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ORGANIZATIONAL CHANGE THEORY AND THE FACTORS FOR SUSTAINING
CHANGE: A CASE STUDY OF THREE PUBLIC SECTOR ORGANIZATIONS
WINNERS OF THE VIRGINIA AWARD FOR CONTINUING EXCELLENCE

by

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DOCTOR OF PHILOSOPHY

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ABSTRACT

ORGANIZATION CHANGE THEORY AND THE DETERMINANTS FOR SUSTAINING CHANGE: A CASE STUDY OF THREE PUBLIC SECTOR ORGANIZATIONS WINNERS OF THE VIRGINIA SENATE PRODUCTIVITY AND QUALITY AWARD

Mary Redd-Clary
Old Dominion University, 1999
Director, Dr. Wolfgang Pindur

The purpose of this study is to investigate the factors associated with organizational change and with sustaining change in public sector organizations recognized for their change efforts as recipients of the Virginia Award for Continuing Excellence.

This was a case study of three public sector organizations, located in and around urban settings in the state of Virginia. They include Air Combat Command located in Hampton; Hanover County Public Schools located outside Richmond; and Norfolk Naval Shipyard located in Portsmouth. Each of these organizations is notable as winners of the Virginia Senate Productivity and Quality Award for both the Medallion and Award for Continuing Excellence. The theoretical propositions are based on the Big Three Model of Change. These propositions include kinds of environmental movements (internal, external, and political), forms of change (identity, coordination, and control), and action roles (strategist, implementor, and recipient). Data collection on each case study came from archival files, documentation in the form of books, articles, brochures, and video presentations about the organizations, and interviews with key informants employed by the organization during and after the award period of time.

The triangulation of data on these case studies suggested several factors that are associated with organizational change across all three public sector organizations. The

factors include the political dimension, along with coordination of teams, plans, and training. A third factor is control which is a form of change that results in policy changes and is impacted by the influence of action roles. The fourth factor associated with organizational change, that was evident in each case, is the implementor action role.

Within the three major dimensions of the Big Three Model of Change were other theoretical propositions that were supported by one or two data sources across all case studies. These other propositions did not provide the strength of the triangulation of evidence. However, each theoretical proposition was supported by one or two data sources and is worthy of note in identifying factors associated with organizational change. These other factors are the external and internal environment, strategists, and recipients.

The test of sustained change was based on the theoretical propositions and five Award for Continuing Excellence criteria. Evidence to support the change factors of coordination and control was found in the archival files that referred to the continuous improvement and performance measurement award criteria. The archival files also included examples to support the theoretical propositions of strategist, implementor, and recipient and the related award criteria that referred to: top management commitment, employee development, and customer and supplier involvement. Archival references to the award criteria, the maturity of effort and results over time, in these organizations are further evidence of successful change, while interviews and documents offer strength to the evidence in the archival files.

The research supports the Big Three Model of Change as a theoretical model that contains factors associated with change and sustained change in public sector organizations recognized for their past organizational change efforts.

This dissertation is dedicated to my husband Ronnie, my two sons, Ronald and David, and my parents, Butler and Elizabeth Redd, for their constant support and encouragement over the years as I pursued my academic goals.

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There are many people, family and friends, who have contributed to the successful completion of this dissertation with their emotional support and practical advice to persevere and complete each event associated with this research. My editor, Ms. Madhu Naidu, also deserves recognition for the assistance she provided in the final stages of this process.

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CHAPTER I

INTRODUCTION

This is a study of three Virginia public sector organizations, winners of the Virginia Award for Continuing Excellence, who sustained organizational change. This study will apply theoretical propositions to determine what circumstances contributed to the changes in their respective organizations. Since the 1970s, both public and private American organizations have been challenged with managing external and internal forces of change at a more rapid rate than at any other time in this century. Political, social, and technological factors influenced much of this change. Many large American companies faced serious competition from foreign companies that could produce high quality products, much faster and cheaper. As an example, Japan was quickly becoming the leader in the automotive and electronics business (Naisbitt 1990, Toffler 1980, 1990, Kanter, 1983, 1989, Drucker 1994). This external competition forced American organizations to change the way they did business; while internal employee dissatisfaction encouraged many executives to change their traditional autocratic and bureaucratic management styles.

Unlike the private sector, productivity and external competition were not primary change forces in the public sector. The challenge for the public sector to change stemmed from growing dissatisfaction from the public and rising budget deficits. Evidence of the political impetus for change began under the Reagan administration: "There is hereby established a government wide program to improve the quality, timeliness, and efficiency of services provided by the federal government" Executive Order 12637, April 1988.

Little visible change and continued public dissatisfaction with government bureaucracy led to Congress' Government Performance and Results Act (1993) and President Clinton's National Performance Review (1994). Specifically, public organizations realized they needed to change their ways of doing business in order to become more efficient and to regain the American trust (Osborne & Gaebler, 1992). Public organizations were encouraged to "reinvent" themselves.

As organizations began to implement various management methods to gain control over the external and internal forces of change, several awards were established in an effort to recognize and measure an organization's ability to change and become more productive, like the United States Senate Productivity Award (S.RES 503, 1982). The Malcolm Baldrige award, established by the Commerce Department in 1987, was modeled after the Deming Award given by the Japanese Union of Scientist and Engineers. Another award included the President's Quality Award managed by the Office of Personnel Management. These awards generally followed the tenets of quality management in their focus on leadership, processes, human resource development, strategic planning (vision), customer focus, and results suggested by quality advisors and implementors, such as Juran, 1989; Deming, 1982; Crosby, 1989; GAO, 1995; Department of Navy; and Department of Air Force. Definitions are in Appendix A.

Every year since the U.S. Senate created the Productivity Award, the State of Virginia has recognized exemplary public and private sector organizations with this award. The award incorporates the principles of total quality in its criteria for both the first time Medallion winners and the winners of the Award for Continuing Excellence. The Award for Continuing Excellence is only presented to Medallion winners, in recognition of their

long term use of these quality management principles. Based on the files of applicants and the annual conference "Virginia Forum for Excellence", only three public and three private organizations have received the Award for Continuing Excellence between 1984 and 1997.

Of the three public sector organizations analyzed in this study, one is set in an urban environment, another is on the outskirts of an urban setting, and the third can be classified urban/suburban. Changes in the environments affected all these organizations, particularly the two organizations in urban settings which experienced changes in population and workforce. While work force reductions at Norfolk Naval Shipyard directly affected the economy of the urban community of Portsmouth, Hanover Schools experienced increases in student population due to the influx of people moving from the urban environment of Richmond. In both cases, the data supports efforts in which the public sector organizations sought opportunities to work with the community (Hanover Schools) or at least begin open communications about changes in their ways of doing business (Hanover Schools and Norfolk Naval Shipyard). Air Combat Command is located in Hampton, which is a urban/suburban community based on its close proximity to Newport News, Virginia.

STATEMENT OF THE RESEARCH PROBLEM

There is a lack of studies on the application of organizational change theory in public sector organizations. Yin suggests that case studies offer "analytic generalization in which a previously developed theory is used as a template with which to compare the empirical results of a case study" (Yin, 1994, p. 31). To develop this theoretical template, this

specific research problem will address the factors that are associated with change and associated with sustaining change in public sector organizations that have already been recognized for their change efforts through the Virginia Award for Continuing Excellence. The "Big Three" Model of organizational change is the theory that will be applied in this study (Kanter, Stein and Jick, 1992).

The public sector has been slow to the challenge of implementing large scale change efforts until the early 1990s, at which time the National Performance Review initiative and the call for "Reinventing Government" awakened government agencies to become more efficient, to reduce waste, and to pay more attention to the tax paying public (Marshall and Schram 1993; Gore 1995; and Osborne & Gaebler 1992). Their challenge was to find new ways of doing business and still adhere to congressional, state, or local statutes in the conduct of implementing public policy. In the early 1900's, they were able to follow management principles, such as the "scientific" approach suggested by Fredrick Taylor (Shafritz and Ott 1992, Huczynski 1993) to achieve organizational results. These models addressed work processes and not organizational change. Kurt Lewin's change model developed in the late 1940's suggested groups could change through a process: unfreeze the current behavior, change the behavior, and then refreeze the new behavior to achieve the desired workforce results (Lewin, 1951). From the view of Kanter, Stein, and Jick (1992), Lewin's model appealed to both public and private sector managers who were primarily interested in getting productivity in the most economical and least complex manner. "In the absence of a powerful and convincing theory, managers will use whatever tactics are familiar rather than move to something new, which, (in the) absent of such a theory, may well produce more and newer problems than the traditional approach. Better

the devil we know...” (Kanter et al., 1992, p. 9). This research will apply the dimensions of the Big Three Model of organizational change to offer managers another theoretical approach and to explore the factors that are associated with change and sustained change in public sector organizations.

THEORETICAL FRAMEWORK

The subject of organizational change management offers several theories and processes worthy of examination. Kanter, Stein, and Jick (1992) refer to other change theorists and subsequently critique them. They suggest that many of these models are "linear and static" (Kanter et al., p. 10), while their “Big Three Model of Change” is multidirectional (Kanter et al., p. 10). Their model suggests the interrelationship between the causes of change (environmental), the forms of change (controls, coordination, and politics), and the individuals that play a role in the organizational change events (Kanter et al., 1992). As the number of change models and theories increase, one factor seems to remain constant: change theories must involve all aspects of the organization (personnel, structures, and process), and be dynamic and multi-dimensional to support the rapid external and internal forces of organizational change (Lewin, 1951; Tichy, 1983; Argyris, 1985; Blanchard, Hersey & Johnson, 1996; Dawson, 1994; Kanter, Stein & Jick, 1992; Drucker, 1994; Senge, 1992; and Beckhard & Pritchard, 1992). Both Drucker and Senge, add to the literature by suggesting change involves understanding the direction an organization takes, and among other things, understanding its ability to learn new techniques, technologies and implement new management philosophies (Drucker, 1954, Senge, 1990).

As already suggested, the Big Three Model departs from the "linear and static" (Kanter, Stein, & Jick, 1992, p. 10) theory suggested in 1947 by Kurt Lewin in which group behaviors need to unfreeze, change, and refreeze. "It is also not merely transformational," as suggested in 1962 by Thomas Kuhn, "with the influence of paradigm shifts over time which, at some point, the small changes lead to a qualitative shift or capital-C Change as though entering an entirely new state, with phenomena subsequently reinterpreted in terms of this new paradigm...similar to the strategic change process in organizations" (Kanter et al., 1992, p.10). Kuhn describes the paradigm shift theory occurring as the standard beliefs or procedures begin to change from the existing state stimulated by small changes; changes that result from the invention of new theory (Kuhn, 1962, p. 66). Along with group and strategic or transformational change are changes that result at the individual level through changes in knowledge, attitude, and behavior (Blanchard, 1996). Offering a different perspective on change, Kanter, Stein, and Jick in their 1992 book, The Challenge of Organizational Change suggest the need for a theory that "can help managers place their bets in a world of complex motion and multiple possibilities" (Kanter et al., p. 18).

This study will explore the factors that are evident in organizational change and offer the manager the actions to "predict and invent the future" (Kanter et al., p. 18). These factors suggest that more than one event can occur in the organization as changes occur. Listed below are the three factors that will be examined in the exploration of evidence within the case studies of three public sector organizations previously recognized for their successful change efforts.

The factors are:

1. Environmental forces that are an external, internal, or political stimulus for change.
2. Forms of change that affect the identity, coordination, and control within the organization.
3. Action roles that identify who were the strategists, implementors, and recipients of change.

The Big Three Model of change suggests that these dimensions of change are overlapping factors that might occur simultaneously or in isolation. In the examination of the three Virginia organizations, already recognized for their long term efforts to achieve efficiency and productivity in their way of doing business, the research will apply the information in archival files along with information from interviews and other documents to determine what factors were associated with change that are also elements of the Big Three model of Change.

RESEARCH QUESTION

In accordance with the research objective and statement of the problem, this study will study the factors associated with change and sustained change in organizations. The three public sector organizations have received recognition for their efforts to change and become more productive. They each offer a case study of evidence that the researcher will explore to determine what factors contributed to the organization's change efforts. Yin suggests case studies are the preferred strategy when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real life

context (Yin, 1994, p. 1). To support this case study approach, this research will address the following questions:

1. What factors are associated with change in public sector organizations that have been recognized for their change efforts?
2. What factors are associated with sustained change in the public sector organizations that have been recognized for their change efforts?

METHODOLOGY

In this case study research, "categories emerge from informants, rather than are identified a priori by the researcher. This emergence provides rich 'context bound' information leading to patterns or theories that help explain a phenomenon" (Creswell 1994, p. 7). As a multiple-case study of three different public sector organizations, who have won the Virginia Award for Continuing Excellence, the researcher will explore the factors that are comparable with change in organizations. Yin quotes Harriott and Firestone, "Multiple-case designs have distinct advantages and disadvantages in comparison to single-case designs. The evidence from multiple cases is often considered more compelling, and the overall study is therefore regarded as being more robust" (Yin, 1994, p. 45).

As stated, the multiple case study will center on only three of six organizations, who have won the Award for Continuing Excellence in the period 1983, when Virginia initiated the Senate Productivity and Quality Award, through 1997. They are Norfolk Naval Shipyard, located in Portsmouth; Air Combat Command, located in Hampton; and Hanover County Public Schools, approximately 10 miles outside Richmond. Air Combat

Command and Norfolk Naval Shipyard are a part of the department of defense government agency and Hanover County Public Schools is a part of the state of Virginia Department of Education. All three public sector organizations are either within or are close to metropolitan urban environments, which have faced political and economic challenges from industry downsizing as well as from unplanned population growth.

Data collection methodology for this study will rely on three sources of evidence: archival records, interviews, and documentation. These three data collection methods add strength to the use of case studies (Yin, 1994). The three methods will involve the collection of data from the archival files on each winner of the Award for Continuing Excellence, the use of interviews of key informants in each public sector organization, and investigation of supporting documentation written about each organization, such as books, videos, and news articles. The triangulation of evidence from these sources offers not only more evidence to support the investigation, but also offers a "broader range of historical, attitudinal, and behavioral issues" (Yin, 1994, p. 92) and information. This approach offers the strength of "converging lines of inquiry" (Yin, p. 92) with data triangulation, as discussed by M. Patton in How to Use Qualitative Methods in Evaluation.

IMPORTANCE OF THE STUDY

This study is important because it will look at factors that public sector organizations used over time to sustain change. It will also suggest a visual model, as discussed by Creswell (1994) such as the Big Three Model of organization change in three public sector organizations who have been recognized for sustained change. From a theoretical

perspective the study provides an understanding of the implications of theories of change in public sector organizations located in both urban and suburban environments.

LIMITATIONS

Case studies are difficult to replicate and do not have the strength of an experimental design. Yin suggests a multiple case study method, which might minimize the limitations of the study (Yin, 1994, p. 49). The results are not generalizable in a statistical sense.

Due to the many possible variables and interactions within organizations, factors for internal validity and the establishment of a causal relationship may not be strongly defined. However, construct validity will be sought through the combination of evidence in archival records, interviews, and other documents (Yin, p. 92). Another consideration is the availability of unbiased interviews. In two organizations, key informants that were in leadership positions during the change processes were not interviewed. Additionally, the researcher only interviewed one key informant who was in a senior leadership position and in a position to support or cancel the initial change. The inability to interview more than a few key informants is a limitation to the ability to provide corroborative evidence. Attempts to obtain candid interviews also may be affected by the nature of military organizations to limit access to sensitive information. Key informants in each of the three winning public organizations may also find it difficult to recall accurately the events that led to winning the Medallion and the Award for Continuing Excellence, possibly due to the passage of time. Selected key informants are asked to provide information on past and current events in the organization. These key informant observations may be subject to a

question of reliability of the interviewer. This is minimized by using the same questions and by having the same person ask the questions during each interview.

This first chapter offered an introduction to this multiple case study of three public sector organizations, recognized by the Virginia Award for Continuing Excellence, for their efforts to sustain change and achieve productive results. Chapter II will provide a literature review of historical changes in the twentieth century, an overview of changes in management models and ideas, and a discussion of organizational change theories. Chapter III is the methodology chapter and will detail the process used to explore the factors for change in each of the three public sector organizations. Chapter IV offers the findings of the investigation on Air Combat Command, Hanover County Public Schools, and Norfolk Naval Shipyard and an analysis of the findings. Chapter V discusses implications for future study and offers concluding comments.

CHAPTER II

LITERATURE REVIEW

The previous chapter provided an introduction to this research as a study of the factors that contributed to organizational change and sustained change in three public sector organizations recognized as winners of the Virginia Award for Continuing Excellence.

This chapter will provide a summary of environmental factors from a historical perspective, an overview of management models and views, and a discussion of organizational change theories that contributed to changes in the American workplace throughout the twentieth century. "Shifting industry conditions, technological advances, and political events around the world have caused so much change pressure on organizations in the last decades that it is hard to imagine a time when organizations were considered closed systems and studied only in terms of their internal structures and operations" (Kanter et al., p. 32). To support this proposition, that "appreciation of the environment of organizations as an essential ingredient in understanding their shape and form, their successes and failures, did not become a part of the lore of Western management until the 1960's and 1970'sit was becoming clear to leaders and managers that organizational success depended on a variety of forces outside of the direct control of the organization" (Kanter et al., p. 32).

To help explore the evolutionary and revolutionary environmental factors that may have had an impact on American industry, the first section in this chapter offers a review of technological, political, social, educational, and economic changes impacting America

in the twentieth century. The second section will provide a highlight of management theories that will parallel changes in the first and second part of the century, in order to provide a framework for how management theories have also changed since the early 1900s. The last section will review several theories on organizational change with specific attention given to the Big Three Model of Change suggested by Kanter, Stein, and Jick (1992).

TECHNOLOGICAL, POLITICAL, SOCIAL, EDUCATIONAL, AND ECONOMIC CHANGES IN THE TWENTIETH CENTURY

This review is important to the research on organizations in the twentieth century because it sets the stage for explaining why organizations would need to respond differently as the American economy shifted from an agricultural base in the late 1800s to a more industrial focus in the early to mid 1900s, and now, as some describe, to a high tech service economy (Toffler, 1980; Naisbitt & Aburdene, 1990; Peters, 1987; Morrison, 1996; Deming, 1993; Boyett & Boyett, 1996; and Drucker, 1994). From an historical perspective, up until the early 1990's, managers and owners of businesses followed the ideas of Adam Smith. From his book The Wealth of Nations written in 1776, is the "assertions that the greatest improvement in the productive powers of labour... seems to have been the effects of the division of labour" (Toffler, 1980, p. 49). Correspondingly, Ford introduced the assembly line and was able to mass-produce the Model T through specialization (Toffler, 1980).

In some cases events of the twentieth century included "upheavals in the 1930's and the attack of government and other social groups upon institutions of free enterprise (that)

were instrumental in forcing business managers to examine the nature of the job.... (Then by the 1940s) the decade of feverish productive activity set off by military preparation accelerated the movement toward larger and more complex business enterprises" (Koontz and O'Donnell, 1959, p. 16). By the end of the century, management champions would be offering their theories for managing change along with economists and sociologists, but in a way to catch the attention of both public and private sector organizations in their advocacy to: Search For Excellence (Peters & Waterman, 1982), Reengineer the Corporation (Champy & Hammer, 1992), and Reinvent Government (Osborne & Gaebler, 1992).

Alistair Cooke's America, (1973), Arthur M. Schlesinger's The Almanac of American History, (1993) and The Twentieth Century, Vol I-V, (1992) along with Encyclopedias Britannica, (Benton, 1984) and Encarta 96, (Microsoft, 1995) provide the references to selected historical highlights. Other writers, Toffler, (1980), Morrison, (1996), and Naisbitt & Aburdene (1990), offer perspectives and analysis on the events of history on the American economy. Alvin Toffler, in his book The Third Wave (1980) writes about the impact of change in America primarily during the last century. Writing from an historical perspective, he suggests change has occurred at a more rapid rate in the twentieth century, considering the following very general chronology of events: the beginning of the agricultural age was approximately 50,000 years ago; the development of cities and communities only 5000 years ago; and the start of the industrial age was around the 1500s. However, inventions and advances in technology in the last 200 years, such as trains, planes, cars, telegraph, incandescent lights, and electricity, were far more profound

and would have a greater impact on world events and the American economy throughout the 1900s (Toffler, 1980; and Encarta Encyclopedia (1995).

More specific focus, from the researcher's perspective, will center on the first and second fifty years of the 1900s, with a review of technological, social, political, educational, and economic changes. This review suggests the impact of these environmental factors on changes in management styles over the century and on an organization's ability to become more efficient and productive.

TECHNOLOGICAL CHANGES. The first years of the nineteenth hundreds were characterized by the revolution of technological change. Henry Ford was mass-producing the automobile. In 1900 the Model T sold for \$850; by 1926, as a result of mass production techniques, it sold for \$290 (Downey 1992, p. 68). "Efficiency is the buzz word as companies employ the scientific management methods of Frederick Taylor, Frank Gilbreth, and others" (Davis, 1998, p. 8). In The Twentieth Century: The Progressive Era and the First World War 1900-1918 (Downey et al., 1992) the editorial consultants write about other changes during the first twenty years of the twentieth century. Electric lights were replacing gas streetlights, and the telephone and phonograph were becoming more and more common to Americans. In 1903, Orville and Wilbur Wright flew an airplane over the coast of Kitty Hawk, North Carolina and in 1915 Albert Einstein's special theory of relativity provided a new idea of space and time (Downey et al., 1992, Vol. 1, p. 85.) In the medical world vaccines were discovered to control illnesses and deaths caused by chicken pox, mumps, measles, diphtheria, and tetanus, to name a few. Penicillin offered cures for syphilis, tuberculosis, malaria, and other bacteria (Downey et al., 1992).

Research in science and technology also led to the development of an atomic bomb. In response to its destructive effects in Japan during World War II, the Atomic Energy Commission was created in 1946 to award civil control of nuclear materials (Schlesinger, 1993, p. 515).

SOCIAL CHANGES. Strauss describes young adults born between 1886-1903 as missionaries with "muckraking writers, and reformers...(who) had given birth to the Bible Belt, to Christian socialism, the Greenwich Village, to Wobblies, and to nascent labor, temperance, and women's suffrage movements" (Strauss, 1991, p. 232). After World War I came the "Roaring Twenties" a time in which many Americans enjoyed movies, radio, short dresses, short hair, and the excitement of Jazz; all despite the prohibition on alcohol between 1919 and 1933 (Downey et al., 1992).

The revolution of new ideas and new behaviors of the first twenty years were curtailed with the economic devastation brought on by the stock market crash of 1929 and the ensuing years of depression. (Benton, 1984, Encarta 96 Encyclopedia). The Silent Generation, born between 1925 and 1942 were a part of the Great Depression and World War II and "only two percent wished to be self-employed. Most of the rest wanted to work in big corporations offering job security. Never had American youth been so withdrawn, cautious, unimaginative, indifferent, --and silent" (Strauss, p. 279).

POLITICAL CHANGES. Theodore Roosevelt, the leader of the Rough Riders during the Spanish American war, became president after the assassination of President McKinley in 1901 and challenged business monopolies by supporting anti-trust laws (Benton, 1984;

Microsoft, 1995; Schlesinger, 1993; Downey, et al., 1992). Influenced by John Sinclair's book, The Jungle, which described the unsanitary conditions of meat-packing plants in 1906, "Theodore Roosevelt released a government report that caused meat sales to drop. Only after concessions by the industry did the government enact legislation and begin inspections to restore public confidence. In another example, Roosevelt endorsed the Hepburn Act, which permitted regulation of rates charged by railroads, pipelines, and terminals" (Schlesinger, 1993, p. 413). In other events, the 16th Amendment was ratified in 1916 giving the government the authority to tax American incomes. World War I ended in 1918 and by 1929 the United States faced an economic depression (Benton, 1984).

Franklin D. Roosevelt was elected on the Democratic ticket in November 1932 and began a program of reform legislation, which became famous as the "New Deal" (Zinn, 1995, p. 382). Roosevelt's National Recovery Act would take over the economy through a series of codes agreed to by management, labor, and the government, by fixing prices and wages, and limiting competition. It was later declared unconstitutional by the Supreme Court because it gave too much power to the president (Zinn, p. 383). Roosevelt tried other efforts, Tennessee Valley Authority provided jobs to build dams and highways, the social security act of 1935 allowed for governmental support for wage earners, the disabled, and the elderly. Many of these early government regulations resulted in improved standards of living for Americans by the second half of the century, although farmers were not included in these reforms (Schlesinger, 1993).

EDUCATIONAL CHANGES. Education during the early 1900s also changed from the colonial focus on "reading sufficiently well to comprehend religious concepts and the laws of the land...with the teachings to be conducted in an atmosphere of piety and respect for authority" (Goodlad, 1984, p. 43). Changes in education would change as the country became more industrialized and urban and as more immigrants entered the country (Goodlad, p. 43). According to Goodlad in his study of schooling, many changes occurred with the Great Depression "job opportunities were removed for youth...At the same time there was a growing belief that an eighth grade education was insufficient to educate our increasingly heterogeneous population for participation in a democratic society...and spurred the development of vocational education in many schools and the creation of trade and technical schools for students not planning for college-level academic studies" (Goodlad, p. 44).

ECONOMIC CHANGES. "In 1901 US Steel is incorporated in the state of New Jersey as the first billion dollar corporation...Within the iron and steel industry more than 20 mergers have taken place in two years alone in copper, sugar, meat, tobacco, and oil... to become giant monopolies. They succeed as long as wages can be kept low through liberal immigration policies and prices high through tariff regulations" (Schlesinger, 1993, p. 406). As president, beginning in 1901, Theodore Roosevelt "reduced the booming power of business interests by busting some trusts and regulating others, often intervening on behalf of labor" (Schlesinger, 1993, p. 407). Unions such as the Industrial Workers of the World (Wobblies) formed in 1905, "...for the purpose of emancipation of the working class from the slave bondage of capitalism. The aims of the organization shall be to put the

working class in possession of economic power..." (Zinn, 1995, p. 322). By 1912, a left wing Socialist from Connecticut, Robert La Monte, wrote: "Old age pensions and insurance against sickness, accident, and unemployment are cheaper, are better business than jails, poor houses, asylums, hospitals" (Zinn, p. 346).

World War I in Europe offered America business prosperity in a time of recession. "J.P. Morgan testified: "The war opened during a period of hard times... Business throughout the country was depressed, farm prices were deflated, unemployment was serious, the heavy industries were working far below capacity and bank clearings were off... But by 1915, war orders for the Allies (mostly England) had stimulated the economy..." (Zinn, p. 353). America entered World War I in 1917. From the view of the worker, "socialists saw clearly how useful reform was to capitalism. Women went to work to support the war effort; they did not win the right to vote until 1920. "But the prosperity was concentrated at the top. While from 1922 to 1929 real wages in manufacturing went up per capita 1.4 percent a year, the holders of common stocks gained 16.4 percent per year.... Every year in the 1920s, 25,000 workers were killed on the job and 100,000 permanently disabled" (Zinn, p. 373). Textile strikes, mass picket lines, beatings, and police threats, did not deter the Communist organized, Trade Union Education League, who won a forty-hour workweek and a wage increase in 1926 (Zinn, p. 376). In 1923 US Steel institutes the 8-hour day which is a milestone for labor (Schlesinger, 1993, p. 444); while it was a time of despair for farmers, city workers, and World War I veterans (Schlesinger, 1993, and Downey et al. 1992).

After World War I, "the country is inexorably moving from rural to urban as 51 percent of the population is found to be living in towns of 2500 or over" (Schlesinger,

1993, p. 440). Economically, conditions are set for declines in the stock market in 1929 with "heavy withdrawals of capital from America as England raised its interest rate to 6.5" (Schlesinger, p. 454). The "forerunner of the great Depression occurs on October 29, 1929, as the stockmarket sees some 16 million shares sold at declining prices (Schlesinger, p. 454). By January 1930 agricultural and commodity prices continue to fall, national income collapses, and unemployment approaches 4 million people (Schlesinger, p. 455). World War II, with the attack on Pearl Harbor in 1941, brought the end to American isolationism and restored economic prosperity with the build up to support the war effort "and rejuvenated American Capitalism according to the writer Lawrence Wittner" (Zinn, 1995, p. 416). From a domestic perspective the years after World War II would become pivotal for workers, economy, and education. The American Legion remembering the lack of support for Veterans after the first World War, were instrumental in writing and getting passed the "Veterans Readjustment Act of 1944. The impact of the GI bill was illustrated by the following comments. "The GI Bill was over turning the social and economic structure, if only by shattering forever the idea that those who were not already members of the middle class could go to college... The GI Bill turned veterans and their families into a privileged group" (Bennett, 1996, p. 238, 241). Another pivot occurred with the Truman Administration's efforts to retain the continuing alliance between business and military for a permanent war economy (Zinn, p. 416).

THE SECOND FIFTY YEARS OF THE TWENTIETH CENTURY

The second half of the century would continue to face dramatic change at a rapid rate (Toffler, 1980). Domestically, the post World War II economy offered renewed energy

for American businesses, as demand for American products increased during the 1950s and 1960s. The GI Bill gave returning soldiers and sailors an opportunity to get an education, start a business, and even to buy a home with financial support from the government. Changes continued in technology, social issues, politics, education, and the economy.

TECHNOLOGICAL CHANGES. The Atomic age and the proliferation of nuclear weapons had as much an impact on American technological advances as did the competition to enter the space race in the 1950s. Computers, space satellites, and the Internet would expand in use outside government into business and private lives of Americans. These and other technological events would have the greatest impact on management and the workforce that supported management.

The power of television was just being noticed. "During the 60s and 70s the electronic media marched in on this increasingly cohesive young group (school age students) catering to its taste, molding its habits of consumption" (Goodlad, 1984, p. 42). Television offered in many cases live coverage of news events such as, President Kennedy's assassination in Dallas, civil rights marches in Birmingham, AL, and Washington DC, the fighting in Southeast Asia, and the Watergate investigations into criminal activity in the White House (Schlesinger, 1993; Downey et al., 1992, and Benton, 1984). In other areas, technology provided the American consumer led gas for automobile, and pesticides. Space technology and the competition with the Soviet Union led to the establishment of the National Aeronautical and Space Administration (NASA) in 1958. Americans sent the

first man into space in 1961, watched the first man orbit the earth in 1962, and witnessed on television, the first man land on the moon in 1969 (Schlesinger, 1993).

Referencing Encarta Encyclopedia 1996 (Microsoft 1995) and Encyclopedia Britannica (Benton, 1984), and The Twentieth Century, (Downey, et al. 1992), by 1960, oral contraceptives offered women a more convenient and confident birth control method. Americans were living longer due to laser surgery, organ transplants, and other medical innovations.

