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Anatomy of an Organizational Change Effort at the Lewis Research Center

James R Hawker and Richard S Dahl

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Anatomy of an Organizational Change Effort at the Lewis Research Center

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Prepared for
Lewis Research Center
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PREFACE

The whole topic of organizational change, and especially "cultural" change, is a relatively recent development in the attempt to understand and increase the effectiveness of organizational systems. Despite the appearance of several excellent scholarly and popular books on the topic in the past few years (e.g., *In Search of Excellence*), it is still a comparatively new area. Moreover, while such programs have been talked about a great deal, few have actually been done.

This report was prepared by Management Learning Systems under contract for the NASA Lewis Research Center. The purpose in writing it was to produce a documented history of the major organizational and management changes which occurred at the NASA Lewis Research Center in Cleveland, Ohio during the period from 1982 through 1987. As such, it is an account of an effort that was undertaken to change an organizational "culture" and, consequently, may provide some insights into the whole change process. It is presented here, not as an exemplary model, but simply as an account of a real-life effort which was initiated and carried out primarily by people within the organization. While the change effort did use outside consultants, it was largely a grass-roots program conceived and conducted by the internal staff. Perhaps by reading and examining this report, others can learn from the experiences at the Lewis Research Center and can apply these learnings to make their organization a better place in which to work.

A particularly unique feature of this program was that it was carried out in a large governmental agency. Most of the literature on organizational change involves privately-held companies responding to market-place conditions, foreign competition, and the like. Such was not the case here. While some of these same concerns were present, the primary impetus for change came from the commitment of upper management to revitalize the Center, to seek new growth areas, and to respond to the needs and concerns of employees.

We are indebted to many people who aided us in the preparation of this report. Through interviews, personal conversations, and the supplying of archival materials, these individuals contributed significantly to the project. We would especially like to thank Andy Stofan, John Klineberg, Ed Richley, Joyce Bergstrom, Paul Cline, Debbie Griest, and Dick Clapper for their assistance and for the information which they contributed. We would also like to acknowledge the authors of two earlier reports which were extremely helpful in the preparation of this report. Specifically, our thanks to Warner Burke, Edward Richley, and Louis DeAngelis for their article, "Changing Leadership and Planning Processes at the Lewis Research Center, National Aeronautics and Space Administration," and to Dick Clapper, Debbie Griest, and Pete McVoy for their article, "NASA Lewis Research Center: Organization in Transition." Both of these articles were invaluable and served as key resources in our own writing. Finally, we would like to acknowledge the staff and writers for "The Lewis News" and "Working Smarter," two in-house publications, whose articles helped to trace the development of the entire program and whose work helped us fill in many gaps.

James R. Hawker
Richard S. Dali

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CHAPTER 1

INTRODUCTION

The decade of the 1980's has witnessed a growing awareness of the importance and complexity of managing our organizations successfully. Concurrently, this awareness has stimulated an increased interest in how to manage more effectively as evidenced by the number of books on the topic which have captured the attention of American managers and executives. Thus, we have been exposed to "Theory Z" (Ouchi, 1981), "In Search of Excellence" (Peters & Waterman, 1982), "A Passion for Excellence" (Peters & Austin, 1985), "The One-Minute Manager" (Blanchard & Johnson, 1982)--and the list goes on. In some cases, the lessons presented have been stimulating and insightful; in others, the material has been entertaining but superficial, and of little practical use.

As Ralph Kilmann has pointed out in his provocative book, "Beyond the Quick Fix" (1984), new approaches emerge every few years and promise to be the solution to our managerial problems. Rarely, however, do such prescriptions work out and the search continues. The failure of such approaches, Kilmann maintains, is not that any of the single approaches is inherently ineffective; they appear so only when applied in isolation as a "quick-fix." He goes on to point out that for organizations to be truly effective, it must be realized that the complex problems facing most organizations cannot be solved by simple solutions. Any approach to planned change must be a comprehensive, integrated plan if it is to have any chance for success. Moreover, as he observes, "Complete programs . . . are often preached but seldom practiced."

OVERVIEW

What we would like to present in this paper is a comprehensive change program that was both preached and practiced. It is the story of the NASA Lewis Research Center and its efforts at revitalization.

In 1982, the NASA Lewis Research Center, located in Cleveland, Ohio, was floundering and had lost its focus--there was even a threat of the Center being closed. Today, it is a flourishing and productive Center and considered by many people at NASA Headquarters to be one of the most responsive centers within NASA. In response to a number of converging factors (i.e., a shift in emphasis regarding the space program, a decline of existing programs, and an absence of new programs), the Lewis Research Center began a concerted and strategically planned effort to change the culture of the organization and to plot a new course for the future. It was realized, early on, that the key to survival was two-dimensional: the Center had to capitalize on its considerable technological expertise, and had to improve its utilization of the existing talent base by generating greater employee involvement in the activities and work of the Center.

In his current best selling book, "The Renewal Factor," Bob Waterman (1987) presents an in-depth analysis of a representative group of companies which have gone through a process of "renewal"--of making the necessary changes to adapt and survive in current market conditions. As Waterman and his associates analyzed the data they had collected, several factors emerged which tended to characterize those organizations which had successfully adapted and survived. Among other things, they found that the following characteristics tended to describe successfully-renewing organizations:

- Their leaders listen-- stay in touch with what's going on about them
- There is an emphasis on teamwork and trust
- Their leaders back up their words with action
- Their senior managers set direction, not detailed strategy
- Their leaders keep things moving--they're not trapped in habitual ways of doing things
- Their leaders see more value in the process of Strategic Planning than the plan itself

As it turns out, these characteristics nicely reflect the comprehensive and integrated plan which was initiated and which continues at the Lewis Research Center. As such, it represents a systematic and sustained effort to effect a major organizational change. The present analysis is designed to trace and document the major components of this change process and, hopefully, to provide a case history which may be of value to other organizations that might be contemplating such a renewal effort.

HISTORICAL BACKGROUND

To fully appreciate what has transpired and has been accomplished at the Lewis Research Center, we need to establish something of a historical perspective. For convenience, we can establish several distinct phases which describe the growth and evolution of the Lewis "culture."

Phase 1. The Early Years: Development and Growth

The Lewis Research Center was established in 1941 as one of the National Advisory Committee for Aeronautics' (NACA) centers for research and development work in aeronautics and propulsion development. During the decades of the 1940's and 1950's the Center's mission was primarily aeronautical research; as such, Lewis prospered and developed a reputation for both independence and excellent quality work.

Direction was provided from the top by technically competent managers who took their lead from the Center Director, the primary decision maker. Like most (if not all) American organizations during this time-frame, the accepted form of management was a top-down, directive, somewhat autocratic style of management. And it seemed to work quite well--as evidenced by the continued growth of the Center.

During the first two decades, conditions were quite stable at Lewis and the size of the staff remained fairly constant at about 2500 people. The Center was relatively free of political and economic restraints during this period and there was a continuity of leadership as the first Center Director served until his retirement in 1961.

Phase 2. The Transition Years: Growth and Decline

When NASA was formed in 1958, Lewis became one of the three research centers within the federal space agency. With the formation of NASA, the Center became more involved in space projects and, along with all other units of NASA, grew to twice its previous size and reached its peak employment in 1965 with 5,000 civil servants. During this period the Lewis Center was actively involved in the Mercury and Apollo space programs which culminated with the moon landings. It was also heavily involved in the Nuclear Rocket Program and in expanding its Plum Brook Station facility which contained a nuclear reactor that was used for materials testing. However, with the completion of the Apollo missions in the 1970's, and the country's anti-space exploration attitude, the National Aeronautics and Space Administration experienced a 33% reduction in budget. Consequently, the Lewis Research Center had to reduce its personnel by approximately 50% and its budget by some 250 million dollars.

With the close of the Apollo program and the loss of the Nuclear Rocket Program, the Center seemed to lose its focus. In 1973, the Center was forced to close its Plum Brook Station and had a reduction in force (RIF) of some 250 people. Because of these job losses, labor unions emerged and are still an active presence at the Center. Since Lewis' involvement in the shuttle program (the main work of NASA) was minimal, Lewis management made a major effort to rebuild the Center. It began by allocating a staff of over 350 people with a 115 million dollar yearly budget to pursue research in terrestrial energy, a pressing need at the time. However, this effort faded quickly with the passage of the energy crisis. It continued to pursue aeronautic and propulsion research but, by the late 1970's, the Center found itself with a shrinking aeronautics program due to a lack of private sector support for its efforts in the research and development areas. The net result of all these factors was that the Center had fallen out of the mainstream of the Agency and, in fact, there had been talk in 1979, at the Agency level, of closing the Center as a cost reduction measure.

As a result of that threat, the first steps toward change in the organization were defensive steps. In 1979 a task force, labeled the "Save The Center Committee," was formed to lay out a strategic plan to address the ensuing five years. Among other things the Committee, along with Center management, was able to rally enough support from the local community and various political and industrial interest groups to prevent the threatened closing. However, nothing was done at this time to revitalize the organization.

Phase 3. The Renewal Period

Not surprisingly, morale at the Center was at rock bottom and something, obviously, had to be done. It was clear that a change in Lewis' structure and the attitude of its employees was in order. With the many changes occurring in society and the external environment in the late 1960's and early 1970's, the system at the Center no longer worked as it had in the past. Moreover, the autocratic management style which had served them so well over the past forty years was no longer appropriate.

The shift from a defensive reactive posture to a forward dealing proactive approach was primarily the result of a change in personnel at the Center Director level. The new Center Director, Andrew J. (Andy) Stofan, had learned to manage in a project environment and had developed a participative approach to managing his people. He based his management style on the belief that participation frees the innate talents and abilities of the work force and empowers people to contribute their best efforts in creating a more productive organization--working in full support of the organization's long- and short-term goals. His beliefs had been reinforced by successfully applying participative management over the previous several years and he was convinced that participative management would work at Lewis.

