and analysis of NATC is based on Harold Leavitt's concepts of human behavior and management.

In today's environment, organizations are considered a way of life. Most people earn their livelihood through organizations and accept the fact that, while not perfect, organizations are a necessity. Because of this imperfection, organizations vary widely in their ability to satisfy individual, group, and organization goals. Just as the climate and environment vary among organizations, so also there is a difference among the subelements of a particular organization.

Organizations develop strategies for dealing with individuals and groups to accomplish their mission. The individual also develops his strategy, which can vary from hostility or apathy to a concerted effort to improve both himself and the organization. The forces and pressures available as alternative strategies to the individual and to the organization in developing, governing, and directing their mutual interrelationships are numerous and complex (Ref. 51)

If there is one message that is abundantly clear in the volumes of OD literature, it is that one of the first steps in an OD Plan is the assessment of the organizational climate. Ref. 39 defines an organization as "a coordination of different activities of individual contributors to carry out planned transactions with the environment." Organizational Development, in turn, refers to an attempt to change the elements of an organization from its present state to an improved state. With this in mind, it becomes clear that an assessment of the NATC climate requires an examination of:

MISSION/OBJECTIVES: Includes the long-range goals of the organization and the individual, the short-term organization and individual objectives, and the more immediate tasks assigned the individual.

STRUCTURE: Beyond the organization chart and the delineation of responsibility, structure refers to the formal and informal work flow and communications within the organization.

PEOPLE: Describes the types and distribution of manpower skills, and management's attitude towards personnel including its training philosophy.

TECHNOLOGY: Refers to the tools associated with materials, equipment, and processes, and the tools available for improved management.

ENVIRONMENT: Includes the political, social, and fiscal pressures, etc. which shape and influence the activity and structure of the organization.

Harold J. Leavitt (Ref. 41) points out that a change in any one of the subsystems of the organization not only affects the accomplishment of the Mission/Objectives, but also interrelates with the other subsystems. For example, the introduction of a new technology, such as a computer based information system, effects not only the way in which the task is accomplished, but also the structure and the people

within the organization. This interrelation is demonstrated in Fig. 3 . It is therefore important to recognize that the evaluation of one aspect of NATC can not be made without attention to the total system. Likewise, any OD recommendations in one of these variables will likely significantly affect the others.

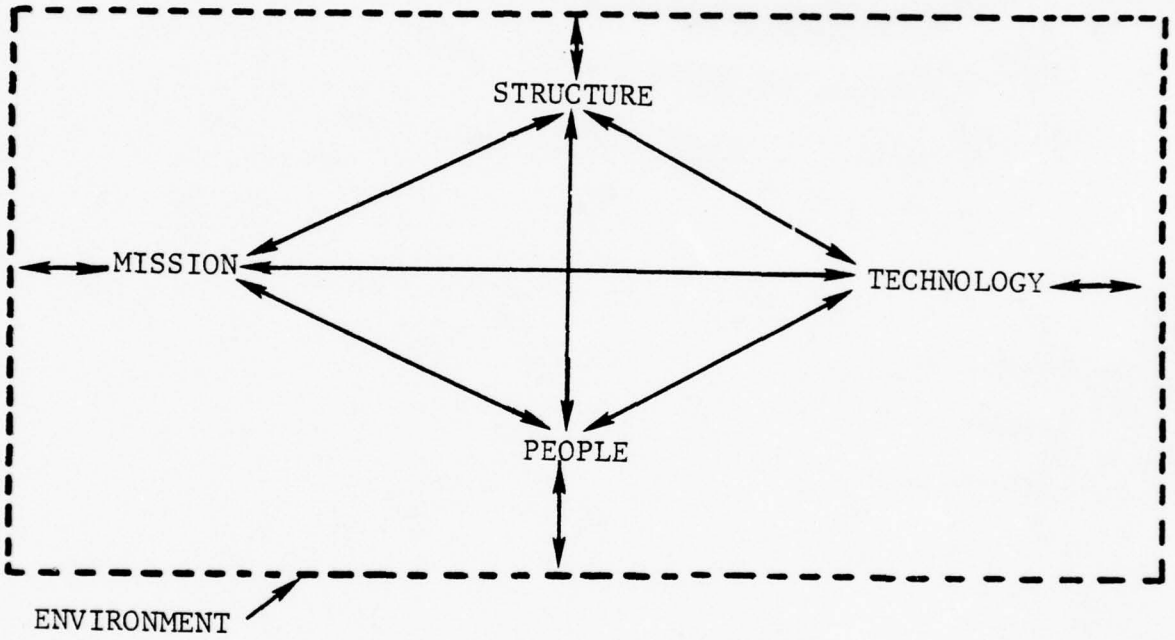


Fig. 3 Organization Model

2. Mission Goals

The Mission of the Naval Air Test Center is to conduct test and evaluation of aircraft/aircraft weapons systems and their components. Appendix II contains a complete mission/function statement for NATC. As is the case with government

organizations, the mission statement reflects those functions which have been assigned to NATC by higher authority, the Naval Air Systems Command. In 1974 the NATC proposed a modification to the formal mission statement to emphasize the importance of gaining recognition for the test and evaluation process and for acknowledging NATC as the center of expertise in the T & E of aircraft/aircraft weapons systems. While not formally adopted by the Naval Air Systems Command, task assignment in recent years have somewhat realigned the functional responsibilities of the Field Activities. One significant change has been the designation of NATC as the principal site for the test and evaluation of the McDonnell-Douglas F-18. So, while the formal mission statement has remained essentially unchanged since 1961, the competitive environment among the Naval Air Systems Command Field Activities has resulted in some shifts in tasks and responsibilities.

Objectives and goals are established by most organizations in an attempt to formalize those things which the organization is attempting to achieve. NATC, as part of the 1974 Long Range Plan, established broad long-range objectives and more specific short-range goals. Although not formally approved, these goals and objectives were generally adopted by top management. More recently, 1978, the published objectives/goals are as follows:

NAVAIRTESTCEN OBJECTIVES

*EFFECTIVELY SUPPORT FLEET READINESS

Successfully Test/Evaluate New Weapon Systems

Enhance Safety/Reliability/Maintainability

*IMPROVE DT&E EFFICIENCY

Modernize Test Facilities/Procedures, Specifications

Foster Practical Training Program

Maximize Individual/Teamwork Potential

Optimize Communications

Conserve Resources

*DEVELOP PROGRESSIVE MASTER PLAN

*ACTIVELY PROMOTE COMMUNITY PROJECTS

Formally stated goals should have a symbolic function for the members of the organization, helping to differentiate their organization from others. They should help to establish guidelines for a preferred course of action to be embraced by all levels of the organization. However, documentation of the objectives/goals of the organization does not assure that all employees accept them and try to achieve them. An informal survey of NATC employees indicated that few employees below top management level are aware of the published objectives/goals. Ref. 35 distinguishes the stated goals of the organization from the "operating" goals. Operating goals, located

lower in the organization echelon, normally attract the largest share of resources and the attention of most managers. Therefore, in analyzing the NATC climate, it would be desirable to determine if the operating goals at the Directorate level and Branch level are in concert with the stated objectives/goals. Cyert and March (Ref. 13) point out that the organization goals are relatively stable over time, while the operating goals tend to be competitive and unstable. Operating goals may fluctuate with the dynamic changes in the environment.

As previously indicated, the interrelationship between the mission/function of an organization and the structure, technology, and people is dynamic and variable. In most steady, ongoing organizations the functions tend to predominate and thereby influence the structure, technology, and the people. In other words the mission/function would shape the organization. However, in recent years, the function of the organization are more strongly influenced by outside forces including: new skills in people, technology innovations, social conditions, etc. These influences usually first appear at the task or immediate assignment of work level. As the changes become imbedded in the organization, they then influence the short-term objectives and finally the mission/goals of the organization. A typical example of this process has been the emergence of the software structures within the organization. NATC has several instances. The growth often starts with the assignment of a task, influenced by the developed

skills of one or more individuals. Soon the tasks are transformed into organization objectives, and the organization structure is changed to reflect the new objectives.

Cyert and March (Ref. 13) argue that (a) there is widespread conflict over organization goals among key factions in any organization, but (b) organizations generally function successfully despite this conflict, thanks to processes such as coalition-building, respect for precedents, limited attention to goals, task specialization and organization slack. The net result is that there is usually a good deal of stability in the general direction in which the organization is proceeding. That is, there is a good deal of stability in its operating goals, but these goals are constantly subjected to "marginal" adjustments (Ref. 3).

Field organizations such as NATC do not enjoy the ability to make dramatic changes in organization goals because of the control exerted by higher authority, and because, other than new technologies, any new functions tend to compromise the mission/functions of some other field activity. As a result, the formal Mission/Function statement reflected in the 1978 Organization Manual is essentially the same as that written in 1961. Effort to affect marginal adjustments are currently being pursued by the Naval Air Systems Command.

"Survival is so basic to our thinking that we seldom examine it, yet it is the link that holds everything together." (Ref. 45) While NATC's survival does not appear to

be at stake, it is clear that inattention to tasks, objectives and goals can result in organizational stagnancy and possibly slow disintegration. Inattention to goals may result in the pursuit of conflicting goals within the organization and resulting counterproductivity. On the other hand, a progressive, effective, and competitive organization will address the integration of tasks, objectives, and goals. Approaches to the integration of individual and organization goals are numerous in the OD literature. At the task level job enrichment has found considerable favor in recent years. Job enrichment refers to adding both vertical and horizontal dimensions to the job, thereby providing the "whole" person with a "whole" job. The whole job consists of three basic elements, planning the job, doing the job, and evaluating the job. Thus the employee participates in the integration of individual and organization objectives. Indeed, in the last decade, the philosophy of management has been built around techniques of objective setting by establishing time-limited tasks or targets throughout the organization (Ref. 42). These techniques are mainly concerned with the middle range of objectives between short-term/immediate tasks and long-term goals. If the individuals and groups who make up NATC can work together to specify realistic short-term objectives, the outcome can be positive and constructive. For example, an objective of improved senior and middle-level management, can be supported by specific training milestones. People who are active in establishing the objectives are likely to be more effective

in accomplishing these objectives. In turn, the measurement of progress and the evaluation of performance will be easier. It is not the intention of this section to propose courses of action; this will be included in subsequent sections. However, it is the intention to describe the NATC climate in the area of Mission/Functions/Tasks. While NATC has made some effort in this area, there is presently little integration of individual and operational objectives with the formal NATC Mission/Goals.

Before moving on to discuss the structure of NATC it might be appropriate to point out the objectives of a highly successful private corporation. In addition to profit, the Hewlett Packard Corporation lists the following objectives:

> CUSTOMERS: To provide products and services of the greatest possible to our customers ...
>
> FIELDS OF INTEREST: To enter new fields only when the ideas we have ..... assure that we can make a contribution to the field.
>
> OUR PEOPLE: To help HP people share in the success, which they make possible; to provide job security based on performance; to recognize individual achievements .....
>
> MANAGEMENT: To foster initiative and creativity by allowing the individual great freedom of action in attaining well-defined objectives.

A healthy organization is one that efficiently achieves its goals in a changing environment (Ref. 21). In a healthy organization, objectives are widely shared by the members and there is a strong and consistent flow of energy towards those objectives. In comparing NATC to a very healthy corporation, Hewlett-Packard, the intention is not to indicate that NATC is unhealthy. Rather the intention is to point out the need for increased attention to the objectives of the organization and the need to formalize a coordinated effort among organizational elements and individuals.

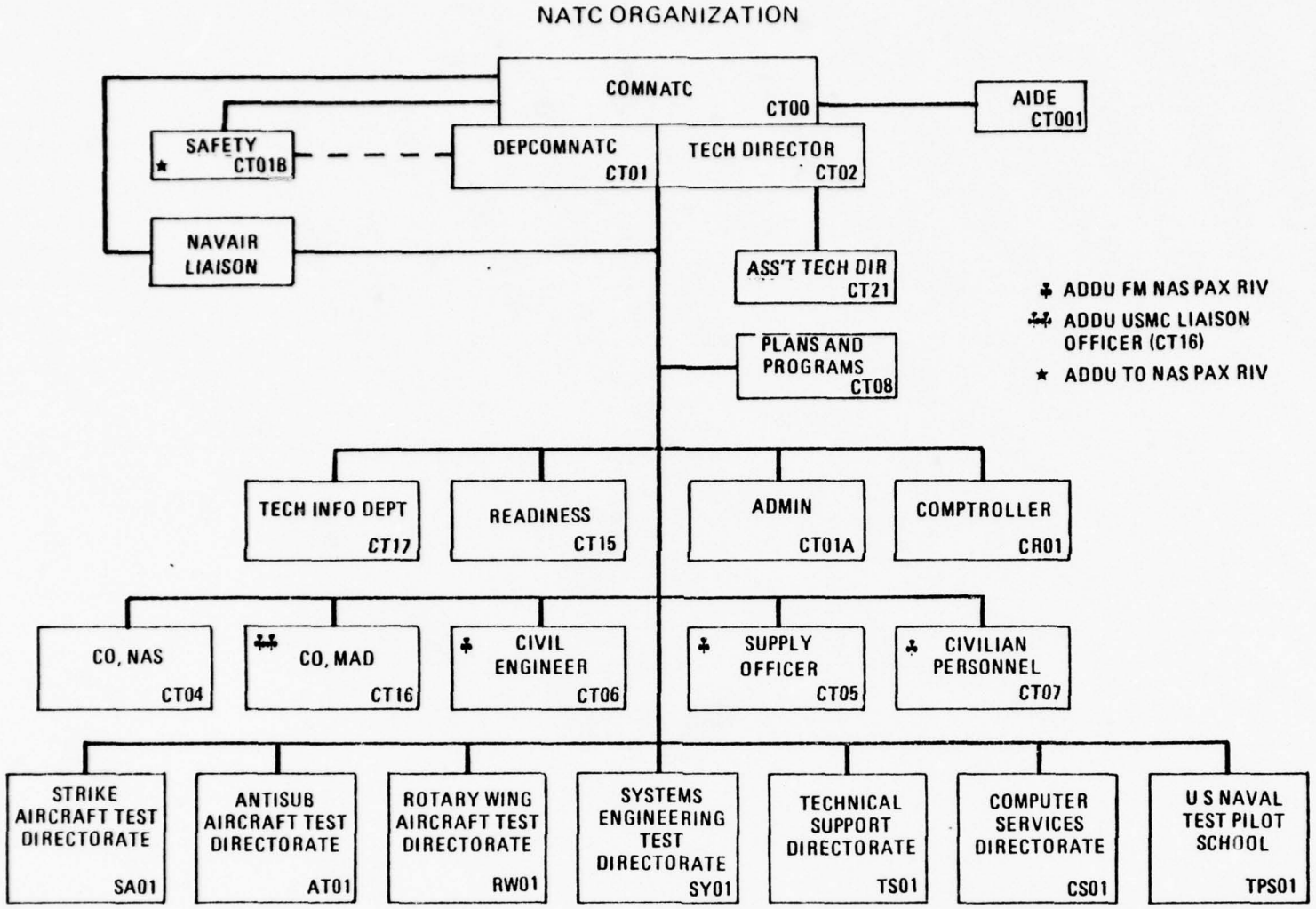
3. Structure

Organizational structure, to most people connotes the organization chart. It is reasonable, therefore, particularly in government circles to use the organization chart to describe and discuss the formal organization. The organization chart, however, is not the organization, but rather an indicator of the general delineation of responsibility. The 1974 NATC Long Range Plan states that, "The organization of NATC must be such that it provides for both the direction of the effort of NATC and the opportunity for action to take place to achieve the desired results. Organization is then the harnessing and the effective utilization of the knowledge and capabilities of people through effective and enlightened administration. More than any other factor it offers opportunity for performance and growth." An analysis of the structure includes (a) the basic ways of departmentalizing or grouping, (b) the ways

of achieving coordination within the organization, (c) methods of delegating and decentralizing and (d) the application of line-staff concepts and relationships in the organization.

A recent Naval Postgraduate School Thesis (Ref. 63) examined and evaluated the structure and organization of NATC. It pointed out that, between 1943 and 1975, the NATC organization had evolved to satisfy changes in aircraft technology. NATC was organized along functional lines during this period with work centers based on fields of technical expertise. In 1975 NATC was reorganized, wherein each Test Directorate was responsible for the test and evaluation of specific types of aircraft, i.e., Strike, Rotary Wing, and Anti Submarine. Fig. 4 reflects the current NATC organization. Whether the current structure best satisfies the NATC Mission is difficult to determine. The thrust of this effort was to evaluate the effectiveness of the 1975 reorganization. The advantages derived included improved program management and better responsiveness to the Naval Air Systems Command. The disadvantages include a dilution of the centers of expertise. While impossible to quantify, a survey of NATC personnel conducted by Ref. 63 concludes that the overall effect of the reorganization is positive. A further recommendation was that NATC, in order to eliminate some existing problems, adopt a matrix type organization. (Ref. 63)

A close look at the NATC organization reveals a combination of several kinds of organizational structures. The



APPROVED: 1 SEPTEMBER 1978

NAVAL AIR TEST CENTER
PATUXENT RIVER, MARYLAND 20670

Fig 4 NATC Organization

three aircraft test directorates are structured according to product (or program). However, at the next lower level, there is a variation among the Directorates. Some branches are functionally organized while others are program or aircraft-type oriented. The Systems Engineering Test Directorate is essentially structured along functional lines. The two support Directorates, Technical Support and Computer Services, are also, for the most part, functionally organized. However, with the latter two Directorates there are activities which are customer oriented, and there is a heavy emphasis on the matrix approach.

There are some who argue that, for improved coordination both internally and externally, all organizational activities should be similarly structured. If, in fact, there is a great deal of interplay among these activities, such an approach does have the effect of minimizing confusion and clarifying the roles of the players. On the other hand, it is argued that, to remain flexible and dynamic, the organization structure should not be inhibited by strict formalization. NATC has, to some extent, embraced both arguments. Whether the degree of commonality is optimum is difficult to determine. It behooves management to continuously monitor the various forces and pressures working on NATC and to make changes when such changes will improve the overall ability of NATC to more effectively perform its mission.

Functional grouping of activities is a widely used and accepted managerial approach. The most important advantage

of functional departmentation is that it follows the principle of specialization, thereby facilitating efficient training and utilization of personnel (Ref. 32). It also assures better control of specialized activities by top management. One significant disadvantage of a functional structure is the tendency to deemphasize the organization's objectives. In other words, people in various departments may develop attitude and behavioral patterns that involve loyalty to the department thereby creating "walls" between departments, and considerable effort may be required by top management to promote integration (Ref. 32).