Computer laptops, Local Area Networks, virtual reality, and cellular phones are sample innovations that are being invented and then improved on, in record time (Morrison, 1996; Boyett & Boyett, 1995). " CNN headline news can produce a news story every thirty minutes" (Boyett & Boyett, 1995, p. 12). The Internet offers a new medium of information and communications, and "enabling virtual deals to be done on a global basis" (Morrison, 1996, p. 10). Management expert, Peter Drucker, suggested that these new skill workers were to dominate the work force after the 1980's as they entered service fields such as computer technicians, medical-lab technicians, etc. (Drucker, 1994).

SOCIAL CHANGES. Social transformations in American society would have a profound impact on business in the latter half of the twentieth century. These changes were influenced by the generation differences suggested by William Strauss in his book, Generations (1991) and by Jay Conger, executive director of the Leadership Institute, University of Southern California. Both Strauss and Conger describe the impacts of the pre World War II generations 1901 and 1942 who may be the elders of today. "GI (born between 1901-1924) have been a generation of trends, always in directions most people

thought for the better: lower rates of suicide and crime, higher aptitudes, greater educational attainment, increased voter participation, and rising confidence in government" (Strauss, 1991, p. 266). The *Silent generation* (born between 1925 and 1942) as "peers of Neil Armstrong and Martin Luther King may some day be credited as the generation that opened up the dusty closets of contemporary history, diversified the culture, made democracy work for the disadvantaged, and struck a Muppet like balance between the sacred and silly" (Strauss, p. 293). However, post World War II, attention is given to *Baby Boomers*, born between 1943 and 1960, and the *Thirteenth Generation-Baby Busters* born between 1961-1981 because they are the young adults and mid-lifers in the workforce today (Strauss, 1991). The attitudes of these two generations of Americans impacted the social changes that would occur in the remainder of the century. These differences impacted attitudes about work and social conditions. For *Baby boomers* there was a sense of distrust and disillusionment. This generation saw a government that the media captured with headlines about casualties in the Vietnam conflict, attacks against peaceful civil rights demonstrators, assassinations of President Kennedy, Robert Kennedy, and Martin Luther King, White House involvement in Watergate break-ins, oil shortages initiated by OPEC, and the threat of domestic nuclear disaster at Three Mile Island. (Strauss, 1991; Microsoft, 1995; and Benton, 1984). Jay Congers wrote, "They were raised in an era of phenomenal national wealth, which would later translate into an indulged and somewhat narcissistic generation nicknamed yuppies" (Hesselbein, Goldsmith, and Beckhard, 1997, p. 19).

The children of the *baby boomers* would be called the *Thirteenth Generation* by William Strauss and *Baby Busters* by Jay Conter and Generation X (Strauss, 1991,

Hesselbein, et al., 1997). They were more technologically competent, more comfortable with change, and unwilling to accept authority for authority's sake. These Busters, according to Conger, also seemed to possess a strong sense of determination and willingness to work, as long as there were boundaries between work and personal life. Busters did not share the same sense of loyalty to the past as did the silent generation and were comfortable with dual-career families and high divorce rates (Hesselbein et al., p. 20).

Other events of this second fifty years would have unique impacts both socially and industrially in the United States such as the Civil Rights Act of 1964 "which President Johnson terms a challenge to all Americans to transform the commands of laws into the customs of our land" (Schlesinger, 1993, p. 567). From these events changes began to occur, such as in the establishment of Affirmative action to ensure greater minority and female representation in colleges and in the work force (Schlesinger 1993; Zinn, 1992). In 1964, President Johnson also "declared war on poverty and backed his words by creating the Office of Economic Opportunity... preparing people through job training programs and educational aid to become useful and productive members of the community" (Schlesinger, p. 568).

POLITICAL CHANGES. American political environments also changed from the 1950's to 1990's. While the Marshall Plan offered economic recovery for Europe and Japan, "Truman's administration worked to create an atmosphere of crisis and cold war" (Zinn, p. 416). President Eisenhower gave Americans an opportunity to grow economically after World War II and during the early days of the Cold War. Senator

McCarthy continued the fight against Communist infiltration in government and the arts until his censure in 1954. As president in 1961, Kennedy inspired the American public with his vision to "...ask not what your country can do for you" (Schlesinger, 1993, p. 560). President Kennedy also wanted to create a Peace Corps to spread democracy, and to stand against communism at the Berlin wall.

From the historical reference, The Twentieth Century, Postwar Prosperity. The Cold War 1946-1963 (Downey et al., 1992) the editorial consultants suggested, the 1960s and 1970s were a period of profound political and social revolution. Vietnam conflict, civil rights laws, affirmative action legislation, and birth control challenged the status quo. Urban city riots and peace marches also influenced radical changes in the political and social norms of the time (Downey et.al., 1992 and Benton, 1984).

EDUCATIONAL CHANGES. "Our school system grew phenomenally from soon after the middle of the nineteenth century to beyond the mid point of the twentieth century in size, complexity, and confidence" (Goodlad, 1984, p. 43). In 1954, *Brown vs the Board of Education of Topeka, Kansas*, ended the desegregation of public schools (Strauss, 1991). By 1965, "Congress enacted legislation to support education from cradle to grave...prodded by President Johnson, Congress sought to use schools to address pressures of social problems, of poverty, unemployment, urban decay, crime and violence, and racial discrimination" (Goodlad, p. 4). Education was trying to be all things to all people in the 1960s and would continue with that mandate through the end of the twentieth century (Goodlad, 1984). As schools sought to change to accommodate the requirements of the American public, it would experience criticism throughout the 1970s

and 1980s based on the decline of reading test scores, increased cases of discipline problems, court ordered busing, declining resources, and a multitude of other problems (Goodlad, p. 14). These concerns and issues led to Goodlad's data based study of American schooling in the 1980s, A Place Called School, (1984) and the analysis that schools need to be self renewing with the involvement of all facets of the community.

ECONOMIC CHANGES. Douglas McGregor of MIT was quoted in November 1957, "the carrot and stick theory does not work at all once man has reached an adequate subsistence level and is motivated primarily by higher needs. Management cannot provide a man with self respect, or with the respect of his fellows or with satisfaction of needs for self fulfillment" (Davis, 1998, p. 2). This observation would be further supported by the changes in the economy and the workforce throughout the remainder of the twentieth century.

The threat of nuclear war and the Cold War with the Soviet Union were realities and served to enhance general economic progress as well as help industries that supported the requirements of the Department of Defense for new weapon technology. "The Cold War brought a strong attack on radicals and liberals, their ideas and social philosophies. But it also generated a positive defense of American capitalism" (Fusfeld, 1998, p. 505). Peter Drucker also observed in his book The Practice of Management, (1954) "A Cold War of indefinite duration not only puts heavy economic burdens on the economy, ...it demands ability to satisfy the country's military needs while building up and expanding peacetime economy (Drucker, 1954, p. 5).

The Cold War ended in 1991; however, according to Robert H. Ferrell, professor of History, Indiana University "...many Americans were dismayed to find that their security worries were far from over. The planet as a whole showed few signs of being a more peaceful place than it had been before the USSR's fall... There was mounting pressure on the US, as the sole remaining superpower, to serve as a kind of global policeman in this precarious new world" (Schlesinger, 1993, p. 513).

To add to this external pressure were domestic economic concerns. By the 1980s and 1990s, Presidents Reagan, Bush, and Clinton sensed the public's dissatisfaction with government bureaucracy. In 1992 the Clinton administration and Congress addressed the public concern with government waste and excess by introducing the National Performance Review and Government Performance and Results Act. These initiatives and laws would address past efforts to gain greater efficiencies and show results in cost and efficiency. Both public and private sectors felt the challenge to remain in business, to remain profitable, and to offer "service" products the American public expected (Gore, 1995; Peters, 1987; Osborne and Gaebler, 1992; & Marshall and Schram, 1993). American government sought to "reinvent" itself, following the pattern of private industry (Osborne and Gaebler, 1992; Gore, 1995; & GAO, 1995). Continuous change became the norm as American industries approached the Year 2000. In all respects, military, businesses, and educational institutions were becoming more diverse by the 1980s and 1990s due to these earlier events. Some of these social challenges to a post World War II society were not noticeable during the 1950s and 60s because the industrial demands for skilled labor were high and trade unions played a considerable and an influential role in ensuring the quality of life of tradesman and other union employees especially in the

northern cities (Benton, 1984). By the later part of the century, the American economy had become more service oriented due in part to the industrial competition from other countries (Toffler, 1980, & Deming 1986). Other changes in the workforce were driven by the two income family, reliance on child care, the stresses that results from the uncertainty of businesses staying in business. For example in 1960 only 60.7% of husbands, represented in the workforce, worked while their wives stayed at home. By the 1990 only 25% of husbands, in the workforce, worked while their wives stayed at home. Likewise, in 1960 only 28.4% of the workforce included both husband and wife. By 1990 this workforce figure rose to 53.5% (US Department of Labor, Bureau of Statistics, Working Women: A chart book, August 1991, Table A-17). Naisbett and Aburdene (1990) and Boyett and Boyett (1996) further highlight the workforce that is divorced, poor, and dependent on taking care of both elderly parents and young children. In the book Beyond Workforce 2000, (1996), Jerry Z. Mueller, associate professor of History at Catholic University of America and author of Adam Smith in His Time and Ours: Designing the Decent Society, is quoted from a 1992 Washington Post article, “The long term economic growth of the nation ... is creating a high skilled, high wage economy” (Boyett and Boyett, 1996, p. 93). Adding to Mueller's observation,

“But ...the deterioration of the family is itself a barrier to this favored economic goal. For a high-skilled workforce is a highly self-disciplined workforce. If the basic institutions that foster self-discipline erode, how will these workers be created? A highly skilled workforce is necessarily a highly educated workforce. But how effective can even well-funded schools and highly motivated teachers be if they are confronted with students who have not learned self-discipline at home, whose parents are absent, or unwilling or unable to supervise them? The institutional problems of the family are a cause of economic stagnation, not merely its effect” (Boyett and Boyett, 1996, p. 93).

Peter Drucker further suggested in his article Age of Social Transformation, “Work, and workforce, society and policy, are all, in the last decade of this century, qualitatively and quantitatively different not only from what they were in the first years of the century but also from what has existed at any other time in history in their configurations in their processes, in their problems, and in their structures” (Drucker, 1994, p. 53). Other writers agree, Toffler in his writings on The Third Wave (1980) and Power Shift (1990), Morrison in his book, The Second Curve (1996), Kanter, in her many writings, such as World Class (1995), When Giants Learn to Dance (1989), and The Challenge of Organizational Change (1992), and Boyett and Boyett as they discuss Beyond Workplace 2000 (1996). These writers are discovering in their research the changing economic focus of America and its impact on management.

In summary this perspective offers a selected review of events of the twentieth century focusing on technological, social, political, educational, and economic changes that occurred that may have influenced changes in management ideas by the end of the 1900s. The industrial demands for educated and skilled workers to support new technologies marked the transition in American economic dominance from farming in the early 1900’s, to manufacturing in the 1950’s, and to service industries from the 1970’s on to the present (Drucker, 1994; Toffler, 1990; Deming, 1986; Peters, 1987; & Naisbitt & Aburdene, 1990). The internal changes in the environment as a result of American political and social events created an environment of change as special interest groups led to greater minority rights and more diversity in the workforce. Computer technology and the Internet introduced new ways to work and new means of communications. Economic competition

continues to influence changes in business and management from an external dimension. The environmental factors caused American business to focus on competition and management in global markets. Simultaneously, industry faced a more demanding consumer (Deming, 1994; & Dobyns and Crawford-Mason, 1991).

These were obvious environmental factors. "Organizational life is shaped by sweeping historical forces with a momentum of their own. Only if these forces are well understood can organizations and their leaders master emergent change" (Kanter et al., 1992, p. 57). From a management perspective, these environmental changes would have an irreversible impact on American business and would lead to changes in past management styles as the workforce became more diverse and as foreign competition became stronger (Deming, 1986; Toffler, 1980). The next section will address the management models and ideas that also changed in the twentieth century as the economy changed and technological, social, political, and educational changes led to new thoughts on productivity and worker satisfaction.

MANAGEMENT MODELS AND IDEAS. The previous section highlighted technological, social, political, educational, and economic events that led to changes in the American economy during the early and late 1900s. The events of the second half of the century helped forecast the changes in businesses that were faced with foreign competition and customer dissatisfaction. The rapid changes in technology alone created different requirements on management for a worker with different skills as computers and other innovations began to become commonplace in the workplace (Drucker, 1994; Naisbitt & Aburdene, 1990; & Peters, 1987). Politically and socially Americans were inclined to

question authority (Schlesinger, 1993, & Zinn, 1995). According to Goodlad's research the American public also criticized the schools for a multitude of reasons (Goodlad, 1984).

This next section provides more specific information on management theories that changed during the 1900s in response to the changing workforce. Kanter also suggests the relevance of external change to management in referencing Alfred Chandler's article, "The Enduring Logic of Industrial Success"...with "The lesson of decades of experience in the industrial era is that the companies that endured, Du Pont in the United States, ICI in Great Britain, and Siemens in Germany, were first movers in their industries. They also invested in managerial competence, which enabled them to adapt to growth and to changing times" (Kanter et al., p. 59).

TRADITIONAL VIEWS. Many of the early management methods were traditional in their application of an autocratic, scientific view to productivity (Miles, 1975, p. 37-38). Using Dr. Lillian Gilbreth's historical assessment, this section will highlight theories that can be grouped as traditional under centralized authority (Wren, 1972, p. 167). As one early example of traditional views, Adam Smith spoke on the division of labor in The Wealth of Nations, 1776. His views were applied until the 1900s. Changes in this view begin in 1916, with Henri Fayol who described the fourteen principles of management:

- | | |
|--------------------------------|--|
| 1. Division of work | 8. Centralization |
| 2. Authority | 9. Scalar chain (line of authority) |
| 3. Discipline | 10. Order |
| 4. Unity of command | 11. Equity |
| 5. Unity of direction | 12. Stability of tenure of personnel |
| 6. Subordination of individual | 13. Initiative to the general interest |
| 7. Remuneration | 14. Esprit de corps |
- (Shafritz & Ott, 1996, p. 57).

In the early 1900s Fredrick W. Taylor helped define what was to be called the “Scientific Method”. Using quantitative methods to increase worker productivity the manager was encouraged to mathematically determine how to improve product outputs, train workmen, bring the mathematical data and workmen together, and (create) division of work between management and workmen (Shafritz & Ott, p. 71-72). " The gathering in of this great mass of traditional knowledge, which is done by the means of motion study, time study, can be truly called the science" (Shafritz & Ott, p. 71). The traditional organization of the 1900s was also defined by Max Weber as he discussed the changes from the guild system to one of division of labor in support of capitalism (Weber, 1927). Weber is known for his views on relationships in all aspects of society from social to military. From these views he offered six characteristics of bureaucracy:

- I. There is the principle of fixed and official jurisdictional areas, which are generally ordered by rules, that is, by laws or administrative regulations.
- II. The principles of office hierarchy and of levels of graded authority mean a firmly ordered system of super- and subordination in which there is a supervision of the lower offices by the higher ones.
- III. The management of the modern office is based upon written documents (the files), which are preserved in their original or draught form.
- IV. Office management, at least all specialized office management- and such management is distinctly modern- usually presupposes thorough and expert training.
- V. When the office is fully developed, official activity demands the full working capacity of the official, irrespective of the fact that his obligatory time in the bureau may be firmly delimited.
- VI. The management of the office follows general rules, which are more or less stable, more or less exhaustive, and which can be learned (Shafritz & Ott, p. 81-82).

"Others categorized as traditional in their management theories included Charles Babbage and his continued thoughts on the division of labor and Henry L. Gantt whom, as a student of Fredrick Taylor, adhered to the scientific study of the work environment.

Gantt charts were developed in World War I to graphically display a series of progress and performance charts to aid in managing" (Wren, 1972, p. 153). Frank and Lillian Gilbreth also contributed to the scientific study of management and only later became colleagues of Taylor. Lillian Gilbreth's book the Psychology of Management and Frank Gilbreth's writings led to their contributions in the study of industrial psychology and motion study in manufacturing (Wren, p. 200). Luther Gulick and Lyndall Urwick presented their "Papers on the Science of Administration" in 1937, in which they proposed using the principles of planning, organizing, staffing, directing, coordinating, reporting, and budgeting (POSDCORB) to help guide management in achieving its organizational goals (Shafritz & Hyde, 1992, p. 90).

SYSTEMS VIEW. Practitioners and academic researchers offered other management ideas. Peter Drucker also offered definitions of management efficiency (doing things right) and effectiveness (doing the right things) in his book Management: Tasks, Responsibilities, Practices (Hersy, Blanchard, Johnson, 1996, p. 144, & Drucker, 1954). Drucker is also credited with introducing management by objectives, which offered managers a more quantified way to evaluate workers (Drucker, 1954, p. 122). Deming is quoted "A system is a network of interdependent components that work together to try to accomplish the aim of the system....The aim must include plans for the future" (Deming, 1993, p. 50-51).

HUMANISTIC VIEW. The influences of Munsterberg, Follet, Maslow, McGregor, and others characterize a more humanistic view of the worker and manager relationship to

achieve productivity. Hugo Munsterberg in his book Psychology and Industrial Efficiency (1913) introduced theories on worker behavior. Mary Parker Follett, in her studies and lectures on organizations, discussed the importance of constructive conflict (the integration of views from all sides), power, group interaction, and in giving orders by situation and by depersonalization of the orders (Graham, 1994, p. 130). Peter Drucker called Follett the prophet of management after her ideas and theories reemerged as significant to the study of management (Graham, 1994). Abraham Maslow described a hierarchy of needs for individuals which include basic needs that are physiological, as well as higher order needs like: safety, love, esteem, and self actualization; and he suggests their influence on satisfaction (Schafritz & Ott, p. 173). Douglas McGregor offered a counter perspective for the manager who does not trust worker capability or independence with the more conciliatory manager. His theory X manager view is very directive and believes employees cannot complete their work without supervision. Theory Y assumes differently, suggesting the manager should offer employees the materials needed to do the work and trust that it will be completed (Shafritz and Ott, p. 180).

The views of Mary Follet, Maslow, and McGregor would not become acceptable to managers until the 1980s with the introduction of participatory management thought, such as Theory Z and quality management. Theory Z was offered as a consolidated option for managers. William G. Ouchi developed this option as a faculty member with Stanford University, School of Business. He suggested that the Japanese approach to management could be found among some American companies (Ouchi, 1981). From his research, organizations cannot reform their employees. What remains, therefore, is for organizations to change their internal social structure in a manner which simultaneously

satisfies competitive need for a new, more fully integrated form, and the needs of individual employees for the satisfaction of their individual self-interest. Theory Z suggested that involved workers are the keys to increased productivity. The Japanese style offers three lessons: “1. Trust leads to productivity. 2. Use subtlety and allow people to work in teams. 3. Intimacy encourages individuals to know each other” (Ouchi, p. 4). Theory Z further offers, “the only way to influence behavior is to change the culture. A culture changes slowly because its values reach deeply and integrate into a consistent network of beliefs that tend to maintain the status quo” (Ouchi, p. 74).

STRATEGIC VIEWS. Strategic management includes the research of Henry Mintzberg (1989), Michael Porter (1998), Steiner (1979), and Joseph Juran (1989). Their view is that management involves an evaluation of internal and external forces in conjunction with the leadership communication of the organization's mission, vision, and strategic goals for the future. Strategic management involves the systematic view of the organization. Based on the strengths, weaknesses, opportunities, threats facing an organization, a strategic plan for the future of the organization is developed for management to follow. It's intent is to define the organization's future direction (Mintzberg, 1989; Porter, 1998; Steiner, 1979; & Juran, 1989).

MANAGEMENT AND TEAMWORK. As studies written in the 1980's and 1990s suggest, change in organizations is being influenced by external competition, technology, workforce diversity (Drucker, 1994; Kanter, 1992; GAO, 1995; & Gore, 1994) and internal pressures to maintain a leading edge over the competition. Organizations are

finding some of the past management principles inadequate (Drucker, 1994; Kanter et al., 1992). Mark May's wrote in A Research Note on Cooperative and Competitive Behaviors, "Human beings strive for goals, but striving with others (cooperation) or against others (competition) are learned behaviors" (Kohn, 1986, p. 24). Teamwork is a focus of the knowledge society that Drucker describes in his article Age of Social Transformation. This new enterprise of knowledge includes as Drucker suggests, "a bundle of techniques, such as budgeting and personnel relations" (Drucker, 1994, p. 58). In Peter Drucker's opinion and supported by Senge as "team learning" (Senge, p. 236) in the Fifth Discipline (1990) "...the essence of management is not technique and procedures. The essence is to make knowledge productive" (Drucker, 1994, p. 63). Cooperation and teamwork are a part of the participative management styles suggested by Ouchi (1981, p. 66), Deming (1984, p. 64), Juran (1989, p. 114), and Pindur (1992, p.216).

PUBLIC MANAGEMENT VIEWS. In the public sector, bureaucracy, public policy, and politics have influenced management. Only recently, the National Performance Review and the Government Performance and Results Act, challenged public servants to seek ways to become more efficient, to apply the management approach that worked best, to ensure performance results are tied to organizational objectives. Some applied the use of statistical process control and strategic management suggested by total quality management, others applied a reengineering approach by discarding old processes and reinventing new ones (Gore, 1995). Vice President Gore in June 1993 would be the catalyst for implementing change in Government in the 1990's with the first reports of

results coming out of the National Performance Review. Studies in 1991 and 1995 completed by the Government Accounting Office suggested management principles like quality management and strategic management to be effective.

A summary of this review suggests management needs to reconsider the value of the past traditional management theories with the view towards the application of theories that will complement the workforce of the 1990s. The workplace of the 1990s is different. Businesses must change and become leaner, more efficient, to compete in the global environment (Drucker, 1994; Kidder, 1995; Mintzberg, 1994). The challenge is for the new age manager and her workforce to want to be flexible to changing theories of management. The next consideration would be how to manage the fast pace of change that will continually create chaos with internal production and chaos from external competition. Based on a 1994 Gallup Organization report of 400 executives, "...from Fortune 1000 companies, 79% of the executives interviewed reported the pace of change at their companies as rapid or extremely rapid and 61% believed the pace would pick up in the future. In contrast most executives reported that they did not have formal plans for dealing with the change" (Blanchard, Hersey, Johnson, 1996, p. 459).

The next section refers to organizational change models that have been offered to help managers respond to change whether it is planned or unplanned. They are not models on individual behavior or psychological change, nor is much information given to theories of resistance to change. The primary focus will be on linear, incremental, strategic and transformational, quality management, and multi directional theories of change in groups within organizational work settings.

ORGANIZATION CHANGE THEORIES. Organization change "departed from the conditions of stability when resources are abundant, competitors are few, competition is geographically confined by protected markets, technologies are standard and understood, individuals and group ambition is constrained, disasters or system failures are few, commitments are clear and acceptable to stakeholders, and interests are adequately aligned...Depart from any of these conditions, as in the globalizing economy of the 1980s and suddenly the motion is apparent, with change taking center stage. Depart from all of them at once, as seems to be the case in the 1990s, and responding to change, harnessing change, and creating change become the major management challenges" (Kanter et al., p. 14).

In the previous discussion events of the twentieth century have been presented along with changes in the focus of management theories from scientific to behavioral to strategic. This next section will present several organizational change models with primary attention given to the Kanter, Stein, and Jick model, "Big Three Model of Change" which will offer the theoretical template for this study. Their organizational change theory is discussed in their book, The Challenge of Organizational Change. How Companies Experience It and Leaders Guide It (1992). All these change theories and their authors are representative of models for group change starting from the early 1900s and do not include individual change theories or theories on resistance to change except as discussed with an associated organizational change theory. Many of these models are a result of research by management experts, psychologists, and social scientists (Kanter, Lewin, Blanchard). Prior to the discussion of change models is a section on definitions

and general views on change. Noteworthy is the number of models that were presented after the Second World War and into the 1970s. Writing on Patterns of Organization Change in 1968, Larry E. Greiner offered the following view, "The shifting emphasis from small to large scale organization change represents a significant departure from past managerial thinking. For many years, change was regarded more as an evolutionary than a revolutionary process. The evolutionary assumption reflected the view that change is a product of one minor adjustment after another, fueled by time and subtle environmental forces largely outside the direct control of management" (Hampton, Summer, and Webber 1968, p.789).

DEFINITIONS OF CHANGE. Webster's New World Dictionary offers this definition: "to cause to become different, alter, transform; convert (SYN. Change denotes a making or becoming distinctly different and implies either a radical transmutation of character or replacement with something else)" (Guralnik, 1968, p. 237). Other definitions of change from an organizational perspective begin with Louise K. Comfort, associate professor of public and international affairs at the University of Pittsburgh, who suggests "If we understand change as one point on a continuum from order to chaos in a continually evolving system, we can assess our present actions more accurately in an effort to maintain a creative balance in our operating systems" (Comfort 1997, p. 260). She also writes "In most cases, change requires a transformation to a new state within the same system, employing the same personnel, operating from the same geographic space, interacting with the same competitors and partners, and often accomplishing more difficult tasks or few resources" (Comfort 1997, p. 376). Karen W. Buckley and Dani Perkins'

definition: "Change is the modification of beliefs, behaviors, and attitudes" (Kirkpatrick 1985, p. 49). Newton Margulies and John Wallace define change as "...a natural process and can be seen in the incessant flux of aging and evolution in all living systems... Change must rightfully be regarded as the vital, creative, exciting, and energizing force that it really is" (Kirkpatrick 1985, p. 75). The scientific studies of Thomas Kuhn offer more theoretical views of how shared values (paradigms) change "...by a growing sense that existing institutions have ceased adequately to meet the problems posed by an environment that has in part been created" (Kuhn 1969, p. 92). Kuhn also writes "Science has reached its present state by a series of individual discoveries and inventions that, when gathered together, constitute the modern body of technical knowledge... One by one, in a process often compared to the addition of bricks to a building, scientists have added another fact, concept, law or theory to the body of information" (Kuhn, p. 141). Kanter et al., supporting Kuhn's scientific analysis, suggests "change involves two very different phenomena. (1) Change, as though entering an entirely new state, with phenomena subsequently reinterpreted in terms of this new paradigm... (2) Organizational change has an empirical side... an organization is defined by its operations by the presence of a set of characteristics associated with enduring patterns of behavior, both of the organization as an entity and of the people involved in it" (Kanter et al., 1992, p.10).

At the individual and group levels of change, Hersey, Blanchard, and Johnson describe four levels of change in people: Knowledge, attitude, individual behavior, and group or organizational performance changes. They also highlight the significance of these levels when applied to a participative change cycle, one in which new knowledge is made available and the group participates in problem solving, and a directive change cycle, one

in which change is imposed on the total organization by some external force (Hersey, Blanchard, and Johnson 1996, p. 473). These definitions offer perspectives on change from a variety of viewpoints. The next discussion addresses models of organizational change that are linear, incremental, strategic or transformational, focused on quality, and multi directional. As background to the study of other models, Kanter, Stein, and Jick indicate many of the organizational change models are patterned as a three-part process...creating a temporary stability so that things will work for some period of time (Kanter et al. p.375).

LINEAR MODELS.

Table (1) represents an initial list of models that follow this linear pattern.

Table (1)

Linear Three-Step Models of Organizational Change

Author	Model Process		
Lewin (1947)	Unfreezing	Changing	Refreezing
-Beckhard and Harris (1977)	Present State	Transition State	Future State
-Beer (1980)	Dissatisfaction	x Process	x Model
-Kanter (1983)	Departures from tradition and Crisis	Strategic Decisions and Prime Movers	Action Vehicles and Institutionalization
Tichy and Devanna (1986)	Act I Awakening	Act II Mobilizing	Act III (Epilogue) Reinforcing
Nadler and Tushman (1989)	Energizing	Envisioning	Enabling

(Kanter et al., p. 376)

Kurt Lewin, an early expert on social and group behavior, suggested in 1947 that organizational change occurs when the behavior is unfrozen, altered, and then refrozen.

The linear perspective of his theories warrants additional exploration. He sights the example of the indoctrination of new military recruits and how the new behaviors become expectation, which are then institutionalized (Hampton, Summer, Webber, 1982, p.701). Embedded in his theory is the application of force fields, driving and restraining forces, that influence the change of the "moving" aspect of his three step change process. As a psychologist, Kurt Lewin's studies of group dynamics and force fields offers more dimension to his premise of "unfreezing, moving, and freezing" (Lewin 1951, p. 228). In his study of group dynamics, Lewin writes "The practical task of social management, as well as the scientific task of understanding the dynamics of group life, requires insight into the desire for and resistance to, specific change" (Lewin, 1951, p. 200). Lewin's research included studies of children, marriage, and race relations. From his research he suggested, "In regard to changes the term ability seems to imply a reference to restraining rather than driving forces. Driving forces-- corresponding, for instance, to ambition, goals, needs, or fears-- are 'forces toward' something or 'forces away from' something. They tend to bring about locomotion or changes. A 'restraining force' is not in itself equivalent to a tendency to change; it merely opposes driving forces. A change in ability is equivalent to a change in the difficulty of a task" (Lewin, p.218). This concept of a force field of restraining and driving forces offers depth to Lewin's linear change model. To sustain change Lewin suggests "a change toward a higher level of group performance is frequently short lived (force field equilibrium); after a shot in the arm, group life soon returns to the previous level. This indicates that it does not suffice to define the objective of a planned change in group performance as the reaching of a different level. A successful change includes therefore three aspects unfreezing the present level, moving to the new level, and freezing

group life on the new level. Since any level is determined by a force field, permanency implies that the new force field is made relatively secure against change" (Lewin, p.229). Lewin's model suggests long lasting change can be accomplished with the application of his process, but also acknowledges that other factors may be difficult for managers to control, such as motivation and group values. These are factors, which offer complexity to the implementation of a linear change model (Lewin, 1951).

Donald L. Kirkpatrick highlights several change models in How to Manage Change Effectively (1985). As shown in table (2), many are also linear in their application but involve more than three steps in the process of implementing change.