Upon his appointment as Center Director, Stofan immediately began to apply the participative management philosophy in his relationships with the senior executives. The strategic planning process, which had been initiated in 1979, was revived and was used by the senior staff to determine the future direction the Center would take. The use of this process resulted in two major foci for revitalizing the Center. The first was the use of the strategic planning process to significantly integrate the Center's efforts with the Agency's mainstream of work and build an organization at Lewis which would support that work. The second was a concerted effort to institutionalize the participative management process throughout the entire Center. It was realized that this second goal was more difficult to accomplish but was critical in the long term. Moreover, it was recognized that accomplishing both of these factors was essential for revitalizing the Center. It was a challenge, and Lewis met that challenge.

THE CHANGE PROCESS

The effort began at the executive level, with Stofan's conviction that participative management, strategic planning, and consensus decision-making would make Lewis a more productive and efficient research and development operation. The phrase "introducing participative management into the organization" may be overly simplistic, however, for it fails to capture the richness and intensity of what was done. Unfortunately, participative management has become one of the catch phrases of the 1980's and has been misapplied or applied only in the "quick fix" fashion. As Sidney Rubinstein reminds us in his current book, "Participative Systems at Work," managers often assume--incorrectly--that simply allowing workers to participate provides the necessary motivation for people to be more productive. What is usually neglected is the fact that participation must produce results--there must be some meaningful output from the worker's involvement. Rubinstein states it rather succinctly:

Motivation stems from results, from the worker's success in solving the problems associated with his job. It does not arise from participation alone. (Rubinstein, 1987, p. 25)

The program undertaken at Lewis was definitely a results-oriented program and, in the process, produced a major cultural change within the Center. On the research and technological side, Lewis has made the transition from a fairly pure "research" center to a "research and project" center by extending its mission to encompass both basic research and applied technology. On the management or "human resources" side, there have been major changes in the way the Center is managed and these changes have been manifested in many different ways. There have been structural and procedural changes within the Center, there has been a concerted effort to create a climate of open communication among the staff, and there has been a substantial increase in the type and quality of development programs offered to all members of the Center.

CHAPTER 2

CHANGES AND RESULTS

As the preceding discussion indicates, a number of factors had contributed to the readiness for change at the Center. Lewis was in a real crisis and something had to be done in order for the Center to survive. It is fair to say that the initial efforts were motivated rather strongly by fear and the realization that to change or not change was not an option. Lewis had no choice--some drastic and comprehensive changes had to be made. With Andy Stofan's appointment as the new Center Director, the changes began to occur.

The first thing he did was to transform the existing "Save the Center Committee" into a strategic planning committee composed of the senior management staff. The Lewis Research Center is organized into "Directorates" which are functional units within the Center (e.g., Aeronautics, Aerospace Technology, Space Station Systems). The heads of these Directorates, plus the Center Director and the Deputy Center Director compose the top management team or "Senior Staff." It was this group that tackled the task of strategic planning and, in so doing, started the long and arduous process of changing the Center's culture.

In this chapter, we will examine the various methods used to institute, nurture, and maintain the change process. In general, there were three major thrusts which involved:

- Strategic Planning
- Awareness/Communication Programs
- Training and Development

Again, it is important to note that all of these activities were quite interdependent and what occurred in one area had an impact in other areas. Nevertheless, it is instructive to examine each of these separately to ascertain the impact that each had.

STRATEGIC PLANNING

The primary vehicle for change at Lewis was the use of a "Strategic Planning" process. Strategic Planning may take many forms but, basically, represents a logical, formal approach which centers on problem-identification and problem-solving as the primary means for logistical planning and the setting of short- and long-term goals.

The approach taken by the Senior Staff at Lewis was both "formal" and dynamic-- i.e., the approach evolved with experience. Although some members have claimed that they approached the task on an "intuitive" basis, there was in fact a logical sequence to the process. Specifically, Strategic Planning at the Center was, and continues to be, a process of:

- Assessing the external environment
- Assessing the organization's strengths and weaknesses.(internal environment)
- Developing a future plan
- Committing the plan to paper by means of a set of goals and objectives
- Determining roles and responsibilities
- Reviewing progress periodically and making adjustments to the plan

For the better part of a year, senior management spent countless hours reviewing the Center's strengths and weaknesses until, finally, this activity led to a clearly-defined, long-range plan which established the following major program thrusts that the Center would actively pursue:

1. Space Station Power Program
2. Advanced Communications Technology Satellite (ACTS) Program
3. Advanced Turboprop Program (ATP)
4. Altitude Wind Tunnel Facility (AWT)
5. Shuttle Centaur Program
6. Energy Program Phasedown

Thus, under the new leadership, senior management identified four new program opportunities (items 1-4) and began to act more as a team. They launched an aggressive campaign to change the image of the Center and to bring these newly identified opportunities to Lewis.

It is important to note that the senior management group had considerable difficulty in reaching an agreement on what these new goals or opportunities needed to be. A major reason that the process took so long was Stofan's insistence that as many people as practical be involved in the process and that, if at all possible, a consensus decision would be reached around these goals and objectives. He realized that it would be extremely difficult to achieve these ambitious goals and that only people who had participated in the total process would be committed enough to work hard toward achieving the newly-derived objectives.

In retrospect, it may be that strategic planning acted as much as a catalyst as it did a method in that it forced people to take a good hard look at the Center and what had been happening over the past few years, and to develop a systematic plan for introducing change throughout the organization. The leadership provided by Stofan was critical at this point and his own participative style helped facilitate the transition or "psychological transformation" needed to effect the necessary changes. The importance of leadership is not to be taken lightly for, without it, little is going to happen.

As organizational psychologist Michael Beer stresses--organizational change requires leadership. As he points out:

. . . the process of organizational change is a process of organizational learning. For a collectivity of people in an organization to move through the phases of change, the top manager of the target organization must see his role as that of orchestrating a learning process. This "psychological transformation" is one in which people in the organization are guided through phases beginning with the building of problem awareness or dissatisfaction, followed by the setting of new expectations, the development of new models, experimentation with new behaviors, and, finally, ending with the reinforcement of newly acquired attitudes and behavior" (Beer, 1980, pp.65-66)

In a similar vein, Edgar Schein, in his exceptional book, "Organizational Culture and Leadership," observes that:

. . . the further I got into the topic of organizational culture, the more I realized that culture was the result of entrepreneurial activities by company founders, leaders of movements, institution builders, and social architects. As I began to think through the issues of how culture changes, I again realized the centrality of leadership--the ability to see a need for change and the ability to make it happen. Much of what is mysterious about leadership becomes clearer if we separate leadership from management and link leadership specifically to creating and changing culture (Schein, 1985, p xi)

Under the leadership of Stofan, and his Deputy Director and the senior staff, the Strategic Planning program took many different forms. More importantly, the process became the "new" method of doing business at Lewis and had a profound influence upon the operating procedures and the entire "culture" of the Center.

As a direct result of the strategic planning process and the commitment of Lewis people, the Center was successful in advocating and bringing three of the four new opportunities (items 1-3 above) to the Center--which was no small feat. As an example, the decision to move into Space Station Power as a viable direction for the Center generated quite a bit of resistance throughout all of NASA. Few people in the Agency believed that Lewis had the capability or the technological expertise to be in Space Station

Power at all and fewer still believed that Lewis could be the prime Center for Space Station Power. Yet, after devoting approximately one year advocating Lewis's role in Space Station Power everyone involved in the Space Station Program agreed and supported the concept that Lewis needed to be the lead Center for power. This, in itself was a major triumph for strategic planning for without the full commitment of the Lewis management staff, which the strategic planning process developed, Lewis surely would not have successfully advocated a major role for itself in this program.

Some other specific tangible results that can be directly attributed to the strategic planning process at Lewis include:

- A 10 million dollar expansion of the Research Analysis Center which provides Lewis with one centralized facility with full computational networking capability. This program has allowed Lewis to develop LIMS, (Lewis Information Management System) which is providing every employee with direct access, via a workstation, to virtually any computer service at the LeRC and some services beyond. LIMS not only provides computer users with a means of working more efficiently, but it also gives users the tools they need to work together more effectively. Thus, it is an electronic information system designed to fit the Lewis management environment.
- Establishment of a 7 million dollar Power System Facility (PSF) to be used for the testing of Space Station Power components.
- An increase in the number of civil service personnel from 2400 in 1982 to some 2700 at the end of 1987. Included in this increase is the hiring in 1983 and in 1985 of some 500 new college graduates or "freshouts". This hiring was done purposefully to provide LeRC with new people with new ideas to augment Lewis's aging workforce. Interestingly, personnel records show that after two years the retention rate on these new hires was over 85%.
- An increase in the number of Support Service Contractors from 200 to over 1000. The decision to contract out support services allowed Lewis management to bring on board more scientific and engineering personnel--clearly the mainstay of any research and development laboratory. As part of this effort, Lewis management was able to negotiate successfully with the Small Business Administration a unique government procurement agreement that allowed for competition among 8A (minority owned) technical companies for contracts.
- An increase in its annual budget from 450 million dollars in 1982 to over 850 million dollars in 1987. This increase is in direct proportion to the number of new programs that strategic planning brought to the Center. Prior to 1982, the major problem that employees at Lewis saw was one of not having enough good projects on which to work. By 1986, the problem had become one of having too many good programs to choose from on which to work.
- The establishment and renovation of an Employee Center which integrates all employee services in one building. Included in this Center are the employee store, cafeteria, credit union, medical facilities, travel office, union offices, health insurance offices, and training facility.