Product or program structuring is widely used in the private sector and, to a great extent, at the Systems Command level in the Navy. This strategy permits management to delegate extensive authority to the Program Manager over various functions that relate to the program. Departmentation by program obviously eases the problem of coordination which was the primary reason for the 1975 NATC Reorganization. The distinct disadvantage of this approach is the increased number of personnel and managerial talent and the associated increased costs related to duplication of activities. The program structure also requires close attention by top management or a strong executive committee to assure that the decisions of the program manager are consistent with the organization's goals.

In the past, decisions on organizational structure were made to improve response to the customer or in response

to the customer or in response to a new technology. However, in today's environment, factors such as increased competition for funding and reduced civilian ceiling play an increased role in how the organization is structured. Management must pay close attention to the dwindling civilian staff, complicated by increasing technical requirements. Within the federal sector, top management actions are further influenced by the civil service classification system which, in an effort to provide standardization and commonality, seriously limits the choices of structure available to top management. In other words, the classification system is based on a hierarchical approach and establishes pay standards based on where the individual stands in the hierarchy.

According to traditional management theories, one manager should be in charge of an area of responsibility and a chain of command should be established so that all members know who they report to and who reports to them. This unity-of-command principle forms the bases for the hierarchy found in most organizations. The hierarchy form of organization is often called a "bureaucracy," a label which immediately conjures up a vision of a vast, impersonal organization with an overriding emphasis on "red tape" and very little, if any, responsiveness to the problems of its staff or its customers (Ref. 61). However, this form of organization is sometimes appropriate, particularly in government activities, where the market or customer is well defined and relatively stable over the years.

Span of control addresses the number of employees/subordinates who report directly to a manager/supervisor. The problems related to span of control are concerned with the limitations on the manager's ability to supervise. Fostered by military organizations, this theory holds that narrower spans of control are typically more effective. Much has been written about span of control and attempts have been made to quantify optimums, but creating fixed spans throughout an organization is not feasible or desirable. Indeed the span of control at the Naval Air Test Center Directorate level varies considerably, with the Strike Directorate being very large and the Rotary Wing Directorate comparatively small. There is no "right" number of subordinates that a manager can effectively supervise. Typically the test of too broad a span is a noticeable reduction in the activity's ability to effectively perform its mission. Ref. 63 concludes, based on survey and interview information, that the Strike Directorate is too large. Perhaps a reasonable approach to evaluating span of control would be to apply the following list of general considerations: (Ref. 32)

1. The competence of the superior and the subordinates.
2. The degree of interaction between the departments being supervised.
3. The extent to which the supervisor must carry on nonmanagerial work.
4. The similarity or dissimilarity of activities being supervised.

5. The incidence of new problems in the supervisor's department.
6. The extent of standardization, objective rules and procedures within the organization.
7. The degree of physical dispersion of activities.

Military organizations are typically stereotyped as being autocratic, bureaucratic and inflexible. The organization is hierarchically structured with a standard systematic division of labor. However, the classical characteristics of a military organization are defused when one considers a non-combat type organization with civilian employees. In considering functions, the officer and the civilian manager perform as in any bureaucracy. Superimposed on the military, however is the hierarchy of rank which encompasses all areas of the officer's life, both on the job and off the job. (Ref. 12) Rank is unique to military organizations and is considered a designation of prestige and power.

The purpose in describing the military role is that many of the military managers at NATC come from a classical military environment where the goals and structure are standardized. NATC, as a non combat organization, employs a non-standard structure designed to match a large business organization with specific functions and activities. NATC is staffed with individuals from both backgrounds, military and civilian, combined to create a rather unique organization environment. The two groups differ in organization commitment and whereas the military tend to be oriented towards the service, the

Navy, civilian employees tend to be more oriented towards the immediate job and the local organization.

Career progression is also different for the two groups. Advancement for officer personnel is centrally controlled by the top echelons in the Navy and career patterns are somewhat standardized. Advancement for civilians, on the other hand, is decentralized and mainly the responsibility of the individual activity. Civilian promotions are mostly at the organizational level in a highly competetive and non-standard atmosphere. In adjusting the NATC structure over the years, it has been necessary to balance and accommodate the requirements of both the military and the civilian employees.

The purpose of this section has been to provide an overview of the NATC structure in an attempt to describe the overall climate of the organization. A detailed analysis of the organization was beyond the scope of this report. However, the reader is encouraged to read Ref. 63 for a more complete description of the current organizational structure at NATC and its evolution.

4. Human Resources (People)

Perhaps the most vital part of the organization is the human being. There are two accepted views of the role of the individual in the organization. The first is referred to as the humanistic view and holds that the organization exists for the people and that it should provide limitless opportunities for the individual to grow. The second view con-

siders the individual as a resource, as an impersonal multi-purpose machine. Most people tend to take the humanistic view of themselves. Managers tend to take the resource view of the people they manage. In some organizations the resource view prevals; in others, the humanistic view predominates. The optimum is a proper blending of these views to develop an effective workforce striving towards a common goal. The determination of the prevailing view at NATC is not possible without a detailed attitude survey. It should be emphasized, however, that attitude is just as important a consideration in evaluating the NATC climate as the number of employees or the level of education. This section will attempt to highlight some significant manpower statistics and, where possible will describe changes that have occurred in recent years.

Most American organizations are pyramid in shape; NATC is no exception. Fig. 5 demonstrates the NATC hierarchy.

Table 6 provides a distribution of NATC employees by organization.

Comparing these data with 1972 information shows an increase in civilian personnel from 906 to 1151 (21%). However, it should be noted that, since 1975, NATC has experienced a steady decline in civilian ceiling authorization averaging about 5% per year. Whether this trend will continue depends on numerous economic and political pressures too difficult to forecast.

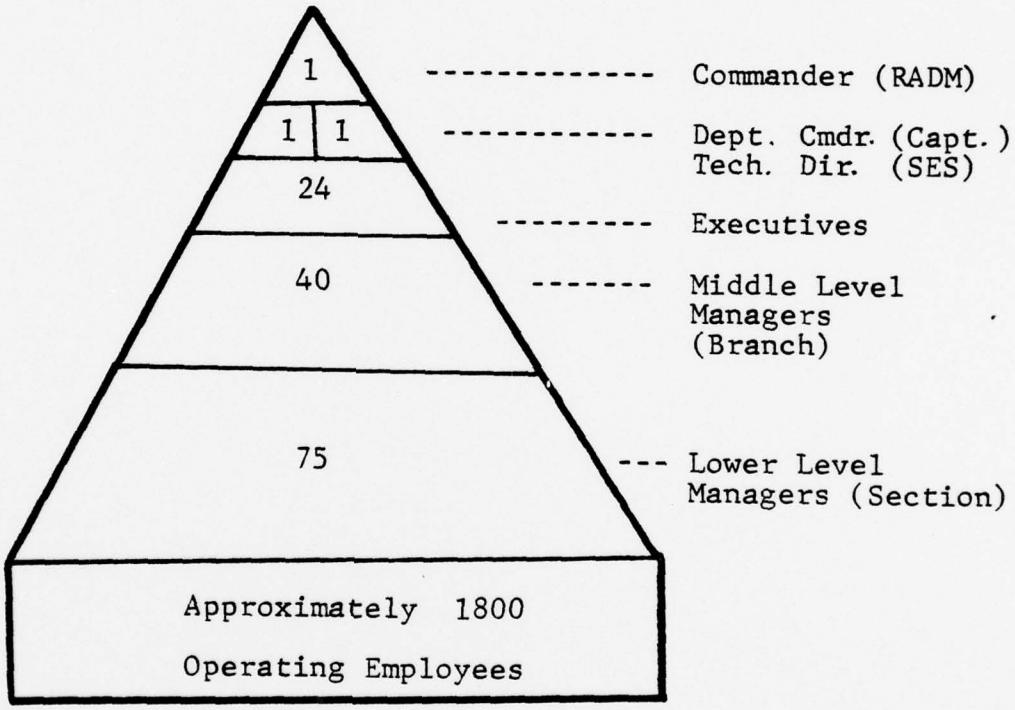


Figure 5

Naval Air Test Center Hierachy

ORGANIZATION	WORKING LEVEL	FIRST LEVEL SUPV.	MIDDLE LEVEL MGRS.	TOP LEVEL EXEC.	TOTAL
Antisubmarine	109	9	2	3	123
Comptroller	64	8	1	2	75
Computer Services	134	16	2	2	152
NATC Staff	34	1	-	5	40*
Rotary Wing	56	8	2	1	67
Strike	175	19	5	1	200
Systems	150	21	5	3	179
Tech. Information	34	5	-	1	40
Test Pilot School	21	3	-	1	24
Technical Support	227	18	4	2	251
Totals	1004	108	22	17	1151

TABLE 6

CIVILIAN PERSONNEL DISTRIBUTION BY ORGANIZATION (JUNE 1979)

*NATC Staff totals include a pool of 18 student trainees.

Table 7 provides the distribution of NATC employees by organization and according to white collar/blue collar classification.

ORGANIZATION	PRO-FESSIONAL	SUBPROF/ TECHNICIAN	CLERICAL	CRAFTS/ LABORERS	TOTAL
Antisubmarine	50	38	20	15	123
Comptroller	20	34	17	4	75
Computer Services	72	57	16	7	152
NATC Staff	12	19	9	-	40
Rotary Wing	28	18	18	3	67
Strike	85	32	33	50	200
Systems	70	71	23	15	179
Tech. Information	4	10	11	15	40
Test Pilot School	8	1	12	3	24
Technical Support	42	141	14	54	251
Totals	391	421	173	166	1151

TABLE 7

CIVILIAN PERSONNEL DISTRIBUTION BY ACTIVITY (JUNE 1979)

A comparison of the data in Table 7 with 1972 figures shows little change in the overall distribution of employees. The percentage of professional employees remains at approximately 33%. The percentage of clerical employees increased slightly from 13% to 15% while the percentage of craftsmen/ laborers dropped from 15% to 14%.

Table 8 provides a breakdown of the NATC Engineering Staff by Series/Type.

TABLE 8

NATC ENGINEERING STAFF

ENGINEERING SERIES/TYPE	NUMBER (%) JUNE 1979	NUMBER (%) 1972
General	54 (20)	20 (9)
Mechanical	20 (7.5)	20 (9)
Electrical	15 (5.5)	9 (4)
Electronic	116 (43)	100 (45)
Aerospace	65 (24)	75 (33)
Totals	270	224

Figure 6 provides a distribution of the Engineering Staff by Grade Level and further provides a comparison with 1972 data. An examination of Fig. 6 shows several significant changes since 1972. First is the small number of Junior Engineers (GS 5 to 9) in the pipeline. This is attributed to the recent reduction in ceiling points, hiring freezes, and therefore a reduced recruiting program. Also of significance is the dramatic increase in the number of GS 12s (from 77 to 127). With the number of GS 13-15 positions limited, and with attrition down at these levels, the potential exists for unrest and dissatisfaction at the GS 12 level. NATC management is aware of this problem but has been unable to affect a workable solution. Fig. 7 provides the overall



Fig. 6. Dist. of Engineers By Grade Level ---1972

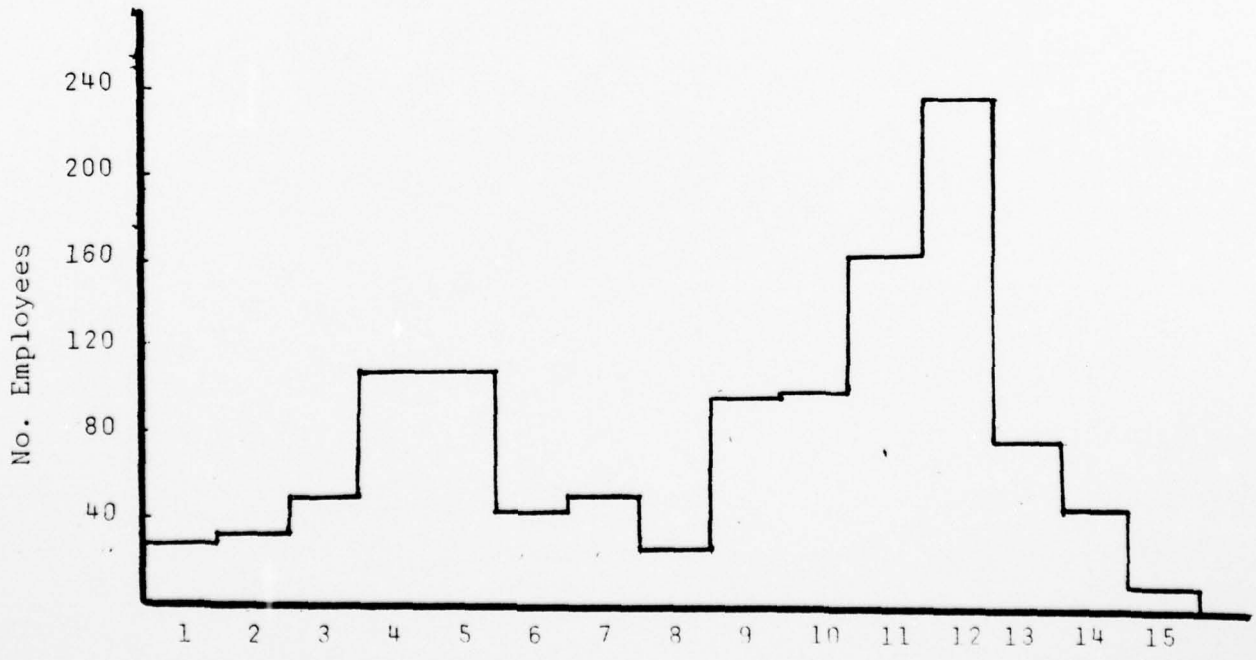


Fig. 7. Dist. Of Employees By Grade Level (1979)

distribution of NATC employees by grade level and further demonstrates the potential problem at the GS 12 level.

Fig. 8 compares the 1979 distribution of technicians by grade level with the 1972 figures. Of significance is the increase in the use of the GS 10 level which was emphasized to provide better differentiation of the responsibilities around the GS 9 level. Also of significance is the increased number of GS 12s, up 100% from 1972.

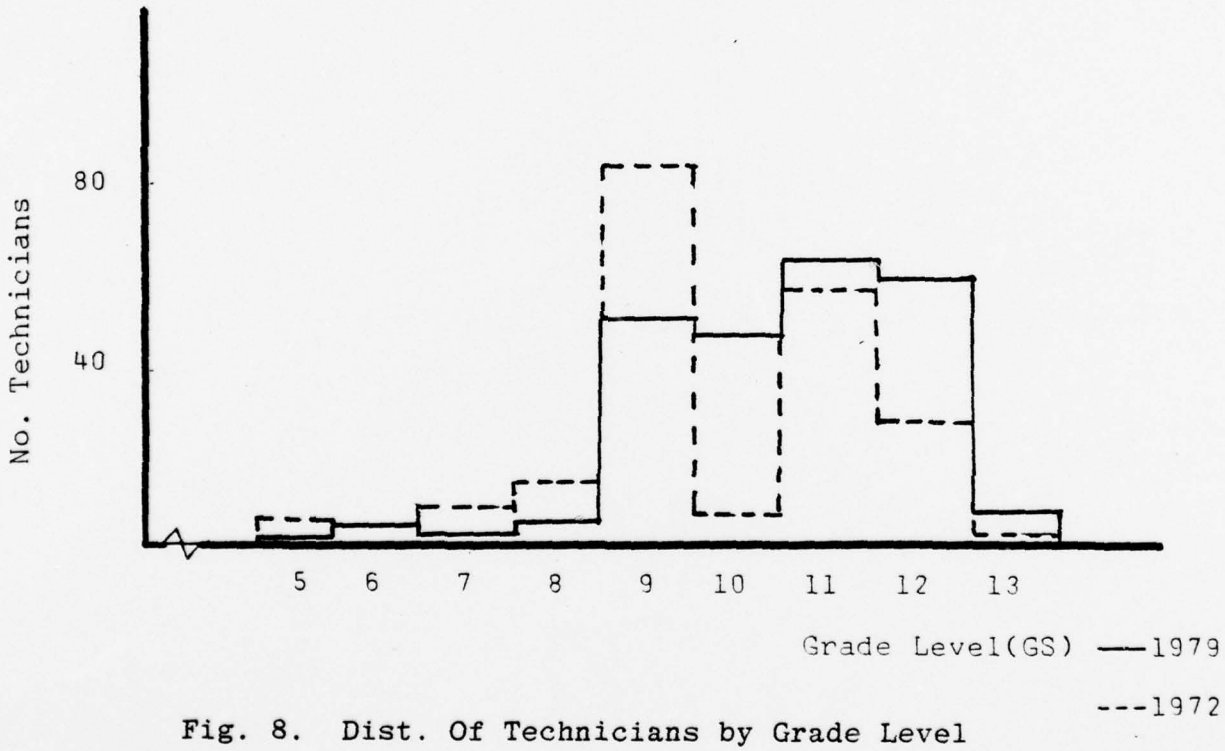


Fig. 8. Dist. Of Technicians by Grade Level

Information regarding distribution by age was not available at this writing. However, age distribution has a significant impact on the present and future operations of NATC and this information should be regularly monitored.

Both recruiting and training programs are influenced and affected by trends in age distribution.

NATC has invested sizeable resources in the training of its employees, both professional and non-professional. The Training Division of the Civilian Personnel Department publishes an annual training plan which is essentially a compilation of the training requirements of each of the organization elements. This is primarily a one year budgetary effort with little emphasis on the out year requirements. The need exists to develop a multi-year training plan which will effectively match required skills to the projected workload. Individual desires must be coordinated with specific objectives/goals of the organization. It has been noted that the emphasis on managerial training varies greatly with the incumbent NATC Commander. The current support for managerial training was not the case in recent years when only technical training was approved. A Training Plan will help avoid such fluctuations and provide a balanced approach to NATC requirements.