Table (2)

Multi-Step Linear Models of Organizational Change

Model	Process
Everett M. Rogers (1962)	Steps in Adopting Change: Awareness-> Interest -> Evaluation -> Trial -> Adoption (Kirkpatrick, p. 32)
Lyle Schaller (1978)	Process for Managing Change: Self-Identified Discrepancy -> Initiating Group -> Supporting Group -> Implementation -> Freezing the Change (Kirkpatrick, p. 32)
Luthens, Maciag, and Rosenkrantz (1983)	Organizational Behavior Modification 1. Identify the critical performance behavior 2. Measure the behavior identified in step 1. 3. Analyze the behavior 4. Intervene to accelerate the desired performance behavior and decelerate the undesirable ones. 5. Evaluate the intervention to ensure that performance is indeed improving. (Kirkpatrick, p. 33)
Karen Buckley and Dani Perkins (1984)	Stages of transformational change: Unconscious ->Awakening -> Reordering->Translation -> Commitment -> Embodiment -> Integration (Kirkpatrick, p. 45-48)
Kirkpatrick (1985)	1. Determine need or desire for a change. 2. Prepare a tentative plan. 3. Analyze probable reactions. 4. Make a final decision. 5. Establish a timetable. 6. Communicate the change. 7. Implement the change (Kirkpatrick, p. 107)

(Kirkpatrick, 1985)

Other authors offer their ideas on organizational change:

Ken Blanchard's perspective to managing change suggests, "Leaders need to recognize and understand the two frameworks in which change can occur...first order (change), which occurs in a stable system and second order change that occurs when fundamental properties or states of the system are changed" (Blanchard, Hersey, Johnson, 1996, p. 469).

John P. Kotter, Konesuke Matsushita Professor of Leadership at Harvard University, suggested in his book, Leading Change (1996), that change involved eight stages: (1) establish a sense of urgency, (2) create guiding coalition, (3) develop vision and strategy, (4) communicate change and vision, (5) empower employees for broad-based action, (6) generate short term wins, (7) consolidate gains and produce more change, (8) anchor new approaches in the culture (Kotter, 1996, p.19).

In 1973 Newton Margulies and John Wallace described six propositions that should guide an organization in managing change.

1. Any change effort, in which changes in individual behavior are required, regardless of initial focus, must include means for ensuring that such changes will in fact occur.
2. Organizational change is more likely to be met with success when key management people initiate and support the change process.
3. Organizational change is best accomplished when persons likely to be affected by the change are brought into the process as soon as possible.
4. Successful change is not likely to occur following the single application of any technique.
5. Successful change programs must rely upon informed and motivated persons with the organization if the results are to be maintained.
6. No single technique or approach is optimal for all organizational problems, contexts, and objectives; diagnosis is essential"

(Kirkpatrick, p. 73).

Michael Heifetz offers seven linear stages.

1. Choose target
2. Set goals
3. Initiate action
4. Make connection
5. Rebalance to accommodate change
6. Consolidate the learning
7. Move to the next cycle

(Heifetz, 1993, p. 4).

He also writes that "the driving force of leadership and other committed people pushing against the resisting force of chaos forms the most fundamental dynamic process in any organization change effort (Heifetz, p. 18).

INCREMENTAL MODELS. Still other writers discuss the pattern of change as incremental in nature: James Brian Quinn, a Harvard University professor, described Logical Incrementalism in 1985. The stages of Quinn's change theory are (1) general concern, (2) broadcasting a general idea without details, (3) formal development of a change plan, (3) use of a crisis or opportunity to stimulate implementation, and (5) adaptation of the plan as implementation progresses (Blanchard, 1996, p. 468). Thomas Kuhn suggests organizational change occurs in small steps until there occurs a large shift and ultimately a new state (Kuhn, 1996). His ideas involved the incremental process much like Quinn. Chris Argyris and Donald Schon in 1978 proposed single loop change as incremental "learning members respond to changes in the internal and external environments in a way that allows them to maintain the current "theories in use" of ways they think and act. In double loop learning, for fundamental change, error is detected and corrected in ways that involve modification of an organization's underlying norms,

policies, and objectives" (Beckhard and Pritchard, 1992, p. 15). And the statistician, W. Edward Deming talked about incremental change through continuous improvement using the Shewhart cycle: plan, do, study, act (Deming, 1993, p. 135). In another incremental approach to decision making and change in the public sector, Charles Lindbloom writes in

The Science of Muddling Through. "It is a matter of common observation that in Western democracies public administrators and policy analysts in general do largely limit their analyses to incremental or marginal differences in policies that are chosen to differ only incrementally. They do not do so, however, solely because they desperately need some way to simplify their problems; they also do so in order to be relevant. Democracies change the policies almost entirely through incremental adjustments. Policy does not move by leaps and bounds" (Lindbloom, 1959, p. 270).

STRATEGIC PLANNING AND TRANSFORMATIONAL MODELS. The use of strategic planning is investigated and critiqued by Henry Mintzberg in 'Schools of Thought' in which he examines several strategic models from "design, planning, to learning, environmental, and configuration" (Fredrickson, 1990, p. 1992-1997) Michael Porter looks at the forces of competition on developing strategies (Porter, 1998, p. 21) and Steiner presents a conceptual model which involves strategic events: "external expectations, internal expectations, and data bases, opportunities, threats, strengths, weaknesses, mission, purposes, objectives, and policies" (Steiner, 1979, p. 17). To support the organizational change perspective, Beckhard and Pritchard provide their own view of organization change with the discussion of key factors in vision-driven change "creating and setting the vision, communication, building commitment, and organizing people and what they do so that they are aligned to the vision, and correspondingly, the five themes that serve as the focus of fundamental change in: mission, identity, relationship

to stakeholders, in the way of work, and in the culture" (Beckhart and Pritchard, p. 25, 37).

Reengineering is a process for changing internal ways of doing business that can lead to transformational change in the organization. Michael Hammer and James Champy define reengineering as "the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance, such as cost, quality, service, and speed" (Hammer and Champy, 1993, p. 32). Reengineering involves the complete alteration of old processes within an organization with the objective to achieve greater efficiency. Many times the changes would involve downsizing, right-sizing, and other descriptors that resulted in cuts in the manpower of an organization.

QUALITY MANAGEMENT AND LEARNING MODELS. Another philosophical approach to change might be suggested by the management experts who advocated implementation of a quality management philosophy. Joseph Juran, Phil Crosby, and Edward Deming offer ideas on quality management. All three reemphasize the need to focus on customers, improve processes, and establish goals. Juran focused on "fitness for use" (Juran, 1989, p. 15). Crosby suggested in the title of his book Quality is Free (1979). Deming's view on quality is defined in his fourteen points, which starts with the challenge to adopt the new philosophy which focuses on customers, processes, education, training, and leadership. His opening to the second chapter of Out of the Crisis (1982), "Western style management must change to halt the decline of Western industry, and to turn it upward" (Deming, 1982, p. 18). He further suggests that the 14 points are the basis for transformation of American industry.

These 14 points are quoted as follows:

1. Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business and to provide jobs.
2. Adopt the new philosophy.
3. Cease dependence on inspection to achieve quality.
4. End the practice of awarding business on the basis of price tag.
5. Improve constantly and forever the system of production and service, to improve quality and productivity and thus constantly decrease costs.
6. Institute training on the job.
7. Institute leadership.
8. Drive out fear, so that everyone may work effectively for the company.
9. Break down barriers between departments.
10. Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity.
11. Eliminate work standards on the factory floor.
12. Remove barriers that rob the hourly worker of his right to pride of workmanship.
13. Institute a vigorous program of education and self-improvement.
14. Put everyone in the company to work to accomplish the transformation (Deming 1992, p. 23, 24).

To complement these quality models is the view that organizations should give attention to learning in order to adapt to the changing requirements of the new technologies and to become more efficient. As business processes change, the workforce must acquire and learn new skills. This philosophical approach offered by Peter Senge, author of the Fifth Discipline (1990) suggests changes occur in the learning organization.

He outlined the three dysfunctions of American institutions:

- Fragmented thinking.
- An insistence on making competition the primary model for change and learning.
- A tendency to change only in reaction to outside forces.

“The kind of change we frequently experience today and the kind that will be increasingly prevalent tomorrow is different in another way. Much of today’s change and most of tomorrow’s will be non-linear, unpredictable, and discontinuous... In the past, the past, itself, provided rules, guidance and instructions for dealing with the future” (Boyett and Boyett, p. 189).

Both Peter Drucker and Senge also suggest change involves, understanding the direction an organization takes, among other things, an ability to learn new techniques,

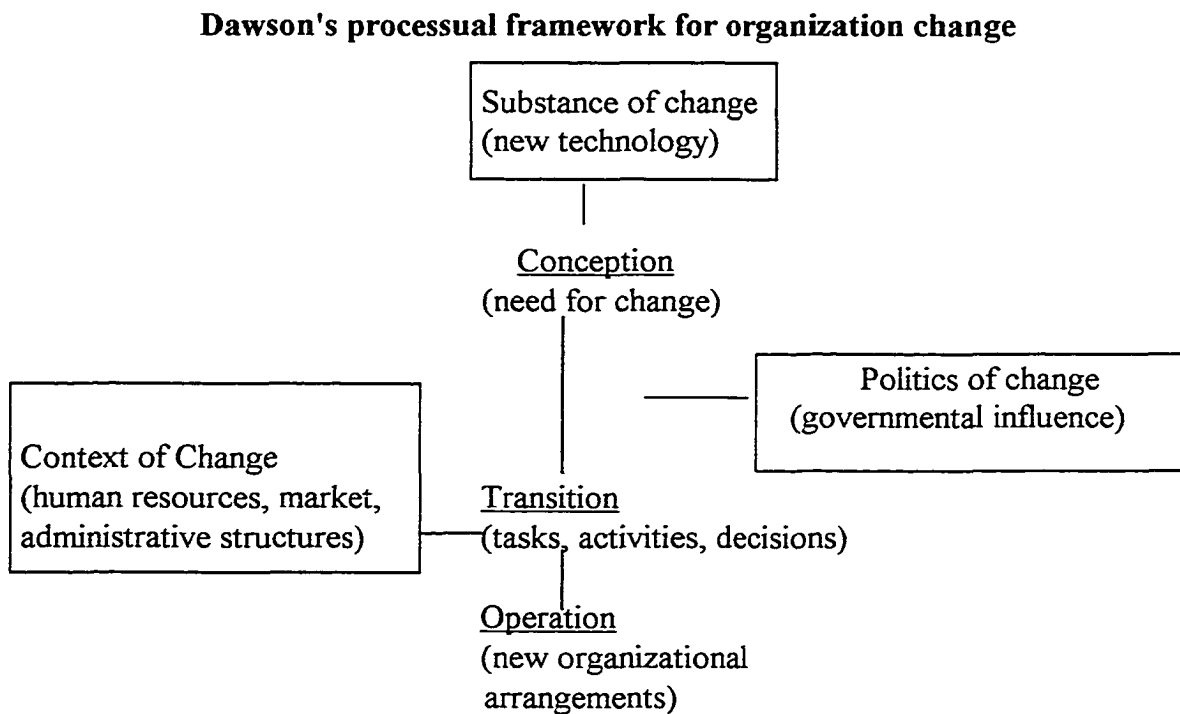
technologies, new management philosophies. Peter Drucker, reports, “learning and knowledge will have greater impacts in the growth organizations of the future” (Drucker, 1994, p. 57). In the knowledge society, clearly, more and more knowledge, especially advanced knowledge, will be acquired well past the age of formal schooling perhaps through education processes that do not center on the traditional school” (Drucker, p.57).

MULTI-DIRECTIONAL MODELS. Beyond linear, incremental, strategic, and quality change models are a few multi directional theories on organization change. Rosabeth Moss Kanter, from her research, suggested that Kurt Lewin’s theory was too simplistic and that organizational change was multi- directional: crisis generated- evolutionary and revolutionary change, involving activities within the organization such as, coordination, control, identity, and just as importantly involved people, the change agents-strategist, implementers, and recipients (Kanter et al., 1992, p.10).

Dawson also offers a multi-dimensional approach to change. In his writings about organizational change, he suggests "one of the most important lessons which can be learned from this (processual) approach is that large scale operational change is a non-linear dynamic process which should not be characterized as a rational series of decision-making activities and events" (Dawson, 1994, p. 173). Dawson's model in figure (1) is multi-dimensional and best applied to large private sector organizations. It was not selected for this study because it did not specifically refer to the role of the leaders, employees, and stakeholders in the change process as integral to the process. "The processual approach provides useful methodology for the systematic analysis of

qualitative, longitudinal data to explain how critical events during the process of change may serve to impede, hasten, or redirect the route to change" (Dawson, p. 167). This multi-dimensional model was not applied to this study because the researcher investigated events after they occurred and not during the change process. Figures (1) and (2) are examples of multi-dimensional models.

Figure (1)

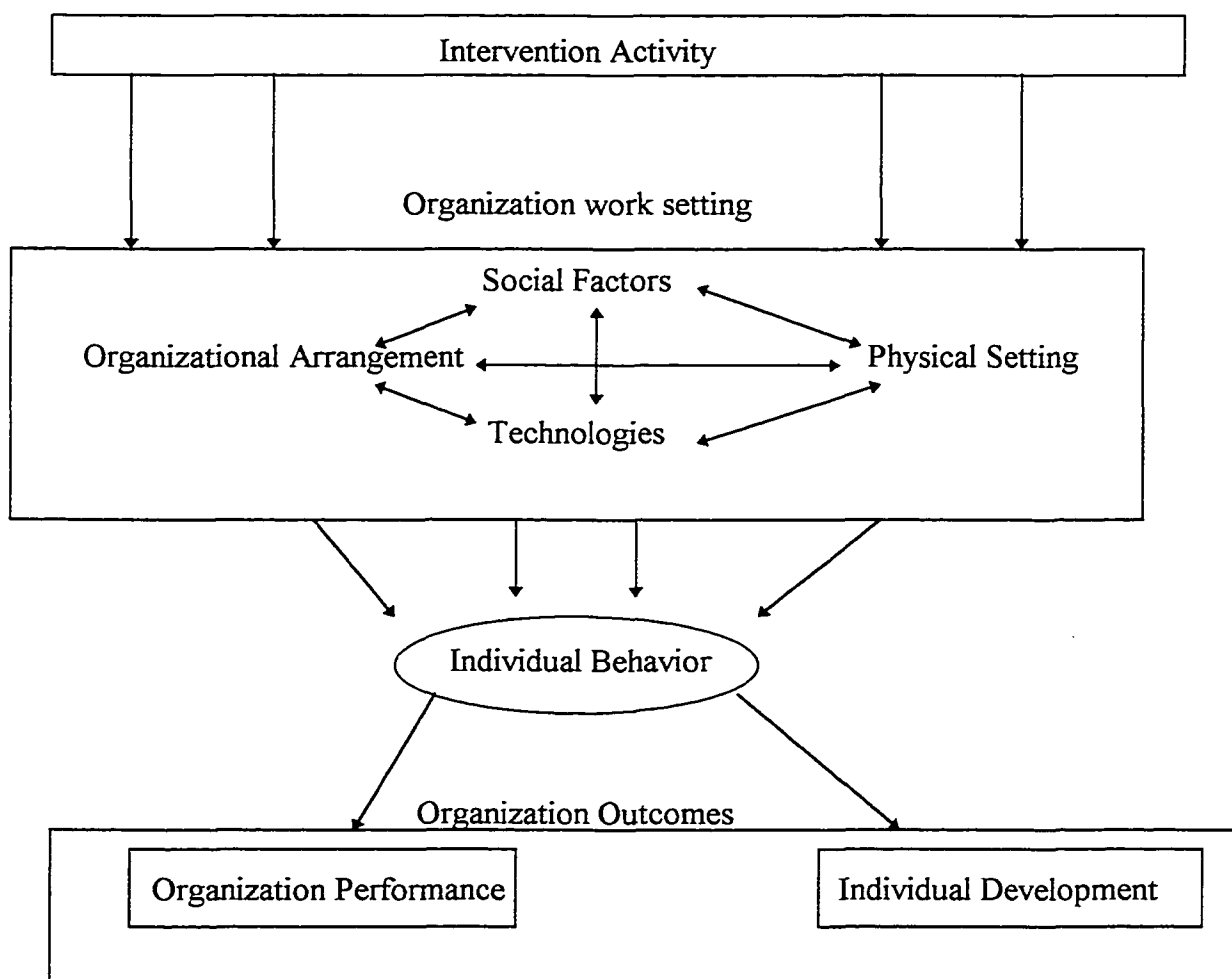


(Dawson, p. 43)

Figure (2) is another example of a multi-directional change model developed by Porras, 1987, Porras & Robertson, 1992. "This model highlights the central role of the individual behavior change in planned change processes. From this perspective, intervention activity is the means through which planned changes in targeted elements of the organization work settings are implemented (Woodman and Pasmore, 1993, p. 3).

Figure (2)

A Theoretical Model of the Dynamics of Planned Organizational Change



Woodman and Pasmore, 1993, p. 4.

Kanter, et al., (1992) refers to other change theorists and subsequently critiques them. Her contention is that many of these models are linear (Kanter et al., p. 10), while the Big Three Model of Change is multi-directional (Kanter et al., p. 10) in its examination of the forces of environment, structures internal to the organization, and people throughout the organization. She and her colleagues further suggest "Change involves two very different phenomena...perceptions of individuals and a set of characteristics associated with enduring patterns of behavior, both of the organization as an entity and of the people involved in it....Where there is not a change in character, change is cosmetic, temporary, and uncertain in its effects it is the small "c" of change... Transformational change requires a modification in patterned behavior and therefore is reflected in and rooted in a change in character" (Kanter et al., p. 10, 11).

BIG THREE MODEL OF CHANGE. For the purpose of this multiple-case study, the research will focus on the Big Three Model for organizational change discussed by Kanter, Stein, and Jick in their 1992 book, The Challenge of Organizational Change. This is a multi-dimensional theory that has only been applied to private sector organizations from a historical, case study perspective. Other theories, such as the linear model suggested by Kurt Lewin and the academic model of individual stages of change (knowledge, attitude, behavior, Blanchard 1995) would be harder to measure in public sector organizations without specific boundaries of direct observations. Although, Dawson's theory is multidimensional, it only offers a model for change in large, private organizations that can be implemented while the change effort is in process, also with

direct observations of the change events. The focus of the Porras, Porras & Robertson change model is on the individual.

While the Big Three model includes a focus on the role of individuals in the organization, it is not linear like Lewin (1951) in its propositions nor is it limited to large organizations facing the process of change (Dawson, 1994). Elements of the Big Three Model of Change are the basis of case studies of large and small private organizations who have faced change: such as, Apple Computer, Sears Roebuck and Company, and Rockport Shoe Company (Kanter et al., 1992). This model has not been tested in public sector organizations.

In this research, the Big Three Model will be applied to urban, public organizations of various sizes. The rationale for limiting the study to one change theory is centered on the apparent broad applicability the Big Three Model will have for a variety of organizations based on its reference to environment, program changes, and action roles important to the change. The Big Three Model offers a multi-directional and multi-dimensional examination of change in an organization, not limited by size or product line. Rosabeth Moss Kanter and her colleagues have defined a change model that investigates the importance of external, internal, and political environmental factors affecting both the initial push for change (crisis) and the long lasting benefits. The Big Three Model includes reference to employees at all levels (leaders and visionaries, implementors of the vision, and the working level employees). Additionally, Kanter cross references these other factors with how the change will occur and its impact on the changes in the identity of the organization through downsizing or mergers and the way the organizational character

(political controls and business operations) reflects the forms of change in the organization.

In the Big Three Model there is interaction at different levels between the **kinds of movement** (external, internal, or simply innovative); with how the **forms of change** are introduced in the organization (through training, teamwork, or by direction); and who is responsible at different points/different times for advocating and /or sustaining the change **action roles** (Kanter et al., 1992). To examine the strength of the Big Three Model, table (3) is a matrix to show the factors related to Big Three Model.

Table (3)

The Big Three Model of Change

Three environmental kinds of movement--	Three forms of change--	Three action roles
macroevolutionary (relates to external environment)	Identity (how the organization changes to relate to its external, internal, or political environment)	Change Strategist (leaders visible at the beginning of the change with ideas and vision; influenced by any of the environmental factors and directs the direction of the forms of change)
microevolutionary (relates to internal growth, age, life cycle)	Coordination (how the internal configuration changes based on external, internal, or political forces)	Change implementors (persons who implement the ideas in the organization this involves project management and execution and influences the forms of change from the internal environment)
revolutionary (political dimensions)	control (how changes occur based on external, internal, or political dimensions)	Change recipients (those persons affected by the change and its implementation; whose reactions reflect the political environment as well as the and control dimensions.)

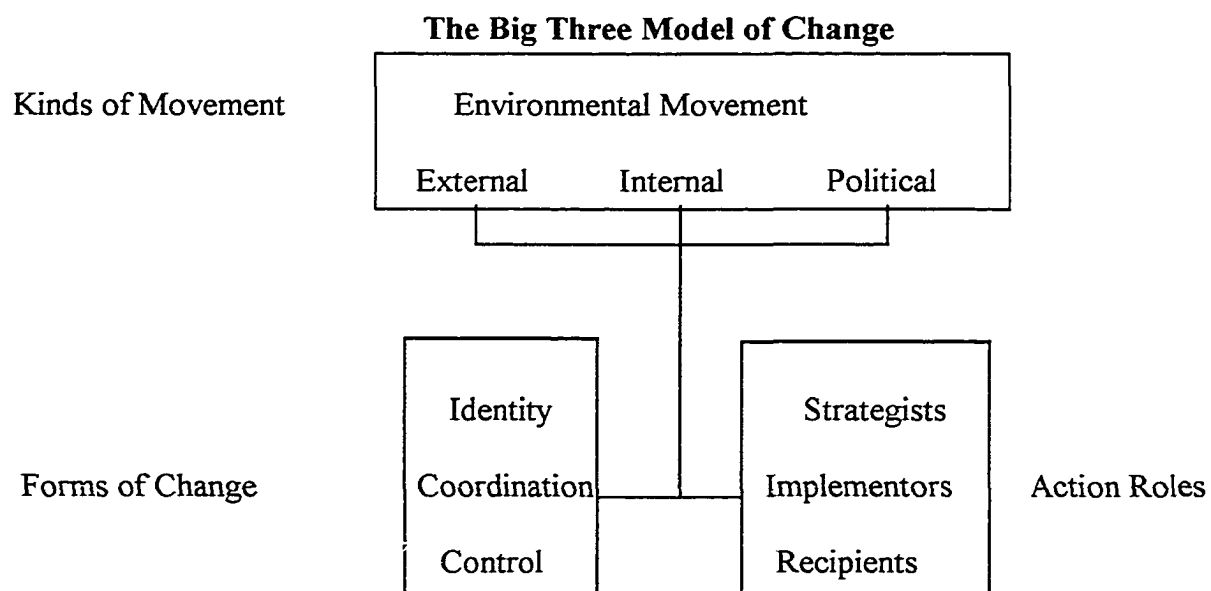
(Kanter, Stein, Jick, 1992)

According to the research of Kanter, Stein, and Jick, "there are three interconnected aspects of organizations: (1) the environmental forces, both external, internal, and political that set events in motion; (2) the major kinds of change that correspond to each of the external and internal change pressures, (3) and the principal tasks involved in managing the change process" (Kanter et al., 1992, p.14). More specifically, When is change based on environmental forces? What needs to change organizationally and administratively, as a result? And Who is involved and affected by the change?

To explain each of the dimensions more completely, the interacting forces that must be in place to initiate and sustain organizational change are environmental movements, forms of change, and action roles. The environmental factors can be evidenced by an **external** crisis such as the threat of mergers, acquisitions, competition, bankruptcy; by **internal factors** such as company growth, maturity, increased diversity; and by **political factors** such as leadership conflicts and power moves of managers and employees. The Big Three Model does not stop with the description of how environmental forces initiate change, but continues with a description of what "forms" within the management of the organization must also change. One form is **identity**, which occurs when names or products change, possibly the result of an external event caused by a threat of bankruptcy or downsizing. A second form is **coordination**, which impacts the organization culture and what people do within it. This form of change is internal and impacts management operations with the possible application of new management methods such as cross functional group decision making, statistical process control, or customer focus. A third form is **control** which offers the influence of power and political relationships. Unions and labor relations

litigation have as much influence and control as CEOs and boards of directors in influencing long term policy changes. Kanter and her colleagues offer a third dimension with the suggestion that action roles are also critical to influencing changes in business. For this dimension there are three roles: (1) the **strategist**- maybe a leader or instigator for change, usually visible as external forces create the need for change; (2) the **implementor**- is internal to the organization, in a position (trainer/team leader) to influence acceptance of the new idea; (3) and the **recipient**- employee who is affected by the change or a stakeholder with an interest in the organization who use political power to influence the degree of change. Figure (3) shows a graphic picture of the three dimensions of change and suggests their interrelationships.

Figure (3)



(Kanter et al., 1992)

As the number of change models and theories increase, one factor seems to remain, change theories must involve all aspects of the organization (personnel and process), be

dynamic and multi-dimensional to support the rapid external and internal forces of organizational change (Dawson, 1994; Kanter, Stein, Jick, 1992 ; Drucker,1994; & Senge, 1992).

In summary, Peter Drucker writes "In the developed free market countries which contain less than a fifth of the earth's population but are a model for the rest--work and work force, society, and polity, are all, in the last decade of this century, qualitatively and quantitatively different not only from what they were in the first years of this century but also from what has existed at any other time in history: in their configurations, in their process, in their problems and in their structures" (Drucker, 1994, p. 53). David Wilson also writes in A Strategy of Change Concepts and Controversies in the Management of Change:

"to understand the implementation of change is to place management of individuals at the center stage. This means implementing preconceived models of change all with the aim of achieving a particular set of expected, predetermined and desired outcomes. To understand the process of change is to examine critically the context, the antecedents and the movement and history of change, keeping at the same time an analytical eye on the organization theories in use which inform such an analysis" (Wilson 1992, p. 48).

This chapter was a review of literature on historical, managerial, and organizational change models that offered an explanation for the impetus for change facing both private and public sector organizations in the later decades of the twentieth century. The review is not exhaustive as each historical event or managerial theory is covered in volumes of material authored by experts on each specific subject. The researcher only wanted to provide information to substantiate the rationale for managing change in public sector

organizations. The review of organizational change theories and the selections of the Big Three Model of Change will provide evidence of factors that may correspond to the elements of an existing theoretical model of organizational change such as the Big Three Model.

The next chapter describes the specific methodology applied to this case study design to explore the factors that relate to change in three public sector organizations recognized for their efforts to manage change and remain productive and efficient.

CHAPTER III

METHODOLOGY

The previous chapters covered an overview of this study and a focus on environmental factors that impacted management and organizational change models. This chapter will discuss the method of research used to gather information to test this multiple case study of organizational change in three public sector organizations. Yin proposes five components of a case study research design: the study question, its propositions, its units of analysis, the logic linking the data to the propositions, and the criteria for interpreting the findings (Yin, 1994, p. 20) Therefore, this chapter will include discussions on the two research questions, the propositions that support the theoretical model "Big Three Model of Change" and an explanation of the units of analysis. Following this discussion is an explanation of the data collection methods and the link to the propositions. The measurement approach and criteria for interpreting the findings will be discussed with the limitations and strengths of the study to help summarize the chapter.

RESEARCH DESIGN AND QUESTIONS. This is a multiple case study design of three public sector organizations that have been recognized through the Virginia Award for Continuing Excellence for their efforts to sustain change and ensure productivity and quality in their way of doing business. Yin (1994) suggests the case study strategy should be used for research when contemporary issues are being investigated.

To explore their successes the researcher will apply the following questions:

1. What factors are associated with change in public sector organizations that have been recognized for their change efforts?
2. What factors are associated with sustained change in the public sector organizations that have been recognized for their change efforts?

THEORETICAL PROPOSITIONS. The theory being used in this case study is the "Big Three Model of Change" suggested by Kanter, Stein, and Jick in their book The Challenge of Organizational Change, How Companies Experience It and Leaders Guide It . This theory on organizational change suggests the factors that might contribute to the change process in each of these public sector organizations. The environmental movement could be an external factor such as the threat of disestablishment, it could be internal, as caused by a change in philosophy or mission, or it could be political that may come from a federal or state or school board decision. Although there is no set time line once the environmental movement begins, the theory suggests long term success involves the interrelationship of the way the organization changes its ways of doing business and making decisions and the way the people in the organization are involved (Kanter, Stein, and Jick 1992). Based on the dimensions of this model, the researcher developed several propositions. Table (4) lists these propositions to explain what would be expected in an organization that applied the various aspects of the "Big Three Model" of organization change. These propositions are derived from the case studies in The Challenge of Organizational Change :How companies Experience It and Leaders Guide It (1992) by Kanter, Stein, and Jick.

Table (4)

Theoretical Propositions for Organizational Change

Theoretical Factors	What would be expected to occur in the organization
Environmental Movements	Propositions
Macroevolutionary	At this level, external forces, such as, higher authority, have directed the government agencies to reduce in size substantially (by several hundred) or combine with another organization. External competition may exist in areas such as public funding, desire for recognition, or disestablishment. "History and shifting populations of organizations and activities put pressure on any one organization to adapt or innovate...(change) comes from how other organizations behave" (Kanter et al., 1992, p.34).
Microevolutionary	The organization adds or deletes functions and restructures internally to support the different functions or smaller workforce. "Leaders pay attention to change pressures from life-cycle phases: creativity, direction, delegation, coordination, and collaboration" (Kanter et al., p. 36).
Revolutionary	A new concept in education or in management is adopted by the leadership and everyone must learn to adapt to the new program. Leadership and employees agree to new methods of doing business. Stakeholders in the new changes, such as union, community, businesses are invited to participate in decision making or improvement processes. "There is an assumption of shared values overall, with conflicts reflecting differences over tactics, not ultimate ends (Kanter et al., p. 54).
Forms of change	Propositions
Identity	To signal the impact of top level directions, the organization changes name after combining the missions of other organizations. "Changes involve legal aspects,... are highly public,... and impact tangible assets, such as products, buildings, or customer contracts" (Kanter et al., p. 214).
Coordination	As a result of internal reorganization, teams are used in more cases to help identify a problem and to help find better ways to operate. Strategic planning documents are developed and used to define what needs to be done in the organization. New ideas are introduced through training programs. "Habits change... Relationships, communication, and the flexibility to combine resources are more important than the formal channels and reporting relationships. What is important is not how responsibilities are divided, but how people can pull together to pursue new opportunities" (Kanter et al., p. 232).
Control	The organizational changes that lead to policy changes (i.e. new regulations) and managerial changes (i.e. team decision-making) result from the interest and involvement of different groups, i.e. higher authority, administration staffs, employees, and interest groups. "There is a shift in the makeup of the dominant coalition and the structure of the organization's mechanism for governance, for adjudication among interest groups (Kanter et al., p. 233).