AWARENESS/COMMUNICATION PROGRAMS

When Stofan was officially sworn in as the Director of Lewis Research Center, he pledged that the entire staff would have a cooperative part in the management of the Center. He also stated, rather emphatically, that participative management was a near-term goal. Shortly thereafter, Stofan held his first "Meet the Director" session to meet, shake hands, and exchange comments about the Lewis Center with members of the directorate staff. It was reported that the initial response to that meeting was something less than spectacular, with approximately 50% of the invitees responding. It was further reported that as people arrived, they were somewhat reluctant to approach Stofan and to talk with him. However, after his presentation and the discussion of questions from the floor, those in attendance seemed to feel more comfortable and did interact more with the Director.

From that rather inauspicious beginning was born what has been labeled the "Awareness" program--a concerted effort to open the lines of communication between management and employees, and to institutionalize the new participative management ethic. The Awareness program did grow and did escalate into a Center-wide activity involving many different programs. An Awareness Committee was established (with a full-time Program Manager) to coordinate and promote the various activities which were designed to foster the exchange of information at all levels.

A variety of different programs was introduced and instituted throughout the Center; examples of some of these programs are the following:

- **Meet the Director:** A series of informal meetings (like the one described above) during which small groups of people have an opportunity to meet the Director personally, and to raise questions or discuss problems. This idea has cascaded down and now most Directors of and some Division Chiefs also do this.
- **Issues and Answers:** An open forum whereby staff members join the Center Director to become more aware of current Lewis issues, and to voice concerns and/or topics of interest.
- **Let's Talk:** A complementary program to the "Issues and Answers" series which is designed to provide in-depth discussions on specific topics of interest to Lewis employees (e.g., "Let's Talk Budget"). Here employees can ask questions and talk with subject matter experts in the selected topic.

In conjunction with the various meetings and communication activities, a series of employee surveys were instituted. These surveys took several forms, ranging from simple three or four question items following a particular presentation to more detailed and scientific surveys of the concerns and the directions that employees felt Lewis should take. The range of topics generated varied from fairly technical topics such as "How to Improve Computer Services" to more personal items such as the Retirement System and Performance Appraisal. Subsequently, many of the items generated through the surveys became the topic for additional Awareness programs (e.g., Issues and Answers).

On a broader scale, a Center-wide survey was conducted in 1985 to identify employee attitudes about participative management. The results of this survey indicated that the Center was in a transitional state: employees responded that they were not in the same work environment as in the past, but were not clear exactly what the future state of the Center would be. However, the results did indicate that there was strong support for change and for the participative management style the Center was attempting to install. The results of this survey were used by management to determine how they could better provide for factors which lead to employee motivation and efficient attainment of the Center's goals.

In 1986, a NASA-wide Culture Survey was conducted and the results indicated that Lewis had one of the highest levels of employee participation and involvement.

As can be seen from the above, the various activities spawned by the awareness/communication programs have produced many intangible results such as greater employee identification with the Center, feelings of greater involvement, and a heightened awareness of the role of the individual in the Center's success. There have also been some notable tangible results, as reflected in the following examples:

Individual and Team Recognition: An important accomplishment was the establishment of a formal program for recognizing individuals and teams for their contributions to the realization of Center objectives. This program had actually been operational for several years but had failed to gain much attention until the participative management approach began to emphasize the importance of the individual to the overall organizational mission.

By the end of 1987, nearly 6,000 people had received formal recognition for their contributions to the Lewis objectives. A related approach has been the "promotion" of various work force teams by publicizing their activities in the organizational newspaper, The Lewis News. Through 1987, some twenty teams had received this publicity.

Employee Suggestion Program: Another positive outcome of the new management approach has been in regard to participation in the Center's suggestion program. Although the program had been in place for some time, it had not generated a great deal of interest. For example, in 1982, a total of 66 suggestions were submitted of which 13 were adopted and awards granted. In 1987, by contrast, a total of 407 suggestions were submitted of which 82 were adopted and granted. More importantly, the tangible benefits associated with these awards grew from \$34,000 in 1982 to more than \$142,000 in 1987.

By any standard, these are impressive figures and indicate that the suggestion program is having a significant impact. What the figures do not show, however, are the intangible benefits accruing from the program itself. Properly implemented, a suggestion program gives life to the whole concept of "participative management" and shows, clearly, that management does, in fact, want the input of its people. The cash awards associated with the program are obviously attractive but, in many cases, may actually be secondary to the recognition and feeling of accomplishment one gets from having a suggestion accepted and implemented. On a broader scale, a viable suggestion program serves as tangible evidence that management does, in fact, practice what it preaches in terms of employee involvement.

It is worth noting that Lewis led all NASA Centers in number of suggestions submitted and approved in fiscal year 1986, and--based on the substantial increases presented above--should maintain that position for 1987.

In summary, the Awareness Program has contributed significantly to the institutionalization of the participative ethic. The program has helped to establish a more open communication climate between management and staff and has given substance to the "new" Center policy of more meaningful participation for all personnel. Finally, it should be noted that all of the Awareness/Communication programs described above continue in full force today. For example, the Awareness Office organized over 100 recognition and communication activities in 1986, and at least that many were completed in 1987. The "Issues and Answers" program continues to be the most popular because it does provide an opportunity to have questions answered by the Center Director and/or the appropriate senior staff member.

Clearly the Awareness Program is a resounding success.

TRAINING AND DEVELOPMENT

The third and perhaps most intensive thrust to institute participative management at Lewis focused on training and development as a primary method of bringing about change. A major distinctive characteristic of the program at Lewis is the way in which training has been made an integral part of the overall operational procedure. Rather than being just an "educational" experience, training at Lewis has permitted people to apply the training concepts--directly and immediately--to real problems and issues in the work environment. And the procedure has resulted in many concrete, tangible benefits.

The programs offered have ranged from formal training sessions to more personal- or group-oriented developmental activities, but the central theme throughout has been to foster the implementation of participative management throughout the Center.

Agency-Wide Programs

The initial approach was to get upper level managers more involved in agency-wide programs sponsored by NASA. There are two major programs offered by NASA which are entitled the Senior Executive Program (SEP) and the Management Education Program (MEP). Both are residential programs designed to provide participants with an opportunity to broaden their understanding of NASA as an organizational system and to provide an opportunity to improve individual managerial knowledge, skills and techniques.

Both programs have been quite popular and have been attended by a large percentage of the Lewis management team. However, it was recognized that to fully support the desired cultural changes and to respond to Lewis's unique needs, additional training opportunities were needed which would address larger audiences in a shorter time period. Thus, a series of in-house programs was designed specifically for the Center and focused on those problems and procedures of concern to local managers and supervisors. The goals of these programs were to educate managers and supervisors about the style of management desired at the Center, to define their role in implementing this style of management and to provide managers and supervisors with feedback concerning their current skills and practices.

Leadership Education Program (LEP)

The first in-house program to be offered, the LEP was designed for experienced first-line managers. It is a week-long program, conducted off-site, which focuses on the participative management concept and builds upon subordinate feedback in the specific areas of communication style, motivation, and leadership. Through the use of experiential exercises and self-assessment inventories, the program offers an opportunity to examine and improve individual supervisory practices and provides experience in employee-involvement practices and consensus decision making. Additionally, it provides an opportunity for each participant to become more aware of the role of a Lewis supervisor in the changing environment of the Center, and to be exposed to the type of management style that the Center wants to develop.

In addition to the classroom training, there are two other components of the LEP program which provide linkage to the back-home situation. The first is a series of evening sessions where members of the senior executive staff meet with participants to explore and discuss any item of interest such as programs, operating procedures, and future plans designed to increase the awareness of the Center as a whole. The second, and perhaps most fruitful activity, is a problem-solving session which involves the identification and discussion of specific Center problems. Participants are divided into task teams and are asked to analyze a real problem concerning the Center or NASA and to develop a set of proposed solutions. Each team then presents its recommendations to the entire Senior Staff at the conclusion of the program.

The results from this part of the Leadership Education Program have been rather impressive and far-reaching. One of the early outcomes was the need--identified by the task teams--to train mid-level managers and non-supervisory personnel in the principles of participative management. It was felt that this action was critical if the philosophies and skills advocated in the LEP were, in fact, to be practiced in the working environment. The recommendation was implemented and resulted in the creation of two additional training programs: Action for Competence and Excellence (ACE) for mid-level managers and Closing The Loop for all non-supervisory personnel. Both of these programs are discussed in detail in a later section of this report.

The issues addressed by the various task teams have shown great variety and have ranged from technical topics such as the updating of computing facilities to more personal items such as "how to get promoted." In addition, there have been specific accomplishments initiated and implemented by the task teams after the training sessions. For example, some of the specific issues addressed by the LEP task teams are the following:

- Performance Appraisal: An Ineffective System (1982)
- Productivity and Quality of Work Life at Lewis (1982)
- Motivation/Morale at Lewis (1983)
- Dual Career Ladder Concept (1983)
- Management Training for Non-Supervisors (1984)
- Role of Middle Management in Participative Management (1984)
- Flattening the Organization (1985)
- How to Increase Risk Taking Attitude and Reduce Fear of Failure (1985)
- Fostering Creativity and Innovation (1986)
- Impact of Closing the Loop (1986)
- Improving the Process for Advocating Projects to Headquarters (1987)

In response to these (and other) issues, the task teams have undertaken many different follow-up activities which have included conducting surveys, meeting with the Heads of all the Directorates, publishing articles in the Lewis news media, expanding the number and variety of training programs available, the development of a career planning program, and so on.

The first LEP program was held in December, 1982 and the program has continued on a semi-annual basis since that time. It is estimated that over 300 managers and supervisors have completed the program and it continues to be offered as a part of the on-going training program.