5. Technology

Technology literally means the "application of science" or the "methods and materials used for a purpose." Ref. 26 defines technology as "the action that an individual performs upon an object with or without the aid of tools or mechanical devices, in order to make some changes in that object." Technology refers to both the input and the output of the organization. Whereas some organizations may be involved in a rather stable or static technology environment, NATC, as part of the

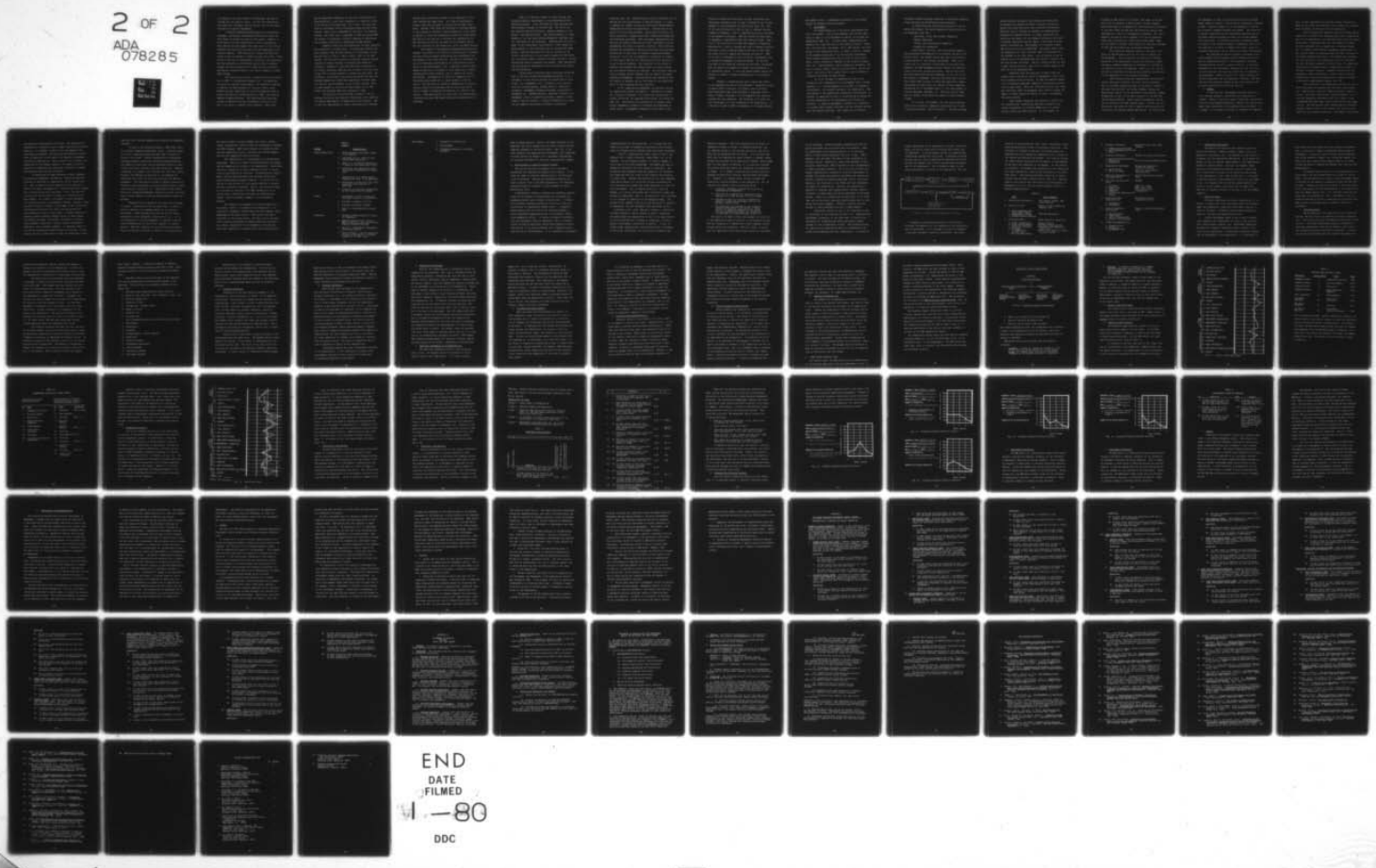
aerospace industry, finds itself in a very dynamic, changing technological world. Ref. 45 specifies the following effects on the organizational climate resulting from technology:

1. Technology is a major source of productivity increase. Motivation of individuals is desirable, but the effect is often small compared to the substitution of a machine for the human effort.
2. The jobs people do is largely determined by the technology used. In some instances, the skill level is increased, in others it is decreased. Quite often a mixture of both results.
3. The immediate social situation is dramatically influenced by technology. Who should be in groups, the size of groups, patterns of interpersonal interactions, opportunities to control one's activities and many other things are influenced by technology.
4. Technology may make organizations more secure because they become more efficient and therefore legitimate themselves more fully. Also, as technologies become more complex, it becomes more difficult for new organizations to enter the field.
5. In spite of the commitment of the organization to new technological developments, there is still a time lapse in employing new technologies. This means that adjustments to a technological innovation will usually be spread over a number of years and is not amenable to a direct, one-change solution.

AD-A078 285 NAVAL POSTGRADUATE SCHOOL MONTEREY CA F/G 5/1
THE APPLICATION OF ORGANIZATION DEVELOPMENT TO THE NAVAL AIR TE--ETC(U)
SEP 79 J F LYNCH , R H SELTZ

UNCLASSIFIED NL

2 OF 2
ADA 078285



END
DATE FILMED
1-80
DDC

In looking at the above effects of technology, they may be divided into two specific areas: (a) the tools associated with materials, equipment and the process, and (b) the tools available for improved management.

A detailed analysis and description of the material, equipment, and process technologies affecting the Naval Air Test Center is beyond the scope of this report. However, a brief mention of some representative areas is appropriate. Much research and development has taken place in the field of composite materials and the results are now appearing in the aviation industry. NATC efforts will require new T&E techniques as well as changes in laboratory/shop facilities. Technology in the area of aerodynamics, structures, and propulsion has been primarily an evolutionary process with no dramatic changes that would significantly change the NATC structure. One possible exception might be the current emphasis on VTOL/VSTOL Systems.

The current major effort in fixed wing Test and Evaluation at NATC is the McDonnell-Douglas F-18. Incorporating the latest in aircraft technologies, this program is expected to dominate the NATC workload for the next several years. Perhaps the most significant of the F-18 program has been in areas of Reliability and Maintainability (R&M), and Airborne Computer Hardware/Software. The technology and techniques related to R&M have received considerable attention in the Navy in an effort to improve fleet readiness. While NATC

has an appreciable capability in this area, particularly in maintainability, a top level commitment to a specific course of action has not materialized. As a result, the level and type of involvement varies considerably among the Test Directorates. While such a commitment is difficult, for numerous reasons, the sooner such a commitment is made the sooner NATC can develop a coordinated, effective approach to developing the necessary resources for addressing the R&M problem.

Computer technology has perhaps been the most explosive and influential in recent years. In evaluating airborne computer systems, NATC has had difficulty in developing a strategy and level of effort. While clearly a part of the NATC Mission, the test and evaluation of airborne computer systems requires a sizeable buildup of personnel and laboratory resources. Coming at a time when additional resources are not readily available, NATC has had to balance this new technology with a steady workload in already existing areas. Additionally, since other field activities within the Naval Air Systems Command have established appreciable software capabilities for the development of new aircraft systems, there is some pressure to use this existing capability for T&E rather than applying additional resources to NATC.

The aircraft avionics systems, because of the expanding electronics and computer technologies, have experienced quantum improvements in communications and displays. Add to this the improvements in sensor technology and it becomes

obvious that a multifold increase in the complexity of aircraft systems has taken place. In a time of dwindling resources, NATC has continued to provide quality T&E in most areas. However, NATC faces the challenge of deciding whether it can continue to provide a limited capability in all areas or whether to focus and concentrate on specific technologies. The choice is not easy as it involves the consideration of DOD, and Navy priorities, availability of necessary skills, facility availability and competition within the DOD structure.

With regard to Instrumentation/Range/Data/Acquisition Systems, the efforts of the Office of the Secretary of Defense has been directed towards coordinating the developments and procurement of the three Services. The Navy is encouraged to use the technologies developed by the other Services and to share its own developments. This technology transfer effort among the Services is intended to avoid duplication, promote standardization where possible, and to improve the overall T&E Process. Increased use of satellite communications for determining space position is a good example of such an effort. The Air Force is currently implementing the Telstar multiple satellite system which may be used by any field activity/range to determine the position of a specific test vehicle. NATC participation in this effort can significantly influence the future T&E capabilities and the application of resources.

NATC, as a national leader in flight testing, has pioneered numerous improvements in data gathering and processing techniques. Since 1973 NATC has used advanced Real-Time Telemetry Systems for Aircraft T&E. The result has been improved testing efficiency, improved response to the sponsor, and improved safety. Real-Time Telemetry is a good example of the time lapse between management commitment and full employment of the technology. Organizations are slow to adapt to new technologies, particularly if they change the modus-operandi of the individual and the interactions among groups. Testing techniques will also be affected by the current installation of a new central computer at NATC which will incorporate remote interactive display systems at various engineering offices throughout the complex. When implemented, this system should dramatically affect internal data gathering and processing.

Having briefly described some technologies affecting NATC in the area of materials/equipment/processes, it is worthwhile to also briefly discuss the second area of technology - as a management tool. Included in this area are tools for decision-making, systems analysis, simulation, automation, management-information-systems, participative management etc. Systems Analysis, sometimes referred to as management science or operations research, embraces a wide range of analytic methods. It maps the dimension of a problem and suggests the probable outcome of alternative

solutions (Ref. 42). Systems analysis can be a powerful tool in dealing with the uncertainties of decision-making. It helps to sharpen the thought process and facilitates understandable communications within the organization. Analysis may be applied to the following problems: operational efficiency, resource allocation, program evaluation, planning and budgeting, and developing strategies. Many government organizations use analysis and computer modeling with such techniques as linear programming and queing to optimize solutions. While NATC has embraced the procedures of defining objectives and developing alternatives in such areas as resource planning and budget allocation, little use of mathematical techniques is evident. In other words, NATC has not adopted quantitative analysis as an aid in decision-making. The exception to this occurs in computer and equipment procurement where cost-effectiveness and cost-benefit analysis are employed. The successful application of systems analysis depends upon the support and understanding of management. Decision-makers must understand that the results of analysis are not the answer to the problem but merely an aid in making the final decision.

In all organizations management continuously strives for regular and reliable information. Information is needed for a variety of purposes - for control and coordination of current activities, for planning future moves, for innovating (Ref. 35). Bolstered by the availability of computer technology, management information technology has mushroomed in recent years. A management information system (MIS) is de-

fined as a system for collecting, storing, retrieving, and processing information that is used or desired by one or more managers in the performance of their duties (Ref. 17). One of the justifications for a MIS is that it improves the performance of managers - that is, improves the quality and speed of the manager's decisions. NATC has labored for many years to implement a comprehensive MIS with limited success. Analysis of the evolution of the NATC MIS suggests a fragmented approach with a lack of strategy and lack of adequate controls. Following a study by Boeing Computer Services in 1976, NATC has taken action to improve MIS planning and control. NATC is the type of organization that can profit considerably from an integrated Management Information System. On the plus side many of the resources required are available, and management has shown a willingness to support the development of an information system. A clear and understandable design and approach is needed to assure implementation of a successful system.

Changes in technology have had a significant affect on the organizations way of doing business. Technology directly impacts NATC's structure, its people, and its mission. Some technologies have been discussed to highlight certain areas of impact, although it is not suggested that areas not included are less important. The intention is to point out that technology is a vital subsystem of the organization. If a decision is made by NATC to undertake a full Organizational

Development effort, a comprehensive analysis of the technological environment would be required.

6. Environment

All organizations are in an active relationship with their environment. Just as any organism, such as man, must learn to adapt to its environment or perish, so too must any organization (Ref. 61). In other words, organizations are shaped by the times and reflect the trends in society. Therefore, the structure, the people, and to some extent, the technology of the organization must, in order to survive, respond to the demands placed upon it by the external environment. These external pressures may take the form of social movements, fiscal constraints, emphasis on participative management, etc. Some pressures, such as humanistic movements, are slow to evolve; others, such as political shifts, may be very rapid. This section will examine some of the environmental influences affecting the NATC climate.

It is not uncommon in organizations and in sub-elements of the organization to see management take a closed approach, i.e., placing emphasis only on what is considered controllable - the internal systems of the organization. The environment of the organization, being more unpredictable, is ignored, or neglected in favor of concentrating on making the internal operations of the organization as efficient as possible. It behooves management, and NATC is no exception, to consider both internal efficiency and the external environment when making decisions. The recognition of external

influences becomes extremely important in developing organizational strategy and establishing objectives/goals.

In identifying the conditions prevailing in the external environment, four major dimensions typically have to be considered. (Ref. 62)

- Political, social and economic dimensions
- Market dimensions
- Product and technological dimensions
- Competitive dimensions

While profit, survival, and future growth demand a more pronounced consideration of the external factors by the private sector, the federal sector must pay close attention to many aspects of the external environment. NATC is obviously not in a position to participate in political campaigning, but NATC management should consider the ramifications of political actions and events. How will political decisions affect DOD and Navy spending? Is the role of the Navy stable or changing? Political decisions which can directly affect NATC include (a) rules and regulations regarding foreign military sales, (b) federal policies regarding contracting out of government work, (c) the establishment of civilian personnel ceilings, etc. These are typical examples of external forces which can shape the modus-operandi of NATC.

It is clear, for example, that the current administration will continue to emphasize contracting out of work to the private sector, wherever possible. The NATC strategy

should therefore recognize this pressure and effectively accommodate the changes necessary to satisfy the mission. Rather than being fatalistic about inevitable constraints, NATC must build a strategy to optimize its opportunities. Pressures for improved safety, for equal opportunity for minorities and women, for environmental protection each serve to provide constraints and the impact of each must be given careful consideration. Encroachment is of concern to most DOD Field Activities including NATC. Relatively remote from the Washington D.C. area, 65 miles, NATC is concerned with the movement to the rural areas. Also of concern is the increased use of the Chesapeake Bay and efforts to protect the Bay from adverse influences. Special interest groups are able to make a major political issue out of a slight change in the NATC use of the Chesapeake Bay.

Organized labor has made great strides within the federal sector forcing all levels of management to more carefully consider union activities. At NATC the American Federation of Government Employees (AFGE) has had exclusive recognition for many years. While the relations with the local union have been good, NATC top management must carefully assess the impact of recent legislation which, in effect, strengthens the union position.

While market dimensions are typically a private sector consideration, nevertheless NATC must be aware of the future requirements for Aircraft RDT&E which, of course, directly affect the NATC workload. If, for example, an

increase in ASW projects is forecast, what share of the projects will be assigned to NATC and what internal changes should NATC make to accommodate the redistribution of projects? In the early 1970s the DOD Test and Evaluation efforts were increased as a result of congressional pressures. Will this emphasis continue or has it peaked? Will fiscal pressures cause some consolidation of T&E efforts within DOD? These are the types of external forces which will influence strategy of NATC and which should be continuously monitored.

The technology dimension refers to the tools to improve the T&E Process as well as the tools to improve the T&E Management. Since technology is treated as a distinct subsystem of the organization (along with structure, people and goals) comments regarding its influence are included in the separate section on technology. Suffice to say, the explosion in technology has significantly modified the relation of the organization to the outside environment.

NATC interacts with many organizations which provide inputs, make use of outputs, and exert certain pressures. Most of the NATC workload and most of the project funding is provided from the Naval Air Systems Command, Systems and Engineering; AIR 05, is the developer of new aircraft/ weapon systems and as such, is the major receiver of the NATC Test and Evaluation Reports. While recently reorganized, AIR 05 and its relation with NATC remains stable. AIR 06, Test and Evaluation, was formed in 1974 to improve and coordinate the total Naval Air Systems Command T&E posture. By controlling

the assignment of work to the field activities and through budget approval authority, AIR 06 exerts considerable influence on NATC. Numerous changes in the top management of AIR 06 have created a somewhat unstable environment. The situation is further complicated by the diminishing resources and an increased competition among the Naval Air Systems Command Field Activities. As resources continue to diminish, NATC can expect to see further attempts to streamline field activity missions in an effort to promote efficiency, avoid unnecessary duplication, and to improve the overall T&E process.

The organization and the external environment form a system whereby the environment exerts pressures and forces, and the organization reacts to the constraints, problems, and opportunities to plot a course of action. A realistic assessment of the environment, especially in the out years, is quite difficult and requires a great deal of judgement by top management. Finally, as part of a larger organization, the Navy Department and the Department of Defense, NATC must cope with the pressures exerted on the total system as well as those exerted only on the local activity.

7. Summary

In this section, the emphasis has been placed on a total systems approach to describing the organization's climate. Mission, Structure, People, Technology, and Environment were each examined separately; however, the interrelation among these subsystems of the organization was stressed. If a manager is to develop a strategy for changing the organiza-

tion, he must understand the existing climate, and must be aware of the forces and pressures, both external and internal, which influence the direction of the organization.

While organizations commonly state their formal goals/objectives, the lower level operating goals have a greater impact on the organization, and sometimes differ from the stated formal goals. Operating goals are influenced by external/internal pressures such as competition, technology change, etc. To improve effectiveness, management should strive to get a better handle on operating goals and their relevance to the formal organizational goals. The manager must consider, not only the goals of the organization and the individual, but also the means necessary to achieve them. To pursue multiple goals with limited assets, planning must be made to develop a balanced strategy. Judgement combined with the knowledge of what consequences to expect from the various combinations of goals and aspirations is needed to produce an effective organizational design. (Ref. 35)

The structure of the organization defines the way in which individuals are grouped into sections, directorates, etc. Additionally, structure examines hierarchy, span-of-control, functional distribution, decentralization, etc. A detailed examination was made by Ref. 49 in which it was recommended that NATC adopt a more formal matrix type organization. The NATC Aircraft Test Directorates are currently program oriented, while at the branch level there is both functional and program orientation. The Support Directorates

are essentially functionally structured. The design of the organization's structure is not a simple task with one obvious solution. If a manager is aware of the environmental and technological pressures, and the costs and benefits of structural alternatives, he can improve his chances of designing an effective organization. Span of control is a critical consideration for the manager because of its impact on the organization's communications system and ultimately its impact upon employee participation and morale.

In describing the human resources of NATC, emphasis was placed on demographic information. Tables provided distribution of employees by organization, skills, grade level, etc. Much of these data were compared to date compiled in 1972 for the NATC Long Range Plan. Several significant changes have occurred during this time frame. First, the effect of ceiling point restrictions is evident in a reduced recruitment program. As a result, the number of junior engineers in training positions is considerably reduced. Secondly, there has been a dramatic increase in the number of GS 12 positions, increasing the potential for unrest and dissatisfaction. While beyond the scope of this report, a complete analysis of personnel should carefully examine the way in which people are handled including, recruitment, orientation, training, career ladders, promotions, incentive awards, performance appraisals, and retirement programs. An important aspect of the way the organization handles people is training. It was pointed out that a need exists at NATC for developing a train-

ing plan with a balanced emphasis on technical and management training.

As part of the Aerospace Industry, NATC finds itself in a rapidly changing technological world. A detailed analysis of all technologies impacting upon NATC is beyond the scope of this report. Several representative technologies including composite materials, Reliability/Maintainability, and computer science were briefly discussed because of their current and future influence upon NATC operations. Computer technology, for example, will influence the work flow, skills required, and perhaps the structure of the organization. Technology also refers to the tools available for improved management. The need exists for NATC to embrace quantitative methods for decision-making including systems analysis, operations research, simulation, etc. Additionally, NATC should develop an integrated Management Information System, the first step of which requires a clear and understandable design and approach.