Table (4) continued **Theoretical Propositions for Organizational Change**

Theoretical Factors	What would be expected to occur in the organization
Action Roles	Propositions
Strategist	There are people, usually in leadership positions, who announce the new policies, directives, and/or programs. They offer money and people to help implement their vision. They allot a percentage of time to the workforce to implement the new approaches. They have evidence that improvements have occurred. "They lay the foundation for change and craft the vision. They oversee the links between the organization and its environment - its marketplace, its stakeholders- that give the organization its identity" (Kanter et al., p. 376, 377).
Implementor	There are people in the organization who become lead advocates, trainers, and facilitators in the organizations. They allot a percentage of time or all their time as an implementor. They have evidence that a certain number of goals ("battles") have been won to gain the improvements in the organization. "They develop and enact the steps necessary to enact the vision; they manage the coordination among parts and the relationships among people that give the organization its internal shape and culture (Kanter et al., p. 377).
Recipient	There are people in critical places in the organization, who can explain how changes occurred with more cooperation. These people can show how decisions are made with quantitative and qualitative data collection processes. These recipients explain how meetings lead to results and that innovations and improvements have occurred with the changes in policy, directives, and/or programs. "Their response to the promised distribution of tasks and rewards determines whether interest groups mobilize to support or oppose the change effort" (Kanter et al., p. 377).

The previous table represents the propositions that will be used in this research to develop conclusions from the case studies. Each of these propositions is interrelated which adds to the complexity of identifying single factors associated with change. The data collected from a variety of sources tests the theoretical propositions Yin supports this process of using theoretical propositions in case study analysis (Yin, 1994, p. 10).

UNITS OF ANALYSIS. The units of analysis are three public organizations who have won the Award for Continuing Excellence during the period 1984 through 1997. They

are Air Combat Command, located in Hampton, Hanover County Public Schools, approximately 10 miles outside Richmond, and Norfolk Naval Shipyard, located in Portsmouth. Air Combat Command and Norfolk Naval Shipyard are a part of the department of defense federal government and Hanover County Public Schools is a part of the state of Virginia Department of Education. All three are either within or are close to metropolitan urban environments which have faced political and economic challenges from industry downsizing as well as from unplanned population growth. Each of these organizations had already proven that they sustained change through the application of selected quality criteria and with the evidence of results recognized by the Board of Reviewers for the Virginia Senate Productivity and Quality Award. The first award is a Medallion; the second award is the Award for Continuing Excellence, given after a minimum six years of sustained improvements and productivity in the organization. The process for winning the awards is not under investigation. The research is exploring the factors associated with the change process in these organizations based on the theoretical propositions.

DATA COLLECTION.

1. Archival records. The researcher personally reviewed archival files of the three public sector Medallion and Award for Continuing Excellence winners recognized between 1984 and 1997. These records offered exact information on the Senate Productivity and Quality Award criteria and the applicant's written justification on each criteria. These files are located in the Center for Organizational Performance and Improvement library at Virginia Polytechnic Institute and State University. These files

contain the actual application packages of all organizations that have applied for the Medallion of Excellence and Award for Continuing Excellence since 1984 and must be reviewed on site. Each applicant is judged on the merits of the written application and on-site visits by a board of reviewers. Organizations were required to adhere to a set of eight criteria and show evidence of a three year commitment before applying for the Medallion award. Three years after winning the Medallion award the organization can apply for the Award for Continuing Excellence. The Medallion and Award for Continuing Excellence criteria are the same: maturity of effort, top management commitment and involvement, employee involvement, development, and management participation, recognition and rewards systems, plan for continuous improvement, performance measurement process, customer and supplier involvement, and results over time. The process of award selection begins with a board of reviewers examining the award applications. These reviewers are representatives of past Senate Productivity and Quality Award winning organizations; representatives from Virginia Polytechnic Institute and State University; and selected staff from the offices of U.S. Senators Charles Robb and John Warner of Virginia. These reviewers examine the formal applications and screens those who merit an on-site visit based on the strength of their written submission. Winners are recognized during a ceremony held during the annual Virginia Forum for Excellence. During the March 1997 Virginia Forum for Excellence in Richmond, Virginia, a panel consisting of several board of reviewers for this Virginia state award remarked that they give extra attention to Award for Continuing Excellence applicants "to ensure evidence of long term change, productivity and integration of quality practices." The winners of the awards not only must respond to each criteria, but they must also show specific evidence of the results,

deployment, and approach used for each criteria. The criteria used to recognize the winners of the Award for Continuing Excellence criteria is not under study; however, the criteria provides evidence that these three public sector organizations have implemented change, improved work processes, and achieved results over the long term. The actual definition of each criteria is provided in Appendix A. The Board of Reviewers' on-site observations recorded during the evaluation period are not recorded in the archived files and are also not included in this study. Winners of both Senate Productivity and Quality Awards are encouraged to share their success stories with other Virginia organizations.

2. Interviews. This second method for investigating the application of this change theory involved interviews conducted personally by the researcher with selected individuals to gain additional insight into the organization's behaviors. The key informants selected for these interviews played a major role in the change process by virtue of their involvement in the organization prior to or immediately after winning either Medallion or Award for Continuing Excellence. Several key informants were interviewed once it was determined that they also were involved in current change events within the organization.

At Air Combat Command two key informants were involved in the early change efforts. The other three key informants were involved in current events. The key informants included two persons involved in the implementation of Air Combat Command's quality efforts under the leadership of John Loh, the four star general in command of Tactical Air Command and Air Combat Command during the time when the organization received the Award for Continuing Excellence, a past Commander of the Quality and Management Innovation Squadron, the current director for the Air Force

"Action Work Out" program, and a current employee of the Management and Innovation squadron.

At Hanover County Public Schools all key informants were involved in efforts to change the organization that led to the Medallion and all but a past Superintendent was involved in sustained efforts toward winning the Award for Continuing Excellence. Interviews were conducted with a central office administrator, a former Superintendent, and three school administrators.

At Norfolk Naval Ship Yard two key informants were employed and involved in the change efforts when the Medallion award was presented and two key informants are currently involved in change efforts. Interviews were held with a member of the Command Executive Steering Committee and a former employee in the Public Affairs Officer, both of whom worked at the shipyard during the early 1980s and participated in some of the change events. Two additional interviews were held with two facilitators and team members of the current initiative to apply Malcolm Baldrige criteria to a self assessment process for an inspection by the headquarters in 1998.

Appendix B is a list of all of the key informants interviewed, processes used to complete the interview, and duration of the interview. Appendix C is a list of the open-ended questions used in the interviews. They are adapted to provide reference to the Big Three Model of Change. Embedded in the findings chapter is information obtained from the key informant interviews.

An application for review of research involving Human subjects was approved November 6, 1998 and was exempt from requiring individual informed consent from the

interviewees. The key informants acted in their official capacities in the organization to answer questions about the operation of their public sector organizations.

3. Documentation. A third approach for gathering information involved the review of other secondary sources of information, such as videos, company newsletters, books, and journal articles written about the winners. These sources included:

For Air Combat Command:

- Three Pillars of TQM, by Bill Creech (1995)
- Process Improvement Guide (1994)
- VHS "TQM Implementation Briefing" by LT General Loh (1989)
- VHS "Air Force Quality on Course into the 21st Century" by General Fogleman (1996)
- VHS "Air Force Team Excellence Champions" (1996)
- VHS "Applying Technology and Innovation in Operational Settings" by General Richard Hawley (1996)
- Air Combat Command Assessment Guide, 1996
- Unit Self Assessment Course: Instructor Guide (1996)
- Unit Self Assessment Course: Instructor Notes (1996)
- ACC Quality Pamphlet (1993)
- Control Your Destiny or Some Else Will, Tichy and Sherman (1994)
- Action Workout policy guidance (1997).
- World Wide Web site "ACC QMIS"

For Hanover County Public Schools:

- Presentation materials and audio recording provided during the Virginia Beach Community Quality Day V, (March 1998)
- "American School Board Journal" (Sept 1997)
- "Richmond Dispatch" editorial section (Sept 11, 1996)
- Hanover County Schools, 1995-96 Annual Report
- Hanover County Schools survey report (Jun 1996)
- Policy 7-28. "Graduate Guarantee" for Hanover County Schools.

For Norfolk Naval Shipyard:

- Official submission report to the Office of Management and Budget "The President's Quality and Productivity Improvement Program" (1989)
- Current Norfolk Naval Shipyard brochure with description of history and list of services
- Total Quality Management brochure used at Norfolk Naval Shipyard (provided by Quality Assurance office) published 1989
- "Service to the Fleet" official public affairs newsletter (January 23, 1998)
- Audio recording of presentation given at Virginia Beach Community Quality Day V (March 1998).
- 1997 Strategic Plan

These sources of evidence "corroborate and augment evidence from other sources" (Yin, 1994, p.81) and add strength to the use of case studies (Yin, 1994). The triangulation of evidence from these sources offered not only more evidence for the research, but also offered a "broader range of historical, attitudinal, and behavioral issues"

(Yin, 1994, p. 92) and information. This study offered the strength of "converging lines of inquiry" (Yin, 1994, p.92) with data triangulation, as discussed by M. Patton in How to Use Qualitative Methods in Evaluation.

FOR SUSTAINED CHANGE: MEASUREMENT TESTING THE THEORETICAL PROPOSITIONS

To determine what factors are associated with sustained change in public sector organizations already recognized for their change efforts, the evidence supporting the award criteria from the archival files is used to test the theoretical propositions that were used as a measure. Each organization in the study already satisfied an evaluation of merit based on each of the award criteria. This examination will look at the evidence from selected award criteria and investigate the findings as factors related to sustained change.

Appendix A offers a complete definition of each of the eight criteria:

- Maturity of effort.
- Top management commitment and involvement.
- Employee involvement, development, and management participation.
- Recognition and reward systems.
- Plan for continuous improvement.
- Performance measurement process.
- Customer and supplier involvement.
- Results over time.

Table (5) lists five of these award criteria and the three dimensions of both forms of change and action roles that were used to develop the theoretical propositions. The award criteria does not single out environmental movement and their theoretical propositions and evidence from the award criteria will not be used to investigate environmental factors associated with sustained change in public organizations. The award criteria,

"Recognition and rewards system", is internal to these organization and is not a focus of this study. In addition, the Award for Continuing Excellence, which is only given to Medallion winners after another three years' effort, offers evidence to support the "Maturity of effort" and "results over time" criteria. The significance of the Senate Productivity and Quality Award criteria for this study is in the evidence that the criteria offers for exploring factors associated with sustained change in public sector organizations. Specific definitions are listed in table (5) from the theoretical propositions and five of the award criteria.

Table (5)

Award for Continuing Excellence Criteria and Theoretical Propositions

Award Criteria	Forms of Change
<p>-Plan for continuous improvement</p> <p>-Performance measurement process</p>	<ul style="list-style-type: none"> • Identity: To signal the impact of top level directions, the organization changes name after combining the missions of other organizations. • Coordination: As a result of internal reorganization, teams are used in more cases to help identify a problem and to help find better ways to operate. Strategic planning documents are developed and used to define what needs to be done in the organization. New ideas are introduced through training programs. • Control: The organizational changes that lead to policy changes (i.e. new regulations) and managerial changes (i.e. team decision-making) result from the interest and involvement of higher authority, administration staffs, employees, and others, such as, community, union, business.

Table (5) continued

Award Criteria	Action Roles
<p>-Top management commitment and involvement</p> <p>-Employee involvement, development, and management participation</p> <p>-Customer and supplier involvement</p>	<ul style="list-style-type: none"> • Strategists: There are people, usually in leadership positions, who announce the new policies, directives, and/or programs. They offer money and people to help implement their vision. They allot a percentage of time to the workforce to implement the new approaches. They have evidence that improvements have occurred. • Implementors: There are people in the organization who become lead advocates, trainers, and facilitators in the organizations. They allot a percentage of time or all their time as an implementor. They have evidence that a certain number of goals (" battles") have been won to gain the improvements in the organization. • Recipients: There are people in critical places in the organization, who can explain how changes occurred with more cooperation. These people can show how decisions are made with quantitative and qualitative data collection processes. These recipients explain how meetings lead to results and that innovations and improvements have occurred with the changes in policy, directives, and/or programs.

(Kanter et al., 1994, and Senate Productivity and Quality Award Criteria (1984-1997))

STRENGTHS AND LIMITATIONS BASED ON VALIDITY AND RELIABILITY:

Validity and reliability tests are used to establish the quality of any empirical social research (Yin, p. 34). In this study construct validity was achieved with multiple sources for data collection. Investigation of each case study began with the review of archival files located at Virginia Polytechnic Institute and State University. Additionally, the same questions were used during interviews of key informants.

A limitation concerns the quality of key informants interviewed from the Norfolk Naval Shipyard and Air Combat Command. Although key informants involved in the early

change events were interviewed, in both cases the leadership in place during the time of either award was not interviewed. This will limit the ability of the researcher to compare factors for change and identify common factors in sustained change without these interviews. No key informants interviewed fell into the recipient group and will also limit the ability to test the propositions for change that apply to this action role.

Campbell and Stanley describe several threats to internal validity for one shot case study as history, maturation, selection, and mortality. Testing and data collection can provide internal validity (Campbell and Stanley, 1963, p. 8). In this research there is no pre-test or post-test. However, the triangulation of three sources of data offers a degree of internal validity for the analysis. The archival files contain the application records of the winners of both first time Medallion and second time award winners. These applications were submitted using the same Senate Productivity and Quality Award criteria. Additionally, the information provided by other documents and through the same questions for interviews offers strength to the instrumentation of this case study.

External validity or the generalizability of the results offered is strengthened in this research of three public sector organizations by the use of multiple data collection sources.

In summary, the methodology allowed the researcher to explore the factors that contributed to change and were associated with sustained change in three public sector organizations. The next chapter provides the findings of the investigations of the three public sector organizations that were selected for this case study based on their recognition as winners of the Virginia Award for Continuing Excellence: Air Combat Command, Hanover County Public Schools, and Norfolk Naval Shipyard. The concluding

chapter will summarize the factors that contributed to sustained organizational changes, and will offer conclusions, and implications for future research.

CHAPTER IV

FINDINGS

This chapter provides the results of research gathered from archival files, from interviews, and from other documentation, i.e. books, newspaper articles, video tapes and formal presentations. These data sources are the basis for testing the theoretical propositions and their association with change and long term change in the public organizations under study. The first section will address the individual findings on each organization: Air Combat Command, Hanover County Public Schools, and Norfolk Naval Shipyard. The discussions within each organization will highlight the evidence that test the three broad dimensions of the theoretical propositions: environmental movement, forms of change, and action roles (Kanter et al., 1992). Accordingly, for each organization there will be a background discussion followed by a description of the external, internal, and/or political events that became the initial catalyst for change. The next discussion specific to each organization will highlight evidence that tests forms of change that are associated with identity, coordination, and control as well as evidence on the strategist, implementor, and recipient action roles. An exploration of the archival files, documents, and interviews of key informants provides the triangulation of evidence to test the theoretical propositions completely for some factors, and partially or not at all for others.

Some of the propositions were only partially tested due to the lack of key informants in the respective organization. The exploration of factors common to all three organizations

is affected due to the lack of key informants that can be associated with strategist and recipient action roles. Despite this limitation other key informants from within the organizational structure offered insights that provided new perspectives on how their respective organizations are sustaining change.

Following the discussion of each public sector organizations is a section that will compare and contrast the application of the theoretical propositions in addition to the strength of evidence that tests the propositions.

The first public sector organization case study is on Air Combat Command; second case study is on Hanover County Public Schools; and the third case study covers Norfolk Naval Ship Yard.

AIR COMBAT COMMAND

The Tactical Air Command won the Senate Productivity Award in 1989. Tactical Air Command merged with Strategic Air Command to become the Air Combat Command in 1992. Air Combat Command won the Award for Continuing Excellence in 1993, based on the earlier award efforts of Tactical Air Command. During the early merger of the two commands, over 267,000 military and civilians worked within the many commands throughout the country reporting to the new Air Combat Command. By 1999 there were only 121, 000 active duty military and civilians assigned to Air Combat Command.

Air Combat Command headquarters is located on Langley Air Force Base in Hampton, Virginia. Hampton's population is currently about 137,900 (Spar and Sprung, 1997, p.557) and is considered a part of the Metropolitan Area Description of Norfolk, Virginia Beach, and Newport News. Hampton is an independent city within this area (Willis and

Jacobstein, 1993, p. 549). Although, Air Combat Command has subordinate commands spread through the world, the headquarters workforce and First fighter wing are a part of the Hampton economic community.

The next three sections examine the evidence that tests the theoretical propositions of environmental movements, forms of change, and action roles.

ENVIRONMENTAL KINDS OF MOVEMENT. In 1978 approximately 180,000 people were assigned to the Tactical Air Command. It was during this period that Bill Creech, the four star general, as leader, introduced his ideas on decentralizing the management structure of Tactical Air Command. From his book Five Pillars of TQM he offers the following rationale,

"Having watched the centralized approach in action throughout the Air Force for more than a decade, I was convinced it was strangling motivation, leadership, and creativity- and thereby wreaking havoc on quality and productivity. So even before I went to TAC to take over, I asked for the authority to do a wide scale test of a far more decentralized, team-based system. In part because of the credentials I had established in three earlier turn arounds and in part because of the strong support of the Air Force Chief of Staff (who was as disenchanted with the centralized approach as I was), I was given the authority to conduct the test" (Creech, 1994, 117).

According to Creech, "a centralized management system (is) based on functions, inputs, and jobs held together by management" (Creech, p. 16). He further suggested that centralized management "had a detrimental effect on employee competence and commitment" (Creech, p. 23). He considered decentralized management because it involved "teams, outputs, products-... Its great and proven strength lies in the creation of new motivation and commitment among all employees and of proactive leadership from

the bottom up (Creech, p. 30). From the time Bill Creech introduced his decentralized approach upon his arrival at Tactical Air Command in 1978, quality management became pervasive enough to be recognized in a January 1987 "INC" article entitled "Four Star Management" and with their first Virginia Senate Productivity and Quality Award. Creech's pillars of quality are: product, process, organization, leadership, and commitment (Creech, p. 7).

There were many factors that influenced change within the Tactical Air Command and that continued when it became the Air Combat Command. As recorded in the archival files, in 1984 Tactical Air Command tested a program that was designed by General Research Corporation to promote competition. This program directed by the Deputy Assistant Secretary of Defense was called "Peer Competition" (Archival files, 1989). This program was implemented in 1986 to "keep commands aware of the health of support services, such as, combat capability and readiness, safety, installation and people programs, and medical care" (Archival files, 1989). Prior to this event, internal or microevolutionary impetus for change was stimulated in the late 1970's by Bill Creech, under his decentralized leadership, and applying his pillars of Total Quality Management: "I knew I would need to persuade, not order, if change was to be effective. I also knew that one of the big obstacles to overcome would be the old conditioning" (Creech, p. 127). This internal direction was complemented in 1992 when John Loh, the first person to be in charge of Air Combat Command, expanded his predecessor's efforts to begin the changes internal to the organization.

John M. Loh, who would become the first Commander of Air Combat Command, was Commander of Aerospace Division in 1989 and had also embraced the quality management philosophy. From a video tape presentation he made on November 9, 1989, to the leaders within the Secretary of Defense organization, he offered his definition of quality management: "A leadership philosophy that creates a working environment which promotes trust, teamwork, and the quest for continuous improvement." Under John Loh's leadership, Air Combat Command won the Award for Continuing Excellence in 1993.

Prior to 1992, Tactical Air Command, headquartered in Hampton, Virginia, and the Strategic Air Command located in Omaha, Nebraska, were separate military commands. In 1992 these two organizations merged to form the Air Combat Command. This consolidation of missions resulted from decisions to restructure the U.S. Air Force following the end of the Cold War and at the end of the Gulf war. The consolidation of the two headquarters in 1992 also resulted in workforce reductions and reassignments. By 1993 there were 267,000 military, civilian, and reservists assigned to the 28 bases and installations under the control of Air Combat Command.

As the head of Air Combat Command, John Loh, a four star general, provided the leadership and resources by introducing and supporting the Air Combat Command Quality Schoolhouse which would teach how to improve processes, how to solve problems, and would adopt the Malcolm Baldrige award criteria for future review by the Inspector General (Archival files, 1993). John Loh "saw the need to go back to basics and (envelope) ourselves in quality initiatives... people need good set of tools and techniques" (Archival files, 1993). The merger of existing organizations into a new identity, the

leadership support, and the Quality Schoolhouse provided the environmental forces for change from external, political, and internal sources.

To support the "holistic approach" (Archival files, 1993) of the new leadership, was the realization that political/revolutionary change also would be necessary. From the archival files on the 1993 award submission "World events were not only impetus for change. Lessons learned from Desert Storm demonstrated the traditional distinctive lines between strategic and tactical war fighting capability were dissolving. Likewise, this reality of a shrinking defense budget meant we would have to streamline and become more efficient in the way we do business" (Archival files, 1993). As a result of this external influence, the mission, organization, and most importantly the identity changed.

Interviews with key informants substantiated the environmental changes that occurred with the establishment of Air Combat Command based on the end of the Cold War and the directive from higher authority to merge Tactical Air Command and Strategic Air Command. A key informant in the Innovation squadron is quoted "The environment was such that there was not enough money to modernize our aging aircraft." Another key informant in a senior role in the Innovation squadron remembered Creech and the period of time that was influenced by budget decreases. This key informant said "General Loh was very visible and had 166 metrics." Another perspective came from a key informant who worked with Loh on the self assessment effort. He was told "this is the way the Air Force is going, with the end of the Gulf War: a need for training, base closings, downsizing of service personnel and the affect on their promotions."

The environment for change at Air Combat Command was affected by external factors (higher authority direction), internal factors (reorganization and reduction of workforce),

and political factors (official change to quality management processes). The evidence to support these changes is based on the archival files, documents, and interviews with key informants. The next section addresses the forms of change that occurred in this organization.

FORMS OF CHANGE. When the first Virginia quality award was presented in 1989, the quality effort was called peer competition within the Tactical Air Command. From the archival data, "TAC's implementation and expansion of Peer competition has produced a high quality service organization whose attention to customer satisfaction is unsurpassed. Mission capability increased 49 % from the previous 10 years and aircraft that were out of service for supply or maintenance reasons was down 71 percent" (Archival files, 1989). Bill Creech, as the head of Tactical Air Command, introduced a focus on teamwork, and not just functions, in the early 1980's (Creech, p. 30). The Peer program tenets also supported this focus on customer and emphasized that local Commanding Officers must be involved and that everyone plays a role. The Peer program goals were:

1. combat capability and readiness
2. safety
3. installation and people programs
4. medical care

(Archival files, 1989)

By the time the second award for continuing excellence was given in 1993, Tactical Air Command had merged with the Strategic Air Command to form Air Combat Command with continued attention given to quality. John Loh continued the traditions of quality

management and stressed the "holistic approach" to management (Archival files, 1993).

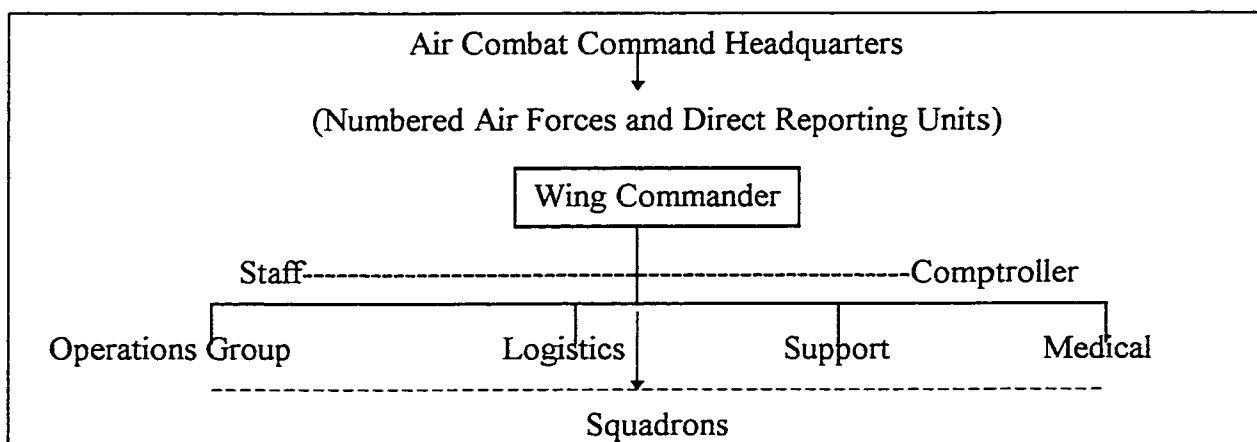
Loh is quoted in the archival files

"Changing mind sets was required to get our fighters and bomber crews to recognize that they had customers, many customers, both internal and external to Air Combat Command. Top down commitment to a bottom up style...these included characteristics such as, decentralization, focus on process, product, customer, decisions based on data or fact, team based organization, cross-functional mix of squadrons that included operations and maintenance because the product is the sortie which represents combat capability" (Archival files, 1993).

Also from the archival files is the new structure that Air Combat Command directed at the wing level. Figure (4) shows the organization that reports to headquarters Air Combat Command. There were 33 wings that reported to John Loh, a four star Air Force general. Loh reported to the Air Force Chief of Staff, the most senior military individual, who was subordinate only to the Secretary of the Air Force, a civilian.

Figure (4)

Organizational structure of Air Combat Command Wings



Air Combat Command acts as the primary provider of combat air forces and is the proponent for fighter, bomber, reconnaissance, combat delivery, battle management, rescue aircraft, and Command, Control, Communications, and Intelligence. Of the 33 wings and 557 squadrons involved in the effort, as written in the archival files, leadership

commitment is key to Air Combat Command's success (Archival files, 1993). From an Air Combat Command brochure prepared for the September 1993 visit by Vice President Al Gore, Loh brought attention to how the command mission was developed,

(Shortly after Air Combat Command) was activated we sat down and asked ourselves, What is our mission? Let's have our people tell us what our mission is. All sorts of ideas came in from the field. We picked fifteen or sixteen of the best ones. We had a meeting with our top leaders, the commanders of our wings. It took us about three-quarters of a day to come up with a statement... We've done this in turn in each of our wings and outlying units" (Brochure for Vice President Gore's visit, 1993). The Air Combat Command mission "...professionals providing the world's best combat air forces, delivering rapid, decisive air power anytime, anywhere" (ACC Quality brochure, 1993).

Other efforts to manage the change efforts involved surveys, training, and even application of the Malcolm Baldrige criteria to conduct baseline self assessments during the inspection process. According to one of the key informants, who was assigned to the inspector general office on Loh's staff, the use of this criteria to develop a different way to inspect the Air Combat Command wings was adopted as official policy to provide another method to change how the wings could become more productive using the criteria in the Baldrige award. This key informant is quoted:

"ACC was using Baldrige. It was policy and was used in evaluating programs to make ACC expert on self assessments. In 1992 and 1993 Air Force developed the IG checklist. In 1993 they did three test cases for the IG and looked at programs and processes, customers, new scoring based on Baldrige criteria. As a result units were talking to each other and sharing ideas formally. By 1994 the wings began to accept the new approach."

Another official document provided clear directions for implementing the unit self assessment process. The Air Force Regulation ACCH 90-550 (January 1996) provides

background information for using the assessment process to conduct inspections. In May 1992, following implementation of the Government Performance and Results Act, the Air Force adopted a criteria based method adapted for the military organization.

It *blued* Baldrige (the Air Force wears blue uniforms) to:

- Help organizations best execute the mission by becoming more effective, efficient, and focused.
- Emphasize how different units act in concert through partnerships.
- Facilitate communications based upon a shared knowledge of quality and mission requirements.
- Improve overall operational performance within the unit.
- Serve as a basis for determining the Secretary of the Air Force Unit Quality Award"

(ACCH 90-550, 1996, p. 3).

The process used to conduct the assessment was based on the Malcolm Baldrige criteria, but included written guidance using Air Force terminology. The Baldrige criteria is grouped by the following areas: Leadership, Information and Analysis, Strategic Planning, Human Resource Development and Management, Process Management, Performance Results, Customer Focus and Satisfaction (ACCH 90-550, January 1996).

Additional background on the assessment program that Air Combat Command implemented is included as reference to the changes John Loh made to the inspection process,

"...As some major Air Force commands began developing their Quality Air Force assessments, they developed a top-down approach. Taking a different approach, Air Combat Command adopted a bottom up approach....In 1993 the command transition to validating unit self assessment versus conducting unit effectiveness inspections....In October 1995 the Air Force Quality Council determined more results oriented assessments were needed. The Customer, Output, Process, Input, and Supplier (COPIS) model was used to help define key processes, and to move toward meeting requirements" (ACCH 90-550, p. 8).

The interview with a former member of the Air Force Inspector General office referred to training for the new assessment process that was developed and implemented throughout Air Combat Command. This key informant is quoted,

"Training used video, classroom teaching to teach inspectors. All members of the IG were brought together. 50 people were taught at each wing level to conduct unit self assessment which included the wing commander, staff total quality advisor, and other key staff." The Unit Self Assessment Course Instructor's Guide (HQACC/IGPT 96 USA 1 Feb 96) and Instructor Notes (HQ ACC/IGPT Version 4, 11 October 1995) provide specific information for the members of the Unit Self Assessment team based on each of the seven categories of assessment.

Although the policy guide for Air Combat Command Assessment was published January 1996, the use of self assessments as Air Force Policy was discontinued in February 1998, according to each of the Air Force key informants interviewed. They each suggested the inspection process had become too difficult and Generals (military leadership) thought it was too time consuming and not valuable. One key informant also said, "in some cases the wing commanders did not take it as seriously as the former process of conducting on site visits." Another key informant who was a part of the initial inspection team for John Loh said "then wings lost their edge because assessment process was not as rigorous...They lost fear of the IG visits." As the inspection process changes again the current understanding from the key informants is that the focus will be on using Mission Essential Task, developed specifically for the Air Force, to evaluate mission objectives and performance. According to three key informants interviewed, the Air Force also will use the Task lists to determine problem areas and to measure continuous

improvement. Another key informant is quoted, "In addition to a focus on mission objectives, Air Combat Command is now using the mission essential task lists and Covey to measure continuous improvement." Stephen Covey is the author of Principle-Centered Leadership (1990) which focuses on fundamental principles and processes.

Further evidence of change occurred at each Air Combat Command wing. During the period prior to the receipt of the Award for Continuing Excellence, each wing established a Quality Improvement Council with leadership support at the Wing level. A Process Improvement Guide provided a handbook with explanations on how to apply the quality tools. Training to help everyone understand the new way of doing business occurred in the following courses:

1. one day senior leaders course
2. follow on two day senior leader tools and technique course
3. one week quality leader course
4. one week quality coaches course
5. Airman leadership school
6. Non-commissioned officer school

Team efforts were recognized during commanders calls, quality council sessions, staff meetings, luncheons, and banquets (Archival files, 1993). Additionally, the annual culture and leadership survey asked 50 questions in 6 categories. The results of the survey were provided to the wing commanders. There is no specific evidence in the archival files or documents to show how the wing commanders used the survey results.