Senior Management Retreats

A major bonus of the LEP was that it provided senior management with some valuable insights into the issues and problems which concerned managers and supervisors within the Center. Based upon the input from the LEP training sessions and the results of the strategic planning sessions, it was decided that a semi-annual meeting or retreat, held offsite for the Senior Staff would be beneficial in sustaining the cultural changes being undertaken and would enhance the team concept of that group of individuals. The first such meeting was held in July, 1983 and generated quite a variety of specific action items which the group agreed to undertake. For example, some of the action items from that first meeting were:

- To improve the quality of communication, particularly top down.
- To improve the perception of employees that top management understands and cares about their problems.
- To increase delegation.
- To more widely share overall Center issues.
- To be more visible down through the management hierarchy.
- To be more sensitive to information needs of the Center Director.

These Senior Management Retreats, as they have come to be known, are still continuing at Lewis and have contributed significantly to the continued "teambuilding" of the senior staff. In most cases, the Senior Management Retreat is a two and a half-day event consisting of both planning and educational activities with a half-day devoted to "personal" development. The first day usually focuses on some aspect of participative management and the consensus decision making process, and may involve outside experts who have acted as consultants and facilitators. The particular subjects selected depend upon the critical events taking place at the time, (e.g., major reorganization) or reflect current concerns or priorities. The second day is then devoted to the strategic planning process and to the current strategic plan itself. The objective is to revise and update the Center's plan to reflect current political reality and the environment within which the Center must operate.

The format utilized in the senior staff retreats has become a role model for the participative process and is now being used throughout the Center at all management levels. Typically, at these levels the group reviews current activities which support the move to a more participative environment, analyzes the current and desired climate of their part of the organization through the use of questionnaire results and, finally, generates action plans which will foster a more participative climate within the work unit.

These retreats have been quite productive for the individual work units and have resulted in a number of procedural changes such as a review of the timing of the performance appraisal cycle, changes in signature authority within organizations, a restructuring of staff meetings, and other long- and short-term plans. More generally, these activities have created a sense of direction, a feeling of confidence, and a spirit of teamwork within the Center's work force.

Organizational Change: "Flattening" the Organization

During one of the first LEP's the participants complained of "too darn much supervision" to the Center Director. He came back to his senior staff and proposed the question to them, "Does Lewis have too many managers?" After careful examination and consideration it was concluded that there was a serious communication gap between upper level management and the people working in lower levels of the organization. Further, it was realized that the gap was wider in those parts of the organization where there were more levels of management. In addition, it was determined that there were some supervisors

in the system that had only one or two employees reporting to them. Consideration of all these factors led to a decision that resulted in one of the earliest changes in the organizational structure; eliminating one level of supervision in many divisions and branches. The purposes of this decision were to increase the span of control of supervisors, to facilitate communication, and to improve employee input to decisions which affect them.

This decision to "flatten" the organization has not been without its problems. Any time people stand to lose their jobs, regardless of the reasons, there are going to be difficulties. To minimize these difficulties, Lewis provided employees with salary protection, increased opportunities in the dual career ladder program (see below) and established a number of "Deputy" positions for organizational units with more than 15 people. In general, the "flattening" of the organization seems to have worked quite well. It has increased the level of participation at the lower levels and has helped managers recognize that their prime responsibility is as a manager of people and not just programs. All employees are now plugged into the communication network and seldom is there a complaint heard at Lewis that employees don't know what is going on.

Dual Career Ladder Program

A second organizational change was the expansion of the dual career ladder program at Lewis. This program was designed to ensure that rewarding career paths were available to talented engineers and scientists who wanted to advance within the organization, but who did not want to get into the management ranks. It was critical that this program be expanded in conjunction with the "flattening" of the organization to insure that promotion opportunities were not being lessened. This program had actually been "on the books" previously, but had not been promoted very strongly. Since 1982, the number of dual career ladder positions has increased 63% and currently involves more than 200 scientists and engineers.

Quality Circle Program

Another early and innovative program was the establishment of a Quality Circle (QC) Program whereby a group of employees could work together to identify, analyze, and recommend solutions to problems affecting the work of the Center. The program started with the creation of a Steering Committee (including the Center Director and leaders from both local unions) in January, 1983 and the signing of an MOU (Memorandum of Understanding) between management and both unions. A full-time coordinator was added in July, 1983 and assumed the responsibility of selecting and training "facilitators" to work with the circles as advisors and counselors.

From the very beginning the Quality Circle Program was supported by a training program designed for circle facilitators, leaders, and circle members in topics such as communication, problem solving, group dynamics, and other related areas. The program is designed to introduce the concept of Quality Circles and to help members make more productive use of their participation in them. The program is conducted by the full-time QC Coordinator and a part-time Assistant Coordinator, both of whom are members of the Training and Development Branch at the Center. This arrangement has been central to the success of the training effort and has helped to maintain continuity among all of the training activities since the Training and Development staff has primary responsibility for the delivery of all training programs.

The Quality Circle Program is totally voluntary and depends solely on the interest and motivation of the participants. The program was initiated in April, 1983 on a pilot basis with 6 pilot groups, and has grown to the point that more than 400 employees have participated in 46 Quality Circles.

The Quality Circle Programs have produced both tangible and intangible results. Specific problems have been solved by the circles and the results have saved both time and money, as well as increasing the productivity and quality of work life. Equally important, in the eyes of management and labor officials, are the changes seen in the way people communicate and do business on a day-to-day basis. The program has been successful in bridging communication gaps between different occupational groups, between management and labor, and between service and customer organizations. In addition, those participating in the program seem to have gained on a personal level in terms of developing more confidence and better personal skills in interacting with others.

New and innovative programs continue to emerge as a part of the overall shift to a participative culture. One of the most recent examples is the Individual Excellence and Teamwork Conference which was held in September, 1987. The conference was sponsored by the Quality Circle Program of the Training and Development Branch and was open to all Lewis employees. The Conference emphasized the importance of communications and leadership skills in promoting job satisfaction and employee involvement. A major goal of the conference was to expose not only Quality Circle participants, but all interested employees to creative thinking, problem solving, and group process techniques. Nearly 200 employees took advantage of the opportunity to attend the conference and, based on the success, a similar five day conference is being planned for the Spring of 1988.

Action for Competence and Excellence (ACE)

A second Center-wide training program, Action for Competence and Excellence (ACE), was designed for mid-level and above managers. This program is also founded on the concept of participative management but, unlike the LEP, the focus is more on the organization than on the individual. While the ACE program does provide an opportunity for participants to assess and analyze their own managerial philosophies, communication styles, motivation styles, and leadership styles, the majority of the time is spent in analyzing the climate or culture of the entire Center. Specifically, interest is directed toward examining and evaluating the appropriateness of organizational conditions which foster true participation, commitment to the goals of the Center, and the opportunity for creativity within the Center's work force.

Using a technique called "force-field analysis," task teams are formed and are asked to analyze the factors which are blocking and/or helping the Center and each Directorate reach its respective goals of excellence. The task teams make specific recommendations to eliminate these barriers and develop a set of "action-steps" which can be taken. The teams present their assessments and recommendations to the Center Director who responds and discusses what can be done. Then, to move from this global view of Lewis to a more specific view of the participants work environment, the participants are grouped by organizational units and repeat the process examining their own Directorate. They meet with their Directorate Head after the program and present and discuss action items for enhancing their own work environment. The ACE program has been quite successful and has led to a number of specific developmental activities and changes. Its focus has been primarily on specific work-units and has been instrumental in identifying and resolving problems or concerns at this level. More importantly, ACE has allowed managers to take the concept of participative management down to the working level and has made participation a reality.

Moreover, ACE has produced some other side benefits that have impacted on the Center and its way of doing business. One example of this is the new Labor-Management Agreement which is described below.

Labor-Management Agreement

One of the most impressive outcomes of the new participative culture at Lewis is in the area of labor-management relations. When it was time to renew Lewis' contract with AFGE (American Federation of Government Employees) Local 2182 in 1986, it appeared that the negotiations were going to be long and difficult. But because both the Union and management were willing to try a new approach, the protracted--and often frustrating--traditional style of negotiations was set aside. Instead, the contract was streamlined rather dramatically and specific issues are now being addressed throughout the year by a standing Union Management Committee (UMC). The UMC is comprised of key Union leaders and division managers, and instead of interacting as opponents in a negotiation, the committee members act as a problem-solving group. The new approach does not stop disagreements but does provide a means of solving problems faster and with more thoroughly considered solutions. The UMC meets once a month, or more often if key issues need to be resolved. The UMC also forms Labor Management Participation Teams (LMPT) to research and recommend solutions to specific problems and concerns, as needed.

This new approach stemmed from an informal conversation during an ACE training program between the Labor Relations Director and Center Director Stofan who was addressing the group. The two discussed ways that the traditional adversarial labor/management negotiations might be avoided with an abbreviated contract covering basic issues only, then working out the remaining issues as a committee.

The concept took some selling, both to management and union members, but--significantly--was not rejected outright as unworkable. The program did take several years to develop but, once the process was set in motion, progress occurred rapidly. The approach was formally introduced in March 1986, an agreement was reached by the middle of May 1986, and the contract took effect July 1, 1986. The contract that formerly had a total of 49 articles now has only eight, with four Memorandums of Understanding (MOU's).

This new arrangement between Lewis and AFGE Local 2182 is the first of its kind in NASA and may be unique in federal government. Although it was implemented rather quickly here, all parties agree that several conditions must be present to make such a system work. Two of the most critical conditions are the commitment of senior management and the training of both managers and union members in the concepts and techniques of participative management and group problem solving.