Organizations are shaped by the times and the trends in society. The structure and the people must, in order to survive, respond to the demands exerted by the external environment. These pressures may take the form of fiscal constraints, social movements, union activity, etc. It is the responsibility of good management to consider these external pressures and not place total emphasis on internal matters. NATC must recognize the political/social/economic forces and develop a strategy to optimize its opportunities.

The future trends in Aircraft RDT&E, while also a technological consideration, must be carefully considered in shaping the NATC strategy. NATC should analyze its interaction with both the sponsoring activity, the Naval Air Systems Command, and also the competitive Field Activities.

The organization is a system made up of interrelated subsystems. There is no widely accepted procedure for assessing and diagnosing the climate of an organization. Traditional efforts of looking at the total organization tend to concentrate on the bureaucratic structure. By employing the Leavitt Model, NATC has been described from the Mission/Structure/People/Technology/Environment viewpoint. It was not the intention of this section to fully analyze NATC and to develop specific solutions to problems. Rather, this section attempted to provide an overview of the NATC organization as an initial step in developing a strategy for organizational change. Table 9 provides a summary of the contingency analysis.

The demands on the manager are similar regardless of the product, service, or purpose of the organization. Unfortunately, managerial effectiveness has been somewhat underemphasized in the public sector. While profit has been a clear goal in the private sector, the public sector has been slow at developing methods for making employees accountable. As a result, persons with little managerial training have been hired, appointed, or promoted into positions requiring

TABLE 9

SUMMARY

SYSTEM	PROBLEM/ISSUE
Mission/Objectives	1. Mission/Function Statement needs to be updated.
	2. Personnel are not familiar with stated NATC objectives.
	3. There is a noticeable inattention to goals at the Directorate level.
	4. Individual and organization goals are neither integrated nor formalized.
Structure	1. Implications of a formal matrix organization needs to be addressed.
	2. Decreasing civilian staff may force increased centralization of functions.
	3. Structure is sometimes compromised by the classification process.
People	1. Decreasing civilian ceiling and increased reliance on contractors.
	2. Increase in number of GS 12s.
	3. Reduced recruitment program.
	4. Lack of a comprehensive training plan.
Technology	1. Reliability/Maintainability effort is fragmented.
	2. Reduced resources have limited NATC's ability to test and evaluate Computer Hardware/Software
	3. Lack of a comprehensive Management Information System
	4. Choice between a limited capability in many technologies or in-depth capability in fewer areas.

Environment	1. Pressure to contract out. 2. Encroachment. 3. Increased strength in the union movement.

them to manage physical, capital, and human resources of the magnitude that would stagger even the better trained and more competent managers in the private sector. (Ref. 49) It becomes apparent that Organizational Development (OD) techniques can help provide the manager with a systematic methodology for planning strategies for affecting organizational changes.

B. ORGANIZATIONAL DIAGNOSIS/PLANNING PROCESS

This section provides the manager with a systematic methodology for organization diagnosis and planning. It outlines the types of analysis required prior to the selection of an OD technique. Whereas the Contingency Analysis provided a general look at the NATC Organization, the Diagnosis/Planning Process is intended to assist managers at any organizational level.

A comprehensive method of studying and assessing organizations for the purpose of ascertaining their strengths and weaknesses should cover a number of major areas. It should be an ordered, systematic gathering of data as a basis for intervention or organization change efforts. A diagnostic method should serve as a device for training managers to better understand organizations and to continuously assess their managerial efforts. It should be capable of modification and refinement, based on experience, and of including within its purview additional specialized diagnostic devices. This section of the thesis proposes such a diagnostic/planning outline for NATC managers. It is intended as a systematic,

organized method for data gathering. It is hoped that the reader will be able to sharpen his perceptions and consider areas of influence which otherwise might have been overlooked.

Leavitt's organizational model, shown in Fig. 3, emphasizes that a simple structural, human model, etc. is inadequate. As any subsystem changes, it causes a change in one or more of the other subsystems. The degree and rate of change will obviously vary, but change is inevitable. The process by which managers sense and respond to the necessity for change has been the focus of much research and attention in recent years. Lawrence and Lorsch point out that organizations which operate in a relatively secure environment are less concerned with change than those operating in a less certain environment. But, as Argyris points out, even the manager in a certain environment must continuously combat the problem of complacency. (Ref. 1) By definition, OD is referred to as a process of preparing for and managing change. The concept of OD, however, must not be limited merely to behavioral approaches, but must encompass other approaches as well.

According to Ref. 66 OD "implies a normative, reeducation strategy intended to affect systems of belief, values and attitudes within the organization so that it can adapt better to the accelerated rate of change in technology, in our industrial environment, and society in general. It also includes formal organizational restructuring which is frequently initiated, facilitated, and reinforced by normative and

behavioral changes." The three subobjectives of OD are (1) changing attitudes or values, (2) modifying behavior, and (3) inducing change in the structure and policy, any one of which may be empasized over the others. It is entirely possible that the organization cannot respond to changes, simply because key personnel do not know how to respond. While judgement is a key aspect of planning, it is clear that training can provide additional skills and techniques for responding to change. It is common to associate OD training with such programs as Sensitivity Training, Survey-Guided Development, etc. However, in a broader sense, OD also includes the traditional training programs of the organization. Ref. 26 captures this broader view by describing OD AS:

1. A planned, systematic program initiated by an organization's management.

2. With the aim of making the organization more adaptable to either present or future change.

3. Through the use of a variety of methods designed to change the knowledge, skills, behaviors, and structure.

4. And based upon the assumption that organizational effectiveness in the sense of adaptability to change is enhanced to the extent that the process facilitates the integration of individual and organizational objectives.

The point to be made is that every manager at every level in the organization must be involved in the planning process, and that planning is a combination of good judgement and developed skills and techniques. There are times, of course, when the organization must seek outside assistance and expert-

ise for planning. Within government organizations this approach has become the rule rather than the exception. When the organization lacks planning ability, it is certainly better to seek outside assistance than not to plan. NATC's approach, over the years, has been to treat planning as an internal process. Modified in recent years because of ceiling point restrictions, NATC's approach is still predominantly to handle planning internally. As is the case with most government organizations, planning for facility improvements is somewhat structured and guided by procedures and regulations. However, planning for improved knowledge, skills, attitudes, behaviors, and structure is less formal and less homogeneous throughout the organization. Whatever the organization's approach to planning, each manager should consider himself a consultant or change agent and should understand the planning process. There is no simple solution applicable to all problems, and as previously indicated, good planning must be augmented with sound judgement. However, a general planning process is herein proposed as an aid to NATC managers.

Traditional efforts to look at the organization tend to concentrate on the structure and work flow. Organizational Development literature, on the other hand, is replete with procedures for diagnosing and affecting desired changes through the use of behavioral science. The planning process for improving the organization must be a comprehensive approach which addresses the total organization. It should in-

clude a description of the organization's concept, objectives, plans, its view of itself and its relation with others, and its leadership. It should examine systems for communicating, coordinating, guiding and controlling. A systematic planning process aims, not only at improving the organization but also provides the manager, with a better understanding and assessment of the organization. Fig. 9 presents a model for the planning process as it relates to the organization. (Ref. 32)

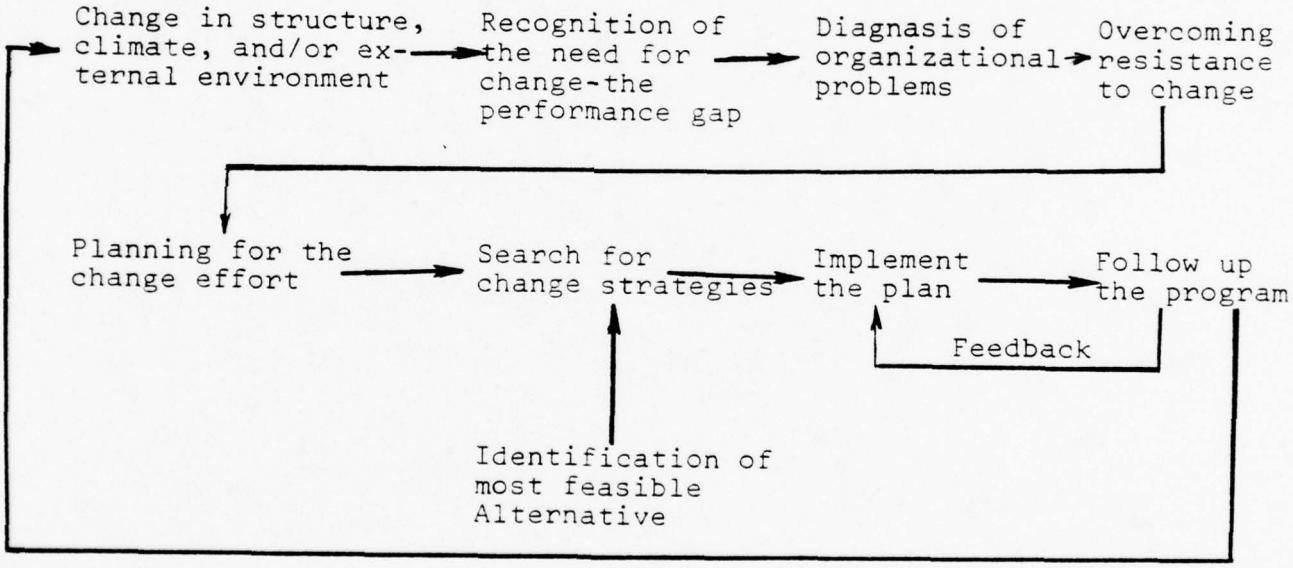


Fig. 9. A Model For The Management Of Change

A diagnostic and planning procedure is outlined below. Obviously the emphasis will vary depending on the organization and the environment. It is intended as a guide for managers to provide a systematic check-list methodology. The steps

involved in the process are first listed, followed by a more detailed description of what is involved in each step. This procedure is intended to provide a structured method for gathering data and viewing the organization as it relates to the current and predicted environment. As a note of caution, the effectiveness with which the information is used depends on the skill and competence of the manager. In the process of evaluation, the manager must determine his own limitations and, where appropriate, seek outside assistance in the planning effort. This planning procedure (Table 10) is mostly derived from the work of Harry Levinson (Ref. 43). Revised forms of this outline have been used at the Sloan School of Management at M.I.T., and the Harvard Graduate School of Business Administration.

TABLE 10

AREA	NATC EXAMPLES
1. Identifying Information	2nd Largest NAVAIR, T&E Field Activity
2. Historical Data	*Advent of Navy Industrial Funding (NIF)
a. Major Organizational Development Phases b. Organization Crises c. Product/Service History	*1975 Reorganization
3. Structural Data	*NATC Centers of Expertise
a. Formal Organization	*Runway Complex
b. Plant and Equipment	*Catapult/Arresting Gear
c. Financial Structure	*Extensive Instrumentation Facilities
d. Personnel 1) Composition 2) Practices	*Restrictive Position Classification System
e. Policies/Procedures	

4.	Internal Influences	*Relations with local AFGE Chapter
	a. Communications Systems	
	b. Labor Management Relations	
	c. Others	
5.	External Influences	*Federal Pay Raise Limitations
	a. Political/Social/Economic	
	b. Competition	*Civilian Ceiling Restrictions
	c. Technology	
6.	Organization Knowledge	*Strong Mgt Support for Technical Training
	a. How Acquired	
	b. Level and Range	*Need for Comprehensive Training Plan
7.	Emotional Atmosphere of the Organization	*Excess Administrative Paper Work
8.	Attitudes and Relationships	*NAVAIR
	a. Customers	*PMTC (Pt. Mugu)
	b. Competition	*NWC (China Lake)
	c. Employees	*Good Directorate Cooperation
	d. Community	
	e. Controlling Organizations	
	f. Others	
9.	Authority/Power/ Responsibility	*Military/Civilian Leadership Styles
	a. How Handled	
	b. Leadership	
10.	Analysis/Appraisal Conclusions	*Need for Improved Management Info.
	a. Special Assets	
	b. Impairments	
	c. Level of Integration	
	d. Overall Effectiveness	
11.	Summary/Recommendations	
	a. Present Status	
	b. Prognosis	
	c. Recommendations	

1. Identifying Information:

Included in this area are such things as location, size of the facility, number of people, budget, type of organization, affiliation, etc. The purpose of this section is to merely list the identifying information. By so doing, the manager is sure to consider these aspects of the organization during the analysis phase. Location, for example, might easily be overlooked during analysis, and yet location may have a significant influence on the nature and functioning of the organization. Also, when listing size, it is helpful to provide ranking of the organization relative to the competition. For example, NATC is the 2nd largest NAVAIR Field Activity in both number of employees and in budget size. NATC has the largest inventory of aircraft in the Navy RDT&E community.

2. Historical Data:

To better understand the current organization, it is helpful to examine the forces and events which have helped to shape the organization, especially those which continue to exert an influence. Information derived should answer the question: How did this organization evolve?

A major development phase is one in which a significant change in the organization is noted in such areas as size, effectiveness, mission, etc. Development phases may be positive or negative indicating either a growth or decline in the organization. In gathering information regarding the development of the organization, it is advisable to

seek inputs both from within and from outside the organization. A crisis may trigger a development phase or may be independent. Crises type events include natural disasters, loss of key personnel, budget cuts, technology changes, etc. Events that have significantly impacted NATC in the 1970s include the advent of Industrial Funding (NIF), and the 1975 Reorganization.

The product/service history of the organization is a recounting of the key products/services offered at various times. This description will relate to key development phases. Of interest is the change in organization goals and how they occurred. Changes in direction are bound to have some effect on the status/power of individuals/groups in the organization. Were the changes drastic and, if so, how much stress was imposed upon the organization? Also, development of this information provides a picture of what skills and talents were made obsolete and perhaps helps to pinpoint reasons for resentment.

3. Structural Data:

Having identified the organization and outlined its history, the next step is to describe the current organization. This section outlines the makeup and operations of the activity. The formal organization should be examined by using the organization chart and by taking a close look at the interactions between individuals and groups. A look at the position/job descriptions will indicate how people are

controlled and appraised, and may indicate the degree of rigidity or flexibility in the organization. At NATC, for example, the position classification process tends to limit the organization's flexibility in establishing new positions.

The description of the physical plant and equipment is provided to indicate how they affect the people who work in and with them. This summary may also indicate the efficiency of accomplishing tasks. The value and age of the facilities can be a measure of permanence and a measure of the organization's regard for its people. Equipment can indicate the type and range of activities of the organization. Of interest is how the equipment is used. In some cases equipment is purchased to be "up-to-date" but is not used effectively. In many instances it is inadequate for the needs of the organization. The age and efficiency of the equipment can influence the efficiency of the people using it. In recent years, NATC has made significant strides towards improving office and laboratory facilities.

The financial structure provides, not only the size of the annual budget, but also the sources and uses of funds. Unlike private corporations, non-profit institutions present a degree of difficulty in assessing the financial status. Of particular interest in the non-profit sector are the accounting and control systems used. The manager is interested in whether the organization is getting its money's worth out of what it is spending. NATC's financial system has changed

from "bucket" funding, to Industrial Funding, to Modified Industrial Funding during the period from 1970 to 1977, creating some instability in relations with customers and competitors.

Personnel refers to both the people in the organization and the organizational practices with respect to the employees. The following is a reasonable breakout of personnel data:

1. How many people employed-total and by function.
2. Where do they come from. Local Community, State, etc.
3. Minority composition.
4. Education levels.
5. Average age. Average tenure.
6. Range of skills.
7. Turnover rate.
8. Accident rate.

The following personnel practices should be analyzed:

1. Recruitment.
2. Orientation.
3. Training.
4. Planned growth. Career ladders.
5. Promotions.
6. Incentive awards.
7. Performance appraisals.
8. Safety program.
9. Recreation program.
10. Retirement program.

Another area to be explored is the way in which policies and procedures are disseminated. If policies are written, how are they communicated to the employees and who keeps copies? Quite often organizations will have numerous policy/procedure documents which are unknown to the employees. Such a lack of understanding opens the door for potential problems.

4. Internal Influences:

Perhaps one of the most important segments of the organization, and yet difficult to assess, is the communications system. Vast amounts of information are available to organizations, a small amount of which is abstracted and even less utilized. How does information get into the organization? By what means are customer complaints, reports of scientific meetings, current topics in periodicals, economic forecasts, technical information, etc., fed into the system? The manager should evaluate the formal and informal channels and both oral and written methods of communications. How is information processed and intergrated, and how does it impact upon the decision-making process?

Another area of significant internal influence is the relationship with the labor union. The manager should closely examine the contract, if one exists, to understand both the provisions and the tone. The roles of the local union officials and the influence of the national committee should be determined. Is there a spirit of cooperation between manage-

ment and the union, or does an adversary relationship exist? NATC has had a good track record in its relation with the American Federation of Government Employees (AFGE). However, management should carefully consider the potential effect of recent legislation concerning union activity.

5. External Influences:

Most factors which are basic to the organization's survival-social and political influences, labor sources, economic conditions, etc., are primarily external influences. Of interest to the manager is the alertness of the organization to these trends, pressures, and how the organization responds to and differentiates the many factors. A good example may be the employment of engineers; is the organization aware of the trends in engineering education? Does the organization provide a challenging and rewarding environment? If skilled labor is becoming scarce, are there sufficient training programs to assure a future source? As political and economic pressures tighten operating budgets, managers must carefully assess the pressures exerted from competitive organizations, not only currently but also in the future. Too often competition is thought of as primarily concerned with the private sector. The issue of competition may be just as important to public sector organizations.

Technology advances may exert considerable influence on the organization. Is the organization attuned to new developments and does it have a positive attitude about incorporating applicable technologies?

6. Organization Knowledge:

Earlier, the communications of information within the organization was mentioned. What type of information does the organization possess? Information may take the form of techniques, history, experience, special competence, research data, and project reports. How the organization acquires and makes use of the knowledge is an indication of its adaptability. Knowledge is commonly thought of as related to a technology, but knowledge is also related to such areas as personnel and plant facilities, products, competition, forces and trends affecting the organization, etc. Of special interest in evaluating the organization are the library facilities and services. How good are they and are they being used? Also of special interest is the use of the knowledge. Does the organization have a systematic method for recording and retrieving information? How is information disseminated within the organization? Managers should assess both the level and range of knowledge. The organization may be very knowledgeable in certain areas and rather naive in others. For example, does the organization have a wide range of technical skills and yet is it lacking in its thinking about personnel practices? NATC management exhibits strong support for technical training; however, the need exists for an overall, comprehensive Training Plan.