Another form of change came with the published strategic plan. In 1989 the Tactical Air Command mission was: to be in charge of all Air Force tactical air craft; protect the

skies over North America; be ready to move anywhere in the world; and to fully support national anti drug program. The goals covered the following broad areas: combat capability and readiness, safety, installation, people programs, and medical care (Archival files, 1989). By 1993 the mission supported a new organization, Air Combat Command, and included the following goals:

- Improve our combat capability by meeting ACC quality performance measures in operations, logistics, support, medical, and training programs.
- Embrace a culture of ACC quality in everything we do, creating a leadership style and working climate that inspire trust, teamwork, and continuous improvement.
- Strengthen Air Combat Command by providing the world's best combat Air Forces, delivering rapid, decisive Air Power, anytime, anywhere.
- Improve safety performance by fostering a culture of safety in the air and on the ground.
- Create a Spirit of wellness and fitness in all our people through quality physical, mental, and spiritual programs (ACC Quality Brochure, 1993, p.14).

These goals were part of the strategic plan that also included vision, mission, key result areas, objectives, processes, and metrics that directors, division chiefs, branch chiefs, and staffs were to implement. To understand this plan "All newcomers to ACC get initial exposure during 'Right Start Orientation" (Archival files, 1993) conducted at each wing and (during) quality fundamental course.

Other information provided in the award submission in the archival files suggest results overtime that support the efforts of the changes in organizational ways of doing business. In fiscal year 1993 Air Combat Command had 72 projects saving over 25 million dollars. The Air Force suggestion program saved 36 million dollars in fiscal year 1993.

Another form of change in the organization falls under coordination of effort. The "Idea Generation Handbook" was offered at the unit level, well below wing and squadron

levels to ensure all levels of the organization were able to participate in improvement efforts (Archival files, 1993).

The implementation of Action Workout at Air Combat Command also occurred under the leadership of John Loh, and was referred to as 'workout' in the archival files. A key informant said, "General Loh started the revolution. He started Action Workout based on conversations with General Electric and Pratt & Whitney. (Pratt & Whitney builds aircraft engines.) This effort led to excellent teams that clean up the process and streamline the process, such as reduce cycle time from 30 to 40 hours." Action workout has continued to operate with support from the succeeding Commanders of Air Combat Command. As indicated the Action Workout program was adapted from the Workout program started by Jack Welch, Chief Executive Officer, at General Electric (Tichy and Sherman, 1994). "Workout represented Welch's personal commitment to the Japanese idea of Kaisen or continuous improvement" (Tichy and Sherman, 1994, p.256). When this program started at General Electric in 1988.

"(It) extended benefits of free wheeling debates to the whole company by:
 -gathering employees regardless of rank for sessions to air gripes and suggestions.
 -making managers take action on the issues workers raise on the spot or at least within one month. Later the employees were organized into carefully targeted teams to define solutions to business problems" (Tichy & Sherman, p. 26).

This workout concept was adapted to the Air Force much like the Malcolm Baldrige criteria was adapted to the Air Force inspection process. To support the action workout program the Air Combat Command Quality and Management Innovation Squadron was established in October 1996 from the previous alignment as the Quality Improvement office on John Loh's staff, according to information from an interview with the past Innovation Squadron Commander. The Squadron mission "is to be ACC's Team,

dedicated to improving combat capability, meeting the challenges through innovation, education, and application, optimizing resources, producing world class results" (Quality and Management Innovation Squadron brochure, September 1997). ACCI 90-553, an official policy document, dated 15 October 1997, entitled Standardizing Action Workout Improvements, provides the purpose, procedures, and responsibilities of the Action Workout Program for Air Combat Command. This document offered the following revision to the program:

"(It) requires the development of a systemic improvements list; requires the appropriate headquarters Air Combat Command staff agency director approve the systemic improvements list and provide guidance to Air Combat Command Unit commanders on incorporating the improvements; institutes a formal follow up visit to the Action Workout and Power Team host unit; requires Air Combat Command wings to annually submit Action Workout candidates to the Air Combat Command Quality, Manpower, Innovation Squadron by 1 September; and identifies wing leadership commitment responsibilities and provides a typical Action Workout schedule of events" (ACCI 90-553, 1997).

The Air Combat Command Action Workout process involves five steps:

1. Identify the opportunity: Where the wing or unit Power Team feels there is a high potential for reduction in cost, defects, waste, or overall cycle time.
2. Site visit: During which the Air Combat Command Action Workout team provides training and helps determine the critical path for the process.
3. Unit preparation: The unit collects data on the process with the help of an Action Workout team statistician. This data collection occurs two to three weeks before the event.
4. Action workout event: This is a high energy step where the process owners attack waste, reduce defects, and improve the quality of the process with the help of several Action Workout team members.
5. Follow up actions: Within 45 days following the Action Workout event, a report on the progress and the results of the follow-on efforts is forwarded to Air Combat Command for review (ACCI 90-553 policy document, 1997, p. 5).

A key informant involved with the Action Workout program said,

"the goal is to conduct different Action Workout events at the wing level, to expand the scope of the effort into administrative areas, and to begin to respond to requests for assistance from major commands outside Air Combat Command." A past leader in the Innovation squadron is quoted, "Action Workout is radical improvement, right now. Action Workout equals the process engine. It constitutes Quality of Life surveys, culture, leadership, and production enhancement to fix things on the spot...It also cut cycle (time), costs, manpower, waste by 30% to get better productivity....Most important all recommendations are made by the worker." Another key informant in a leadership role with Action Workout said it is a "spirit of cooperation to get the job done." During this interview the key informant also is quoted, "Every new wing commander receives Action Workout brief. Action Workout impacts on TECHORDER and impacts changes Air Force wide. The environment for new ideas is OK." (A TECHORDER is a technical order to complete an action.) Another key informant who facilitates Action Workouts said, "Action Workout is to operationalize quality."

Since 1996, Air Combat Command facilitators conducted 46 action work out events and eight follow up events. Table (6) lists three examples of results of past Action Workout events discussed during Senior Leaders Training.

Table (6)

Action Workout Results

Wing/Unit	Action Workout event	Old process	Changes
33rd Fighter Wing Eglin AFB, FL	F-15 Aircraft generation	18 aircraft in 19 hours 4 aircraft in 64 man-hours	18 aircraft in 14 hours 4 aircraft in 3 man-hours
4th Fighter Wing Seymour Johnson AFB, FL	F15E paint process	28.3 hours 110.3 man-hours	22.1 hours 80.5 man-hours -reduced wash cost by \$10,000 annually -increase aircraft availability by 2 days
49th Fighter Wing Holloman AFB, NM	F-117 phase inspection	9.2 days 119 man-hours	6.8 days 71 man-hours -developed rudder tool innovation -\$172,000 savings per year -approved through depot level involvement

(Senior Leaders course materials, 1997)

Power Teams used the same process but are smaller in scale than Action Workout teams and are coordinated by the Wing instead of at the Air Combat Command headquarters level. Table (7) lists the results of three events given as examples of improvement efforts for people attending the Senior Leaders course.

Table (7)

Power Team Results

Unit	Improvement Results
355th Fighter Wing- TF-34 Engine Repair	Two day reduction in cycle time per engine.
55th Wing- Work out completion	-Communications Squadron saved 12,840 man hours annually -Civil Engineering squadron saved 19, 152 man-hours annually
552nd Air Control Wing- copier cost reduction	-saved \$65,000 annually

(Air Combat Command Senior leader Training presentation 1997)

Ten Power team events have been completed since 1997. Combined with 46 Action Workout events, these efforts represent a method to achieve efficiencies within Air Combat Command. An interview with a former leader of the Innovation squadron said,

"After General Loh came (another Commander) with more focus on performance. There were 18-24 Action Workouts per year." Air Combat Command supports this program and the potential it offers for becoming more efficient and productive by changing current processes for keeping aircraft in flying condition. An Air Force web site ([www. acc.af.mi./qi/awo/](http://www.acc.af.mi./qi/awo/)) lists all the Action Workout and Power Team events.

To summarize, evidence from the archival files, documents, and interviews exists for each of the three theoretical propositions that describe the Big Three Model "forms of change." The evidence for **identity** as a theoretical proposition for change is evident in the mission and name change from Tactical Air Command and Strategic Air Command to Air Combat Command. Examples of **coordination** that led to changes in the workforce and introduced new ways of doing business centered on the application of teams and training. Teams were set up to conduct self assessment inspections using Malcolm Baldrige criteria, Action Workouts, and Power Teams. Training was provided on these new opportunities during several leadership and quality management courses. Strategic plans also offered a new opportunity for channeling resources and communicating the organization goals. The theoretical proposition that addressed **control** in organizations suggests changes in policy and changes in dominant groups. Air Force regulations provided information on how the new programs would operate (Quality Improvement Councils, self assessment inspections and Action Workout) and were reinforced during

training courses. The vision for these changes came from top leadership based on key informants and documents. Information on the Quality Improvement Councils, self assessment inspection process, and Action Workout was supported by archival files, documents, and key informants. These initiatives reflect changes in the organization process for changing established ways of doing business.

Based on the data collected from the variety of sources, there is evidence to test the theoretical propositions involving identity, coordination, and control changes at Air Combat Command. The next section addresses the findings associated with action roles in the organization.

ACTION ROLES. Action roles were most clearly evident at the leadership levels. Bill Creech and John Loh, both four star generals, stand out as key strategists in starting the organizational change process within a large bureaucratic military organization (Creech, 1994, ACC Quality Brochure 1993, VHS, 1989). Over a period 1979 to 1994 efforts to change from a centralized organization to one that was decentralized and which also recognized the merits of teams and customer focus were influenced by these two strategists. In past conversations with other key personnel in the Air Combat Command organization, it was clear to this researcher that implementors in 1st Fighter Wing (early 1990s) and at the headquarters level, also worked hard to implement the quality principles at the worker level. To address this further is the opinion of a key informant,

"General Loh was a visionary and saw value. General Loh knew it would take time to get quality in military."

Other action roles included the people assigned to the Quality Improvement Office under John Loh's leadership in the early 1990's as implementors. According to interviews by key informants, by 1996 these advocates for change and quality would be reassigned within the Manpower, Quality, and Innovation Squadron. When interviewed about this change and reassignment as a squadron, one key informant said,

"We are under the directorate of plans and programs. I believe this is due to the concept of operationalizing quality throughout the command and we offer process improvement tools, skills, facilitating, and consulting. When you move from the direct link with the top leader, there is a perception that there is less control, but with good leadership that we have had, I have not actually noticed less control but more empowerment. I think this is due to us knowing our processes and leadership being open to improve our processes and decrease bureaucracy."

By 1997, many of the 27 wing commanders would become advocates for Action Workout and according to the interviews, would tell new commanders about the merits of the program based on results they experience through an Action Workout event.

For people within Air Combat Command the impact of the quality effort was recorded in surveys (Archival files, 1989 & 1993, and ACC Quality Brochure, 1993). These were surveys of military and civilian workers, considered recipients. The survey was developed by Air Combat Command, consisted of fifty questions, and was voluntary to complete. Table (8) shows the mean scores in the 1991-1993 surveys for the six broad categories of the survey: mission, job, workplace, leadership, ACC quality, and communications. No data is available to indicate who analyzed the results and to show if the results are statistically significant. John Loh describes the process during the visit by Vice President Gore in 1992. "We also instituted an annual ACC Quality Culture and Leadership survey for our people which I found to be extremely important. We have it on floppy disk, and it's very user friendly. We ask fifty questions in six or seven different areas to get

feedback from our workers. Our goal is to have at least 65% of our people participate. The command results go to the wing commanders broken down by question and by

category. The survey is completely anonymous (ACC Quality Brochure, 1993, p. 8).

Table (8) offers information on the survey results from the archival files and Quality Brochure, 1993. The six categories are listed with the results of survey conducted in

1991, 1992, and 1993. The range of responses are from 7 (strongly agree) to 1 (strongly disagree). No evidence exists to link the changes in the mean scores from 1991 to 1993

with specific actions at the wing or headquarters level.

Table (8)

Air Combat Command Worker Surveys (abbreviated)

<u>Category</u>	<u>Time Frame</u>		
	<u>1991</u>	<u>1992</u>	<u>1993</u>
mission	5.07	4.99	4.98
job	4.73	4.88	5.04
workplace	4.50	4.61	4.90
leadership	4.92	4.97	5.13
ACC quality	4.63	4.81	5.20
communications	4.39	4.48	4.76
rating range =1-7			

Note: These are mean scores for the questions that are associated with each category.

-- (Archival files, 1993 and ACC Brochure, 1993)

This data reflects the limited information available on recipients of change in Air Combat Command. A key informant familiar with the initial Air Combat Command survey reported during an interview that,

"they continued administering this survey annually until 1996 giving wing commanders information on the perceptions of their military and civilian employees in all six categories. The Air Force Chief of Staff adapted the survey conducted by Air Combat Command to be conducted Air Force Wide on a biannual basis. The first Air Force wide survey was developed, administered, and analyzed in 1997 by the Air Force Quality Manpower and Innovation office, Randolph Air Force Base, Texas. Following survey procedures started by Air Combat Command, the Air Force survey is computer based and is voluntary. It will be administered by way of the Internet in fall 1999."

This key informant also offered the following observations,

"200,000 active duty military and civilians (30%) of the Air Force responded. This survey is longer than the Air Combat Command survey, is based on established research questions. Unlike the Air Combat Command survey that General Loh wanted which was more like a 'warrior' survey, even though Air Combat Command tried to change the survey later to follow more sound research criteria. On the other hand, the Air Force survey follows research approaches for reliability and validity. The Air Force survey has two major focuses:

1. Organizational climate providing information the unit level commander can use.
2. Quality of life providing information on pay, benefits, retirement, facilities, etc. for the Air Force headquarters staff to use and to identify best practices across major commands like Air Combat Command. Because it has only been administered once there is no comparison information yet."

Key informant interviews by implementors provided general perceptions of the favorable reception Action Workout received from the recipients at the wing commander and squadron level. The anecdotal comments suggested support for Action Workout and lack of support for the self assessment inspection process. Neither view could be tested by other data sources and reflects limited evidence to test the application of the **recipient** as a change factor.

The archival files, documentation, and interviews do provide strong evidence to test implementors (trainers and facilitators of self assessments and Action Workout)

involvement in change at Air Combat Command. Due to the lack of key informant interviews of strategists and recipients, only the archival files and documents provide evidence of their contributions to the change efforts at Air Combat Command.

SUSTAINED CHANGE EFFORTS. Table (9) offers a few examples from the previous discussions of the theoretical propositions. The five award criteria and the findings used to investigate the theoretical proposition are listed as follows:

- Plan for continuous improvement (forms of change).
- Performance measurement process (forms of change).
- Top management commitment and involvement (action roles).
- Employee involvement, development, and management participation (action roles).
- Customer and supplier involvement (action roles).

Table (9)

**Air Combat Command
Change Factors and Award Criteria
Examples from the Findings**

Environmental Factors	Forms of Change	Action Roles
-End of Cold War	-New name/mission	-John Loh, Commander (<i>Top management commitment</i>)
-Air Force resource reductions	-Strategic Plans (1993) (<i>continuous improvement</i>)	-Leadership training (<i>Continuous improvement</i>) (<i>Employee development</i>) (<i>Management participation</i>)
-Congress reduces budgets	-Action Workouts results & unit self assessments (<i>performance measurement</i>)	-Wing/Squadron teams (<i>Customer & supplier involvement</i>)

(Archival files 1989, 1993)

Although the award criteria does not single out environmental factors, they are a dimension of the Big Three model and were included in the theoretical propositions of this study to reflect the catalyst that stimulated the change efforts.

Archival files provide evidence to support the forms of change that included the reasons for the new identity as Air Combat Command, the coordination and control forms of change that resulted in strategic plans, self assessment inspections, and Action Workout programs to fix problems and process at the shop level in the wings. The archival files also recorded evidence of strategists, implementors, and recipients involved in the change process. They offer references to *top management commitment* with John Loh's vision and his plan to use quality, *employee development and management participation* by the implementors actions to provide the training for the teams, and *customer involvement* by the recipients actions, at the wing and squadron levels in their use of the Idea

Generation program and Quality teams to resolve problems and improve processes in areas such as aircraft phase inspections.

The interviews with key informants confirmed that the unit self assessment initiative began with efforts to change the organization, innovate, and change processes from the bottom up. The key informants also suggested it was discontinued in 1998, because of its complexity and because few leaders could see the results. Based on key informant interviews, even though the assessment process was discontinued at the Air Force level in 1998, units reporting to the wing commanders at the squadron levels can continue to informally conduct self assessments.

While the self assessment program using the Malcolm Baldrige criteria is no longer a part of Air Force inspection policy, Action Workout continues within Air Combat Command and may expand to other major commands within the Air Force. Action Workout is a formal program that provides the tools to implement changes through use of teams to solve problems. "Jack Welch, of General Electric, suggested during his efforts to transform his company, that "companies need overarching themes to create change" (Tichy & Sherman, 1994, p. 13). For Air Combat Command it may involve the support for Action Workout from the top leadership of the Air Force. A quote made in April 1998 by Michael E. Ryan, a four star General and Chief of Staff of the Air Force, was shared during the interview with the Action Workout director indicating his support for this program outside Air Combat Command. "We are going to operationalize quality by getting the creep out of quality, defining our mission essential tasks, and making them better, faster, through quality processes like action workout" (Senior Leadership training

material, 1998). The Action Workout director was encouraged that the Air Force Chief of Staff supported the program.

During the interviews, the researcher recorded that the Action Workout team facilitators were concerned that formal training on quality was being discontinued although senior leadership training contained references to Action Workout processes. The reorganization to a squadron level did not seem to concern the past Commander of the Quality, Management, and Innovation Squadron, because he felt more comfortable within the structure of a squadron than as a special assistant on the headquarters staff. From interviews and through review of the Internet web site, a reengineering team is in the process of studying the organization and the numbers of people assigned in each department. Current political and management decisions may lead to headquarters staff reductions as a result of their findings. Additionally, the squadron alignment supports the Air Force changes in 1997 when the Quality University at Maxwell AFB in Montgomery, AL moved to become the Air Force Manpower and Innovation Center, at Randolph AFB, TX.

Other examples of sustaining change in the Air Force were contained in a speech delivered by Ronald Fogleman, Air Force General and past Chief of Staff, in October 1996 at the Quality Air Force Symposium. He offered,

"Make process improvement second nature in everything we do. Need cultural shift in the institution...At the Corona meeting of Air Force leaders in 1996 it was apparent that after five years of focusing on education and training the process dimension may be losing focus. (There was) more interest in format than substance. (Need) to begin to look at output. How to operationalize?" (Ronald Fogleman video, 1997).

During this same quality symposium in 1996, a video was made of the five winners of the annual Chief of Staff Team Excellence Champions presentations. This video tape of the event provided additional examples of organizational change in major commands other than Air Combat Command. These other champions used teams, quality tools such as histograms, force field analysis, process flow charts, cause and effect diagrams to collect data, determine the root cause of a problem, and develop action plans to solve the problems. Most of these champion Air Force units had supervisor support and paid attention to their respective customers to realize savings in dollars, time, and manpower. Another speech during this 1996 symposium, was delivered by the current commander of Air Combat Command, Richard Hawley. He took the opportunity to applaud the efforts of his 130,000 military and civilians in 32 locations around the world for their continued effort to "equip and train the war fighters of tomorrow...He also discussed the positive results of the Action Workout program" (General Richard Hawley, speech on "Applying Technology and Innovation in Operational Settings" recorded on video at the 1996 Quality Air Force Symposium). According to the staff of the Action Workout, General Hawley continues to pay attention to the results from Action Workout events.

The changes in the 1993 and 1999 mission and goals of the Strategic Plans for Air Combat Command offers additional evidence of efforts to sustain continuous change. It reflects the commitment to continue to use strategic plans over the years and change them as necessary to address current requirements. The 1993 mission and goals were:

1993 Mission:

Air Combat Command acts as the primary provider of combat forces and is proponent for fighter, bomber, reconnaissance, combat delivery, battle management, rescue of aircraft, and Command, Communications, Control and Intelligence.

1993 Goals:

- Improve our combat capability by meeting ACC quality performance measures in operations, logistics, support, medical, and training programs.
- Embrace a culture of ACC quality in everything we do, creating a leadership style and working climate that inspire trust, teamwork, and continuous improvement.
- Strengthen Air Combat Command by providing the world's best combat Air Forces, delivering rapid, decisive Air Power, anytime, anywhere.
- Improve safety performance by fostering a culture of safety in the air and on the ground.
- Create a Spirit of wellness and fitness in all our people through quality physical, mental, and spiritual programs

(Archival files, 1993 and ACC Quality Brochure, 1993, p.14.)

According to the Quality brochure, the strategic plan goals were to be accomplished with the implementation of two new programs and through Quality Improvement teams. The two new programs were Gold Flag and Bright Flag. At each major wing level a Quality Improvement team helped identify and submit the Gold Flag proposals for improvement. The Gold Flag program improved efficiency of base repair process with dramatic results. According to the ACC Quality brochure from 1992 to 1993, participants in the Gold Flag program proposed 3732 items and 2071 items were approved. The projected savings was \$15, 175, 330 (Quality brochure, p. 18). Performance measures are for four major groups at the wing level: operations, logistics, support, and medical.

Bright flag focused on improved individual training for all job skills, quality improvement, and professional development. Five courses with a quality focus were

taught as a part of Bright Flag. Two of the course were for professional development (Airman Leadership and Non Commissioned Officer Academy) and were revised to incorporate quality subjects.

Quoted from a key informant, "We went from 200 performance measures presented to General Loh, to less than 80 with (the next Commander), growing to 255 with (the current Commander) that we manage. (The current Commander) also has base (command) metrics briefed to him every 2 weeks and Dow Jones performance measures that show him some indicators. The performance measures that we now manage have 5 basic areas: people, operations tempo, power, places (facilities), price (cost of doing business)."

Another key informant supported this by talking about "balanced score approach equals combat capability, force preservation (safety, troop movement), quality of life, personnel tempo, cost of ACC. There are 21 directors, 5 teams, and 5 focus areas (in ACC headquarters). They identify metrics for each focus area."

1999 Mission:

Air Combat Command professional providing the world's best combat air forces, delivering rapid, decisive, and sustainable airpower, anytime, anywhere.

1999 Goals

- People: Take care of Air Combat Command people.
- Mission: Provide a trained and sustainable aerospace combat force that meets the needs of the theater Commanders in Chief.
- Cost: Continually reduce the cost of operating Air Combat Command without adversely affecting our people or our mission.
(Air Combat Command web site, 1999)

On the web site for Air Combat Command is the Master Plan, signed by the current Commander, that reflects each director's published mission and goals and their link to the overall organizational strategic plan.

The strategic plan, updated for 1999 and the application of teams to implement Action Workout events, despite the cancellation of the self assessment program, still offer evidence of Air Combat Command's attempts to sustain change. The existence of evidence for the forms of change theoretical propositions is provide not only in archival files, but also in documents, and during interviews.

Archival files with the award criteria for both the Medallion and Award for Continuing Excellence provides evidence for the theoretical propositions of identity, coordination, control, strategist, implementor, and recipients. Evidence is also found in documents and during interviews with key informants.

In the next section change efforts are described in an organization at the state level. The data suggests changes in their operation based on an internal desire to improve education and teaching.

HANOVER COUNTY PUBLIC SCHOOLS

Hanover Schools were recognized for initiative and sustained improvement by winning the Virginia Senate Productivity and Quality Award in 1991 and the Award for Continuing Excellence in 1997. Hanover County is approximately 10 miles northeast of Richmond, Virginia. It has been directly affected by the relocation of people from the urban, industrial environment of Richmond. During the period 1990 to 1996 the county has grown 18%, from 61,000 to 72,000. Public school enrollment rose 27%, there were 11,695 students enrolled in 1991 and 14,700 students in 1996. Currently, there are twelve elementary, three middle, and three high schools in Hanover County. The growth can be partially attributed to people relocating to the area from Richmond, outside Richmond, and outside Virginia (Archival files, 1996). According to their own accounts the outside influences of people from other areas allowed for change. Quoted in the presentation materials used during the 1998 Virginia Beach Community Quality Day, "New ideas, different perceptions about education, demands for the workplace, and entry level hires, even evolving thoughts about colleges are interlinked and cause for examination of the instructional delivery and follow through" (Hanover Schools Presentation materials, 1998, p. 4). The next three sections examine the evidence to support the theoretical propositions of environmental movements, forms of change, and action roles.

ENVIRONMENTAL KINDS OF MOVEMENT. The opportunity for change was introduced through the former Superintendent's decision to implement an effort called the School Renewal Project within Hanover County Public Schools. Data providing evidence

for this policy decision, reflecting a revolutionary environmental movement, is based on the archival records, documents, and interviews with a former Superintendent, a current central office administrator, and three school level administrators involved in these new initiatives. The decision to implement the continuous improvement program originated with a recommendation by John Goodlad, author of A Place Called School (1984).

Although his book offered the framework for how to change in the late 1980s, a former Superintendent and the senior staff continue their study on effective schools by researching the works of other educators, Lezotte, Sizer, and Adler (Presentation materials, Community Quality Day, March 1998). They also studied the teachings of management leaders in the area of total quality management, such as, W. Edward Deming, Tom Peters, and Peter Senge (Presentation materials for Community Quality Day, March 1998 and key informant interviews). From this research the school system adopted a new way of doing the business of education in Hanover County (Archival files, 1991). When asked why change? "The school's leadership said it was time to move away from the traditional approach of top-down management. (Hanover Schools) came up with a new paradigm for the organization-participatory decision-making" (Virginia Beach Community Quality Day Presentation, March 5, 1998). A senior school administrator also said "We had a visionary leader who recognized that we were doing lots of things well and that we had the potential to do even better. We had the aspiration to do even better. We were basing a lot of our beliefs on how well we were doing on perception. We determined that we need to validate the successes through data collection and analysis." The decision for change was made based on internal factors, and was not driven by a specific external crisis or by political pressure.

A former Superintendent suggested during an interview, "that the Southern Association of Colleges and Schools investigation of the School Renewal program as a reaccreditation option and his own readings on Goodlad's A Place Called School (1984), In Search of Excellence (1982) by Tom Peters, Deming's continuous improvement in Out of The Crisis (1986), and Megatrends (1982) by Naisbitt and Aburdene showed a need to improve. Surveys indicated a need to improve. Needed to regard culture in the organization to value human resources. I wanted to get ideas from people doing the work, and shift emphasis to collaborative and shared decision making." This research influenced the former Superintendent to ask his principals and staff how to change and improve the school system. The former Superintendent said, "the problem was how do you get people involved not just the principals." Interviews with a school administrator reveals the following. "I pulled the best strategies and reviewed literature and other research. I was funded to travel and was stocked with material as the pilot site for technology." Another school administrator said, "20 people were on the teams to help set up the school mission statement and values. They included teachers, business people, and parents. I headed the measurement change and validation team and in 1989 we used the participatory process and I was sent to Denver to look at site based models. (This key informant continued) I attended a Deming 4 day seminar in 1992."

Each of the Hanover County schools already had a climate that was comfortable using both traditional methods and alternative ways to teach and each was open to internal change that was the result of research through professional reading and through visits to other school systems (Key informant interviews, January 1999).

The environment for change at Hanover County Public Schools was not affected by external (higher authority requirements). However, internally and politically changes were introduced based on leadership vision and support from the school board, parents, community, and businesses. There is little evidence to support the lack of external changes other than the school leaderships' desire to improve the perception of public schools that were held by the general public, as noted in various documents. Internally, the administration wanted to implement innovative ways to better educate students, based on archival files and interviews. From a political perspective, School Renewal offered another way to achieve reaccreditation, and was noted in archival files, documents and interviews. The next section addresses the forms of change in this organization.

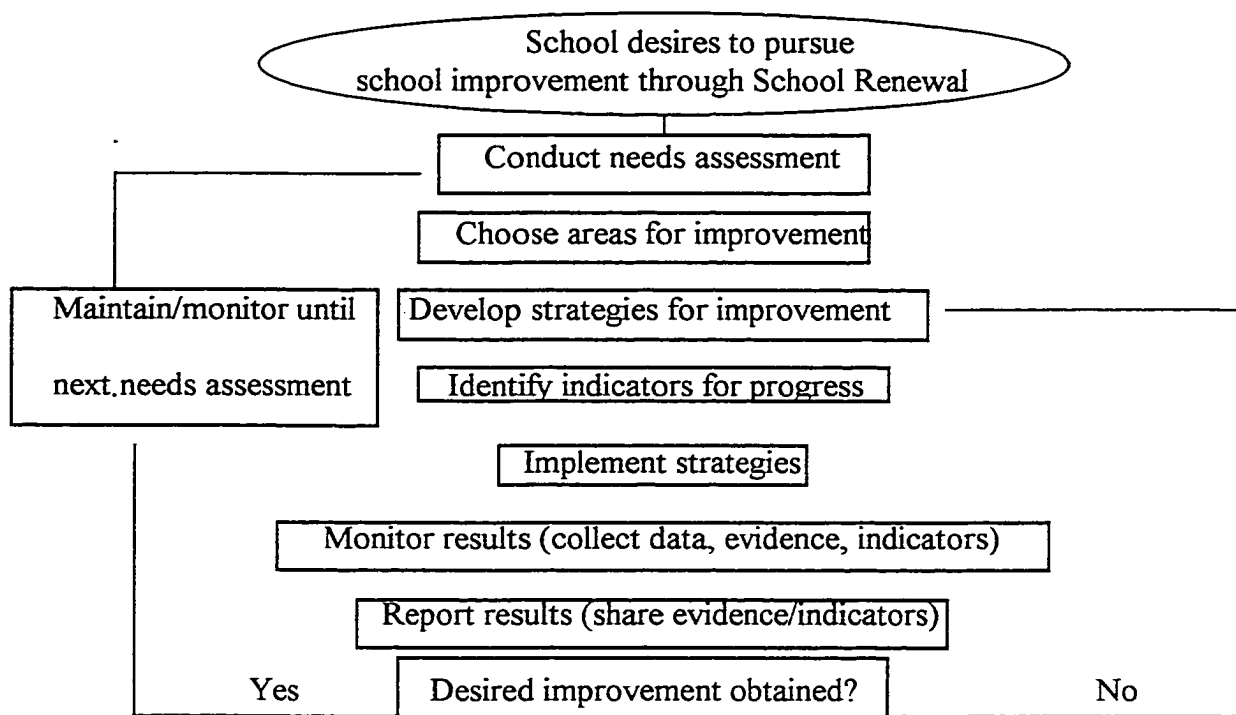
FORMS OF CHANGE. Although there were no outward changes in the identity of the school system, internally and politically, changes occurred as a result of the implementation of the school renewal criteria and use of quality management tools to gather and analyze data. School Renewal was chosen as a platform for change based on five areas that would allow for continuous improvement: school climate, planning, staff development, curriculum and instruction, and communication (Archival files, 1991).