The program is working quite well. Part of the original agreement included a provision to periodically evaluate its success and, if necessary, return to the old method of contract negotiations. So far, however, feedback has been generally positive and both union and management officials believe the new approach is working.

As a final note, the entire process has been developed as a case study by the Northeast Ohio Center for the Advancement of Labor/Management Cooperation at Cleveland State University (see Hawkins, 1987).

Closing The Loop Program

An outgrowth of the LEP and ACE programs was the introduction of a third Center-wide program entitled, "Closing the Loop." This program is a condensation of the material in the other two programs and is designed to familiarize all non-supervisors with the concepts and principles being taught to managers and supervisors. The motivation for developing the program came from managers who had attended one of the earlier courses in participative management techniques, but who found that they had difficulty using their new skills when their employees did not have a common understanding of the concepts and terminology. The program provided a unique opportunity for management to apply and demonstrate the concepts of the cultural style being institutionalized. Each of the training sessions for this program was conducted by key managers from each of the major organizational units. This approach provided employees with the opportunity to determine to what extent management actually practiced what it preached.

Another major strength of the Closing the Loop program has been the series of "follow-on" work sessions designed to integrate the training with actual practice. These sessions involve a manager or supervisor and his/her direct employees working together to implement the participative process in their work unit by identifying and addressing problems and issues affecting the group. Using the follow-on materials has not always been easy and some supervisors have experienced difficulty talking about communication problems or ways to make the job more motivationally rewarding, and accepting personal suggestions for becoming a more participative manager. But the process is being utilized and, while the specific activities may vary from group to group, it has been successful in involving people in meaningful activities which have improved work-group effectiveness.

Initially, the goals of "Closing the Loop" were purely educational; however, it has evolved into a process with much greater potential. The "follow-on" activities have provided a method and have opened the communication channels needed to make changes and to solve problems. What started as a training program has now become a process for change within the organization and is an excellent example of how training has facilitated the entire cultural change effort. The impact of this process can be measured by the way in which employees communicate and participate in resolving issues affecting their ability to get the work done. As training has been brought down to the "lower" levels, the impact has been substantial.

An example of the type of issues that get addressed in Closing The Loop training sessions is the recent development of a "How Would You Rate Your Boss?" program which has been instituted in two divisions within the Center. The idea for the program was first suggested at a Closing The Loop training session in October of 1986. Subsequently, a committee consisting of four union representatives and four representatives selected by management, generated the questions and designed the final survey and the way in which the survey would be conducted.

The first program was conducted by the Test Installations Division in February, 1987. All wage grade employees received a copy of the "Supervisory Feedback Survey" and were asked to complete the items on their immediate supervisor. Supervisors received a report of the tabulated results and a typed summary of written comments, and were asked to meet with their units to present and discuss the survey results. Although some supervisors were uncomfortable with the idea of being evaluated by their employees, the program appears to have had the desired effects. In fact, the Division plans to send out its second "Supervisory Feedback Survey" in 1988 to give supervisors the opportunity to identify those areas where they have improved their effectiveness.

A second "How Would You Rate Your Boss?" program was recently introduced in the Power Technology Division. While similar in some respects to the Test Installations Division program, the program also had several unique features. The surveys were distributed in September and returned in early October. At this point, the survey results are still being processed but each supervisor will receive a summary report showing the mean score and total number of responses received from subordinates for each statement. Each supervisor will also be able to see how the other supervisors were rated, but will not be able to match individual supervisors with specific scores. Again, supervisors are expected to meet with their subordinates to review the results to get further feedback. The Division also plans a follow-up in approximately nine months to provide an opportunity to assess individual progress.

Other In-House Training Activities

As the overall training function gained momentum, several additional programs were developed and are administered by the Center's Training and Development staff. Briefly, these programs are:

Building Excellence through Secretarial Teamwork (BEST): A two and one-half day residential program focusing on the relationship between the secretary and the manager. The objectives are similar to those in the management programs in terms of helping people understand the participative method, and in understanding their own behavior in work relationships. Participants receive feedback from their managers and are given an opportunity to explore the total participative approach to management and how it impacts their work. Finally, they spend a morning with the Center Director who discusses the participative approach and answers any questions that the participants might have.

This program has resulted in the secretarial workforce at Lewis becoming more interested in teamwork, having greater self confidence and getting more involved in the business of the Center. As an example, after a BEST program a group of secretaries established a task team to develop ways in which secretaries could communicate with each other for the purposes of exchanging different word processing usages and techniques as well as other office procedures. The result was the Network Newsletter, which is published every 2 months. An example of how secretarial self-confidence has increased is the amount of interest Lewis secretaries have shown in the Certified Professional Secretary Program. This training program was initiated after the first BEST and is very difficult and time consuming. Lewis has some 30 secretaries in this program and 11 have already received their CPS rating. We might add that this is a very high number of CPSs for an organization the size of Lewis. The program director believes that the large number of CPS-rated secretaries and the extensive training program are the direct result of both continued management support and the willingness of secretaries to challenge themselves to grow.

Careers in Management: A two-day course designed for non-supervisory personnel as a part of the total career development process. The program explores management as one of the options available and examines some of the major topics currently being taught to management-level people such as the total participative management approach, consensus decision-making, and the use of strategic planning. The purpose of this program is to provide employees with the information needed to better understand the role of a supervisor and to help them make career choices regarding whether or not to pursue this career option. Like many other programs, this one was an outgrowth of an earlier LEP task team analysis.

OTHER RESULTS:

There have been other significant accomplishments at Lewis which have resulted from a combination of the various change processes and activities. One of these accomplishments that is particularly noteworthy, since it illustrates the integrated nature of the entire change process which is being practiced at the Center, is the Productivity Improvement and Quality Enhancement (PIQE) planning process.

This innovative program has gained momentum within the past year as a tool that organizations may use to analyze obstacles to improving quality and productivity, and to develop strategies for improvement. The process relies heavily on employee input as a means of identifying the major problems and obstacles in getting the work done, and is another example of how participative management has been applied down through the ranks. In terms of actual implementation, PIQE planning may be integrated with Closing The Loop follow-ons and Quality Circles may elect to undertake some of the projects resulting from PIQE planning.

As an example, the Aerospace Technology Directorate recently completed a PIQE planning process to improve its organizational effectiveness. At the request of the Director of Aerospace Technology, a PIQE planning committee was formed and set about to gather suggestions from employees. The first step was the development of a one page survey which asked employees to list any productivity problems or quality related needs that could be resolved by actions within the Center's authority.

The survey forms were returned and the Committee then had to narrow down the dozens of suggested PIQE thrusts into a more workable number. The Committee went through a two-stage process of setting and checking priorities with the final outcome being a Committee recommendation of four PIQE thrusts for directorate-wide implementation. The PIQE planning committee presented its proposal to the Directorate Management Council in October and all four proposals were accepted. According to the Chairman of the Planning Committee, "The process involved widespread input and objective evaluations of the ideas. The end result is not a mandate from above, but an expression of changes our employees would like to see made". Similar programs have been developed in other areas of the Center, and the number of PIQE teams is increasing.

SUMMARY

A great deal of information has been presented in this chapter in an attempt to document the many and varied activities undertaken to make "participative management" a reality at the Lewis Research Center. One of the most interesting aspects of this entire endeavor was the dynamic nature of the change process and how it was constantly being analyzed, modified, and expanded to meet the needs of the organization. We are reminded of Waterman's observation that:

Visible management attention, rather than management exhortation, gets things done. Action may start with the words, but it has to be backed by symbolic behavior that makes these words come alive. (Waterman, 1987, p 11)

By way of summary, there were three major sets of activities which were utilized to develop the participative management concept and to get it into the normal operating procedures.

- Strategic Planning was the starting point but quickly became more than a process. It evolved into a Center-wide policy and became the new "norm" for determining direction, goals, developmental activities, and the like.
- The Awareness/Communication programs were instituted to open the channels of communication and were quite successful in this regard. More importantly, these programs provided tangible evidence that "management" was doing more than paying "lip-service" to better communication--it actually did something about it.
- Training and Development became a major force in the change process and, of particular significance, provided an excellent example of how "training" can be tied to real-life problems in a way which permits the training to have some real impact.

Rather obviously, the various programs and activities undertaken to promote and nurture participative management have had a tremendous impact. As the preceding discussion indicates, however, it has been somewhat difficult to associate a specific accomplishment with a specific program. While we tried to group the outcomes according to the three major thrusts (i.e., Strategic Planning, Awareness/Communication, and Training and Development), it is rather clear that most of the accomplishments resulted from an integration of all of the different activities. And, actually, that is the way it should be. These various programs did not exist in isolation but, rather, were parts of a total planned action which, in combination, produced a synergy that led to some rather dramatic changes in the way the organization functions.

CHAPTER 3

BRINGING IT ALL TOGETHER: LESSONS TO BE LEARNED (AND APPLIED)

As we complete this review of the myriad events of the past five years at the Lewis Research Center, it may be instructive to attempt to summarize what has happened, to look at current reality, and to identify some lessons to be learned and some principles which can be extracted from the Lewis experience.

A major point which must be considered is, perhaps, so obvious that it tends to be overlooked--and it is, simply, that change does not occur in a vacuum. The best-formulated plans and intentions have to be modified and evaluated in light of organizational, environmental, and political realities--especially in an organization such as this. And this is basically what Waterman is talking about when he says that "the essence of life is renewal." It is the adapting, the changing, the tuning in to reality that permits some organizations to survive and prosper while others, equally blessed with talent and resources, fail to meet the challenge.