7. Emotional Atmosphere of the Organization:

The emotional atmosphere refers to the prevailing mood or tone. The manager should be interested in how it feels to work in the organization. Is it warm, pleasant,

supportive? Is it rejecting, hostile, threatening? Of interest is whether there is a dominant emotional theme or a wide range of emotions. The determination should be made concerning the freedom or constriction the employees feel in expressing their feelings. Most importantly, the manager should determine how the emotional tones vary among the organization levels. Is there a noticeable difference in attitudes at hierarchical levels or among groups? Currently, for example, middle level employees appear discouraged because of excess paper work and administrative details. Also worth noting is the fact that employee attitudes fluctuate with the frequent change in military leadership.

8. Attitudes and Relationships:

While attitudes and relationships are implicit in other diagnostic areas, the focus in this section is on (a) the feelings that lie behind the organization's functions, and (b) changes and alterations that may be required during an OD effort. In examining the relationship with persons and groups outside the organization, the concern is with the scope, diversification, depth, and constancy of the relationship. Is there an involved and supportive relationship with the customers or, in some areas, is it aloof and casual? Is the effect of competition stimulating or does it arouse hostility and fear? During 1975-1976, for example, NATC employees perceived that travel regulations and policies were unnecessarily restrictive and unwarranted - resulting in considerable turmoil.

It is healthy for managers to step back and try to take an objective look at how the employees are treated. Too often, a repressive atmosphere exists with unreasonable restrictions. Quite often, managers tend to issue negative policies in an attempt to assert control. A negative policy is one which restricts or lessens the freedom of employees. Such policies tend to be a major contributor to unrest and dissention. An increased use of participative management is often employed to reduce a repressive atmosphere. Another important relationship is that associated with the community, particularly if the organization is a dominant force in the area. Of interest is the way in which the organization relates to the community, contributes to its growth, and develops an integrated, supportive relationship.

9. Authority/Power/Responsibility:

Authority refers to the potential for action; power is the degree or force of the action. Responsibility, on the other hand, is derived from both power and authority. Where there are conflicts about power, the organization may be inhibited in its actions. Where power is used without concern for its effects, there will be negative consequences sooner or later. (Ref. 43) Because of their influence on human behavior, authority and power have been the source of much research. Authority is sometimes based upon the position which the manager holds in the organization. However, it may also be derived from the function performed (expertise) or

simply from personal charisma. Because people do not always accept authority, power becomes a necessary and implicit part of the organization. Clearly, the application of power varies with the leadership style of the individual and with the organizational unit. Management has at its disposal several types of positive incentives and negative sanctions. The appropriate use and timing is crucial for organizational effectiveness. A careful analysis of the organization's leadership styles is a crucial part of the diagnosis process. OD literature provides extensive guidance in the study of leadership.

10. Analysis/Appraisal/Conclusions:

Having examined the organization, and assembled data related to various facets, it is necessary to provide some interpretation of the data. The thrust of this section of the thesis has been to provide the reader with a checklist approach to diagnosing the organization. It is hoped that a systematic and comprehensive diagnosis will lead to better analysis and conclusions. The conclusions arrived at will, in turn, determine the type and degree of OD intervention to be undertaken by the organization. In analyzing the information, it is important for the manager to consider the cohesive and effective elements of the organization as well as the troublesome areas. Ref. 43 recommends that an appraisal of the organization take the form of "assets" and "impairments" - positive and negative factors, strengths and weaknesses, pluses and minuses. It should be recognized that

any appraisal process must have some subjective judgement. What appears to be an asset to one person may be a liability to another. The more thorough the information source, the less reliance that must be placed on subjective judgement. As pointed out previously, the need exists at NATC for an improved information system in areas such as (a) program planning, (b) personnel, (c) budgeting/accounting, etc.

11. Summary/Recommendations:

The summary and recommendations considers the data, first in terms of the external environment, and then in terms of the internal structure and processes of the organization itself. Viewing the organization from both internal and external aspects allows the manager to make definitive statements about the organization's present status. The present status description should contain those pertinent facts and inferences needed to capture the essence of the current situation in which the organization finds itself. In this treatment of the planning process, recommendations are not proposed solutions to problems or courses of action for organizational improvement. Rather these recommendations are a summary of the proposed methods of intervention, based on a review of the data. The manager should be prepared to make the decisions concerning the best way for the organization to effectively cope with change.

C. A HRM SURVEY ANALYSIS (TSD)

For several years, the HRM Survey has been administered to the military employees of the Navy Department as part of

the Navy's ongoing Organization Development effort. More recently, the HRM Survey has been extended to some civilian components of the Navy. During the Spring of 1979 the HRM Center in Washington, D.C. administered the survey to the Naval Air Test Center (NATC). Since some key organizational elements of NATC failed to participate, it is difficult to conduct a detailed analysis of the total command. However, a brief analysis of one organization, the Technical Support Directorate, is herein provided to demonstrate the techniques utilized in analyzing the HRM Survey data. The procedures are outlined in the HRM Survey Data Analysis Guide, (Ref. 68) and are structured so that key personnel, with little or no experience, can identify needed improvement actions.

The Technical Support Directorate (TSD) is a totally civilian organization, with 240 civil service employees and approximately 40 contractor personnel. TSD provides instrumentation and related support to the NATC Test Directorates. The organization structure for TSD is shown in Fig.10. A detailed description of the various functional elements is provided in the NATC Organization Manual.

The computerized survey report provided TSD with numerous printouts broken out, (a) at the Directorate level, (b) at the Branch level, (c) by demographics. The HRM Center suggests that, prior to analysis, the Directorate should answer the following questions:

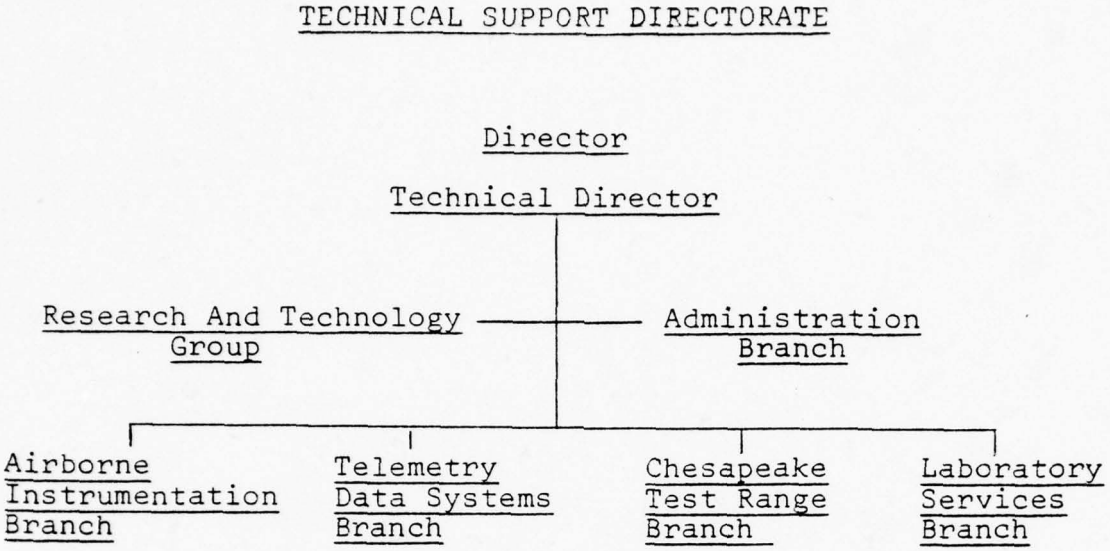


Figure 10. Technical Support Directorate

* What is to be done with the information?
* How will the data be worked with?
* How will action result from the data?

With these questions in mind, and recognizing that the amount of data is too ponderous for a total analysis, some basic reduction and analysis procedures are described which may be helpful to NATC/TSD.

HRM Survey Data may be analyzed from two frames of reference:

1. Internal - a relative, though not normative, view of the various indices and items of work groups within the command using mean scores (arithmetic averages) as the primary standard of comparison.

2. External - a normative comparison of command and work group data with similar data generated outside the command using percentile (derived from the mean scores) as the standard of comparison.

For the military personnel, where a large sample of the population is available, and comparison with like functional areas is possible, a normative approach is highly desirable. However, no such data base yet exists for TSD, so analysis will be done primarily from an internal frame of reference. Additionally, analysis of TSD will focus on the overall Directorate and on demographic data, but will not address data at the branch level.

1. Overall Index Mean Graph

The construction of the Directorate Overall Index Mean Graph is the first step in the study of TSD. Shown in Fig. 11 this graph provides a good reference point and an indication of possible areas of further concentration.

2. Dimension/Index Analysis

The Dimension/Index Analysis attempts to focus on those indices which appear to be the lowest. If the Mean Graph were a normative comparison, attention would be drawn to those indices below 40%. For the TSD Survey, the eight indices below 2.8 are listed in Table 11.

Of interest is the fact that most of the lowest indices are concentrated in two dimensions, Command Climate and End Results Measures. The significance of this concentration is not obvious at this point but will perhaps be clarified

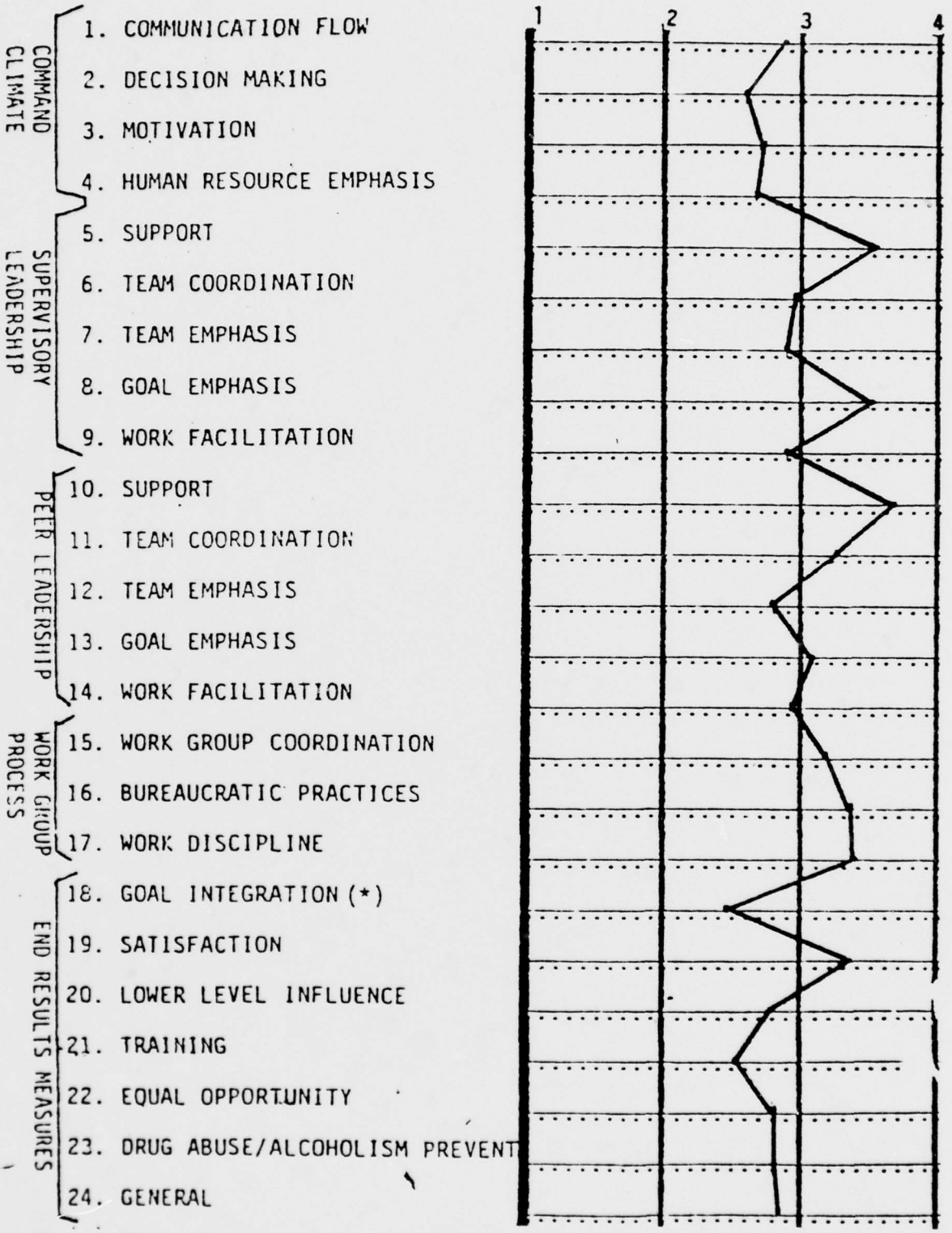


Fig. 11. Overall Index Mean Graph

TABLE 11

INDICES WITH LOW MEAN VALUES

Dimension	Index Number	Name	Mean
Command Climate	1	Communications Flow	2.85
Command Climate	2	Decision Making	2.58
Command Climate	3	Motivation	2.68
Command Climate	4	Human Resources Emphasis	2.65
Peer Leadership	12	Team Emphasis	2.79
End Result Measures	20	Lower Level Influence	2.79
End Result Measures	21	Training	2.51
End Result Measures	23	Drug Abuse/ Alcoholism Prevent.	2.80

as the analysis proceeds. Another dimensional analysis, the Levels Analysis, provides an insight into how the dimensions/ indices listed above affect the Directorate. To determine how these various factors pass through the chain of command, each paygrade level (GS and Wage Grade) is examined. For each level, the lowest two indices of the eight low command indices are noted. The results of this exercise is shown in Table 12.

TABLE 12

DIMENSIONAL ANALYSIS BY GRADE LEVELS

Directorate's Lowest Dimension/Indices		Of Directorate's Lowest 8 Dimension/Indices, Lowest 2 for Various Grade Levels		
No.	Name	No.	Name	Grade Lev.
1	Communications Flow	21	Training	GS14 & above
2	Decision Making	12	Team Emphasis	"
3	Motivation	21	Training	GS10 - 13
4	Human Resources Emphasis	2	Decision Making	"
12	Team Emphasis	2	Decision Making	GS5 - 9
20	Lower Level Influence	21	Training	"
21	Training	12	Team Emphasis	GS 1-4
23	Drug Abuse/Alcoholism Prevention	21	Training	"
		21	Training	WG 9-11
		2	Decision Making	"
		21	Training	WS 1-19
		20	Lower Level Influence	"

Review of Table 12 indicates considerable similarity between various grade levels. The most striking consistency appears to be in the training index. Also, consistently low means are noted in team emphasis and decision making. The intention of this phase of the analysis is to provide an overview of the Directorate's climate, and to determine how certain factors pass from one level to another. It is a preliminary step in progressing from general observations to more explicit implications. Since this is a preliminary look at the data, care should be exercised in drawing quick conclusions.

3. Demographic Analysis

The initial analysis was for the total Directorate. Of interest is the process of analyzing Directorate data by certain demographic groups. In other words, it would be helpful to know whether any of the Directorate's indices are more (or less) significant in some groups. Whereas the previous analysis focused on grade level, analysis could be done by other demographic categories including, (a) Racial/Ethnic, (b) Supervisory Level, (c) Branch, (d) age, etc. The process for so doing would be the same as was previously done for grade level. Total analysis by all of these categories is beyond the scope of this thesis. However, it is worthwhile to study the Index Data for Blacks and Females. Fig. 12 provides the Index Mean Profile for the overall Directorate, for Blacks, and for Females.

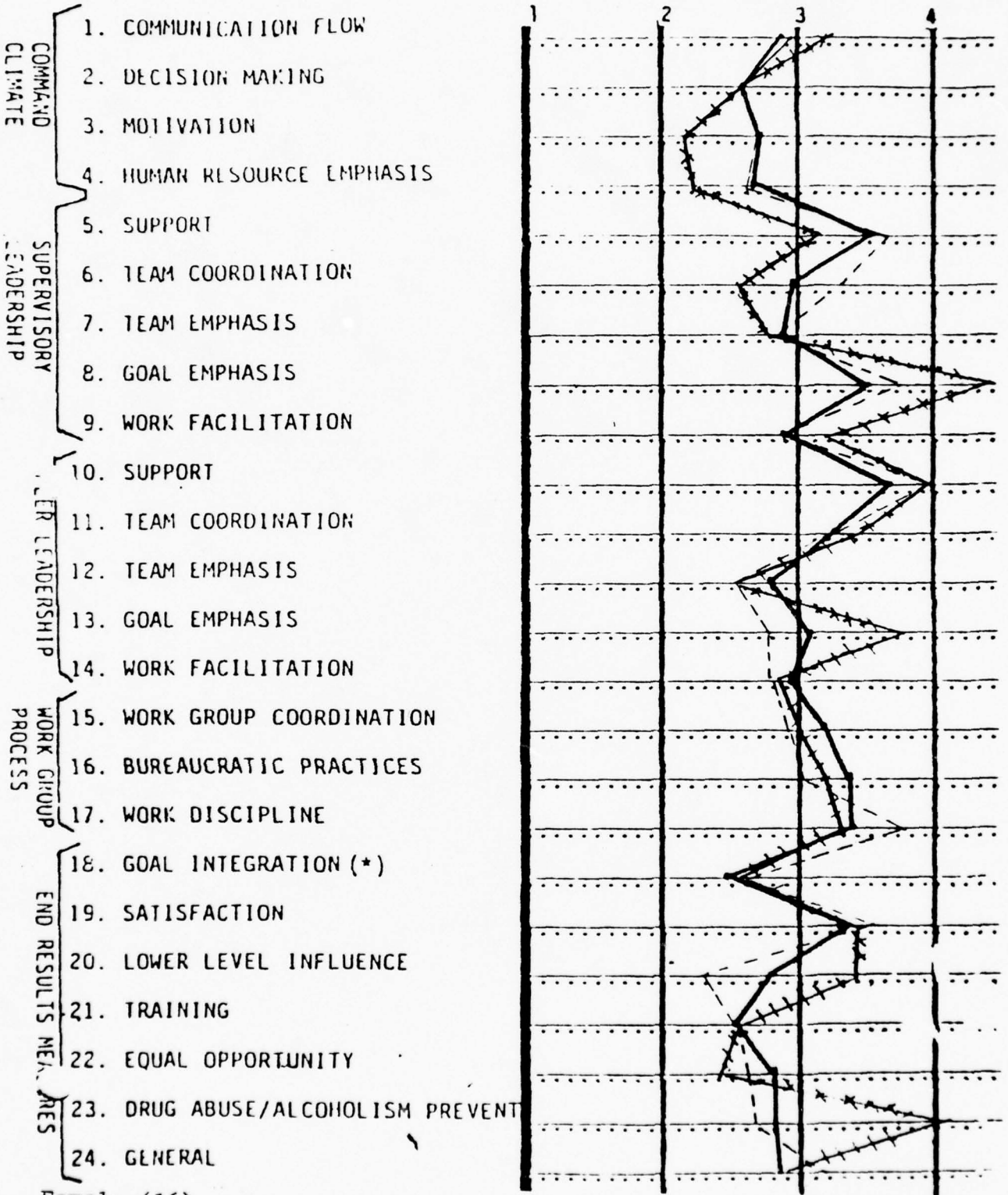


Fig. 12. Index Mean Graph

Fig. 12 indicates that black employees perceive (a) a lack of motivating conditions, (b) a lack of emphasis on human resources, (c) little supervisory emphasis on team coordination, and (d) below average Directorate assurance of equal opportunity. On the positive side, black employees feel strongly about supervisory goal emphasis and also perceive a willingness for the Directorate to recognize and respond to drug abuse and alcohol problems. While black employees are lower in three of the eight factors cited for the Directorate, care should be taken in drawing any conclusions because of the low number of respondents (5). Analysis of the female profile indicates only one significant deviation from the eight Directorate factors. Females perceive that lower level employees have little influence on Branch affairs. Again, it is pointed out that the female sample was rather small (16).