Another impetus came from the recommendation in 1987 by the Southern Association of Colleges and Schools to use the school renewal initiative as an alternative for reaccreditation. Top management support for this effort did not rest with the superintendent and his staff alone. In 1989 the school board also endorsed the "School Renewal Project." At the start 4 principals and 3 members of the central office staff received training. In addition, the archival records indicate that all principals, assistant

principals, and central office were asked to read A Place Called School during this early implementation period (Archival files, 1991). Then during the 1991 administrative retreat, Deming's ideas and teachings on continuous improvement and quality management were applied to the criteria for school renewal. As a way to further introduce the school staff to this new way of conducting the business of education, training was offered to principals on team building, brainstorming, conflict resolution, consensus building, and conducting effective meetings as a start. Another aspect of Hanover's implementation involved the application of the Shewhart cycle (*PDSA*): *Plan*-plan for training, teams, and retreats, define mission and goals; *Do*-implement teams, design strategies; *Study*-gather data, report results; and *Act*-evaluate success and modify strategies (Deming, 1989, and Archival files, 1991). During the Community Quality Day presentation, the Assistant Superintendent for Human Resources also acknowledged that eventually all members of the school board were able to attend one of the week long Deming Seminars on Quality Management to learn more about the Shewhart cycle and other quality management principles. Figure (5) is a flowchart on the integration of school renewal and continuous improvement developed July 1995.

Figure (5)

Flowchart of Continuous Improvement Through the School Renewal Process



(Presentation materials for Virginia Beach Community Quality Day V, March 1998)

As a result of these efforts, the school renewal retreat resulted in the school system's vision, mission, shared values, and goals for 1991/1992 and was updated in 1996. Table (10) reflects the school system 1996 strategic plan.

Table (10) **Hanover County Public Schools Strategic Plan**

Mission

The mission of Hanover County Public Schools, is to provide a student-centered and community-driven school district, is to provide quality educational opportunities in an optimal learning environment in a cost effective manner.

Goals

Goal 1: To promote each student's personal growth and achievement.
Goal 2: To prepare students for a technologically changing world.
Goal 3: To employ highly qualified staff.
Goal 4: To foster community support.

Strategies (number of action plans per strategy)

Assessment (17)	Environment (24)
Citizenship (7)	Parent/Guardian Involvement (8)
Communications (19)	Resources (4)
Community (3)	Staff (27)
Curricula (31)	Technology (26)
Economic Development (2)	

(Archival files, 1991, 1996, presentation materials for Virginia Beach Community Quality Day V, March 1998)

On an individual school level, each school administrator interviewed agreed that coordination of efforts changed from individual to teams which according to the archival records consisted of parents, school board members, business, students, police, custodians, day care providers, social service workers, bus drivers, retired citizens, as well as principals and teachers. One school administrator said,

"With the involvement of community and parents, we took the opportunity. (We set up) decision making teams, not top down, and involved stakeholders. Today we continue to refine this effort. There is internal staff development, phone recordings and conversations to stay in contact with parents. Teachers are in different roles and we are changing the way we work with children. In the past it was lock step and rigid at a grade level. It's changed to grouping by multi-age and a loop with 2 grades: Kindergarten and 1st, 2nd and 3rd, and 4th and 5th for math and reading."

The decision making became a team effort and was not the usual top down approach according to one of the school administrators. Each principal was given the resources to look at alternative methods and as one reported to "adapt it to Hanover schools."

Another school administrators remarked,

"In 1990 and 1991 we needed measurement to change and validate. Quality management were the tools of the renewal teams to develop charts and surveys. Four principals and 3 central office staff were on the teams. Each year 4 new people were offered (a chance to be on teams). During the first 5 years principals were facilitators. During the second 5 years staff and teachers are to be facilitators." They each saw the benefits of the school renewal program, but wanted to include quality management tools, measurement, and validation.

A third school administrator said,

"Teachers were given alternatives, the traditional way or impact change. They wanted to change." This school administrator also said, " All design teams included teachers and that these were not additional things to do...his school's slogan was *A Special Place To Be.*"

"Training was implemented in a train-the-trainer fashion," according to one of the school administrators. Originally four principals and three people from the central office

received team and facilitator training. Each of the school administrators also indicated that they were given lots of trust to implement the changes they felt important at their schools. As the effort expanded more teachers were invited to become team trainers.

A school administrator talked about innovations at the school level,

"When teachers were asked what needed improvement they suggested hot water in the Ladies Room and wall paper, which was provided. We have an employee of the month who receives a free lunch and free parking. The suggestion box is for parents and kids, and kids said they need locks on the bathroom stalls. We have an elementary school student council association with the help of teachers and parents. This student council collects Canned goods at Christmas, runs the school book store, and works on spirit day. The elected president, vice president, secretary, and treasurer are fifth graders; however, every homeroom has 3 to 5 student representatives. This council meets once per month."

In another example, a school administrator indicated that at first there were "small uprisings in the community." To resolve the conflicts and to better communicate the misunderstandings (some parents thought the school was implementing outcome based education), this key informant explained,

"the principal, teachers, and parents sat through many parent information sessions to explain how the school planned to work with the students better." This was the school administrator who instituted a program to "loop" children in Kindergarten and first grade, second and third grade, and fourth and fifth grade with the same teachers for math and reading subjects. As a result of the new teaching approach and the information sessions with parents and the community, the school was chosen as a Virginia Blue Ribbon School and was given extra funding from the state to implement technology initiatives.

Based on the archival files, the community also played a role in school changes and innovations through Hanover's implementation of a Business Community Survey. These surveys queried businesses in the community about the high school graduate's ability to

work with computers, work in teams, self-manage, write and speak English, apply mathematics skills for entry level work, communicate in the workplace, adjust their performance as needed, reason, be creative, solve problems, among other skills.

Politically, the school board responded with policy changes signaling their influence and control of the changes they expected in the educational process through school renewal efforts. They complemented the business community survey with a "Graduate Warranty Program" for both employers, colleges, and universities.

"On February 13, 1990, the Hanover County School Board adopted policy 7-28.2 which established a Graduate Warranty Program for graduates of the public school division who are employed by business, industries, and other organizations. This policy guarantees to the business community that graduates of the Hanover County Public Schools will possess communications, computation, and career skills necessary for success in the workplace...On November 10, 1992, the School Board extended the Graduate Warranty Program to include students accepted in postsecondary education at two and four-year colleges, universities, and community colleges"
(Hanover County Policy 7-28.2, Feb 1990 and Archival files, 1996).

The school system developed the listing in table (11) to highlight the many changes that occurred from 1991 to 1997 as a result of their initiatives and innovations.

Table (11)

Hanover Schools Results Over Time

1991	1997
<ul style="list-style-type: none"> • 11,695 students • 3-3 ½% annual growth • elementary student to teacher ratio 23 1/2 to 1 • 21 credit, 23 credit (advanced studies), 24 credit (honors) high school diploma options • top 20 literacy scores in Virginia • 43% take foreign language and 25% take algebra before 9th grade • 77% of students with disabilities earn regular or advanced studies diploma • 3% drop out rate • lowest 10 per pupil costs in Virginia • appointed school board • Superintendent-principal goals • central office led processes • traditional teacher supervisory model • traditional models of school fiscal/capital plan • 17 advisory councils • 5 school renewal schools • traditional long range planning process • newsletter to 25,000 households annually • 4 classroom snapshot schools • 1 block scheduling school • Hanover education foundation mission: Technology acquisition 	<ul style="list-style-type: none"> • 14,677 students • 4-6 1/2% annual growth rate • elementary student to teacher ratio (actual) 22½ to 1 • 23 credit, 24 credit (advanced studies), 25 credit, or 27 credit (honors) high school diplomas • top 10 literacy scores in Virginia • 84% take foreign language and 61% take algebra before 9th grade • 83% of students with disabilities earn regular or advanced studies diploma • 0.8% drop out rate • lowest 10 per pupil costs in Virginia • Appointed school board • school board legislative presence • school board-superintendent-principal school goals "Stealing a Page from the Supervisor's Book" • "Blended" leadership; featuring central office, principal, teachers, students, and community members as leaders; move decision making focus to the point of impact. • "Glow and Grow" clinical supervision/removal instructional leadership distracters • joint school-county planning team • 21 advisory councils • 17 school renewal schools • school and community, data and needs drive process • Newsletter to 30,000 households • 17 classrooms snapshot schools • 6 block scheduling (all middle/high schools)

<u>1991</u>	<u>1997</u>
<ul style="list-style-type: none"> • IBM sponsored technology curriculum • head start/preschool/handicapped classes/traditional special education classes • private contractor/GED alternatives programs • international partnerships with German schools • 18th highest starting teacher salary • US Senate Productivity Award 	<ul style="list-style-type: none"> • Hanover education foundation mission: Technology and training • WAN/LAN/Internet access in all 18 sites, 5 computers per classroom K-6, foreign language, business, special education • head start/preschool/handicapped classes with inclusion models and transition specialist, center-based programs, instructional support teams, reading recovery classes • alternative/technical education study • revised student bus code of conduct • EDGE program • school to work apprenticeships • international partnerships on more continents (Japan, Bolivia) • Virginia's teacher of the year • world champions: odyssey of the mind • 9th highest starting teacher salary • 2 blue ribbon award program schools • regional and state champion football teams • state champion literary magazines • state honors band • regional and state champion baseball and softball teams • state champion wrestlers/ track • graduate guarantee • family surveys • business surveys • business advisory council • graduate interviews • Hanover compact • "pay as you go" elementary school construction • Commission on future of public school spotlight: accountability, teaching and learning, leadership • Award for Continuing Excellence

(Archival files, 1996 and Presentation material Community Quality Day, March 1998)

Forms of change that involve the identity of Hanover County Schools are not evident in the data and as a result the research can not investigate this theoretical proposition.

Similar to Air Combat Command are examples of coordination that led to changes in the workforce and introduced new ways of doing business that can be attributed to the use of teams and training. Teams were set up within schools to identify innovations using the quality management tools and School Renewal process. Other teams met to develop the strategic plan for the school system. Training was provided on these new opportunities through formal training by Edward Deming, quality training courses, and during preparation for several retreats, based on the archival files and key informant interviews. Hanover Schools Strategic plan (1996) also offered a new opportunity for channeling resources and communicating the organization goals. Archival files, documents, and interviews provided evidence that these coordination events occurred.

The theoretical proposition that addressed control in organizations suggests changes in policy and changes in dominant groups. The vision for implementing the School Renewal effort came from top leadership based on archival files, key informants, and documents. The invitation for school board members and other stakeholders such as, parents, students, businesses, and other community members offers evidence for this theoretical proposition.

Based on the data collected from the variety of sources, the evidence tests the theoretical propositions involving coordination and control changes at Hanover County Public Schools. The data does not test the application of identity changes as a theoretical proposition for this case. The next section addresses the findings associated with action roles in the organization.

ACTION ROLES. There were two strategists for change at Hanover County Schools. The archival records on the 1991 SPQA award and presentations given in December 1997 at the annual conference of Southern Association of Colleges and Schools and at the March 1998 Virginia Beach Community Quality Day V indicate that the impetus for change began under the leadership of a former school superintendent, Stephen Baker, and was recognized in 1991 with the Virginia Senate Productivity and Quality medallion award. The momentum for change was continued in 1995 when a new superintendent was selected, Stewart Roberson, who continued to support the strategies for school renewal and quality management resulting in the school system being awarded the Virginia Award for Continuing Excellence at the Virginia Forum for Excellence in 1997. It was noted in the archival records and documents and during key informant interviews, that both superintendents supported the changes that led to the school achievements during the late 1980s and through the 1990s. Specifically, in the Op/Ed section of the Richmond Times Dispatch, September 11, 1996, Stewart Roberson, current Superintendent, was quoted, "In Hanover, a growing, responsive school district, our vision is to raise the bar of student achievement to create the conditions for even higher levels of performance, and in doing so advance our position as a public education champion" (Richmond Times Dispatch, 1996). From the 1995-1996 "Hanover County Public Schools Annual Report" Roberson also reported "The Hanover Standard of education has become synonymous with quality education. Our district's emphases include a demonstration of high expectations : responsiveness to all students, staff, families, businesses, and community members; useful academic and technical preparation; deliberate instructional, capital, and fiscal planning;

and pride in the community's investment in schools" (Hanover County Public Schools Annual Report 1995-1996). According to this same annual report, a central office administrator described many responsibilities for the recruiting and employment of 1,661 full and part time employees. Listed as a continuing training requirement in the 1995-1996 report was "School Renewal" and "Quality Leadership." The importance of training school employees offers another example of the coordination factor associated with change in this organization (Hanover County Public Schools Annual Report 1995-96).

From the data collected, a clear line does not divide implementors and recipients who played an active role in the change efforts that involved the School Renewal and quality management process. People involved in the process of change included principals, teachers, school board members, parents, students, businesses, and others in the community. Based on the archival files, interviews of three school administrators, and other documents, these individuals participated in the change process that Hanover chose and were instrumental in its success over time. Evidence of their involvement is the training every principal received on school renewal and quality tools and the results of their using these tools. Goodlad, author of A Place Called School, (1984) was also available to Hanover Schools from 1991 to 1996 as a consultant (Archival files, 1991, 1996). "Each principal and each school board member attended at least one Deming Seminar," said a central office administrator. The administrative retreat in 1991 and other planning team meetings included members of the community, parents, and school staff. To support this participation, data is collected from parents, graduates, and businesses on the achievement of students in formal surveys.

The archival files, documents, and interviews do provide strong evidence to investigate strategists (visionary leadership) and implementors roles. Recipients (school staff, parents, school board members, businesses, and community members) involvement in change at Hanover County Public Schools is recorded in the archival files and in other documents. This last section on Hanover Schools addresses the factors associated with sustained change when applied to the award criteria.

SUSTAINED CHANGE EFFORTS. Table (12) offers examples of the relationship between the theoretical propositions and these five award criteria:

1. Plan for continuous improvement.
2. Performance measurement process.
3. Top management commitment and involvement.
4. Employee involvement, development, and management participation.
5. Customer and supplier involvement.

Table (12)

**Hanover County Public Schools
Change Factors and *Award Criteria*
Examples from the Findings**

Environmental Factors	Forms of Change	Action Roles
-Public feelings of concern	-no name changes	-Past and present Superintendents <i>(Top management commitment)</i>
-Administration wants change	-Strategic Plans (1991/96) <i>(Continuous improvement)</i>	-Administration, School Board, principals provide and receive training <i>(Employee development and Management participation)</i>
-Reaccreditation options	-School Renewal/quality tools <i>(Performance measurement)</i>	- Parents, students, business, community <i>(Customer & supplier involvement)</i>

(Archival files 1991 and 1997)

As their efforts with the school renewal project and the application of quality principles continued, the school system realized continued improvements. From the parents' view recorded in a 1996 survey called "Classroom Snapshot", is another example of innovations offered in the eleven Hanover elementary schools. This innovation offers parents an opportunity to call a school telephone extension number to hear daily summaries of the class events, learn about PTA activities, hear the cafeteria menu, and get other general information, to include school snow closings. Survey data on this 24 hour info line indicated 121,556 calls were received during the period September through December 1996. From the June 1996 survey- 93.5 percent of parents said, "I know how well my

child is doing in school." 86 percent indicated "The school communicates effectively with parents." External recognition of Hanover's success was recognized in 1997 during the Virginia Forum for Excellence in Richmond, Virginia, when they became the only school system in Virginia to receive the Award for Continuing Excellence. They showed evidence of sustained improvements by changing the way the school managed from the traditional long range planning process to a school and community focus, using data and a needs driven process.

School Renewal Process became their alternate route to school improvement and regional accreditation in July 1995. The strategic plan and results over time tables also reflect the sustainability of change in Hanover County Public Schools, which is also attributed to the application of the school renewal criteria and quality management principles since 1987. Other specific factors that contribute to the ability to change is the relationship with the community, parents, and the school board. With the initial and continued leadership support, Hanover County Schools was able to continue to innovate through communication and collaboration. Their results also reflect the importance of collecting data to market the success stories.

The next section provides information on the third case study of another federal organization, Norfolk Naval Shipyard, unique in this study as one of the first public sector organizations to win the Medallion award in 1983.

NORFOLK NAVAL SHIPYARD

Norfolk Naval Shipyard won the Virginia Senate Productivity and Quality Award in 1983 and 1989 in recognition for its sustained improvement efforts. Brochures and other media documents describe Norfolk Naval Shipyard as one of the largest shipyards in the world specializing in repairing, overhauling and modernizing ships and submarines. According to history records the shipyard started operation in 1767. It has been in operation through every war fought by the Commonwealth of Virginia. During the 1980's there were between 12,448 and 13,146 people employed by the shipyard. It was considered the third largest employer in Virginia. Records indicate during this period 70% of the workforce was blue collar, skilled laborers who performed the repair work on the ships and in the shops at the shipyard. The shipyard is located in Portsmouth, Virginia, which is, today, an urban environment of approximately 103,000 citizens. (Archival files, 1989, and Shipyard Information Brochure, 1998)

Like the examples provided on both Air Combat Command and Hanover County Public Schools, the next three sections examine the evidence that tests the theoretical propositions based on environmental movements, forms of change, and action roles.

ENVIRONMENTAL KINDS OF MOVEMENTS. According to the archival files in the Senate Productivity and Quality Award records at Virginia Polytechnic Institute and State University, there appeared to be predominately external and political reasons for the shipyard to change its business practices during the period 1983 to 1989. In 1984 the workload resulted in 20 percent overtime while in 1989 it was at a 5 percent low (Archival

files, 1989). Additionally, reduced budgets from the higher headquarters, Commander, Naval Sea Systems Command, resulted in the workforce downsizing from 13,146 to 12,448. Politically, the shipyard would face competition from commercial yards as a result of congressionally mandated solicitation for bids for submarine repairs and non-nuclear surface ship overhauls beginning 1988. Initially, the need for change and the focus on becoming more efficient was the result of threats of externally generated budget cuts from Congress and the politically generated competition from the private sector. These external and political forces challenged the Norfolk Naval shipyard to do more than set up quality circles (Archival files, 1989).

The environment for change at Norfolk Naval Shipyard was affected by external (higher authority) requirements. Internally and politically changes were introduced based on leadership vision and concerns resulting from military budget cuts and political support for private competition. Evidence to support external, internal, and political changes in the environment is based on archival files (1989), documents about the organization's history and implementation of the strategic plan, and interviews with key informants.

A key informant employed during the award period said, "the customer, to the shipyard Commanding Officer, was the ship Commanding Officer. The shipyard was very territorial and the team lessened the fear between the civilian shop superintendent to cooperate with the ship supervisor. The shipyard became more business oriented, there was more dialogue, and they started sharing materials." From the investigation of the findings recorded in archival files and documents, these changes led to efficiencies in ship repair processes. Although the external and internal environmental changes affecting the Shipyard played a role in the change process due to the reduction of budgets and people,

the implementation of the quality management effort provided the revolutionary environment for change similar to Air Combat Command (quality management) and Hanover County Schools (School Renewal) and also was fully supported by archival files, documents, and key informants. A key informant from the training department said,

"We decided to use quality because NAVSEA (shipyard headquarters) was recognized for using quality. The *'lead'ership* program was used early on and they started to use Covey. *'Lead'* helped to improve communications and daily work processes, to become more efficient. Political reasons for changes: did bosses want to look better?"

The next section addresses the forms of change in this organization based on identity, coordination, and control factors.

FORMS OF CHANGE. There is no data that refers to an identity change at Norfolk Naval Shipyard, therefore the theoretical proposition that is associated with identity is not tested. The research does provide evidence of coordination and control factors that are associated with changes in this public sector organization.

From the archival material on the quality award, changes in the organization's way of doing business started in 1979 when 80 quality circles sought to improve processes involving tank/void cleaning with citric acid, walnut shell blasting, gamazine (microbacterial cleaning of ship/submarine systems), and the personnel incentive award program. Training on improvement methods during the early 1980's at the shipyard consisted of formal and informal methods of classroom instruction, video tape training, newspaper and other media publicity. Over 200 quality circle leaders were available to offer training and assistance in 1984. By 1989, substantial changes continued to reflect

the commitment of the leadership to implement improvement initiatives. A significant form of change was the use of strategic planning to coordinate the implementation of change. Table (13) is the strategic plan adopted by 22 senior managers, members of the Shipyard Strategy Board. Included in this strategy board were Shop Superintendents, and representatives from two of eight unions.

Table (13)

Norfolk Naval Shipyard Strategic Plan (1987)

Preamble- "NNSY's pursuit of first time quality and productivity excellence has earned it a place of leadership among the eight naval shipyards. However, we must not allow ourselves to be lulled into a sense of complacency because of our past accomplishments. A basis for continuous improvement must exist for NNSY to survive in an increasingly competitive environment. The shipyards shifting workload, changing long complex overhauls to numerous short submarine availabilities, directed the need for attention to a near term critical success factor to improve submarine overhaul performance. The use of systems analysis and compilation of a list of planning assumptions lead logically to the development of a strategic plan, long range 2-5 year performance improvement goals which were audited for consistency against the areas previously analyzed. Next step- prioritize set of tactical improvement projects to which resources should be devoted during next year."

(Archival files 1989)

Table (13) continued

Guiding Principles (1987)

The Norfolk Naval Shipyard exists to repair and overhaul ships. We work to complete ships on time, within cost, and in conformance with all requirements.

- People are our greatest asset.
- We ensure a safe workplace.
- We affirm equal employment opportunities for all.
- Teamwork is our hallmark.
- First-time quality (conformance to requirements) increases productivity and reduces cost.
- We will relentlessly pursue continuous improvement.
- We are customer-oriented.
- We protect the environment.

Thus we earn our customers' trust and community's respect.

Strategic 2-5 Year Goals (1987)

1. Establish a process to improve quality and productivity.
2. Maintain a Quality of Work Life (QWL) improvement program.
3. Reduce costs of ship overhauls by at least 25% while maintaining schedule and quality
4. Develop master plan for capital investment for facilities and equipment/improve physical plant and support services.
5. Develop competitive strategies to ensure maintenance of efficient workload.
6. Manage material more efficiently.
7. Improve environmental management to comply with environmental laws and regulations.
8. Improve the educational level of the workforce.

(Quality Improvement Prototype brochure, Office of Management and Budget, 1989, p. 3)

Quality circles were replaced by teams called quality management boards and process action teams. By 1989 the 56 teams used process improvement methods learned in more

structured training courses to ensure that improvements made in 1984 became industry standards (Archival files, 1989).

Another form of change was the application of a "strategy for continuous improvement" using the principles of management approach known as total quality management (Archival files 1983, 1989). The use of total quality management as a management strategy also was defined in brochures and in the shipyard newsletter Service to the Fleet. A Total Quality Management brochure offered a ready, easy to read reference on the definition of total quality management, the Shipyard guiding principles, strategic goals, team structure, process improvement steps, process improvement form, examples of tools that teams can use to solve problems, and on the last of seven pages a message on increasing customer satisfaction. The shipyard wanted its employees and customers to appreciate its slogan "Quality Service to the Fleet" (Archival files 1983, 1989). A key informant from the training department said, "the golden thread was quality."

The Total Quality Management brochure complemented and communicated other actions within the shipyard. The strategy board established ten functional areas to be managed by the Quality and Productivity Improvement Council. "The Council is an arm of the Shipyard Strategy Board that was established to oversee systems and processes used in pursuit of TQM" (Archival files, 1989). The Shipyard Commanding Officer chaired the Council offering resources in time and money to the improvement initiatives. The Shipyard Strategy Board met quarterly and conducted annual reviews of shipyard operation plans to focus on customer needs, corporate cross-functional issues, and to assess achievement of goals. As the Quality and Productivity Improvement Council

developed, a structure evolved that included Quality Management Boards at the functional management level, and Performance Action Teams at the employee level. The archival records, other documents, and a key informant suggested that the strategy plan was deployed throughout the organization from top down through mechanisms of Quality Management Boards established at department, division, and section levels. Decentralized control of the implementation process existed through Quality Management Boards and with the assistance of an informal network of total quality management (TQM) and Statistical Process Control experts. There were also supporting elements during this period for implementing changes. These elements included shop councils and shipyard quality of work life councils (Archival files 1989).

The employee suggestion system encouraged comments on functional areas within the shipyard as well as quality of life issues. According to the 1984 archival files, 750 performance improvement suggestions were submitted resulting in 170 accepted and approximately \$1 million dollar savings. In 1989, with process improvement teams in place, 2248 suggested improvements were submitted resulting in 135 awards and approximately \$350,000 savings. No comment was made on the drop in savings except to explain that many of the early suggestions were easily identified using the new suggestion systems (Archival files, 1989).

As the Shipyard adopted the structure to identify improvements, communication throughout the organization was emphasized for all workers. Union workers were invited to participate in the policy making as members of Quality and Productivity Improvement teams as well as the Quality Management Boards and Process Action Teams. In 1989 key personnel at the shipyard included the president of International Federation of Professional

and Technical Engineers, Local No.1, president of the Tidewater Virginia Federal Employees Metal Trades Council, AFL-CIO. Other communication opened up between the repair ship Commanding Officer and Shipyard Commanding Officer. The respective Commanding Officer of the ship under repair would meet with the Shipyard Commanding Officer to determine repair or overhaul needs and requirements during ship arrival visits, and thereafter, during weekly progress meetings. The Shipyard also initiated a post repair assessment to obtain customer feedback. This survey was scheduled to be conducted approximately one year after the overhaul was completed (Archival files, 1989).

One of the factors important to long term sustained change is the evidence of improvements. Listed below are the case study summaries of improvement initiatives recorded in 1989 from the information provided in a brochure submitted to the Office of Management and Budget.

Norfolk Naval Shipyard Improvement Case Study Summaries (1989)

1. **Problem:** A 40 percent reject rate in first time tank closures (final sealing of tanks prior to ship being water borne). A review of the reject rate revealed that the production shops and inspection branch had accepted these tanks for final closure, and the ship's crew then found problems.

- **Action:** Establish a new tank closure process. The tank coordinator and quality assurance inspector performed a preliminary inspection to detect deficiencies prior to final closure and results of data analysis of major causes of discrepancies are forwarded to each shop involved.
- **Results:** 100 percent first time closure on the last three submarines overhauled. Approximately \$122,000 in savings on the last four submarine overhauls.

2. **Problem:** High rejection rate (55 percent) in the fabrication of electrical connectors.

- **Action:** Develop and implement a formal, computerized system for tracking and maintaining accountability. The analysis portion of the system allows process modification, improved employee training, development of training manuals, and put in place an in-shop quality assurance program.
- **Results:** Reduction of rework from 55 percent to 6 percent with annual cost avoidance of \$500,000.

3. **Problem:** Cumbersome volume of drawings, technical manuals, references and instructions provided to mechanics as direction for accomplishing job.

- **Action:** Develop sequenced, step by step procedures which will provide the mechanic, in one compact document, all the technical directions needed to perform the job.
- **Results:** Fewer errors and increased first-time quality on high-speed tooling machinery and other complex/critical components. Reduced cost of field engineering waterfront support, e.g. an SSN 688 class complex overhaul reduced from approximately 20,000 workdays to 12,000 workdays (\$2.6 million and a carrier overhaul reduced from approximately 27,000 workdays to 14,000 workdays (\$4.2 million).

4. **Problem:** 38 percent of all relief valves repaired failed the initial acceptance test and required rework.

- **Action:** A Process Action Team identified and corrected problems in the process, procedures were improved, cross training performed, and control charts were posted to ensure mechanics were aware of trends.
- **Results:** Reject rate reduced from a process average of 21 percent during 1987 to zero percent by June 1988 with annual savings of \$120,536.

(Quality Improvement Prototype brochure, Office of Management and Budget, 1989, p.13.)

Table (14) provides a summary of several other initiatives and the results of continued repair cost and efficiencies for the ships assigned to repairs at the shipyard for the total period 1984 to 1989.

Table (14)

Comparison of Performance Factors on Completed Ships

"The effectiveness of the shipyard's improvement is shown by its repair completion record. ...eight ships' repairs were started and completed. Performance factor measures the ratio of actual final costs to internally budgeted costs. Improved performance is depicted by the lowered final performance factor on seven of eight ships."

SHIP	PERFORMANCE FACTOR	
	March 1984-March 1988	April 1988-March 1989
Destroyer	1.18	1.11
Battleship	1.19	1.19
Guided Missile Cruiser (1)	1.12	1.06
Aircraft Carrier (1)	1.13	0.95
Submarine (1)	0.92	0.83
Guided Missile Cruiser (2)	1.1	0.99
Aircraft Carrier (2)	1.16	1.04
Submarine (2)	0.92	0.77

(Quality Improvement Prototype brochure prepared for the Office of Management and Budget, 1989, page 14.)

In the 1990's two key informants remembered,

"What happened early into the 1980's was a changed management approach to have the electrical shop responsible to project management. It involved a lot more shops on an adhoc basis by 1992. Why? Because it was mandated towards the end of total quality training. The 'Lead' training was done and gone followed by quality training. Project management changed the focus on mission. From a technical stand point things did not change. Management and reporting up changed. The mechanic can take a problem to the engineer because both worked on the project, more synergistic processes."

By 1998 the Norfolk Naval Shipyard had undergone additional changes. There were only 7000 civilians and 113 military on permanent assignment to the shipyard. These reductions began in 1984 based on the decreasing budget; 1989 archival files recorded reductions from 13,146 to 12,448 employees in 1989. An Executive Steering Committee continued to convene throughout this period; however, by the late 1990s the shipyard headquarters command, Naval Sea Systems Command dictated a new requirement. During interviews with two key informants from the budget and training departments, one said,

"The Shipyard did not volunteer to use the Malcolm Baldrige criteria; it was dictated. They used Malcolm Baldrige criteria to get operational efficiencies and productivity at Norfolk Naval Shipyard. The Executive Support staff took the lead, with support from various others. The core leader was from the Combat System Department and was already Malcolm Baldrige trained."

All commands that were subordinate to the Naval Sea Systems Command (NAVSEA), like the Norfolk Naval Shipyard, would be inspected based on the criteria of the Malcolm Baldrige award. The focus on the award criteria and on a "business approach" was discussed during interviews with individuals in the training and budget offices and repeated during their presentation at the Virginia Beach Community Quality Day, March 1998. The changes in the shipyard would be influenced by a customer driven focus on business principles and would require the efforts of all departments, from top management, middle management, and from workers, according to the interviews. To prepare for the inspection in October 1998, the Executive Steering Committee agreed that

four processes would be important to the success of the preparations for the inspection by headquarters. These processes included:

1. look at the operations of the shipyard
2. write unit self assessments (limited to 70 pages for the inspectors)
3. prepare for the Inspection visit and the efforts to validate the self assessments
4. develop improvement plans based on the inspectors reviews of the self assessments

A key informant said,

"preparation for the inspection was based on the criteria. Preps based on presentations using criteria. NAVSEA was to validate an assessment unit. By law, compliance areas, like environment were still inspected. Special interest items are a part of the traditional inspections. The Shipyard gave NAVSEA reports on each special interest items which is validated and inspected. The NAVSEA inspection focused on processes during the validation but they could *pull the string* if something did not look right."