ACCOMPLISHMENTS AND PROBLEMS

The massive change effort at Lewis has certainly produced many desirable outcomes. As with any major organizational change, however, there have been some questions raised during the implementation of participative management as a Center-wide policy. For example, the Agency-wide "culture" study conducted by NASA last year (1986) revealed that while people were generally positive about the new management approach, there were still some lingering concerns about the application of participative management to normal working procedures and daily operations.

Yet, as we review the accomplishments of the past, we have to conclude that the cultural change program at Lewis has demonstrated a general pattern of success. We must also realize that cultures are dynamic and that the problems faced some five years ago are not the same ones faced today--and will not be the same as those faced 5 or 10 years from now. And we must recognize that cultures, like people, are multi-dimensional--there is not a single dimension or characteristic which will define productivity, excellence, resilience, or whatever. Concurrently, we must realize that there are no simple, uni-dimensional solutions. As cultures mature they not only change in nature and appearance, but also in character and complexity. The major point to be made here is that although significant changes have been made at Lewis, the process is not over. In fact, it will never be over. It is a process of evolution and it will continue. The major thing to guard against is complacency--of thinking that all of the problems have been solved. The strategic planning process does not result in a "plan" per se; rather, it is a way of thinking, a way of doing business and a method for continued self evaluation.

What has happened at Lewis is the establishment of a new set of norms and a new vitality within the organization which is being expressed in both positive and negative ways. In retrospect, it may appear that some of the early change activities were fairly minor and insignificant. However, if one keeps in mind the cultural climate at the time the changes were initiated, the accomplishments were quite profound. They were important steps in testing the waters and ascertaining that the new management style was, in fact, genuine. As the staff at Lewis has discovered, cultural changes take time--lots of time. If one keeps in mind that existing cultures developed over a period of 30 or 40 years or more, then it should come as no surprise that changing the culture is not going to occur overnight.

STRATEGIC PLANNING AS AN ORGANIZATIONAL PROCESS

The cornerstone of the cultural transformation at Lewis was the use of a Strategic Planning Process as the primary vehicle for the analysis, development, and implementation of a planned program of change. As discussed earlier, the term, "Strategic Planning Process" is somewhat misleading because it is more than a "method"--it has become an organizational management style. The real benefit of this change may lie in the fact that the process has created a problem-centering/problem-solving orientation among Center employees which makes it much easier to avoid the pitfalls of premature success.

The Strategic Planning Process has been adopted by other centers within NASA and was the topic of a "Strategic Planning Shared Experience Symposium" held in August, 1986 for all NASA installations (see Persell, 1986). At this symposium Edward A. Richley, Director of Administration and Computer Services, presented the Lewis Research Center's approach to Strategic Planning and much of the Lewis process was adapted for all of NASA. In fact, the conclusions and recommendations from that presentation can serve as a set of guidelines for future activities and offer some insights into the use of the Strategic Planning Process. For example, some of the major conclusions distilled from the experience at Lewis are the following:

1. There is no one way to do Strategic Planning, but what is important is that it is done. To be successful, the Strategic Planning Process requires at least one strong advocate among the senior staff. This advocate may be the Installation's chief executive, but it does not have to be. However, very soon after Strategic Planning is begun the chief executive must become committed and the process needs to reflect the style of the chief executive.
2. The initial process should be kept simple and expectations should not be too excessive or optimistic. Strategic Planning requires time and patience. It inevitably takes more time and proceeds at a slower pace than the participants in the process expect. It is easy for participants to become somewhat disappointed and discouraged after a few early positive results.
3. Strategic Planning cannot be delegated, it is not a staff job. Extensive involvement needs to be developed by extending specific responsibilities throughout the organization, but the senior staff must see Strategic Planning as its responsibility. Concurrently, the process must be quickly operationalized through resource allocations and other short term decisions.
4. The process is more important than the plan.

The above list is instructive and contains a great deal of knowledge gained from the experience of people who have worked with the process. If there is one comprehensive lesson to be learned, it would appear to be that Strategic Planning **must be tailored** to the organization--and not the other way around.

ON THE IMPORTANCE OF TRAINING

Perhaps the most critical lesson to be learned from the Lewis experience is the absolute necessity of a sound, comprehensive training program. Obviously, training is necessary to bring people up to speed in terms of new concepts, new directions, and the accomplishment of organizational missions; additionally, it provides a "common language" which greatly facilitates communication among people. Beyond these ostensible benefits, however, training results in many other positive outcomes. For one thing, it goes a long way toward establishing managerial credibility--of indicating that management will do what it says it will do--and illustrates that people really are valued by the organization.

It should be noted, however, that training, in and of itself, is not a panacea. Many organizations maintain active and comprehensive training programs but they are regarded largely as "educational." What this translates into is that all people receive a certain amount of "training" each year, but it is not integrated into the overall mission of the organization. Yet, companies will boast that, "Yes, all of our employees get two weeks (or whatever) of training every year. We have the best-trained workforce in the industry." What they don't acknowledge, of course, is that the training is not directed toward the accomplishment of any purpose. Frequently, training is tied to the current fad or, as a seminar participant recently remarked, "to the 'MBBS' (Management by Best Seller) approach."

Training is especially important when trying to implement a team approach. Robert Blake and Jane Mouton, the developers of the managerial grid, have some interesting observations about the effective use of an organization's human resources in their most recent book, "Spectacular Teamwork." The key, according to the authors, is participation--not just on a perfunctory level, but as a major mode of operation in which people are provided the necessary skills essential for participating in a responsible manner.

As the authors point out:

Synergistic teamwork is smart teamwork. It offers corporations perhaps the greatest single possibility for strengthening effectiveness through mobilizing human resources. Getting the maximum benefits from commitment, involvement, strong initiative, good inquiry, open advocacy, effective conflict resolution, solid decision making, and extensive use of critique is what spectacular teamwork is all about. (Blake, Mouton, & Allen, 1987, p. 9).

By way of summary, we offer the following guidelines and observations concerning training and development activities:

1. There needs to be a consistency in management training; various programs should complement each other.
2. The purpose of training is change, not just education. The content of the training should be linked to the reality of the organization.
3. Senior management must be involved and must be visible in the total training effort. Training programs should become a forum for senior managers to "role model" the content of the training.
4. To change a culture, everyone needs insights to "unfreeze" the old, deeply-rooted behaviors. More specifically:
 - Executives need conceptual skills to understand where they want to go, and how to get there.
 - Mid-level managers need to understand that they shape the climate and procedures of the organization.
 - Supervisors need to learn what their job is and how they and their behavior impact employees.
 - Employees need to learn their new responsibilities.

The above list could be expanded but, hopefully, does convey something of the overall importance of training in a total change effort.

CHANGE IS AN ONGOING PROCESS

The Lewis Research Center story would not be complete without two quotes from "The Renewal Factor." In the introduction Bob Waterman states:

In today's business environment, more than in any preceding era, the only constant is change. Somehow there are organizations that effectively manage change, continuously adapting their bureaucracies, strategies, systems, products, and cultures to survive the shocks and prosper from the forces that decimate their competition. They move from strength to strength, adjusting to crises that bedevil others in their industry. They are masters of what I call renewal. (Waterman, 1987, p. xii)

In the conclusion to the book, Waterman has these observations:

Change breeds opportunity. The renewal factor is the opportunity that transforms threat into issue, issue into cause, cause into quest. The complacent manager merely presides. The renewing manager is engaged in a daily effort to fight corporate entropy, to welcome change, to uproot habits, and to use renewal to build the future. (Waterman, 1987, p. 311)

Change and opportunity still abound at the Lewis Research Center. In the summer of 1986, Andy Stofan returned to NASA Headquarters in Washington, DC to manage the Space Station Program, and the mantle of responsibility was shifted to Dr. John Klineberg who had been Deputy Director of the Center

and who had worked closely with Stofan. A change in administration always raises questions as people wonder if present policies will be continued, if there will be major shifts in personnel and/or responsibilities, and so forth. For the leaders, too, there are questions. As Schein (1985) points out, the "succession" phase in an organization's culture can be traumatic for all involved as organizational members attempt to adjust to the new administration.

When Andy Stofan assumed the Directorship in 1982, he was faced with a particular set of problems brought about by a variety of factors which, as previously outlined, threatened the survival of the Center. Stofan's mission, as he saw it, was to provide the necessary leadership to resurrect the Center and to start it on a new course--to create a new culture, if you will. And, we believe, the evidence shows that he was quite successful in accomplishing that mission. However, the new Director, Dr. John Klineberg, faces an altogether different set of problems. Most certainly, he must deal with some of the same cultural and operational issues that faced Stofan but, additionally, Klineberg must adjust to current realities and continue with his own vision of what the Lewis Research Center should be. In very simple terms, it might be said that Stofan engineered and installed a new operating system for the Center and demonstrated that the system worked; Klineberg now has the responsibility of taking the system and utilizing it to achieve technical excellence. Different leaders, different missions. The point is that because of the cultural changes, the demands on the leaders have changed.

As Schein reminds us, leadership and culture are inextricably intertwined and the role of leadership is critical in producing change. He also discusses the fact that cultures (new or old) go through "growth" or developmental stages and that the mechanisms for change are dependent upon where the group is, developmentally. In his words:

. the leader is bound to work with the group that exists at the moment, because he is dependent on the people to carry out the organization's mission. The leader must recognize that, in the end, cognitive redefinition must occur inside the heads of many members of the organization and that will happen only if they are actively involved in the process. The whole organization must achieve insight and develop motivation to change before any real change will occur, and the leader must create this involvement even as he sells his vision. (Schein, 1985, pp. 324-325)

In a recent interview conducted by The Lewis News, the Center's newspaper, Dr. Klineberg had these comments. When questioned if he intended to continue the participative style of management, he replied:

I'm firmly committed to that style of management. I'd really like Lewis to show the world how it's done. We value everyone's contribution--there are no unimportant jobs here. It's necessary that we all work together. For one thing, it's more fun, and secondly, there is a lot of work to be done.