4. Individual Item Analysis

Having established a feel for the overall Directorate issues, it is appropriate to initiate analysis of some specific survey questions to facilitate the feedback process. While the authors of this thesis will not participate in the TSD feedback process, it is worthwhile to describe the procedure for reducing the total data to a smaller number of questions for detailed analysis and action. Ref. 68 provides a step-by-step description of the procedures involved in the Individual Item Analysis. Table 13 contains a summary of the

Fig. 12 indicates that black employees perceive (a) a lack of motivating conditions, (b) a lack of emphasis on human resources, (c) little supervisory emphasis on team coordination, and (d) below average Directorate assurance of equal opportunity. On the positive side, black employees feel strongly about supervisory goal emphasis and also perceive a willingness for the Directorate to recognize and respond to drug abuse and alcohol problems. While black employees are lower in three of the eight factors cited for the Directorate, care should be taken in drawing any conclusions because of the low number of respondents (5). Analysis of the female profile indicates only one significant deviation from the eight Directorate factors. Females perceive that lower level employees have little influence on Branch affairs. Again, it is pointed out that the female sample was rather small (16).

4. Individual Item Analysis

Having established a feel for the overall Directorate issues, it is appropriate to initiate analysis of some specific survey questions to facilitate the feedback process. While the authors of this thesis will not participate in the TSD feedback process, it is worthwhile to describe the procedure for reducing the total data to a smaller number of questions for detailed analysis and action. Ref. 68 provides a step-by-step description of the procedures involved in the Individual Item Analysis. Table 13 contains a summary of the

TSD data. Because required information was not readily available, some parts of the detailed procedure described in Ref. 68 are omitted.

Explanation of Table.

Column A Index Number from HRM Survey

Column B Question Number from HRM Survey

Column 1 From the eight Directorate Factors listed in Table 14, the two lowest questions in each factor are identified.

Column 2 If included in the 20 lowest questions for the Directorate, the ranking is identified.

Column 3 Demographic groupings which are .40 or more below the Directorate-mean are identified

TABLE 13

INDIVIDUAL ITEM ANALYSIS

A	B		1	2	3
Index Number	Question Number	QUESTION	Question in Selected Low Dimension/Index	20 Lowest Mean Scores	-.4 or Greater Between Group and Directorate
1	2	To what extent does this org. do a good job of putting out the word.	2.80		Black
1	3	To what extent is the chain of command (those above you) receptive to your ideas and suggestions.	2.64		GS 1-4

A	B	QUESTION	1	2	3
2	5	Decisions are made in this org. at levels where most adequate info. is available	2.65		
2	6	What decisions are being made, to what extent are the people affected asked for their ideas?	2.34		
3	8	To what extent are there things about this org. that encourage you to work hard?	2.51		
3	9	To what extent do people who work hard receive recognition from org.?	2.33	7	Black
4	10	To what extent does this org. have a real interest in the welfare and morale of assigned personnel?	2.37		Black GS 1-4
4	14	People at higher levels in the org. are aware of problems at your level.	2.49		Black
12	33	How much do members of your work group encourage each other to work as a team?	2.92		GS 1-4
12	34	How much do members in your work group stress a team goal?	2.66		Black
20	59	To what extent do lowest level supervisors influence your department?	2.88		Fem.
20	60	To what extent do non-supervisory personnel influence your dept.?	2.70		Fem.
21	62	To what extent is this org. training you to accept increased leadership responsibility?	2.28		
21	63	To what extent is this org. training you to accept increased technical responsibility?	2.50		GS 1-4
23	82	To what extent does this org.'s program promote the responsible use or non-use of alcohol?	2.13	2	
23	83	To what extent do members of your work group discourage the abuse of alcoholic beverages?	2.19		GS 14

Thus far, the analysis process has identified the eight indices indicated by the survey data as being most influential on the Directorate's Human Resources Management Practices. The hierarchical/demographic analysis has tried to show where these indices need most attention in the chain of command. Additionally, a first-cut item analysis listed those questions related to the identified factors. With these data available, TSD Management should consider the following questions:

* Were any results surprising? If so, should they be checked out with others?
* Which results really "hit home"?
* Does the data present some clear opportunities to make improvements? If so, what and with whom?
* Which results, if any, seemed contradictory? What could be done to surface the real issues?
* What additional diagnosis or feedback would be beneficial to clarify what the data suggests?

It should be pointed out that the analysis, thus far, has not developed a cause-and-effect relationship, nor necessarily identified specific problems. Rather, the analysis has identified some areas which, after further discussion in the Directorate, may turn out to be real problems or issues. It is at this point that TSD should initiate structured feedback sessions through the chain of command and perhaps develop a Directorate/Branch Action Plan.

5. Frequency Distribution Analysis

Once the overall trends and issues have been identified, it is sometimes helpful to perform a Frequency Distri-

bution Analysis on certain questions which either have a low mean, or are considered impacting by management. Figures 13 through 16 provide frequency distribution curves for several questions noted in Table 12. These questions are selected, not because they are the most important, but rather because they represent different possible distribution curves.

DEMOGRAPHIC GROUP: Command Climate

INDEX: Communications Flow

QUESTION NUMBER: 2

MEAN: 2.8 **MODE:** 3

COMMENT OR OBSERVATION:

1. Bell Curve Distribution
2. Mode is located in the center

CORRELATION OR RELATED OBSERVATION:

1. This question does not appear on either most positive or most negative response list.

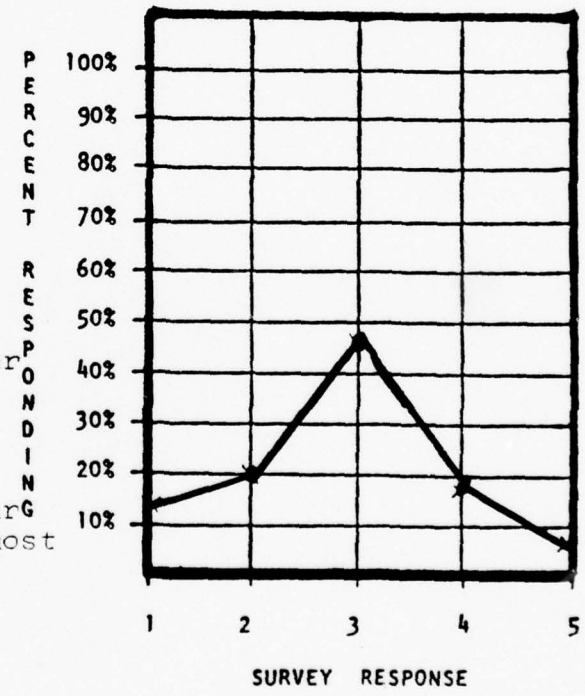


Fig. 13. Frequency Response Question Analysis

DEMOGRAPHIC GROUP: Command Climate

INDEX: Motivation

QUESTION NUMBER: 9

MEAN: 2.33 MODE: 1

COMMENT OR OBSERVATION:

1. Poor response distribution.

2. Possible polarization of different groups.

CORRELATION OR RELATED OBSERVATION:

1. Other 2 questions in this group are not bi-modal.

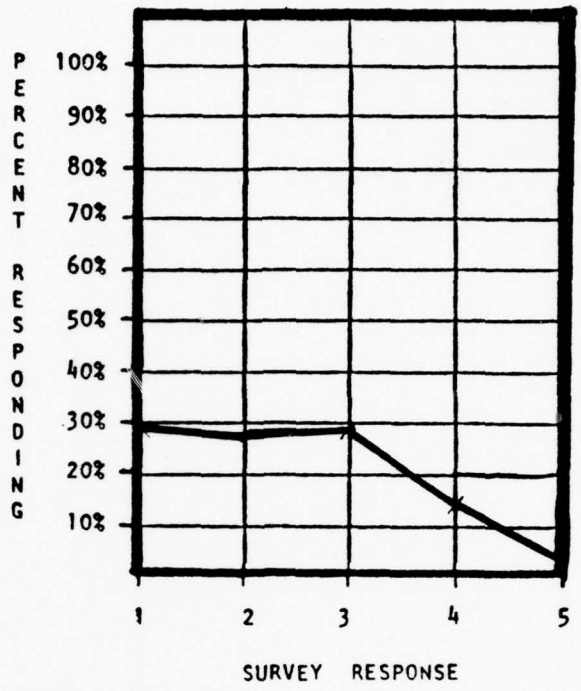


Fig. 14. Frequency Response Question Analysis

DEMOGRAPHIC GROUP: Command Climate

INDEX: Human Resourses Emphasis

QUESTION NUMBER: 10

MEAN: 2.37 MODE: 2

COMMENT OR OBSERVATION:

1. Bell curve distribution.

2. Mode is shifted to the left.

CORRELATION OR RELATED OBSERVATION:

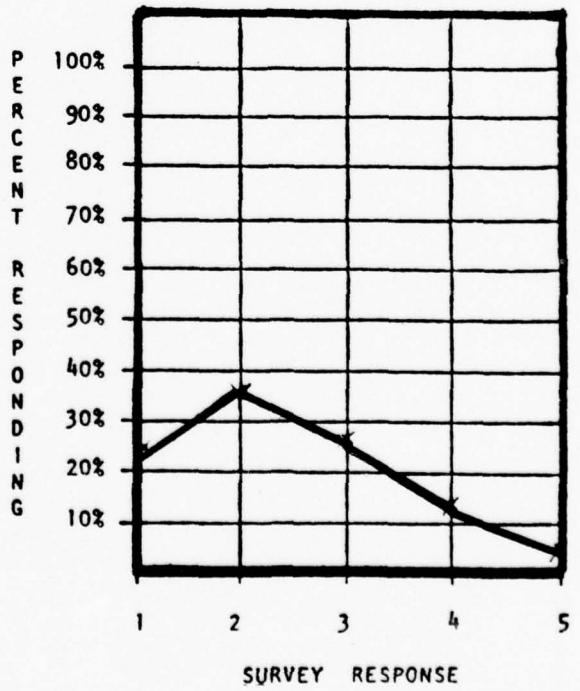


Fig. 15. Frequency Response Question Analysis

DEMOGRAPHIC GROUP: Command Overall

INDEX: Drug Abuse/Alcoholism Prevent

QUESTION NUMBER: 82

MEAN: 2,13 MODE: 1

COMMENT OR OBSERVATION:

1. Apparent bi-modal response.
2. Possible polarization at 1 and 3.

CORRELATION OR RELATED OBSERVATION:

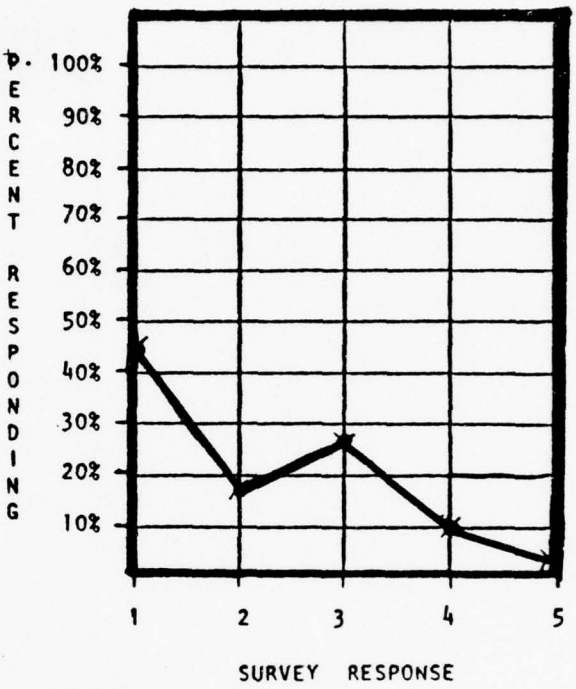


Fig. 16. Frequency Response Question Analysis

6. Supplemental Questions

The HRM Survey is a theoretically based questionnaire having a firm base on research, primarily by the University of Michigan's Institute For Social Research. This is important because it lends itself to detailed statistical analysis. However, it must be assumed that the 88 structured questions will not address all the concerns of the Directorate. Recognizing this, the HRM Survey format allows for the inclusion of supplemental questions, of which TSD included 25. Table 14 provides comments on several salient questions.

DEMOGRAPHIC GROUP: Command Overall

INDEX: Drug Abuse/Alcoholism Prevent

QUESTION NUMBER: 82

MEAN: 2.13 MODE: 1

COMMENT OR OBSERVATION:

1. Apparent bi-modal response.
2. Possible polarization at 1 and 3.

CORRELATION OR RELATED OBSERVATION:

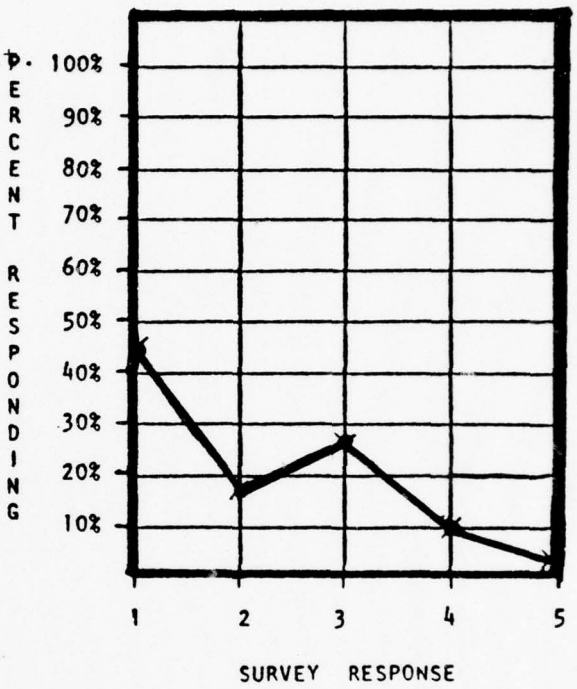


Fig. 16. Frequency Response Question Analysis

6. Supplemental Questions

The HRM Survey is a theoretically based questionnaire having a firm base on research, primarily by the University of Michigan's Institute For Social Research. This is important because it lends itself to detailed statistical analysis. However, it must be assumed that the 88 structured questions will not address all the concerns of the Directorate. Recognizing this, the HRM Survey format allows for the inclusion of supplemental questions, of which TSD included 25. Table 14 provides comments on several salient questions.

TABLE 14

SUPPLEMENTAL QUESTION COMMENTS

No.	Question	Mean	Comment
6	To what extent do you feel the working atmosphere at NATC is improving overall?	2.69	Although the mean is 2.69, 82 employees responded with 1 or 2.
15	To what extent do racial differences block or inhibit communications in your work group	1.98	With a mode of 1, it appears that most employees feel inhibited.
20	To what extent do you feel that overtime work required of you is excessive?	1.91	For this question a low mean is desirable. However, the fact that 51 employees answered 3 and above is of some concern

7. Summary

Organization Development efforts have sometimes been "used" to supplement management biases. Additionally, because of the long-term commitment required for many OD programs, organizations have had a tendency to lose interest after an initial surge. The Survey Feedback approach was specifically designed to overcome these problems by involving all echelons of the organization in a systematic process. The very nature of the Survey Guided Development Program requires a lengthy interchange among various levels of the organization. It would therefore be presumptuous for the authors of this thesis to attempt to draw conclusions from the TSD HRM Survey without participation in such a feedback process.

Nevertheless, this section has taken the reader through the typical procedure involved in the analysis of the HRM Survey. Without a prescribed procedure, the organization (TSD) is often overcome by the sheer magnitude of the data. The procedures outlined in Ref. 68 provide the organization with the tools necessary for converting the computerized printouts into usable information. The initial overall picture of TSD was developed by Index Analysis and by Demographic Analysis. Individual Item Analysis then allows TSD to focus on individual questions. It was pointed out that these highlighted questions were merely a starting point for the feedback process. It is during the feedback process that "real" problems and issues are identified. Finally, a Frequency Distribution Analysis was provided for specific questions related to the overall command.

The fact that TSD has participated in the HRM Survey is recognition of management's earnest desire to affect improvements in the organization. The survey merely provides a means by which multiple perceptions of behavior and organizational conditions related to effectiveness can be gathered, compiled, and compared. Since the TSD analysis is primarily from an internal frame of reference, it must be tempered by a sound diagnosis of the environmental pressures. TSD is encouraged to continue its involvement with the HRM Survey; the effort may be time consuming, but the potential rewards can make the effort worthwhile.

VI. CONCLUSIONS AND RECOMMENDATIONS

This thesis has sketched the historical development of management's thoughts and attitudes toward the employee as it was conceived in the environment and social values of the times. These attitudes have changed over time, however, managers are reluctant to take radical steps in changing their leadership and behavior. Managerial behavior and attitudes tends to reflect the past generations of their training and can be out of step with the requirements of the present technological world. In the past these "lags" behind the times were acceptable as change was fairly slow in coming and there was ample time for "trial and error" methods of leadership and management.

Management can no longer operate in this trial and error mode. Technology and society are moving at a much more rapid pace than in the past. The nation has experienced a tremendous increase in productivity as a result of technological development. Simultaneously, in its concern about man, society as a whole has progressed beyond the idea that man should merely accept responsibility for a contribution to the material output of society.

The Navy now deals with a new generation of employees with new expectations and new aspirations. The era of affluance allows each individual a greater amount of discretion decision-making than ever before. The traditional demands for conformity to convention, rules, and practices of old are regarded

as obsolete by many members of the new generation. The leadership of the future must respond positively to these new changes with new and innovative modes of behavior and concern.