The two key informants described the effort to prepare for the inspection visit.

"Teams of 3 to 6 persons were established for each of the seven Malcolm Baldrige criteria. All teams received one day of training on the new requirement, a computer system to share the progress of their team efforts, and a central location for meetings. Each team was required to gather data on their area and decide what was most important to the shipyard mission. This information was regularly shared over the computer network and briefed to the shipyard Commanding Officer on a weekly basis." (Key informants and audio tape of Community Quality Day presentation, March 1998).

One of the Norfolk Naval Shipyard key informants who also gave a presentation at the Virginia Beach Community Quality Day (March, 1998) suggested that there were several "common themes or golden threads or core values" to the preparation for the headquarters

inspection using the Malcolm Baldrige criteria. The table (15) lists these values from the opinion of the Shipyard key informant at the Virginia Beach Community Quality Day.

Table (15)

Common Themes Used in Applying Malcolm Baldrige Criteria to Norfolk Naval Shipyard

• continuous improvement
• customer driven quality
• corporate responsibility
• citizenship
• design of new products and services with the customer providing input
• employee development participation and satisfaction
• faster response
• long term planning
• management by fact
• participation and partnership with unions and among departments
• results

He summarized this part of the presentation by suggesting organizations need to know where they are (Norfolk Naval Shipyard Community Quality Day presentation, March 1998). The shipyard received a satisfactory rating for this 1998 self assessment inspection. The headquarters assigned only satisfactory and unsatisfactory ratings in their effort to validate a command's self assessment. The next step is for the Norfolk Naval Shipyard to prepare action plans for the Shipyard Improvement Plan that will address areas that need improvement based on site validation by the headquarters reviewers (Norfolk Naval Shipyard newspaper "Service to the Fleet" January 1998, p. 3).

Both coordination efforts and control events were recorded and supported by archival files, documents, and key informants. The coordination efforts included the implementation of teams to identify efficiencies in ship repair and later to respond to self

assessment inspection requirements. Training provided the information on ways to collect data and on new management programs to improve ship repair processes. Evidence of control factors to support change were based on the direction to do things differently (i.e. self assessment inspections) and to the decision to include union representatives on executive planning boards.

ACTION ROLES. At the Norfolk Naval Shipyard, during the 1980's, the Commanding Officer, his executive strategy board, and the Quality and Productivity Improvement Council were clearly the people who were the driving forces in implementing and sustaining the change initiatives. Their commitment to developing and communicating a strategic plan is additional evidence of the support provided to change the way of doing business at the shipyard. Implementors were evident in the number of advisors (30 in 1984/60 in 1989), quality management boards and process action teams (24 in 1984 and 62 in 1989), and training courses (300 in 1983/1500 in 1989). The training programs to introduce the workforce began with a two-day Phase I training for all front line and high level supervisors. Phase II offered annual training for 1200 supervisors, with the Commanding Officer opening the sessions. A key informant employed during the award period candidly suggested, "training was not as structured as advertised and that there was considerable resistance from supervisors during this effort." In another interview, a key informant also employed during the award period, talked about marketing the early change efforts. This key informant said, "it became a very important strategy not only internally with the shipyard newspaper, but also with the community to improve relationships through the chamber of commerce, rotary, and other events." This key informant also

recalled the improvement in communications between the "*territorial and powerful*" civilian shop superintendents and the military ship supervisor that was the result of the Commanding Officer's efforts." This key informant recalled,

"the open dialogue that occurred during Management Information Center meetings was because these senior representatives were able to sit together and talk about the ship under repair or going through overhaul. These management meetings became an opportunity to show the most current statistics and data on the status of the ships under repair. "

Overall, the shipyard was able to show evidence of the initiatives and to show results of the team efforts enough to win the Senate Productivity and Quality Award twice during the 1980s.

The theoretical proposition that addressed the implementors was supported by archival files, documents, and key informant interviews. Because the Commanding Officers who initiated the change efforts in 1983 and 1989 were not interviewed, there is limited evidence (archival files and documents) to test the strategist as a change factor. Recipients, categorized as ship commanding officers, union representatives, and other members of process teams also were not interviewed and also lead to limited tests for this theoretical propositions with evidence only available in the archival files and documents describing their involvement in the change events that led to the award for continuing excellence.

SUSTAINED CHANGE EFFORTS. Table (16) offers examples from the findings, on the relationship between change factors and the five award criteria:

1. Plan for continuous improvement.
2. Performance measurement process.
3. Top management commitment and involvement.
4. Employee involvement, development, and management participation.
5. Customer and supplier involvement.

Table (16)

**Norfolk Naval Shipyard
Change Factors and *Award Criteria*
Examples from the Findings**

Environmental Factors	Forms of Change	Action Roles
-End of Cold War	-No new name	-Executive Steering Committee (<i>Top management commitment</i>)
-Navy resource reductions	-Strategic Plans (1987/97) (<i>Continuous improvement</i>)	-Quality training (<i>Employee development Management participation</i>)
-Congress reduces budgets	-Ship repair time/efficiencies (<i>Performance measurement</i>)	-Union reps, shop superintendents, ship supervisors, Ship CO (<i>Customer & supplier involvement</i>)

Archival records provide evidence of a 1987 strategic plan, team efforts to identify problems, leadership from the Commanding Officer, training for employees on quality tools and processes, and invitation to include union representatives on the strategy boards.

The Commanding Officer of the ship met with the Shipyard Commander as a customer. These events provide evidence from the award criteria to test the theoretical propositions for sustained change.

Other information gathered mostly from the interviews of key informants indicate the organization was directed to use the Malcolm Baldrige award criteria to prepare for the self assessment validation by the shipyard headquarters in 1998 and used teams to complete the self assessment satisfactorily. The 1997 strategic plan is recorded as another indicator of the continued efforts to identify goals and objectives to ensure the productivity of the shipyard. There are no specific examples to provide evidence that the 1997 goals have been accomplished in whole or in part. However, members of the Executive Steering Committee explained their commitment to the 1997 Strategic Plan in a preamble on the signature page.

"We, the undersigned members of the Executive Steering Committee consider this plan to be Norfolk Naval Shipyard's blueprint for meeting the challenges and opportunities as we approach the next century. Our survival is absolutely dependent upon every employee's sustained commitment to continuous improvement. Together we can ensure our plan in the future as a leader in the ship repair industry."

1997 Mission

- Norfolk Naval Shipyard exists to support the fleet. Its primary mission is to repair, overhaul, dry-dock, convert, and modernize ships, and to provide logistics services in support of fleet readiness.

1997 Vision

- Norfolk Naval Shipyard will simultaneously deliver cost, schedule, and quality performance to our customers, as judged by them.
- Norfolk Naval Shipyard will be the centerpiece of Regional Maintenance for the area as part of the fleet wide team. Regional Maintenance will require a new fully integrated partnership with the NNSY workforce and other Atlantic Fleet resources to reduce infrastructure and costs.

1997 Goals

1. People	4. Safety, Health, and Environment
2. Customer Focus	5. Business Performance
3. Infrastructure Management	6. Quality and Technical Excellence

(Strategic Plan brochure, 1997)

This 1997 strategic plan was published as a brochure and signed by the Commanding Officer, his senior support staff and department heads, and by senior union representatives from: IFPTE Local 1, American Federation of Government Employees Local 22 and Local 4015, International Federation of Professional and Technical Engineers Locals 1, 35, and 41, National Association of Government Employees, Conference Committee Metal Trades Council, National Association of Superintendents, Naval Civilian Managers Association, and Federal Managers Association (1997 Strategic Plan brochure).

This strategic plan, the use of teams, training, and continued leadership support to ensure efficiency and productivity are specific factors that have contributed to the Norfolk Naval Shipyard's ability to sustain change and remain productive. The section that follows is a discussion of the data sources that were used to investigate the theoretical propositions.

APPLICATION OF THE THEORETICAL PROPOSITIONS

The remainder of this chapter explores the data sources that test each of the theoretical propositions. The strength of the evidence is strongest for the proposition that is supported by a triangulation of evidence from archival files, documents, and interviews. Accordingly, the ability to test theoretical proposition is limited if only one or two sources of evidence are available to corroborate the factors. In two case studies, **identity**, as a form of change, was not corroborated by the archival files, documents, or interviews for Hanover County or Norfolk Naval Shipyard.

The remainder of this section will address the following research questions.

1. What factors are associated with change in the public sector organizations that have been recognized for their change efforts?
2. What factors are associated with sustained change in the public sector organizations that have been recognized for their change efforts?

DATA SOURCES AND EVIDENCE OF FINDINGS FOR THE THEORETICAL PROPOSITIONS. The previous sections of this chapter provided the findings of three cases studies of public sector organizations who are winners of the Virginia Award for Continuing Excellence, using information from the archival files at Virginia Polytechnic Institute and State University, selected documents, and interviews. The researcher applied the findings to theoretical propositions based on: the environment that influenced external, internal and political need to change, forms of change (identity, coordination, and control), and the strategists, implementors, and recipients who had an impact on the change events. These propositions ask: Change when? Change what? And change how? (Kanter, Stein, & Jick, 1992). The previous discussion also recorded events in each organization that influenced their ability to sustain the change when matched to the criteria of the Award for Continuing Excellence. Table (17) is a matrix of the theoretical propositions and data sources reflecting where one, two, or three of these sources provided evidence.

Table (17)

Data Collection Sources for Each Theoretical Proposition

Theoretical Proposition	Air Combat Command	Hanover County Public Schools	Norfolk Naval Shipyard
Environment			
Macro-evolutionary (external)	-archival files, documents, & interviews	-documents	-archival files & documents
Micro-evolutionary (internal)	-archival files, documents, & interviews	-archival files & interviews	-archival files & documents
Revolutionary (political)	-archival files, documents, & interviews	-archival files, documents, & interviews	-archival files, documents, & interviews
Forms of Change			
Identity	-archival files, documents, & interviews	no evidence of identity changes	no evidence of identity changes
Coordination	-archival files, documents, & interviews	-archival files, documents, & interviews	-archival files, documents, & interviews
Control	-archival files, documents, & interviews	-archival files, documents, & interviews	-archival files, documents, & interviews
Action Roles			
Strategist	-archival files & documents	archival files, documents, & interviews	-archival files & documents
Implementor	-archival files, documents, & interviews	-archival files, documents, & interviews	-archival files, documents, & interviews
Recipient	-archival files & documents	-archival files & documents	-archival files & documents

To complement table (17) are the following three tables that show examples of findings from these data sources. Table (18) reflects the environmental factors and examples from the findings in all three case studies. Table (19) shows examples of change involving identity, coordination, and control factors. Included in table (20) are the action-roles of strategist, implementor, and recipient and evidence to support these factors for change.

Table (18)

Environmental Factors

	Air Combat Command	Hanover Schools	Norfolk Naval Ship Yard
Macro-evolutionary (external)	-organizational merger -less resources -end of Cold War	-general concern (doubts) with public education's ability to educate children (supporting documents only)	-less resources -end of Cold War -threat of closure -competition with other shipyards (archival files and documents only)
Micro-evolutionary (internal)	-less resources leads to fewer personnel and fewer wings in organization (33 to 27)	-school leadership's desire to better educate students (archival files & interviews only)	-less resources and fewer ships in Navy leads to reductions in personnel (archival files and documents only)
Revolutionary (political)	-inspections change to self assessments -total quality management introduced to identify efficiencies	-school renewal initiative offered as alternative approach to obtain reaccreditation -partnerships with School Board, business, colleges, and community beyond Parent Teacher Association	- quality & productivity improvement council is executive committee to identify continuous improvement, includes representatives from two unions -increased involvement with community (interview only)
Sources (except as noted, all data sources apply)	archival files, documents, interviews	archival files, documents, interviews	archival files and documents, interviews

Table (19)

Forms of Change

Air Combat Command

Hanover Schools

Norfolk Naval Ship Yard

Identity	-new name & mission	-no evidence of change	-no evidence of change
Coordination	<p>-training to work as teams, using data gathering tools</p> <p>-inspection process used validation teams to evaluate command self assessment</p> <p>-action workout teams help identify Wing level efficiencies</p> <p>-power teams at squadron level help identify efficiencies</p> <p>-strategic plan developed 1989, updated 1998</p>	<p>-superintendent convened planning teams</p> <p>-introduced new ideas with teams of teachers, parents, business, community, school board members</p> <p>-principals train teachers to be facilitators</p> <p>-John Goodlad, author <u>A Place Called School</u>, is consultant 1991-96</p> <p>-strategic plan developed 1991, updated 1996</p>	<p>-commanding officer convened Executive Steering Committee</p> <p>-teams convened to address each Malcolm Baldrige criteria for inspection in 1998</p> <p>-training provided teams</p> <p>-strategic plans developed 1984, updated 1997</p>
Control	<p>-team training to change role of mid managers (Sergeants & Majors) from controlling to coaching in leadership schools</p> <p>-wing commander change work processes during Action Workout events. Recommended policy changes forwarded by Air Combat Command</p>	<p>-school board adopts Graduate Warranty Program, policy 7-28.2 (1992)</p> <p>-planning councils consist of administration, teachers, parents, students, members of community & business, and school board who developed strategies for strategic plan</p>	<p>-shop superintendent (civilian) and ship supervisor (military) part of Commanding Officer's teams</p> <p>-teams used data to identify efficiencies in ship repair.</p> <p>-Executive committee makes decisions with union representation</p> <p>-Shipyards public affairs officer markets changes to higher authority and community (interview only)</p>
Sources	archival files, documents, interviews	archival files, documents, interviews	archival files, documents, interviews

Table (20)

Action Roles

	Air Combat Command	Hanover Schools	Norfolk Naval Ship Yard
Strategist (named individuals referred to in archival files, documents, or interviews)	Bill Creech, Tactical Air Command, (1978) John Loh, Air Combat Command, (1989) (interviews and documents)	Stephan Baker, Superintendent, (1981-1996)	-Commanding Officer, -executive steering committee (archival files and documents)
Implementor	-Commander, Air Combat Command <i>-Commander, Quality Innovation Squadron</i> <i>-action workout director and facilitators</i> -senior leader instructors <i>-former self assessment process trainer and implementor</i>	-Superintendent (1996-present) <i>-Assistant Superintendent for Human Resources</i> <i>-school principals</i> -school board members	-executive steering committee <i>-Malcolm Baldrige team members</i> -shop superintendent -ship supervisor <i>-assistant public affairs officer</i> <i>-quality assurance officer</i> <i>-budget officer (coordinates Baldrige teams)</i> <i>-training officer (trains Baldrige teams)</i>
Recipient	-wing commanders and action workout teams in wing -squadron commanders use power teams -worker surveys (archival files and documents)	-school board members -students, parents, teachers, community, colleges, businesses (archival files and documents)	-ship commanding officers -members of union -members of Malcolm Baldrige teams (archival files and documents)
sources	archival files, documents, interviews <i>with implementor</i>	archival files, documents, interviews <i>with strategist or implementor</i>	archival files, documents, interviews <i>with implementor</i>

Based on the previous explanation of these change factors, the events listed in these tables also provide an interesting comparison of events in each organization. The similarities become obvious when the factors for change are coordination, control, and implementors, and political factors.

The initial impression is that in each case there were environmental factors that influenced the early stages of the change effort. Similarities exist between Air Combat Command and Norfolk Naval Shipyard, both were encouraged to change as a result of directions from the changes in military requirements generated by the cold war and by higher authority. These were **external** catalysts for change. They also began to change to adjust to the reduced work forces. On the other hand, Hanover County Schools only had an **internal** (micro-evolutionary) desire to change by using a new reaccreditation process and did not feel **external** (macro-evolutionary) pressure to change, based on archival files and interviews. In each of the organizations, the **political** (revolutionary) environment for change (characterized by a new concept) resulted in the introduction of new ways of doing business, such as, quality management, school renewal, self assessments, action workouts. Evidence of these events and resulting policy changes are in official documents and brochures published in each of these organizations. The researcher considers the **external, internal, and political** factors catalysts for change based on the evidence of the merger and mission changes at Air Combat Command, the internal decision to choose an alternate reaccreditation approach at Hanover County Schools, and the headquarters directives and workforce reductions at Norfolk Naval Shipyard. Recognizing that there is only triangulation of data to test the external factor at Air Combat Command and the

political factor in all three organizations, there is data that offers evidence of the external, internal, and political factors for change in all three organizations.

These external, internal, and political environmental forces for change initiated the organizational changes that occurred, but were not evident factors in sustaining change. Kanter, Stein, and Jick (1992) describe this environmental dimension with the question, "Change When?" For each of these organizations, the answer of when to change was the result of macro evolutionary (external), micro evolutionary (internal), and revolutionary (political) forces.

These environmental factors also had an impact on the forms of change, specifically **coordination** and **control** changes in each of the three organizations. Each organization started similar initiatives and programs as the change process was implemented and sustained according to the archival files, interviews, and documents on these organizations.

While each of these three public sector organizations offered evidence of forms of change that include **coordination** and **control**, only one organization showed evidence of a form of change that resulted in an **identity** change, Air Combat Command.

Air Combat Command used Action Workout, quality management principles in the unit level Quality Improvement Teams, and Malcolm Baldrige Criteria to coordinate changes. Action Workout helped identify efficiencies in the maintenance and upkeep of aircraft and was adapted from the "Workout" process implemented at General Electric in the 1980s. Malcolm Baldrige criteria became the basis of the inspection process when the unit conducted self assessments between 1993 and 1998. Hanover County Public Schools used the elements of School Renewal and total quality management's *"Plan, Do, Study,*

Act" process to gain improvements in community involvement and student achievement.

Within the *plan, do, study, act* process are tools that help with the decision making process while the school renewal and the strategic planning teams convened. Norfolk Naval Shipyard used the principles of total quality management in the early 1980s, based on the encouragement of higher authority. By 1997, the Shipyard's higher authority again directed them to change to a new inspection process which would incorporate elements of Malcolm Baldrige criteria. The Shipyard used training and teamwork to apply the seven criteria and to ultimately gain a satisfactory inspection rating. **Coordination** events in each organization used three factors: training processes, teams, and strategic planning.

Control factors are determined by the affect of persons who can influence the change and policies that direct change. This **control** factor was implemented when stakeholders and persons outside the organization were invited to participate in the change events. Hanover County Schools invited stakeholders to participate in their teams, such as school board members, parents, businesses, and other community representatives. Norfolk Naval Shipyard included union members in their strategic planning process. Additionally, **control** factors occur when official guidance directs the change process. In each organization official documents described the change event, Air Combat Command published directives on Unit Self Assessments and Action Workout. Hanover County School Board published the school Warranty policy. Norfolk Naval Shipyard announced changes in the quality brochures and the newsletter Service to the Fleet.

Another factor associated with change is the activity of individuals in action roles in these organizations. Again there are similarities in these case studies. In each organization, not only did the leadership instigate and support changes within the

organization, but the leadership also brought others into formal planning teams to identify problems and solutions. These individuals included workers in Air wings and squadrons. At Air Combat Command, Wing Commanders and their employees helped identify problems during action workouts and offered input for the mission and goals in the strategic plan. Air Combat Command surveys in 1991 and 1993 indicate the perception of the workforce. At Hanover Schools, not only was the School Board directly involved and received training but community and businesses, who are stakeholders in the education process, were invited to participate in planning meetings. Although no specific information was provided in the archival files or during interviews, reference was made in documents to the inclusion of students in the planning meetings. The innovation discussed by one key informant referred to the school in which fifth graders were elected to a student council and 3-5 representatives were selected from each homeroom to do things like organize a Canned goods collection project. At Norfolk Naval Shipyard, records suggest union representation on the Executive Steering Committee. A key informant who was employed during the award period at the Shipyard, indicated past relationships (general communication) between the Shop Superintendent and Ship Supervisors were isolated and in some cases did not exist. These individuals were not formally required to cooperate until the Commanding Officer encouraged their cooperation and included them in the strategic planning process with representation on the Executive Steering Committee.

Events in these public sector organizations already recognized for their long term change efforts, fully tested the factors of **coordination** and **control**. Each action role

(**strategist, implementor, recipient**) was investigated but only the **implementor** roles were fully tested by the triangulation of evidence in all three organizations.

The next section will examine the strengths of the evidence. Then the researcher will compare and contrast these events within each organization and then across each theoretical proposition. These two discussions will offer evidence on what factors are associated with change in organizations recognized for their change efforts.

FACTORS ASSOCIATED WITH ORGANIZATIONAL CHANGE

The factors associated with organizational change are the theoretical propositions developed from the Big Three Model for Organization Change in the previous chapter. They list the environmental movements, forms of change, and action roles associated with organizational change. Table (21) shows the strength of the theoretical propositions based on the triangulation of evidence from the data collected in the archival files, documents, and interviews.

Table (21)

Strength of Supporting Evidence from Data Collection

Theoretical Proposition	Air Combat Command	Hanover County Public Schools	Norfolk Naval Shipyard
Environment			
Macro-evolutionary (external)	+	-	-
Micro-evolutionary (internal)	+	-	-
Revolutionary (political)	+	+	+
Forms of Change			
Identity	+	0	0
Coordination	+	+	+
Control	+	+	+
Action Roles			
Strategist	-	+	-
Implementor	+	+	+
Recipient	-	-	-

(+) Indicates strong supporting evidence from archival files, documentation, and interviews (triangulation of evidence).

(-) Indicates limited supporting evidence from one or two data sources: archival files, documents or interviews (lacks triangulation of evidence).

(0) Indicates no supporting evidence from archival files, documents, or interviews (lacks triangulation of evidence).

This criteria is based on the events in each organization that supported the proposition expectations from Kanter, Stein, and Jick (1992) and the triangulation of data sources from the archival files, documents, and interviews listed in tables 18-20.

The triangulation of the evidence test the theoretical proposition as factors associated with organizational change. The strongest support for the theoretical propositions is based on the triangulation of archival files, documents, and interviews (Yin, 1994). Based on this assessment, Air Combat Command has more theoretical propositions (7 of 9) that were tested by the triangulation of evidence when compared to Hanover County Schools (5 of 9), and Norfolk Naval Shipyard (4 of 9). These data corroborated the events that changed in Air Combat Command in all cases except for the strategist and recipient action roles, which were only supported by information in the archival files and in documents on the organization. In both Hanover County Schools and Norfolk Naval Shipyard, the evidence provides limited tests for the external and internal environmental factors. There is triangulation of evidence from all three data sources to test the revolutionary (political) propositions as factors for change. The evidence shows quality management efforts at Air Combat Command and Norfolk Naval Shipyard and the School Renewal initiative at Hanover Schools. These political factors were discussed in the archival files, documents such a strategic plans, and during interviews. Interviews of key informants, chosen because of their involvement in the change initiatives, did not include strategists or recipients at Air Combat Command or Norfolk Naval Shipyard. The key informant interviewed at Hanover County Public Schools provided the triangulation of evidence to test theoretical propositions associated with the strategist and implementor action roles. Across all three organizations, triangulation of all three data sources tested the association of this theoretical proposition. Of the key informants chosen because of their involvement in the award process or their knowledge of current changes, none fit the recipient action

role for purposes of this research and as identified in the description of the theoretical propositions in Chapter III. This limits the strength of the test for this theoretical proposition.

The data provides evidence to support **political** environmental changes, **coordination**, **control**, and **implementors** as factors associated with change in each case study. In all three organizations there was strong supporting evidence from archival files, documentation, and interviews on these theoretical propositions. Although the specific examples vary, each of the organizations used teams, training, and strategic planning to a variety of degrees as they coordinated change efforts. Additionally, within each organization, evidence to support the **control** factor exists. The organizations implemented policy directions to implement the changes and invited all levels of the organization as well as stakeholders not employed by the organization to participate in the change processes through teams and bottom up decision making.

Identity stands out in this investigation as a change factor that impacted only one organization, Air Combat Command. No evidence supports **identity** as a change factor for Hanover County Schools or Norfolk Naval Shipyard.

Another comparison can be made in the strength of the data when action roles are investigated in each organization. Initially key informants were selected based on their involvement in the early change efforts. They were referred to the researcher based on their knowledge of continuing or current change initiatives in their respective organizations. Based on the responses during the interviews the key informants were found to be strategists (visionary) or implementors of the vision and change processes and not clearly or singly recipients. Key informants that were implementors of the strategist's

vision provided the triangulation of evidence to test this theoretical proposition in all three organizations. In only one organization (Hanover County Public Schools) was a strategist interviewed, thereby offering strong triangulation of evidence for this proposition.

Leaders (strategists) at Air Combat Command and Norfolk Naval Shipyard who were involved in the change process during the award period were unavailable to be interviewed and provided limited evidence to test this theoretical proposition. Although archival files and documents provided limited evidence for recipients involved in the change process of each organization, with additional research interviews or focus group meetings may strengthen the evidence on this proposition and the influences of individuals on organizational change.

In summary, across all three organizations evidence is available to test revolutionary (political) environments, coordination, control, and implementors as theoretical propositions associated with change in these case studies. In all 27 cells over half (16) or 59% of the table cells were tested by all three data sources as indicated by the (+) notation. Only 9 or 33% of the table cells were not completely tested by all three data sources as indicated by the (-) notation. The lack of evidence for 2 cells (7%) is noted in the findings and is indicated by the (0) notation the table cells. When the factors that were completely tested with evidence from all three sources are combined with the factors that offered less than three sources of evidence, the researcher suggests in 25 cells or 93% of the table cells there is at least one data source of evidence to corroborate the associated theoretical propositions for change.

FACTORS ASSOCIATED WITH SUSTAINED CHANGE. The second question is an inquiry about the factors associated with sustained change in organizations recognized for successfully implementing change. The measurement criteria for sustained change is based on whether factors existed over time. The award criteria already exists and their measurement examples exist in the archival files. The evidence of change over time was recognized with the Medallion and Award for Continuing Excellence. As recognized winners of these two awards, each organization has, by definition, already satisfied the measure of success specified in the Virginia Senate Productivity and Quality Award criteria. Table (5) in Chapter III reflects the similarities between five of the award criteria and the theoretical propositions associated with the broad categories of forms of change and actions roles. The theoretical propositions (forms of change and action roles) were selected because they are factors that occur within the organization to answer the questions Change What? And Change How? (Kanter, Stein, & Jick, 1992).

Environmental factors are used to answer the question Change When? And are events that are a catalyst for starting the change efforts.

Tables (22) and (23) reflects the evidence that examples exist for the theoretical propositions: forms of change (coordination and control) and action roles (strategist, implementor, and recipient). These theoretical propositions were selected because there was at least one or more events to indicate the existence of change across all three organizations. Identity as a form of change only existed in one organization (Air Combat Command) and all three environmental kinds of movement were excluded because there were no similarities with the award criteria.

The findings from the archival files on the award criteria provide evidence that over the period of the award and continuing after that period, each organization continued the pattern of training to inform people in the organization of new or updated requirements. In all cases, the training is provided to teams as well as individuals. Team activity also remains an event evident in each organization. To support the archival files are documents and interviews which provide corroborative evidence that the content of team training changed to support each new initiative or program, but continued to be offered and attended by implementors and recipients of the organization.

Once the training was offered, individuals assigned to teams at the executive level (strategist and implementors) as well as working level (implementors and recipients), were organized and expected to address emerging issues ranging from strategic planning to identification of problems. These events are similar to the definitions of evidence of continuous improvement in the award criteria.

The archival files on the awards also offers evidence of events that are similar to the performance measurement criteria. These events include the uses of tools and formalized processes to implement the new initiatives such as the self assessment process using Malcolm Baldrige criteria at Air Combat Command and Norfolk Naval Shipyard and the School Renewal program at Hanover County Schools. All three organizations used quality management tools to help identify and measure the problem or process.

Table (22)

Forms of Change as Change Factors and Award Criteria

<p>Change factor: Coordination</p> <p>Award criteria: <i>-Performance measurement and results</i> <i>-Plan for continuous improvement</i> <i>-Results over time</i></p>
<p>Formal training on new programs, ideas, processes (<i>continuous improvement</i>):</p> <ul style="list-style-type: none"> • Air Combat Command (quality management, Action workout, Malcolm Baldrige inspection process) • Hanover County Public Schools (school renewal, quality management, team facilitation) • Norfolk Naval Shipyard (quality management)
<p>Teams (<i>performance measurement and results over time</i>):</p> <ul style="list-style-type: none"> • Air Combat Command (quality management efficiencies in safety, medical, repair, plus Action workout/Power teams reduced aircraft down time) See table 6 & 7 results. • Hanover County Public Schools (school renewal) See table 11 results. • Norfolk Naval Shipyard (quality productivity improvement teams) See table 14 results.
<p>Strategic Plans (<i>continuous improvement</i>):</p> <ul style="list-style-type: none"> • Air Combat Command (1993) • Hanover County Public Schools (1991/1996) • Norfolk Naval Shipyard (1987)
<p>Change factor: Control</p> <p>Award criteria: <i>-Performance measurement</i></p>
<p>Directives from higher authority (<i>performance measurement</i>):</p> <ul style="list-style-type: none"> • Air Combat Command (from self assessment using Malcolm Baldrige award criteria for inspection process to higher authority inspection and Action Workout statistical processes) • Hanover County Public Schools (option to use school renewal for reaccreditation and PDSA tools.) • Norfolk Naval Shipyard (use quality management tools to identify efficiencies)

(Archival files)

There exists evidence within each organization of the similarities between the change factors defined as the theoretical propositions of **coordination** and **control** and the definitions of three award criteria: continuous improvement, performance measurement, and results over time. As previously stated the award criteria is a measure of the each organization's change efforts over a minimum six year period and provides overall evidence of the success of these efforts as winners of the Award for Continuing Excellence. The change factors of **coordination** and **control** are factors associated with these criteria and with sustained change.

There are similarities with theoretical propositions that address the action roles (**strategist, implementor, and recipient**) and three award criteria: top management commitment and involvement, employee involvement, development, and management participation, and customer and supplier involvement. See appendix A for the award definitions. Again the archival files provide evidence that records the involvement of the **strategists**, which is similar to the award criteria of top management commitment. Evidence from all three data sources is available across all three organizations to test the implementor action role and the similarity with the award criteria that describes employee involvement, development, and management participation. The similarities between the customer and supplier involvement and the action roles is evident with the examples of strategists' decisions to include customers and suppliers in the process, as well as the evidence that recipients of the change processes were identified as customers and suppliers.