When asked about some of his priorities, Klineberg shared his concerns candidly and openly, saying:

I'm committed to excellence in everything we do and I want to place the emphasis on confidence and capability as opposed to size. We want to choose very carefully what it is we do and become world renowned in those areas.

I also want to continue the basic management changes we've made to enhance the work place environment and continue the momentum we've established in making Lewis a more productive, exciting, and interesting place to work. I've talked with senior staff together and individually about things in each area that need to be improved and goals we can strive for. As we complete the strategic planning process, we will decide as a group what some of those directions should be

Thus, the process continues as Lewis Research Center moves ahead with direction and with purpose. It is clear that a new culture has emerged at Lewis and people realize that it must be nurtured in order to continue to grow. In the words of Klineberg:

We have to change. We not only need to be responsive to change, but we must be proactive. We cannot justify doing something a certain way just because it's always been done that way. Part of our job is to make changes happen, explore new ways. And we're doing that--both in the technical and nontechnical areas. We're very much a 'can-do' Center and that's important. I think we're in for some exciting times. Our future is very bright.

Realistically, senior management realizes that there is still much work to be done. The planning process continues and currently is targeting on the year 2000 as a way of determining what the Center is to become. According to the current Strategic Plan of 1988, the basic mission of the Lewis Research Center is to: "Meet national needs and NASA objectives through research, technology, and system development for aeronautics, space exploration, and space utilization." The Lewis Charter further elaborates three major thrusts, or strategic directions, as follows:

- **Technological Leadership**

Performing basic and applied research and technology development in aeropropulsion, space propulsion, space power, microgravity science and communication, and in key related disciplines.

Managing selected technology validation and flight system development projects that flow from and/or drive our research and advanced technology.

- **Institutional Health**

Developing and maintaining excellence in our staff, facilities, and information systems.

- **External Image**

Demonstrating technical and managerial leadership, thus ensuring widespread recognition and use of our capabilities and technology.

As we look to the future of the Lewis Center, there are two major factors which tend to reinforce the continued change in the organizational culture. First of all, if we look at the actual amount of employee participation, it has increased dramatically since 1982. The increase in training, the increase in number of employee suggestions, and the introduction of concepts such as labor-management participation teams, Quality Circles, PIQE planning, and other types of activities clearly reflect greater employee participation.

The other major factor is the continued commitment and support of upper level management, and there appears to be little question that this commitment is present. All of the programs initiated during the past five years are intact and growing, new programs are being started, and there definitely is a "new" management style at the Center.

SOME LESSONS LEARNED

The experience at Lewis Research Center is interesting in its own right but, beyond that, it holds a number of learning points for other organizations or groups who are considering such an undertaking. In no particular order, the following lessons and bits of advice on changing organizational cultures are offered:

- The success of such a program requires total commitment from the top levels of management. Anything less than this will be perceived as only another attempt at manipulation.
- A major problem will involve the establishment of credibility. Partly dependent upon the history of the organization and its track-record in other, previous efforts, there will be a tremendous amount of resistance and foot-dragging as people seek to determine whether or not the new direction is "just another fad."
- Be prepared to go slowly. Patience is not only a virtue, it is a necessity. As discussed earlier, you may be trying to undo 50 or more years of history--and there may be very active ghosts roaming the halls.
- Do lots of training. And lots of re-training. Remember the comment by Beer (1980) that the process of organizational change is a process of organizational learning.

- Collect data. All kinds of data. One of the first steps should be to collect preliminary data (e.g., survey or other attitudinal data) to establish a base-line for comparison. Thereafter, collect data on a scheduled basis (e.g., every 9 to 12 months) to track progress. Also, be alert to and collect other data which might be available (e.g., turnover, grievances, measures of productivity, etc.) and which could serve as a barometer of people's attitudes and behaviors.
- Document everything you can. This does not mean keeping a "little black book," but does mean recording events and circumstances which could impact the organizational culture (e.g., things like a significant reduction in force, loss of a major contract, introduction of a radically new technology, and so forth).
- Practice what you are preaching. If you are moving toward a participative/collaborative style of management, don't just tell people how you're going to do it, do it. Get them involved in the process--as soon as you possibly can.
- Start at the top. Regardless of the perceived competence and dedication of top-level people, get them involved before you attempt to educate the masses. It has something to do with managerial credibility.
- Believe in what you are doing. If you can't buy into it, don't think that others will.
- Increase your level of frustration tolerance. There is an overwhelming urge to get a bit perturbed when others fail to see or subscribe to a pristine and exemplary new program. Try again.
- Realize--and accept--that change comes slowly. Despite the best of intentions and motivations, we are creatures of habit. (If this were not true, none of us would be overweight, out-of-shape, still smoking, or trying to break 100 on the golf course.)

SUMMARY

By way of summary, one of the real dilemmas involved in a major change program is that problems do not go away--they only change in nature and complexity. For example, introducing a participative management ethic does not get rid of employee unrest; it only changes the complexity of it. Under an autocratic or authoritarian style of management, problems of dissatisfaction stem from feelings of frustration and alienation and employees may respond by being disruptive and demanding as a way of gaining recognition or acknowledgment (affirmation). It may be counter-productive in terms of organizational goals but, for the individual, does accomplish a purpose.

Under a participative or collaborative management system, employees may again experience dissatisfaction and frustration--but it comes from reactions to the system, the restraints, or the perceived delay in getting ideas implemented. People get impatient and once they get a taste of participatory freedom, they want more. And demand more and more. This can and does create problems for management. As a training colleague once commented, "There's an old saying in the part of Kentucky where I come from that if you teach a bear to dance, you may not be able to tell him when to stop." And participative management can be a bear.

However, the new culture which has been established at Lewis is a viable and dynamic one which should be able to meet this challenge. The new management system has shown that it is responsive to the needs of its people, and the current norm of openness and trust should facilitate the handling of many of these potential problems.

The future at Lewis Research Center holds much promise for success and growth.

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APPENDIX
SOURCE MATERIAL

This appendix contains a number of historical and archival documents which were used in the preparation of this report. They are included here for reference purposes and for the benefit of others who may want to delve more deeply into some of the topics. We are indebted to Ed Richley who collected most of these materials and made them available to us.

For convenience, items have been arranged chronologically by year of publication and, when possible, by order within the year of publication. We tried to give credit to the authors of these materials when this information was available. For those cases where authorship was not known, this has been noted by an *** at the beginning of the reference.

1984

*** Lewis Research Center. Washington: U. S. Printing Office, 1984.

Employment brochure which provides an overview of the history and current activity at the Lewis Research Center.

Graham, R. W. Four Giants of the Lewis Research Center. Cleveland: Lewis Research Center, NASA Technical Memorandum 83642, May, 1984.

An historical overview of the Lewis Research Center and four of the leaders who helped shape the Center.

Stofan, A. Lewis Participative Management in Accord with NASA Principles for Excellence. Cleveland: NASA Lewis News, Vol. 21, Issue 21, October, 1984.

An overview of the progress made at Lewis since 1982, and how these programs support the "NASA Management Principles To Achieve Excellence."

1985

*** Incentive Awards Program. Cleveland: Lewis Research Center, LHB 3451.1A, January, 1985.

A handbook explaining the Lewis Research Center Incentive Awards Program, and outlining the procedures involved.

Burke, W. W., Richley, E. A., and DeAngelis, L. Changing Leadership and Planning Processes at the Lewis Research Center, National Aeronautics and Space Administration. Human Resource Management, Vol. 24, No. 1, Spring, 1985.

A review of the changes made in the management style at Lewis, and a discussion of a survey of NASA executive practices conducted in late 1983.

*** Teamwork: NASA Quality Circles. Cleveland: Lewis Research Center, July, 1985.

An illustrated summary of the Quality Circle program at Lewis during its first two years of operation.

*** What's New in Productivity/Quality/Excellence at Lewis. Cleveland: Lewis Research Center, Working Smarter, Vol. 1, No. 1, July, 1985.

Premier issue of a new in-house publication; brief articles on quality circles and suggestion program as well as statement of what this publication is designed to do.

Results and discussion of a survey conducted in mid-1985 to assess employee reactions to the "new" participative management style.

Klineberg, J. M. Strategic Planning at Lewis Research Center: Presentation to Senior Executive Program Follow-On Meeting, October, 1985. Cleveland: Lewis Research Center, CD-85-17766, October, 1985.

A detailed overview of the Strategic Planning Program at Lewis, and a history of the program since its inception.

*** ACE Zeroes in on Middle Managers. Cleveland: Lewis Research Center, Working Smarter, Vol. 1, No. 2, November, 1985.

A summary of the new ACE program and its relation to other training and development activities.

Richley, E. A. Memorandum to R. G. Mulligan, Assistant Director, Management Analysis Office, NASA. Cleveland: Lewis Research Center, December, 1985 (mimeographed).

An overview of steps taken to "flatten" the organization at Lewis, and a brief review of other training and development activities.

*** Lewis Research Center ACE Data. Cleveland: Lewis Research Center, no date (mimeographed).

Summary data from Action for Competence and Excellence (ACE) training programs: Managerial Competence Index and Managerial Competence Review.

Steigman, D. Summary of Accomplishments: PIQE. Cleveland: Lewis Research Center, no date (mimeographed).

Brief summary of various PIQE programs undertaken at Lewis.

1986

*** Special Issue: 1985 Annual Accomplishments Report. Cleveland: Lewis Research Center, Working Smarter, Vol. 2, No. 1, February, 1986.

A survey of 1985 Center-wide accomplishments as they relate to the nine "themes for excellence" developed by NASA.