A new technology has evolved that can help today's manager cope with these new changes. The new human technology is based upon behavioral science theories and it is known as Organization Development. Organization Development can help the manager who is concerned with the ways in which organizations grow and adapt to the challenges of modern society, with its new values, new technologies, and increasing rates of change. Organization Development is a behavioral science discipline that provides a set of methodologies for systematically bringing about organization change and improvements in organizational health and effectiveness. The goals of Organization Development are to make an organization more effective and to enhance the opportunity for the individual to develop his potential.

One of the most difficult aspects of applying Organization Development is the formulation of a systematic approach to organization change. The process of change in an organization, like the Naval Air Test Center, is neither simple or quick. Frequently the pressures for change are so great that they create either apprehension or a great rise in expectations of rapid solutions and progress beyond the point where they can be actually fulfilled. The expectations of management and the employee are critical and the desire for quick payoffs must give way to more long range perspectives for organization

improvements. The effective implementation of Organization Development requires a long term commitment (at least 2-3 years) to obtain maximum results, and to have the techniques and skills become established practice.

A. GENERAL

The Naval Air Test Center approach to applying Organization Development should include the following strategic considerations:

(1) Establish a top level strategy planning group to mobilize the resources needed to develop policies related to OD Programs. The success of the OD Program depends strongly upon the demonstrated support of top management. This support should be more than merely the approval to proceed with the OD effort. A top level group, consisting of the Technical Director and representatives from each Directorate, should provide guidance to the Directorates and should monitor results to assure effectiveness and reasonable consistency in the program. The sooner such a policy-making group is formed, the sooner a structured OD Program can be initiated.

(2) Progressively build and capitalize on "in-house" expertise. Recognizing that outside assistance will probably be required for the initial effort, NATC should develop a planned approach so that in-house expertise is also available. Training and development of NATC personnel will provide continuity to the long-term OD Program. Additionally, participation by NATC Personnel can increase the degree to which em-

ployees feel they are part of the OD effort and thus increase the likelihood for success.

(3) Set a reasonable pace for innovative change with the long-term orientation towards continued application of the change process. NATC should avoid the tendency to expect "too much," "too soon." By definition, OD is a long-range effort and therefore may run the risk of not satisfying the employees' desire for immediacy in solving problems. Managers sometimes feel trapped between the resistance-to-change in the organization and the pressures for improvement from both inside and outside. A careful diagnosis of the organizational climate in the beginning will help to improve the chances for a successful OD Program. A good data base will help the manager to break the long-term objectives into reasonable short-term action items, and will facilitate the monitoring and feedback of results.

(4) Concurrently involve the innovative implementation with research on results obtained to move forward from reasonably firm scientific foundation. The problem of Organization Development breaks down into three related problems: (a) selection of appropriate development techniques, (b) assessment of development needs (what skills and attitudes need to be changed), and (c) assessment of success or effectiveness of the development program. A great deal of management attention over the years has been placed on the development of techniques. Far less attention is focused on the development

of needs and assessment of the effectiveness of the program. Assessment of the needs must include analysis of the organization, the jobs, and the skills of the employees. NATC should develop a means for measuring the results of the OD effort. Specifically, the organization must assess the effectiveness of the program for improving employee's knowledge, employee's job performance, and overall organizational performance. Methods for measuring must be reliable and consistent. NATC should make comparisons among groups of employees and among functional areas to differentiate between improvements that result from the OD effort and improvements that result from normal organization growth.

B. *SPECIFIC*

* Ensure that all Naval Air Test Center Directorates participate in the Human Resources Management Survey. Participation by all Directorates will allow the development of an NATC Action Plan and will also permit a normative comparison with comparable RDT&E Activities.

* Establish an appropriate survey data base for the comparison of NATC survey data, to develop norms of comparison. These norms provide the necessary bases for evaluating the comparative effectiveness of organizational conditions, practices, and reactions for a total system compared with over systems and each level of herarchy compared with equivalent factors in similar levels within other organizations. Lacking norms, one runs the risk of classifying as "good" that which, in fact, is less acceptable, and classifying as "bad"

that which is really not so. Once goals have been established during the feedback process, data from a follow-up survey may be used to evaluate the changes required to reach the desired objectives. In other words, surveys conducted in subsequent years will have a base to determine if improvements have been achieved in specific areas.

* Conduct further in-depth analysis of the HRM Survey Data, using statistical techniques. The use of statistics provides a unified and comprehensive methodology that enables the user to perform many different types of data analysis in a simple and convenient manner.

* Establish a top level strategy planning group to mobilize the resources needed to continue an Organization Development Program and to establish appropriate policies. OD must be a formal, systematic effort. Top level involvement must be demonstrated, not only to indicate support, but to establish policies that can guide actions at the lower levels in the organization.

* Assign a specific individual with the responsibility for development and management of the Organization Development Program at NATC. A new program, OD cannot be effectively coordinated on a collateral duty basis. A resident "expert" in OD will be able to provide support to managers at various levels in the organization.

* The manager of the OD Program should have extensive training in OD theory and practices. Consideration should

be given to having this individual attend the Human Resources Management Masters Degree Program at the Naval Postgraduate School (NPS). NPS provides consulting services to numerous Navy Activities and has established a national reputation in the field of Human Resources Management. Additionally, NPS is the focal point for Navy HRM development efforts.

* Each Directorate assign a specific individual with the responsibility for management of the Directorate's OD effort. This individual should be trained in HRM Survey analysis techniques. Consideration should be given to having these individuals attend the Navy's HRM School, Memphis, Tenn.

* Procure the Statistical Package for The Social Sciences (SPSS) and implement it with the Naval Air Test Center's central computer. SPSS provides the user with a comprehensive set of procedures for applying statistical routines to the solution of problems commonly found in the social sciences. In addition to descriptive statistics, SPSS contains procedures for correlation, factor analysis, multiple regression, etc. Use of these statistical techniques allows the manager to perform cause-and-effect analysis.

* Utilize more quantitative management science techniques in management decision making. Management Science is the application of scientific methods to the analysis and solution of managerial decision problems, usually by employing math models and computers. Evidence of the benefits is indicated by the increased use in both the private and public sectors.

Quantitative tools enable a quick identification of the best available solutions and help increase the effectiveness of the decision.

* Emphasize the development of organizational goals and objectives at the Directorate level, including in these goals and objectives both organization and individual needs. Identification and formalization of Directorate goals help to assure continuity with overall NATC goals/objectives.

* Develop an Integrated Management Information System. A comprehensive MIS is needed to improve control and coordination of existing activities, and to improve future-planning efforts.

APPENDIX I

THE HUMAN RESOURCE MANAGEMENT SURVEY (SHORE)

DESCRIPTION OF INDICES AND SURVEY QUESTIONS

I. COMMAND CLIMATE DIMENSION: Refers to the conditions, policies, and procedures within which a work group operates. These conditions and policies are created for a work group by other groups, especially by those groups above it in the command hierarchy. Climate conditions set bounds on what does and what does not go on within any work group. Aspects of climate, as listed below, can help or hinder groups, or do both at the same time.

1. COMMUNICATIONS FLOW INDEX: Command leadership understands the work and problems of the command. Information flows freely through the chain of command, from the work groups to a listening and responsive leadership and to the work groups concerning plans and problems facing the command.

QUESTIONS:

1. To what extent is the amount of information you get from other work groups adequate to meet your job requirements?

2. To what extent does this organization do a good job of putting out the word to you?

3. To what extent is the chain of command (those above you) receptive to your ideas and suggestions?

2. DECISION MAKING INDEX: Information is widely shared within the command and decisions are made at those levels where the most adequate information is available. Supervisors seek out information before making decisions.

QUESTIONS:

4. Decisions are made in this organization at those levels where the most adequate information is available.

5. Information is widely shared in this organization so that those who make decisions have access to available know-how.

6. When decisions are being made, to what extent are the people affected asked for their ideas?

3. MOTIVATION INDEX: Through its practices and policies, the command provides motivating conditions for personnel to contribute their best efforts.

QUESTIONS:

7. To what extent do you feel motivated to contribute your best efforts to the organization's mission and tasks?

8. To what extent are there things about this organization (people, policies or conditions) that encourage you to work hard?

9. To what extent do people who work hard receive recognition from this organization?

4. HUMAN RESOURCE EMPHASIS INDEX: The command shows concern for human resources in the way it organizes its personnel to achieve its mission. Personnel within the command perceive that the organization and assignment of work sensibly considers the human element.

QUESTIONS:

10. To what extent does this organization have a real interest in the welfare and morale of assigned personnel?

11. To what extent are work activities sensibly organized in this organization?

12. This organization has clear-cut, reasonable goals and objectives that contribute to its mission.

13. I feel that the workload and time factors are adequately considered in planning our work group assignments.

14. People at higher levels of the organization are aware of the problems at your level.

II. SUPERVISORY LEADERSHIP DIMENSION: Comprised of the behavior of the supervisor toward subordinates.

5. SUPPORT INDEX: Leaders behave in a way which increases the work group members' feelings of worth and dignity.

QUESTIONS:

15. How friendly and easy to approach is your supervisor?

16. To what extent does your supervisor pay attention to what you say?

17. To what extent is your supervisor willing to listen to your problems?

18. When things are not going as well as your supervisor expects, to what extent is it easy to tell him/her?

6. TEAM COORDINATION INDEX: Supervisors encourage subordinates to work out conflicts and exchange opinions and ideas within the work group.

19. To what extent does your supervisor attempt to work out conflicts within your work group?

20. To what extent does your supervisor encourage the people in your work group to exchange opinions and ideas?

7. TEAM EMPHASIS INDEX: Supervisors encourage subordinates to develop close, cooperative working relationships in order to reach a team goal.

QUESTIONS:

21. To what extent does your supervisor encourage the people in your work group to work as a team?

22. To what extent does your supervisor stress a team goal?

8. GOAL EMPHASIS INDEX: High standards of performance are set, maintained, and encouraged by supervisors.

23. To what extent does your supervisor encourage the members of your work group to give their best efforts?

24. To what extent does your supervisor expect high standards of performance from the members of your work group?

9. WORK FACILITATION INDEX: Supervisors help those subordinates and supervisors who work for them to improve performance. The work groups work together to solve problems which hinder performance and task completion.

QUESTIONS:

25. To what extent does your supervisor help you to improve your performance?

26. To what extent does your supervisor provide the assistance you need to plan, organize and schedule your work ahead of time?

27. To what extent does your supervisor offer you ideas to help solve job-related problems?

III. PEER LEADERSHIP DIMENSION: Behavior of work group members toward each other.

10. SUPPORT INDEX: Work group members behave toward each other in a manner which enhances each member's feeling of personal worth.

QUESTIONS:

28. How friendly and easy to approach are the members of your work group?

29. When you talk with the members of your work group, to what extent do they pay attention to what you are saying?

30. To what extent are the members of your work group willing to listen to your problems?

11. TEAM COORDINATION INDEX: Team members work out conflicts and exchange questions and ideas within the work group.

QUESTIONS:

31. To what extent do members of your work group take the responsibility for resolving disagreements and working out acceptable solutions?

32. To what extent do people in your work group exchange opinions and ideas?

12. TEAM EMPHASIS INDEX: Team members develop close, cooperative working relationships in order to reach a team goal.

QUESTIONS:

33. How much do members of your work groups encourage each other to work as a team?

34. How much do members in your work group stress a team goal?

13. GOAL EMPHASIS INDEX: Team members set, maintain and encourage high standards of performance.

QUESTIONS:

35. How much do people in your work group encourage each other to give their best effort?

36. To what extent do people in your work group maintain high standards of performance?

14. WORK FACILITATION INDEX: Work group members help each other improve performance. The work group works together to solve problems which hinder performance and task completion.

QUESTIONS:

37. To what extent do members in your work group help you find ways to improve your performance?

38. To what extent do members of your work group provide the assistance you need to plan, organize and schedule your work ahead of time?

39. To what extent do members of your work group offer each other ideas for solving job-related problems?

IV. WORK GROUP PROCESSES DIMENSION: Measures those things which characterize the group as a team and whether group members work together well or poorly. The way in which group members share information, make decisions, and solve problems determines the group's productiveness and the quality of its outputs.

15. WORK GROUP COORDINATION INDEX: Work group members plan, coordinate, and support each other effectively.

QUESTIONS:

40. To what extent does your work group plan together and coordinate its efforts?

41. To what extent do you have confidence and trust in the members of your work group?

42. To what extent is information about important events widely exchanged within your work group?

43. To what extent does your work group make good decisions and solve problems effectively?

16. BUREAUCRATIC PRACTICES INDEX: The extent to which the policies, procedures and practices of the organization are so inflexible that it is difficult for individuals to accomplish their assigned tasks.

QUESTIONS:

44. To what extent do you get endlessly referred from person to person when you need help?

45. To what extent do you have to go through a lot of "red tape" to get things done?

46. To what extent do you get hemmed in by long-standing rules and regulations that no one seems to be able to explain?

17. WORK GROUP DISCIPLINE INDEX: Work group members maintain Navy standards of etiquette and discipline.

QUESTIONS:

47. To what extent do members of your work group maintain appropriate standards of courtesy, appearance and grooming?

48. To what extent are appropriate standards of order and discipline maintained within your work group?

ADDITIONAL INDICES FOR EMPHASIS AND END RESULTS MEASURES:

18. GOAL INTEGRATION INDEX: The command is seen as effective in getting people to meet the command's objectives as well as meeting the individual's needs.

QUESTIONS:

49. To what extent is your organization effective in getting you to meet its needs and contribute to its effectiveness?

50. To what extent does your organization do a good job of meeting your needs as an individual?

19. SATISFACTION INDEX: Personnel within the command are satisfied with their supervisors, the command, other work group members, their jobs, and their present and future progress in the Navy.

QUESTIONS:

51. All in all, how satisfied are you with the people in your work group?

52. All in all, how satisfied are you with your supervisor?

53. All in all, how satisfied are you with this organization?

54. All in all, how satisfied are you with your job?

55. All in all, how satisfied do you feel with the progress you have made in the Department of the Navy, up to now?

56. How satisfied do you feel with your chances for getting ahead in the Department of the Navy in the future?

57. Does your assigned work give you pride and feelings of self worth?

58. Do you regard your duties in this organization as helping your career?

20. LOWER LEVEL INFLUENCE INDEX: Lowest level supervisors and non-supervisory personnel have the opportunity to influence what goes on in their departments.

QUESTIONS:

59. To what extent do lowest level supervisors influence what goes on in your department?

60. To what extent do non-supervisory personnel influence what goes on in your department?

21. TRAINING INDEX: Individuals have been trained in their assigned tasks. The development of technical and leadership skills and other facets of professional advancement are encouraged.

61. To what extent is this organization adequately training you to perform your assigned tasks?

62. To what extent is this organization training you to accept increased leadership responsibility?

63. To what extent is this organization training you to accept increased technical responsibility?

22. EQUAL OPPORTUNITY INDEX: The command ensures equal opportunity for all personnel in such areas as job assignment, education, rewards and punishment. There is an openness and willingness to address equal opportunity issues within the command. NOTE: It should be understood that in addition to these questions other dimensions, such as command climate, indicate the command's ability to effectively manage in order to achieve equal opportunity.

QUESTIONS:

64. To what extent do you feel free to report any racial/ethnic discrimination in this organization through proper channels?

65. To what extent does this organization ensure that you have equal opportunity for advancement in rate/rank/grade?

66. To what extent does this organization ensure that you have equal opportunity for job assignment?

67. To what extent do you feel free to report any sex discrimination in this organization through proper channels?

68. To what extent does this organization ensure that you have equal opportunity for education and training?

69. To what extent does this organization ensure that you receive a fair and objective performance evaluation?

70. To what extent is your chain of command (those above you) willing to take action on known or alleged racial/ethnic issues?

71. To what extent is discipline administered fairly throughout this organization?

72. To what extent are grievances and redress procedures available and well publicized in this organization?

73. In this organization work assignments are fairly made.

74. People in this organization discourage favoritism.

75. To what extent is your chain of command (those above you) willing to take action on known or alleged sex discrimination issues?

76. To what extent are current equal opportunity issues being addressed in this organization's Affirmative Action Plan (AAP)/Equal Employment Opportunity Program?

23. DRUG ABUSE AND ALCOHOLISM PREVENTION INDEX: Personnel in the command have the ability and willingness to recognize and respond to drug abuse and alcohol problems in an effective and candid manner.

QUESTIONS:

77. To what extent does this organization have an effective drug abuse prevention program?

78. To what extent do members of your work group discourage drug abuse?

79. To what extent would you feel free to talk to your supervisor about a drug problem in your work group?

80. To what extent is the performance of your work group affected by drug and/or alcohol related problems?

81. To what extent would you feel free to talk to your supervisor about an alcohol problem in your work group?

82. To what extent does this organization's program promote the responsible use or the non-use of alcoholic beverages?

83. To what extent do members of your work group discourage the abuse of alcoholic beverages?

84. To what extent do the social activities of this organization include alternatives to the use of alcohol?

24. GENERAL INDEX: The following questions provide useful data in and of themselves; however, they do not statistically group with other questions in the Navy Human Resources Management Survey.

QUESTIONS:

85. To what extent do military and civilian personnel work cooperatively together to accomplish the goals of this organization?

86. To what extent are the lines of authority between civilians and military personnel clearly understood in this organization?

87. To what extent has this organization provided information to assist you and/or your family to live in this area?

88. To what extent are newly reported personnel quickly integrated into the activities and work of this organization?

APPENDIX II

STATEMENT OF MISSION
FOR THE
NAVAL AIR TEST CENTER

1. MISSION. To conduct tests and evaluation of aircraft weapon systems and their components.

2. FUNCTIONS. The following specific functions are assigned to accomplish the mission:

a. Foreign Relations. Serve as an effective instrument of U.S. Foreign Policy by initiating and continuing action programs which promote positive relations between the command and foreign nationals, and which assist individual Naval personnel and their families to work effectively, live with dignity and satisfaction, and function as positive representatives of the Navy and of the United States while overseas.

b. Aircraft Mission Systems. Conduct life cycle test and evaluation of the overall system integration, technical performance, and mission effectiveness for strike, antisubmarine, command and control, electronic warfare, reconnaissance, rotary wing, logistic, and training aircraft.

c. Aircraft Systems. Conduct test and evaluation of airframe, structure, flight control, electrical, environmental control, fuel, hydraulic, mechanical, pneumatic, propulsion, gun, life support, and related ground support systems.

d. Aircraft Mission Equipments. Conduct test and evaluation of sensors, data storage and processing computers and software involved in maintenance, operation and control of the aircraft, displays, communication equipment, navigation systems, identification systems, electronic countermeasures systems, fire control systems, and related ground support systems, interfaces and equipments.

e. Aircraft Maintenance and Support. Conduct test and evaluation of reliability, maintainability, ground support equipment, and related elements of integrated logistics support.

f. Aircraft Operation. Conduct test and evaluation of aircraft flying qualities, performance, cruise control, carrier suitability, weapon/store separation, landing aids/systems, electromagnetic interference, training, pilot/aircrew checkout criteria, aircraft and aircraft systems simulators, human factors and safety. Establish carrier/ship launch and recovery criteria and weapon/store separation envelopes for fixed and rotary wing aircraft. Certify ship/shore landing aid systems.

g. Lead Field Activity. Serve as the Lead Field Activity for the conduct of:

(1) Monitor programs on contractor DT&E in new aircraft acquisitions or significant modifications.

(2) Witnessing contractor demonstrations in aircraft programs.

(3) Navy Preliminary Evaluations (NPE) on aircraft.

(4) Navy Technical Evaluations (NTE) on aircraft.

(5) Board of Inspection and Survey (BIS) Trials on aircraft.

(6) Test and evaluation of airborne electrical components and ground support equipment.

Inherent in this function is the responsibility to recommend design changes for aircraft and related components as the result of test, evaluation and the monitoring of contractor demonstrations.

h. Testing Technology. Conduct test pilot training. Investigate and develop new flight and ground/ship testing and test instrumentation techniques.

i. Technical and Operationsl Support. Provide technical, operational and T&E support to other activities where required within the limits of available resources consistent with the provision of full support NAVAIRSYSCOM sponsored programs.

j. Facilities, Resources, and Support

(1) Operate and maintain the NAVAIRSYSCOM Instrumentation Pool.

(2) Operate and maintain the NAS/NAVAIRTESTCEN Patuxent River armory, catapult and arresting equipment, data link, and landing aid sites at NAVAIRTESTCEN.

(3) Provide facilities and personnel for technical assistance to the Naval Air Systems Command and other agencies of the government as required.

STATEMENT OF ORGANIZATION AND MANAGEMENT POLICY OF THE NAVAL AIR TEST CENTER

1. The Naval Air Test Center, established by the Secretary of the Navy on 16 June 1945, is an Echelon 4 activity under the command of the Chief of Naval Material with the chain of command extending through the Commander, Naval Air Systems Command.

2. Activities at NAVAIRTESTCEN include:

a. NAVAIRTESTCEN Directorates:

(1) Strike Aircraft Test Directorate

(2) Antisubmarine Aircraft Test Directorate

(3) Rotary Wing Aircraft Test Directorate

(4) Systems Engineering Test Directorate

(5) Technical Support Directorate

(6) Computer Services Directorate

(7) U.S. Naval Test Pilot School

b. Marine Aviation Detachment

c. Naval Air Station, Patuxent River, Maryland

3. The Commander, Naval Air Test Center, is responsible for the satisfactory accomplishment of the mission of the Test Center and exercises authority through the Directors. The Directors are responsible to the Commander, Naval Air Test Center, for the accomplishment of the mission of the Test Center, and each is delegated the authority, within his area of responsibility, to implement all policies and directives approved by the Commander. Directors, Strike, Antisubmarine, Rotary Wing, Systems Engineering Test Directorates, and Naval Test Pilot School have been delegated authority to complete and sign fitness reports of subordinate officers. These Directors have been granted authority to impose nonjudicial punishment under Article 15 of the Uniform Code of Military Justice on enlisted personnel assigned to their respective directorates.

4. The Commanding Officer, Naval Air Station, has full responsibility and authority, as defined by Navy Regualtions, over those personnel regularly assigned to his command. He is responsible for maintaining and operating facilities and for providing, as required by competent authority, services and material to support operations of NAVAIRTESTCEN and other activities and units based at Patuxent River, Maryland.

1. Mission. As directed by reference (a), the mission of the Naval Air Test Center (NAVAIRTESTCEN) is as follows:

To conduct tests and evaluation of aircraft/aircraft weapon systems and their components.

2. Status and Command Relationship.

a. The NAVAIRTESTCEN is a shore activity in an operating status under a commander. The command and support responsibility shall be exercised through:

Echelon 2 - Chief of Naval Material
Echelon 3 - Commander, Naval Air Systems Command
Echelon 4 - Commander, Naval Air Test Center, Patuxent River, Md. 20670

Area Coordinator: Commandant, Naval District, Washington, D.C.

b. Primary support responsibility for the NAVAIRTESTCEN is exercised by the Assistant Commander for Test and Evaluation (AIR_06).

3. Functions. The following specific functions are assigned to accomplish the mission:

a. Serve as an effective instrument of U.S. Foreign Policy by initiating and continuing action programs which promote positive relations between the command and foreign nationals, and which assist individual Naval personnel and their families to work effectively, live with dignity and satisfaction, and function as positive representatives of the Navy and of the United States while overseas.

b. Serve as the principal site for the test and evaluation of the total aircraft/aircraft weapon system including:

(1) Aircraft mission systems overall system integration, technical performance and mission effectiveness.

(2) Aircraft structural, flight control, electrical, environmental control, fuel, hydraulic, mechanical, pneumatic, propulsion, gun, life support and related ground support systems.

(3) Aircraft sensors, data storage and processing computers and software involved in operation, control and maintenance of the aircraft, displays, communication equipment, navigation systems, identification systems, electronic warfare systems, fire control systems and related ground systems, interfaces and equipments.

(4) Aircraft, mission systems/equipments, and associated ground support equipment (GSE) reliability, maintainability, and integrated logistic support.

(5) Aircraft flying qualities, performance, cruise control, carrier suitability, weapon/store separation, landing aids/systems, electromagnetic compatibility, training, pilot/aircraft checkout criteria, aircraft and aircraft systems simulators, human factors and safety.

c. Serve as the lead field activity for:

(1) Monitoring all phases of the Navy acquisition program including developer's activity rleative to test and evaluation for new aircraft/aircraft weapon systems acquisitions or modifications to same.

(2) Witnessing developer's demonstrations in aircraft/aircraft weapon systems programs.

(3) Conducting Navy Preliminary Evaluations (NPE) on aircraft/aircraft weapon systems.

(4) Conducting Navy Technical Evaluations (NTE) on aircraft/aircraft weapon systems.

(5) Supporting Board of Inspection and Survey (BIS) Trials on aircraft/aircraft weapon systems.

(6) Conducting test and evaluation of airborne electrical components and ground support equipment.

(7) Providing fleet support test and evaluation services.

Inherent in this function is the responsibility to recommend design changes for aircraft, GSE and related components as the result of test, evaluation and monitoring of developer's demonstrations.

d. Develop and provide test pilot, project officer and engineer training. Investigate and develop new flight and ground/ship testing and test instrumentation techniques.

e. Establish carrier/ship launch and recovery criteria and weapon/store separation envelopes for fixed and rotary wing aircraft.

f. Certify ship landing aid systems.

g. Operate and maintain the NAVAIR Special Flight Test Instrumentation Pool (SFTIP).

h. Develop, operate and maintain all facilities necessary for test and evaluation of aircraft.

(1) Provide unique laboratories for the test and evaluation of aircraft systems, components, and ground support equipment.

(2) Provide an instrumented test range, targets, telemetry systems, calibration laboratories, and computer/data processing systems.

(3) Provide an airfield, launching/arresting gear, landing aids, thrust stands, and associated facilities required for the test and evaluation of aircraft.

j. Provide test and evaluation support to NAVAIR and other field activities and services within the limits of available resources.

BIBLIOGRAPHY/REFERENCES

1. Argyris, Chris, Management and Organizational Development, McGraw-Hill Book Co., New York, 1971.

2. Barnard, Chester I., Organization and Management, Cambridge Harvard University Press, 1948.

3. Beckhard, Richard, Organization Development: Strategies and Models, Addison-Wesley Publishing Co., Reading, Mass., 1969.

4. Beer, Michael and Huse, Edgar F., "A Systems Approach to Organization Development," Journal of Applied Behavioral Science, Vol 8 No 1 pp 79-101, 1972.

5. Bennis, Warren G., Organization Development: Its Nature, Origins, and Prospects, Reading, Mass. Addison-Weseley, 1969.

6. Blake, Robert, and Mouton, Jane, The Managerial Grid, Gulf Publishing Co., 1964.

7. Boshear, Walton C. and Allrecht, Karl G., Understanding People, Models and Concepts, University Assoc., La Jolla, Calif., 1977.

8. Bowers, D.G., and Franklin, J.L., Survey-Guided Development: Data Based Organizational Change, OD Research Program, Institute for Social Research, Univ. of Mich., 1975.

9. Burns, T., and Stalker, G., The Management of Innovation, London; Tavistock, 1961.

10. Campbell, John P., Bownas, David A., Peterson, Norman G., Dunnette, Marvin D., The Measurement of Organizational Effectiveness: A Review of Relevant Research and Opinion, Naval Personnel Research and Development Center Technical Report NPRDC TR 75-1 of July 1974.

11. Corson, John J., and Paul, R. Shale, Men Near The Top, The Johns Hopkins Press, Baltimore, Md., 1966.

12. Cyert, Richard M. and March, James G., A Behavior Theory of a Firm, Prentice Hall Inc., Englewood Cliffs, New Jersey, 1963.

13. Dalton, Lawrence, and Lorsch, Organizational Structure and Design, Richard D. Irwin Inc., and The Dorsey Press, Homewood, Ill., 1970.

14. Dayal, I. and Thomas J.M., "Operation HPE: Developing a New Organization," Journal of Applied Behavioral Science, pg. 473-506, 1964.

15. Dunn, Floyd Paul, "Perceived Job Related Need Satisfaction of Military Officers and Civilian Employees in the Military Bureaucracies," American University, Ph.D., 1973.

16. Dyer, W.G., Team Building; Issues and Alternatives, Addison-Westley, 1977.

17. Ein-Dor, Phillip, and Seger, Eli, Manageing Management Information Systems, Lexington Books, Lexington, Mass., 1978.

18. Fayol, Henry, General and Industrial Management, International Management Institute, Geneva 1929.

19. Forbes, Raymond L. Jr., "A Cause Celebre: Organization Development in the U.S. Navy," A Paper presented to a joint meeting of the Inter-University Seminar and the American Psychological Association, Washington, DC, September 6, 1976.

20. Forbes, Raymond L. Jr., "Organization Development: An Analysis of the U.S. Navy Experience," Working Paper Series, The Human Resource Management Research Program, Department of Administrative Sciences, Naval Postgraduate School, Monterey, Calif., 1977.

21. Fordyce, Jack K., and Weil, Raymond, Managing With People: A Manager's Handbook of Organizational Development Methods, Addison-Wesley Publishing Co., Reading, Mass., 1971.

22. French, W.L., Organization Development: Objectives, Assumptions and Strategies, California Management Review, 12(2) pg. 23-24, 1969.

23. French, W., Organization Development: Objectives, Assumptions and Strategies, In N. Margulies & A.P. Raia (Eds.), Organizational Development: Values, Processes, and Technology, New York, McGraw-Hill, 1972.

24. French, W.L. and Bell, C.H. Jr., Organization Development: Behavioral Science Interventions for Organization Improvement, Englewood Cliffs, N.J., Prentice-Hall Inc., 1973.

25. French, Bell and Zawacki, Organization Development: Theory, Practice and Research, Business Publications Inc., Dallas, Texas, 1978.

26. Gibson, Ivancevick, and Donnelly, Organizations: Structure, Processes and Behavior, Business Publications Inc., Dallas, Texas, 1973.

27. Golembiewski, Robert T., Renewing Organizations, The Laboratory Approach to Planning Change, F. F. Peacock Publishers, Inc., Itasca, Ill., 1972.

28. Gulick, L., "Notes on The Theory of Organizations," in L. Gulick and L. Urwick eds. Papers on the Science of Administration, New York, Columbia University Press, 1937.

29. Harrison, R., "Choosing the Depth of Organizational Intervention," Journal of Applied Behavioral Science, 6,2 pg 181-202, 1970.

30. Harrison, T., "Role Negotiation: A Tough-Minded Approach to Team Development," Interpersonal Dynamics, Dorsey Press, 1973.

31. Harvey, Donald F. and Brown, Donald R., An Experimental Approach to Organizations, Prentice-Hall Inc., Englewood Cliffs, New Jersey, 1976.

32. Hellriegel, Don, and Slocum, John W. Jr., Management: Contingency Approaches, 2nd Edit., Addison-Wesley Publishing Co., Reading, Mass, 1978.

33. Herman, Stanley M., "A Gestalt Orientation to Organization Development," Contemporary Organization Development: Conceptual Orientations and Interventions, ed. by W.W. Burke, NTL Institute, Arlington, VA., pp. 64-89, 1972.

34. Huse, Edgar F., Organization Development and Change, West Publishing Co., New York, 1975.

35. Khandwalla, Pradip N., The Design of Organizations, Harcourt Brace Jovanovich Inc., New York, 1977.

36. Kolb, David A. and Frohman, Alan L., "An Organizational Approach to Consulting," Sloan Management Review, p. 52-62, Fall, 1970.

37. Laird, Dugan and Grote, Richard, Solving Managerial Problems, Addison-Wesley Publishing Co., Reading, Mass., 1971.

38. Lawrence, Paul R. and Lorsch, Jay W., Organization And Environment: Managing Differentiation and Integration, Division of Research, Graduate School of Business Administration, Harvard University, Boston, Mass., 1967.

39. Lawrence, Paul R. and Lorsch, Jay W., Organizational Structure and Design, Addison-Wesley Publishing Co., Reading, Mass., 1969.

40. Lawrence, Paul R. and Lorsch, Jay W., Developing Organizations Diagnosis and Action, Addison-Wesley Publishing Co., Reading, Mass., 1969.

41. Leavitt, Harold J., Managerial Psychology, 3rd Edit., The University of Chicago Press, Chicago, Ill., 1972.

42. Leavitt, Dill, and Eyring, The Organization World, Harcourt Brace Jovanovich Inc., New York, 1973.

43. Levinson, Molinari, and Spohn, Organizational Diagnosis, Harvard University Press, Cambridge, Mass., 1972.

44. Lippitt, G., Watson, J., Westley, B., The Dynamics of Planned Change: A Comparative Study of Principles and Techniques, New York: Harcourt, Bruce & World Inc., 1958.

45 Litterer, Joseph A., The Analysis of Organizations, John Wiley and Sons, Inc., New York, 1973.

46. Lorsch, Jay W. and Lawrence, Paul R., Studies in Organization Design, Irwin-Dorsey Inc., Homewood, Ill., 1970.

47. Mandel, B.J., Statistics for Management, Dungary Publishing Co., Baltimore, Md., 1977.

48. Margulies, N. and Raia, A.P. (Eds), Organizational Development: Values, Processes, and Technology, New York, McGraw-Hill, 1972.

49. McConley, Dale D., MBO for Non Profit Organizations, AMA/COM, American Management Association, 1975.

50. McGregor, Douglas, The Human Side of Enterprise.

51. McFarland, Dalton E., Management, Principles and Practices, 2nd Edit., MacMillan Publishing Co., New York, 1974.

52. Melcher, Arlyn J., Structure and Process of Organizations: A Systems Approach, Prentice Hall Inc., Englewood, New Jersey, 1976.

53. Nie, Hull, Jenkins, Steinbrenner and Bent, Statistical Package for the Social Sciences, 2nd Edit., McGraw-Hill Book Co., New York, 1975.

54. Pugh, D.S. and Hickson, D.J., Organizational Structure in Its Context, Saxon House/Lexington Books, Lexington, Mass., 1976.

55. Quade, E.S., Analysis for Public Decisions, Elsevier Scientific Publishing Co., New York, 1975.

56. Rush, H.M. and McGrath, P.S., "Transactional Analysis Moves into Corporate Training: A New Theory of Interpersonal Relations Becomes a Tool for Personnel Development," The Conference Board Record, July 1973, Vol. 10, No. 7.

57. Schein, E.H., Process Consultation: Its Role in Organization Development, Addison-Wesley, 1969.

58. Selznick, P., TVA and the Grass Roots, Berkeley, Calif., University of California Press, 1949.

59. Taylor, Fredrick, The Principles of Scientific Management, New York, Harper and Bros., 1944.

60. Tosi, Henry L., and Hammer, W. Clay, Organization Behavior and Management, St. Clair Press, Chicago, Ill., 1974.

61. Tosi, Henry L. and Carroll, Stephen J., Management: Contingencies, Structure, Process, St. Clair Press, Chicago, Ill., 1976.

62. Uyterhoeven, Ackerman, and Rosenblum, Strategy and Organization, Richard D. Irwin Inc., Homewood, Ill., 1977.

63. Vomastic, John Emil and Schneider, Edward Thomas, An Evaluation of the Structure and Organization of the Naval Air Test Center, Thesis, Naval Postgraduate School, Monterey, Cal., 1978.

64. Weber, Max, The Theory of Social and Economic Organizations, Translated by A.M. Henderson and Talcott Parsons, New York, Oxford University Press, 1947.

65. Weisner, Admiral M.F., "Navy Human Goals Plan," OPNAV INST 5300.6 issued August 6, 1973.

66. Winn, Alexander, The Laboratory Approach to Organizational Development: A Tentative Model of Planned Change," paper, Annual Conference of the British Psychological Society, Oxford, England, Sept., 1968.

67. Woodward, J., Industrial Organization; Theory and Practice, New York, Oxford University Press, 1965.

68. HRM Survey Data Analysis Guide, NAVPERS 15263.

INITIAL DISTRIBUTION LIST

		No. Copies
1.	Library, Code 0142 Naval Postgraduate School Monterey, California 93940	2
2.	Department Chairman, Code 54 Department of Administrative Sciences Naval Postgraduate School Monterey, California 93940	1
3.	Professor C. K. Eoyang, Code 54Eg Department of Administrative Sciences Naval Postgraduate School Monterey, California 93940	1
4.	Professor J. W. Creighton, Code 54Cf Department of Administrative Sciences Naval Postgraduate School Monterey, California 93940	1
5.	Mr. John F. Lynch Technical Support Directorate Naval Air Test Center Patuxent River, Maryland 20670	5
6.	Mr. Roger H. Seltz Systems Engineering Test Directorate Naval Air Test Center Patuxent River, Maryland 20670	5
7.	Naval Aviation Executive Institute Management and Administrative Directorate (Code 901A) Department of the Navy Washington, D.C. 20361	1
8.	Rear Admiral John G. Wissler, USN Commander, Naval Air Test Center (CTOO) Naval Air Test Center Patuxent River, Maryland 20670	1
9.	Mr. John B. Paradise Technical Director (CTO2) Naval Air Test Center Patuxent River, Maryland 20670	1

10. Technical Director, Systems Engineering
Test Directorate (SYO2) 1
Naval Air Test Center
Patuxent River, Maryland 20670

11. Defense Documentation Center 2
Cameron Station
Alexandria, Virginia 22314