*** Lewis Leadership Education Program Agenda, Sawmill Creek, April, 1986. Cleveland: Lewis Research Center, April, 1986 (mimeographed).

A program outline and agenda for the Leadership Education Program (LEP) showing the various training activities.

*** Agreement Between Lewis Research Center, NASA, and Local 2182, American Federation of Government Employees. Cleveland: Lewis Research Center, May, 1986 (mimeographed).

The new union-management agreement resulting from the participative management approach at Lewis.

*** Director Cites "Human Element." Cleveland: Lewis Research Center, Working Smarter, Vol. 2, No. 2, May, 1986.

Excerpts from a speech given by Andrew Stofan at a productivity improvement conference in Washington, D. C., in which he reviews the programs and results at Lewis stemming from the introduction of participative management.

Richley, E. A. Shared Experience: Strategic Planning/Management Symposium, Wallops Flight Facility, August, 1986. Cleveland: Lewis Research Center, August, 1986 (mimeographed).

An historical overview of the Strategic Planning Program at Lewis, and a review of other training and development activities.

*** Strategic Plan: FY 1987-FY 1992, Vols. I-III. Cleveland: Lewis Research Center, 1986.

Five year strategic plan for the Administration and Computer Services Directorate at Lewis; includes Executive Summary, Strategic Plan, and FY 1986 Accomplishments.

DeAngelis, L. B. Study of NASA's Culture. Washington: NASA NPD/Director, Office of Development, November, 1986 (mimeographed).

Questionnaire used in 1986 Culture study, and summary of results.

Persell, R. A. Jr. Strategic Planning Shared Experience Symposium. Washington: NASA NPD/Program Manager, Human Resources and Organization Development, December, 1986 (mimeographed).

Summary report of the first NASA Strategic Planning Shared Experience Symposium held at Wallops Flight Facility, August 26-28, 1986.

1987

*** Employee Information Handbook. Cleveland: Lewis Research Center, 1987.

A handbook and reference manual for new employees at Lewis.

*** Strategic Plan 1987. Cleveland: Lewis Research Center, 1987.

An overview of the Center's past accomplishments and a statement of future directions for research and development.

Hawkins, Melba L. A Case Study of NASA Lewis Research Center. Cleveland: Northeast Ohio Center for the Advancement of Labor/Management Cooperation, Cleveland State University, 1987 (mimeographed).

A management case study based on the union-management agreement reached at Lewis in 1986.

Dali, R. S. Data Summary Report: Leadership Education Program. Silver Spring, MD: Management Learning Systems, January, 1987 (mimeographed).

Statistical summary of data generated in the LEP programs from 1982 through 1986.

Wiese, D. F. Fellow Firefighters Memorandum: Year in Review. Cleveland: Lewis Research Center, Internal Memorandum, January, 1987 (mimeographed).

State of the union report to members regarding the new union-management agreement adopted in 1986.

*** Closing the Loop: Continuing the Process. Cleveland: Lewis Research Center, Personnel Newsletter, May/June, 1987.
Progress report on the "Closing the Loop" program, and brief review of the total program.

*** LEP Task Team Issues: LEP I-X. Cleveland: Lewis Research Center, June, 1987 (mimeographed).

Summary report of the Topic/task recommendations and specific actions taken by the various Task Teams in the LEP program.

*** Lewis Teamwork: 1983-1987. Cleveland: Lewis Research Center, Lewis News, Vol. 24, Issue 13, June, 1987.

An illustrated summary of the Quality Circle program at Lewis from its beginning in 1983 through 1987.

Schwartz, H. J. Demographic Study: 35-44 Age Group. Lewis Research Center. Cleveland: Lewis Research Center, Office of Industrial Programs, June, 1987 (mimeographed).

A more detailed analysis of the 35-44 age group employees at Lewis who differed from other groups in the NASA-wide culture study.

Usilaner, B.L. Human Resource Management: Status of Agency Practices for Improving Federal Productivity. Washington: General Accounting Office, GAO/GGD-87-61FS, June, 1987.

Broad overview of human resource management practices throughout the federal government including NASA and the Lewis Research Center.

*** A Conversation with Lewis' New Director. Cleveland: Lewis Research Center, Lewis News, Vol.24, Issue 14, July, 1987.

An interview with Dr. John Klineberg following his appointment as Director of the Lewis Research Center featuring his comments on the future of the Center.

*** Charter and Principles for Lewis. Cleveland: Lewis Research Center, B87-0040, July, 1987.

Overview of the Lewis Research Center and its mission--a brochure for new employees.

*** ACE/LEP Data Trends: Presentation at the ACE/LEP Alumni Meeting, August, 1987. Cleveland: Lewis Research Center, 1987 (mimeographed).

Statistical summary of data trends from the various LEP and ACE training programs conducted from 1982 through 1987.

*** How Would You Rate Your Boss? Cleveland: Lewis Research Center, Working Smarter, August, 1987.

A description of a new program whereby supervisors and managers receive feedback from subordinates on current performance and ways to improve.

*** Labor-Management Relations in a Participative Culture. Cleveland: Lewis Research Center, Working Smarter, August, 1987.

An overview and history of the unique labor-management agreement reached in 1986.

Crossman, D. E. Executive Summary: Agency-Wide Culture Study. Washington: NASA, Memorandum, August, 1987 (mimeographed).

A more detailed analysis of the Lewis data from the NASA agency-wide culture study conducted in 1986.

Bergstrom, Joyce. Life and Times of A. J. Stofan . . . and Awareness. Cleveland: Lewis Research Center, 1987 (unpublished).

A "scrapbook" tracing the many activities and accomplishments under Andrew Stofan's leadership, and the continued development of the "Awareness" program.

*** Individual Excellence and Teamwork Conference a Success. Cleveland: Lewis Research Center, Lewis News, Vol. 24, Issue 21, October, 1987.

A report on the first Individual Excellence and Teamwork Conference held in September, 1987.

*** Lewis Research Center: Organizational Chart. Cleveland: Lewis Research Center, CD-87-27658, October, 1987.

Current organizational chart of Lewis Research Center.

*** Suggestion Program Data: Fiscal years 1982-1987. Cleveland: Lewis Research Center, October, 1987 (mimeographed).

A statistical summary of data pertaining to the employee suggestion program from 1982 through 1987.

*** Aerospace Technology Directorate uses PIQE Planning to Improve Organizational Effectiveness. Cleveland: Lewis Research Center, Working Smarter, November, 1987.

A summary of the PIQE program initiated in the Aerospace Technology Directorate in October, 1987.

*** How Would You Rate Your Boss? Part II. Cleveland: Lewis Research Center, Working Smarter, November, 1987.

An overview and summary of the second "How would you rate your boss?" program initiated in the Power Technology Division.

*** Lewis Senior Management Retreats. Cleveland: Lewis Research Center, 1987 (mimeographed). Chronological summary of Senior Management Retreats and the major topics addressed at each.

*** Participative Management: It's Not Just a Lot of Talk. Cleveland: Lewis Research Center, Working Smarter, November, 1987.

An overview of some of the changes that have been made at Lewis to stimulate employee involvement and teamwork.

1988

*** Strategic Plan, Lewis Research Center, Spring 1988. Cleveland: Lewis Research Center, 1988.

An overview of the Center's past accomplishments and a statement of future directions for research and development.

*** LIMS: Sharing Knowledge. Cleveland: Lewis Research Center, B-87-0067, 1987.

An overview of the Lewis Information Management System's describing the Centers computer workstation and data communication interconnectivity network.

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12 Sponsoring Agency Name and Address National Aeronautics and Space Administration Lewis Research Center Cleveland, Ohio 44135-3127				14 Sponsoring Agency Code	
15 Supplementary Notes Project Manager, Debra L Griest, Personnel Division, NASA Lewis Research Center					
16 Abstract <p>What we would like to present in this paper is a comprehensive change program that was both preached and practiced. It is the story of the NASA Lewis Research Center and its effort at revitalization. In 1982, the NASA Lewis Research Center, located in Cleveland, Ohio, was floundering and had lost its focus—there was even a threat of the Center being closed. Today, it is a flourishing and productive Center and considered by many people at NASA Headquarters to be one of the most responsive centers within NASA. In response to a number of converging factors (i.e., a shift in emphasis regarding the space program, a decline of existing programs, and an absence of new programs), the Lewis Research Center began a concerted and strategically planned effort to change the culture of the organization and to plot a new course for the future. It was realized, early on, that the key to survival was two-dimensional: the Center had to capitalize on its considerable technological expertise, and had to improve its utilization of the existing talent base by generating greater employee involvement in the activities and work of the Center. In his current best selling book, "The Renewal Factor," Bob Waterman (1987) presents an in-depth analysis of a representative group of companies which have gone through a process of "renewal"—of making the necessary changes to adapt and survive in current market conditions. As Waterman and his associates analyzed the data they had collected, several factors emerged which tended to characterize those organizations which had successfully adapted and survived. Among other things, they found that the following characteristics tended to describe successfully-renewing organizations:</p> <ul style="list-style-type: none"> • Their leaders listen—stay in touch with what's going on about them • There is an emphasis on teamwork and trust • Their leaders back up their words with action • Their senior managers set direction, not detailed strategy • Their leaders keep things moving—they're not trapped in habitual ways of doing things • Their leaders see more value in the process of Strategic Planning than the plan itself <p>As it turns out, these characteristics nicely reflect the comprehensive and integrated plan which was initiated and which continues at the Lewis Research Center. As such, it represents a systematic and sustained effort to effect a major organizational change. The present analysis is designed to trace and document the major components of this change process and, hopefully, to provide a case history which may be of value to other organizations that might be contemplating such a renewal effort.</p>					
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