For example, Hanover County Public Schools included community, businesses, students, school board members, and parents in their planning process. Norfolk Naval Shipyard also included union representation on the executive steering committee and increased communications with the community. Air Combat Command conducted surveys to measure perceptions of the workforce as the changes occurred over time.

The examples in table (23) provided additional evidence from the archival files to show evidence that the theoretical propositions are factors associated with sustained change.

Table (23)

Action Roles as Change Factors and Award Criteria

<p>Change factor: Strategist Award criteria: <i>-Top Management Commitment.</i> <i>-Employee involvement, development, and management participation</i> <i>-Customer and supplier involvement</i></p>
<ul style="list-style-type: none"> • Air Combat Command <i>Top Management Commitment:</i> -Commanders in leadership positions 1978-1993, -Provides resources to conduct training. <i>Employee involvement, development, and management participation:</i> -Invites employees and supporting depots to participate.
<ul style="list-style-type: none"> • Hanover Schools <i>Top Management Commitment</i> <i>Employee involvement, development, and management participation</i> -2 Superintendents 1991-1999, School Board 1991-1999. -Provides resources to conduct training for principals and teachers. <i>Customer and supplier involvement</i> -Invites parents, students, businesses, community to participate.
<ul style="list-style-type: none"> • Norfolk Naval Shipyard <i>Top Management Commitment</i> <i>Employee involvement, development, and management participation</i> -Executive Steering Committee 1983-1989. -Provides resources to conduct training for employees. <i>Customer and supplier involvement</i> -Invites union, shop superintendent, ship supervisor, ship Commanding Officers to participate.
<p>Change factor: Implementor Award criteria: <i>Employee involvement, development, and management participation.</i></p>
<ul style="list-style-type: none"> • Air Combat Command: -Training for employees & Wing Commanders on quality, Action Workout, Malcolm Baldrige inspection criteria. -Survey results (1991-1993) -<u>Quality Improvement teams at Wing and squadron levels to resolve problems</u>
<ul style="list-style-type: none"> • Hanover Schools -Training for administration, school board, principals, teachers. -<u>Convene planning team with administration, school board, principals, teachers</u>
<ul style="list-style-type: none"> • Norfolk Shipyard -Training to executive steering committee, employees on quality tools and Malcolm -Team results (1984-1989),

<p>Change factor: Recipient Award criteria: <i>-Employee involvement, development, and management participation.</i> <i>-Customer and supplier involvement.</i></p>
<ul style="list-style-type: none"> • Air Combat Command: <ul style="list-style-type: none"> -Training for employees & Wing Commanders on quality, Action Workout, Malcolm Baldrige inspection criteria. -Survey results (1991-1993) -Quality Improvement teams and Idea Generation efforts • Hanover Schools <ul style="list-style-type: none"> -Training for administration, school board, principals, teachers. -Convene planning team with administration, school board, principals, teachers -Parents, students, businesses, community participate. -Parent surveys • Norfolk Shipyard <ul style="list-style-type: none"> -Training to executive steering committee, employees on quality tools. -Team results (1984-1989), -Union, shop superintendent, ship supervisors participate and community outreach.

(Archival files)

These tables provide examples of events recorded in archival files and provide evidence to test the theoretical propositions as factors associated with sustained change. The award criteria was used to measure long term evidence of change and productivity in these three public sector organizations. The theoretical factors that are similar to the award criteria are: coordination, control, strategist, implementor, and recipient.

Another aspect of sustained organizational change involves the character of the organization. "Changes in character shift the behavior of the whole organization... What is important is anything that suggests the presence of a pattern of behavior or that could become one" (Kanter, Stein, & Jick, 1992, p. 11). The Big Three Model of Change, described by Kanter and her colleagues, applies this perspective in discussions on the forms of change. Based on the triangulation of data sources, evidence exists that three

factors are associated with sustained change in these organizations. Two are considered forms of change: coordination and control. The other factor supported by triangulation of data across all three organizations is the implementor action role. The pattern of cultural change within these organizations also exists, only partially supported by the data, when the factors of external, internal, and political environments, coordination, control, and strategist, implementor, and recipient action roles are investigated.

These case studies offer evidence of factors that are associated with change and sustained change in public sector organizations recognized for their success in achieving long term change. They also provide examples of patterns of similar events across each organization. The patterns provide additional evidence of sustained change in these public sector organizations. The next chapter offers final comments and implications for future study on organizational change in public sector organizations.

CHAPTER V

CONCLUSIONS

This study of organizational change began with an investigation of the factors associated with change and sustained change in public sector organizations. Research on private sector organizations provide many examples of successes and failures in the application of theoretical models to help manage the processes of change. This study offered research on change models that would suggest factors associated with change in public sector organizations.

As the review of the technological, political, social, educational, and economic environment suggested after World War II, technology created more challenges as computers became a common tool in the work place and political actions involving affirmative action created a workforce that was more diverse than during the early half of the century. Managers in both private and public sector organizations faced the demands of a work force that was less likely to respond to autocratic management styles. The American public wanted better service and better quality from the public and private sector (Deming, 1984, Peters, 1987, and Tichy & Sherman, 1993, Osborne & Gaebler, 1993, and Gore, 1995).

In the public sector changes occurred through political direction and through a desire to become more efficient. Congress responded to the American public's desire for a more service oriented, and accountable government with less bureaucracy within the Government. The Performance and Results Act required government agencies to develop

strategic plans with performance measures. Vice President Gore reported on the changes the government can make in his book Common Sense Government Works Better and Costs Less (1995). He writes in the conclusion, "If you worked in construction back before the turn of the century and someone told you your work was good enough for government work you'd be pleased as punch. In those days, the government's construction standards were higher than anyone else's. But during the intervening century, that phrase has become a term of derision. A focus within the government on convoluted procedures and seemingly arbitrary, often silly, and certainly costly rules drove even the best intentioned people to work to meet the letter of the regulations, but not to excel" (Gore, 1995, p. 140). Based on examples provided by Vice President Gore and evidenced by the public sector winners of the Virginia Award for Continuing Excellence, the government can change and become more efficient and also more customer oriented. The question for this study and for other public sector managers is what are the factors associated with successful change efforts and factors associated with sustained change within organizations. This research investigated the evidence from the winners of public organizations recognized for successful change initiatives and applied the theoretical propositions from the Big Three Model for Change that reflected the multi directional influences of environment, forms of change, and action roles.

The theoretical propositions applied in this study involved three kinds of environmental movements: macroevolutionary (relates to external environment), microevolutionary (relates to internal environment), and revolutionary (relates to political environment). There can be inter-relationships between these environmental movements and three forms of change: identity, coordination, and control. Identity changes, stem from external

environmental changes, and are evident by a completely new change in the name, responsibilities, mission and function of the organization such as only occurred with Air Combat Command. Hanover Schools and Norfolk Naval Shipyard experienced changes in available resources and employees, however, both organizations retained their identities during the change efforts. Internally, all three organizations experienced changes in their respective work forces. Air Combat Command and Norfolk Naval Shipyard faced reductions and Hanover Schools experienced expansions to support more students. Politically each organization began to implement a new program that was either introduced by higher authority or an outside organization. The political changes in the environment of the organization resulted in the use of new management programs throughout the entire organization (quality management at Air Combat Command, Norfolk Naval Shipyard, and Hanover Schools) and policy changes on how to manage the way they did business through teamwork.

Coordination impacts internal configurations and in all three organizations it was a strong factor associated with change and sustaining change. Although coordination changes can result from external and political events, the internal reductions in workforce (Air Combat Command and Norfolk Shipyard) or increases in funding (Hanover Schools) influenced the coordination changes. In all three organizations training was as central a factor as was the focus on teamwork. Each organization also developed strategic plans and, based on the documents, continue to publish updated strategic plans. The data fully supports the fact that coordination is a significant factor of change in these three public sector organizations.

Forms of change that involve control are associated with the revolutionary or political environment. Control factors can also be influenced by external, internal, and environmental forces. In Air Combat Command political forces in the environment led to an identity change. In both Air Combat Command and Norfolk Naval Shipyard the end of the cold war, in 1991, contributed to political efforts to reduce military work forces and in some cases to close military organizations. Simultaneously, many subordinate organizations faced directions from higher authority to implement different management techniques, such as total quality, and to become more efficient and productive. All three of the organizations in this study received training and implemented variations of total quality management. In Hanover Schools, total quality was integrated with a new program to help with the reaccreditation process called School Renewal. At Air Combat Command and Norfolk Naval Shipyard the inspection process applied the Malcolm Baldrige criteria. Additionally, Air Combat Command implemented Action Workout, a program adapted from General Electric's "Workout" program, to help wing commanders identify efficiencies. Control, also involved the changes in regulations that set new policies, such as Air Combat Command's early decision to end external inspections and implement self assessment inspections; or Hanover School Board's Graduate Warranty program for high school graduates; or Norfolk Naval Shipyard's use of executive steering committees and other high level teams to bring union representatives, shop superintendents, and ship supervisors together to develop plans and make decisions. Control changes also are supported by the triangulation of evidence in all three case studies.

There is an inter-relationship between the external, internal, and political environments, the identity, coordination, and control forms of change, and the three action roles in the organization. These roles are described as the strategist, who is usually a leader in or out of the organization that influences the initial change initiative; the implementors, who are internal to the organization and who execute the changes; and the recipients, who may be stakeholders or employees and who are also affected directly or indirectly by the change initiative. Action roles can change as strategists become implementors and even recipients, as the changes lead to policies for everyone in the organization to follow. This is an area that can benefit from additional research during on-site observations.

In summary, for all the case studies, 93 percent of the theoretical propositions adapted from the Big Three Model of Change are factors associated with change in organizations recognized for their successful in implementing change. The similarities between the elements of five of the award criteria and five change factors defined as the theoretical propositions: coordination, control, strategist, implementor, and recipient also offers evidence that these change factors are associated with sustained change in these public sector organizations.

THEORETICAL IMPLICATIONS. These findings demonstrate that the best change model for public sector organizations is the Big Three Model of Change. This model is viewed as best because of the triangulation of evidence to support the theoretical propositions from this model that involve political factors in the environment, coordination, control, and implementors. Although triangulation of all three sources of evidence was not corroborated in every case study, 93 percent of the propositions across

all cases were supported by at least one source of evidence from either the archival files, documents, or interviews. Based on the research findings the propositions from The Big Three Model dissects the change events showing the interrelationship of event and answers the organizations' questions: Change when? Change what? And change how? (Kanter, Stein, & Jick, 1992). The findings also suggests the strong association of several factors from the Big Three model that are associated with sustaining change. Other change models, suggested by Lewin (three step linear), Dawson (processual framework), Porter (strategic), Blanchard (individual), Deming (continuous improvement), and others have limited application because they are not multi-directional in their ability to create change external to the environment or internal to the organization or because they do not offer factors associated with sustaining change. Therefore, researchers interested in organizational change should use the Big Three Model for Change for public and private sector.

These theoretical factors are explored in these three case studies. Examples of coordination activities and control events are provided and aligned in conjunction with the relationship of action roles throughout the change process. With the guidance and support of action roles, all three organizations used training programs in the change process to explain how to implement the new ideas and new ways of doing business through teamwork. The training program was adjusted as the organization took on new ideas. The process for implementation becomes policy, an aspect of the control factor of change, with the evidence of teamwork, training, and active involvement from each level of action role. The findings suggest all of the theoretical propositions of the Big Three model occurred in at least one of the case studies, some more prominently than others.

The strongest factors for sustained change were coordination and control, but also included each of the action roles: strategist, implementor, and recipient. These factors played a prominent role in influencing change in these organizations based on the evidence in the archival files for both awards. Documents and interviews also support the current efforts of these public sector organizations to sustain change, even as the internal environment changes. During a follow on interview with a key informant at Air Combat Command, the researcher discovered that the Management and Innovation Squadron was to be disestablished, although elements of the Action Workout program would remain. This key informant felt confident that the influences of past innovations and management approaches like quality management are a part of the organization and the management tools would continue to be used to identify improvements. Time will judge the long term impact of past change initiatives within Air Combat Command as it enters the next century; and additional research will provide new tests of the sustainability of The Big Three Model's theoretical propositions. This event highlights the difficulty in sustaining structured change programs. Public sector organizations continue to face change and cannot rely on the stability of past programs. The impact of organizational change on internal structures and people is complex to predict. However, the use of theory, such as the Big Three Model of Change, can help in managing the change and possibly in controlling the outcome. The next discussion involves implications for additional research on organization change.

IMPLICATIONS FOR FUTURE RESEARCH. Future research should involve direct observation of public sector organizations that are faced with unplanned change from

environmental movements. Case study is useful but is limited in its anthropological and qualitative assessments. Assessments using indicators such as employee satisfaction surveys might cover more information on the perceptions of efficiency or effectiveness of the change process. Focus groups and on-site interviews of strategists and recipients who are going through the change process will offer additional evidence to support the impact and importance of these action roles on the change process. These on site observations and surveys will continue to test the complexity of interactions between the internal coordination of activities and the dynamics of the character of the people (action roles) who support or resist the new changes. Additional research on other factors, such as the specific role of communications in the change process, can offer insights for the strategists, implementors, and recipients affected by the change event.

Another research area to consider relates to implications for resistance to change in public sector organizations facing unplanned and planned change. This study of resistance to change might include the relationship to individual values and organizational values within public sector organizations facing change due to an environmental event.

In conclusion, this study offered the reader several perspectives on organizational change. It provided an outline of the historical environment and a synopsis of those factors that led to a revolution of changes in the technological, political, social, educational, and economic areas of American society in the twentieth century in order to highlight the rapid rate of change during the 1900s. This study discussed management models and organizational change theories to set the stage for the exploration of three public sector organizations, recognized for their successful change efforts. The theoretical

propositions that were investigated provided evidence of factors associated with change and sustained organizational change in successful organizations. With additional research the factors identified in this study can be explored in other public sector organizations who are beginning the change process to determine if these factors will be a guide for successful change.

BIBLIOGRAPHY

Air Combat Command. (1996). Unit Self Assessment Course: Instructor Guide. HQ ACC Inspector General Programs and Training.

Air Combat Command. (1996). Unit Self Assessment Course: Instructor Notes. HQ ACC Inspector General Programs and Training.

Air Combat Command. (1993). ACC Quality Pamphlet. HQ ACC/QI.

Air Force Team Excellence Champions (Presentations). (1997). Innovations for the Future. (VHS). (Available from Joint Visual Information Activity, Building 3, Bay 3, 11 Hap Arnold Boulevard, Tobyhanna, PA 18466-5102).

Air Force, U.S. Department. (1996). Air Combat Command Assessment Guide. (ACCH 90-550).

ASQ (1997). About Quality. www.asq.org/abtquality/glossary.cgi.

Argyris, Chris. (1985). Strategy, Change, and Defensive Routines. Marshfield, MA: Pitman Publishing, Inc.

Beckhard, R., Pritchard W. (1992). Changing the Essence. San Francisco, CA: Jossey-Bass, Inc.

Bennett, Michael J. (1996). When Dreams Come True: The GI Bill and the Making of Modern America. Washington DC: Brassey's Inc.

Benton, William (Ed.). (1984). 15th Ed. United States of America. In The Encyclopedia Britannica (Vol 18, pp. 905-1006). Chicago: Encyclopedia Britannica.

Boyett, J. and Boyett, J. (1996). Beyond Workplace 2000. New York, NY: Penguin Group.

Campbell, Donald T. and Stanley, Julian C. (1963). Experimental and Quasi-Experimental Designs for Research. Dallas, TX: Houghton Mifflin Company.

Champy, James, Nohria Nitin. (1988). Fast Forward. Boston, MA: Harvard Business School Publishing.

Comfort, Louise K.. (1997). Reflections on the Process of Change. American Behavioral Scientist, 40, 375-383.

Comfort, Louise K. (1997). Models of Change. American Behavioral Scientist, 40, 259-263.

Cooke, Alistair. (1973). America. London, England: British Broadcasting Corporation.

Creech, Bill, (1995). The Five Pillars of TQM: How to Make Total Quality Management Work For You. New York: Truman Talley Books/Plume.

Cresswell, J.W. (1994). Research Design: Qualitative and Quantitative Approaches. Thousand Oaks, CA: SAGE Publications.

Crosby, P.B. (1989). Let's Talk Quality. New York, NY: Penguin Group.

Crosby, P.B. (1979). Quality is Free. New York, NY: McGraw-Hill.

Davis, Eileen. (1998). Management Ideas Through Time. Management Review, 87, p. 1-8.

Dawson, P. (1994). Organizational Change: A Processual Approach. London, England: Paul Chapman Publishing Ltd.

Deming, W.E. (1982). Out of the Crisis. Cambridge, MA: Massachusetts Institute of Technology.

Deming, W.E. (1993). The New Economics. Cambridge, MA: Massachusetts Institute of Technology.

Downey, Matthew T., Green, Harvey, Katzman, David M., Markowitz, Ruth Jacknow, and Moyer, Albert E. (Eds.). (1992). The Twentieth Century Volumes I-VI. New York, NY: Macmillan Publishing Company.

Dobyns, Lloyd and Crawford-Mason, Clare. (1991). Quality or Else. New York, NY: Houghton Mifflin Company.

Drucker, Peter F. (1954). The Practice of Management. New York, NY: Harper & Brothers Publishers.

Drucker, P.F. (1995). Managing in a Time of Great Change. New York, NY: Truman Talley Books.

Drucker, P.F. (1994). The Age of Social Transformation. The Atlantic Monthly, 2-15.

Encarta 96 Encyclopedia (1993-1995) Microsoft Corporation. (Computer software)

Fogleman, Ronald. (Speaker). (1997). Air Force Quality on Course into the 21st Century. (VHS). (Available from Joint Visual Information Activity, Building 3, Bay 3, 11 Hap Arnold Boulevard, Tobyhanna, PA 18466-5102).

Fusfeld, Daniel R. (1998). Economics and the Cold War: An Inquiry into the Relationship Between Ideology and Theory. Journal of Economic Issues, 32, 505-512.

GAO (1991). Management Practices: U.S. Companies Improve Performance Through Quality Efforts. Washington DC: General Accounting Office.

GAO (1995). Transforming the Civil Service: Building the Workforce of the Future, Results of a GAO Sponsored Symposium. Washington DC: General Accounting Office.

Garvin, D.A. (1993). Building A Learning Organization. Harvard Business Review, 78-91.

Goodlad, John I. (1984). A Place Called School. New York, NY: McGraw-Hill Book Company.

Gore, A. (1995). Common Sense Government Works Better and Costs Less. New York, NY: Random House.

Government Performance and Results Act of 1993, Public Law 103-62, S. 103, (1993).

Graham, Pauline (1995). Mary Parker Follett- Prophet of Management. A Celebration of Writings from the 1920s. Boston, MA: Harvard Business School Press.

Guest, Robert H., Hersey, Paul, & Blanchard, Kenneth H. (1977). Organizational Change through Effective Leadership. Englewood Cliffs, New Jersey: Prentice Hall, Inc.

Guralnik, A. (1968). Websters New World Dictionary. New York, NY: New World Publishing.

Hammer, Michael, & Champy, James. (1993). Reengineering the Corporation: The Manifesto for Business Revolution. New York, NY: Harpers Collins Publishers, Inc.

Hampton, D.R., Summer, C.E., Webber, R.A. (1982). Organizational Behavior and the Practice of Management. Glenview, IL: Scott, Foresman and Company.

Hawley, (Commander ACC). (Speaker). (1997). Applying Technology and Innovation in Operational Settings. (VHS). (Available from Joint Visual Information Activity, Building 3, Bay 3, 11 Hap Arnold Boulevard, Tobyhanna, PA 18466-5102).

Heifetz, Michael L. (1993). Leading Change, Overcoming Chaos: A Seven Stage Process for Making Change Succeed in Your Organization. Berkeley, CA: The Ten Speed Press.

Henry, J., Walker, D. (1991). Managing Innovation. London, England: SAGE Publications. Hersey, P., Blanchard, K.H., Johnson, D.E.(1996). Management of Organizational Behavior. Upper Saddle River, NJ: Prentice Hall.

Hesselbein, Frances, Goldsmith, Marshall, and Beckhard, Richard. (1997). The Organization of the Future. New York, NY: Jossey-Bass Publishers.

Holmes, Susan & Ballance, Judy (Eds.). (2nd ed.). (1994) Process Improvement Guide. Montgomery, AL: Air Force Quality Institute.

Huczunski, Andrzej A. (1993). Management Guru. London and New York: Routledge.

Juran, J.M. (1989). Juran on Leadership for Quality An Executive Handbook. New York, NY: The Free Press.

Kanter, R.M., (1995). World Class Thriving Locally in the Global Economy. New York, NY: Simon and Schuster.

Kanter, R.M., Stein, B.A., Jick, T.D. (1992). The Challenge of Organizational Change: How companies Experience It and Leaders Guide It. New York, NY: The Free Press.

Kanter, R.M. (1989). When Giants Learn to Dance. New York, NY: Simon and Schuster.

Kanter, R.M. (1983). Changemasters. New York, NY: Simon Schuster.

Kidder, P.J., Ryan, B. (1995). How to Survive in a Downsizing World. Journal For Quality and Participation. (19)1, 2-18.

Kirpatrick, Donald L. (1985). How to Manage Change. San Francisco, CA: Jossey-Bass Inc.

Kotter, J.P. (1996). Leading Change. Boston, MA: Harvard Business School Press.

Kohn, Alfie. (1986). No Contest A Case Against Competition. Boston, MA: Houghton Mifflin Company.

Koontz, Harold and O' Donnell, Cyril. (1959). Principles of Management. New York, NY: McGraw-Hill.

Kuhn, Thomas. (1962). The Structure of Scientific Revolutions. Chicago, IL: University of Chicago Press.

Lewin, Kurt. (1951). Field Theory in Social Science, Selected Theoretical Papers. New York, NY: Harper & Bothers Publishers.

Lindblom, Charles E. (1959). The Science of Muddling Through. Public Administration Review, 19, 79-88.

Marshall, Will, & Schram, Martin. (Eds.). (1993). Mandate for Change. New York, NY: Berkley Books.

McCracken, M.J., Kaynak, H. (1996). An Empirical Investigation of the Relationship Between Quality and Productivity. Quality Management Journal, (3)2, 36-51.

Miles, Raymond E. (1975). Theories of Management: Implications for Organizational Behavior and Development. New York, NY: McGraw-Hill Book Company.

Mintzberg, Henry. (1994). The Rise and Fall of Strategic Planning. New York, NY: The Free Press.

Morrison, I. (1996). The Second Curve. New York, NY: Ballantine Books.

Naisbitt, J., Aburdene, P. (1990). MegaTrends 2000. New York, NY: Avon Books.

Osborne, D., Gaebler, T. (1992). Reinventing Government: How the Entrepreneurial Spirit is Transforming the Public Sector. New York, NY: Penguin Group.

Ouchi, W.G. (1981). Theory Z: How American Business Can Meet the Japanese Challenge. New York, NY: Avon Books.

Peters, T. (1987). Thriving on Chaos. New York, NY: Harpers and Row, Publishers.

Pindur, W. (1992). Public Sector Strategic Planning for the year 2000. Journal for Strategic Change (1), 101-117.

Pindur, W., Konoghue, K., Cornelius, L., and Combs, C. (1992). Workforce 2000: The New Management Challenge. International Review of Strategic Management, 205-223.

Porter, Michael E. (1998). On Competition. Boston, MA: Harvard Business Review.

Reich, R.B. (1987). Tales of A New America. New York, NY: Vintage Books.

Rudestam, K.E., Newton, R.R. (1992). Surviving Your Dissertation A Comprehensive Guide to Content and Process. Newbury Park, CA: SAGE Publications.

Senate Productivity and Quality Award application for 1996 and 1997.

Senge, P.M. (1990). The Fifth Discipline. New York, NY: Currency Doubleday.

Schlesinger, Arthur M. ((Ed.). (1993). The Almanac of American History. New York, NY: Brompton Books Corporation.

Shafritz, J.M., Ott, J.S. (Eds.). (1996). Classics of Organization Theory (4th ed.). Fort Worth, TX: Harcourt Brace College Publishers.

Shafritz, Jay M. and Hyde, Albert. (Eds.). (1992). Classics of Public Administration. (3rd ed). Belmont, CA: Wadsworth Publishing Company.

Spar, Michael A. and Sprung, Laura. (Eds.) (1996). Virginia Statistical Abstract. Fredricksburg, VA. Book Crafters, Inc.

Strauss, William & Howe, Neil. (1991). Generations the History of America's Future, 1584-2069. New York, NY: William Morrow and Company, Inc.

Steiner, George A. (1979). Strategic Planning: What Every Manager Must Know. New York, NY: The Free Press.

Tichy, Noel M. (1983). Managing Strategic Change: Technical, Political, and Cultural Dynamic. New York, NY: John Wiley & Sons.

Tichy, Noel M. & Sherman, Stratford. (1994). Control Your Destiny or Someone Elses Will. New York, NY: First Harper Business Edition.

Toffler, A. (1990). Power Shift. New York, NY: Bantam Books.

Toffler, A. (1980). The Third Wave. New York, NY: Bantam Books.

United States Senate Productivity Award, S. Res. 503, 97 Congress, 2nd Session, (1982).

Virginia Forum for Excellence. Summit held in Richmond, VA, April 22, 1997, to recognize the winners of the Senate Productivity and Quality Award.

Weber, Max. (1927). General Economic History. Glencoe, IL: The Free Press.

Willis, Alan and Jacobson, Bennett. (1993). American Suburbs Rating Guide and Fact Sheet. Milpitas, CA. Toucan Valley Publications.

Wilson, David C. (1992). A Strategy of Change Concept and Controversies in the Management of Change. London, England: Rontledge.

Wilson, L.A., Durant, R.F. (1994). Evaluation TQM: The Case for a Theory Driven Approach. Public Administration Review. (54) 2, 137-146.

Woodman, Richard W. & Pasmore, William A. (1993). Vol. 7. Research in Organizational Change and Development. Greenwich, CT: JAI Press, Inc.

Wren, Daniel A. (1972). The Evolution of Management Thought. New York, NY: Ronald Press Company.

Yin, R.K. (1994). Case Study Research Design and Methods, 2nd Ed, Thousand Oaks, CA: SAGE Publications.

Zinn, Howard. (1995). A People's History of the United States: 1492-Present. New York, NY: HarperCollins Publishers, Inc.

APPENDIX A

DEFINITIONS

A. Senate Productivity and Quality Award for Virginia (SPQA) - The award authorized by the U.S. Senate in 1982, S.RES 503, is organized into four categories: (1) private sector manufacturing, (2) private sector service, (3) public sector state and federal agencies, and (4) public sector local agencies. There is no limit or maximum number of organizations that may receive recognition. It is also not mandatory for the SPQA board to present awards in each sector. There are three levels of recognition that may be awarded in each of four categories:

- **A.1 SPQA Medallion of Excellence**- This is the highest level of recognition presented to organizations which have demonstrated through their practices and achievements the highest level of productivity and quality excellence. Recognition is provided at this level to organizations which have been identified as model organizations. These organizations have demonstrated excellence and maturity in each criteria and have produced outstanding results.
- **A.2 SPQA Plaque for Outstanding Achievement** - Recognition is provided to organizations which have demonstrated through their commitment and practice of quality principles significant progress in building sound processes. Organizations recognized at this level clearly demonstrate results directly attributable to a systematic, well-deployed approach.

A.3 SPQA Certificate for Significant Achievement- Recognition is provided to organizations which have demonstrated, through their commitment and implementation of quality management principles, notable progress in building sound processes. These organizations have documented a solid approach and are implementing plans and procedures.

- **A.4 Award for Continuing Excellence** - is for past medallion recipients demonstrating sustained exemplary performance in quality and productivity. An organization is eligible to apply for the ACE three years after receiving a medallion.
- B. Total quality management/quality management (TQM)-** A term initially coined by the Naval Air Systems command to describe its Japanese-style management approach to quality improvement. Since then, TQM has taken on many meanings. Simply put, TQM is a management approach to long-term success through customer satisfaction. TQM is based on the participation of all members of an organization in improving processes, products, services, and the culture they work in. TQM benefits all organization members and society. The methods for implementing this approach are found in the teachings of such quality leaders as Philip B. Crosby, W. Edwards Deming, Armand V. Feigenbaum, Kaoru Ishikawa, and J. M. Juran.(Source: ASQ)
- C. Malcolm Baldrige National Quality Award** - As part of the national quality improvement campaign in the United States, industry and government have joined together to establish an award for quality to promote an understanding of quality excellence, greater awareness of quality as a crucial competitive element, and the sharing of quality information and strategies. The award, created by public law, is the

highest level of national recognition for quality that a U.S. company can receive. The award is managed by the National Institute for Standards and Technology.

D. Reengineering - The fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance, such as cost, quality, service, and speed.” (Hammer & Champy, 1993, p. 32)

E. Government Performance and Results Act (GPRA) - Public Law 103-62, Aug 3, 1993. To provide for the establishment of strategic planning and performance measurement in the Federal Government, and for other purposes.

F. General Accounting Office - Government organization set up by Congress to conduct audits and reviews on areas of interest to the legislative branch.

G. Senate Productivity and Quality Award (SPQA) criteria:

1. **Maturity of effort-** This dimension assesses the continuity of effort, depth, breadth, and age of effort, quality of methods, and approaches. The board is searching for evidence that there is a constancy of purpose and that the effort is not a project or quick fix.
2. **Top management commitment and involvement-** This dimension assesses the level of enlightenment and involvement of top management and leadership in your organization with respect to the quality and productivity improvement system. The Board is searching for evidence that top management is actively involved in quality planning, deployment and management, and improvement process and that these efforts have become a way of doing business. This category will be evaluated against the Approach/Deployment guidelines.

- Employee involvement, development, and management participation-** This dimension assesses the extent to which the performance improvement effort is deployed at all levels throughout your organization. The Board is searching for evidence that the appropriate level of information, knowledge, power is shared at all levels and that employee ideas and suggestions are treated with respect and acted upon. This category will be evaluated against the Approach/Deployment and Results guidelines.
3. **Recognition and rewards system-** This dimension assesses the employee motivation system within your organization. The Board is searching for evidence that the recognition and reward systems are congruent with quality-driven strategies and actions. This category will be evaluated against the Approach/Deployment guidelines.
4. **Plan for continuous improvement-** This dimension assesses the extent to which business plans, strategic plans, and performance improvement plans are comprehensive and well integrated. The Board is searching for evidence of a systematic performance improvement planning process that is well integrated with strategic and business planning. This category will be evaluated against the Approach/Deployment guidelines.
5. **Performance measurement process-** This dimension assesses the extent to which measurement, data, and information are used to support decision making at all levels. The Board is searching for evidence that employees utilize facts and data and think strategically when solving problems and making decisions. This category will be evaluated against the Approach/Deployment guidelines.

Customer and supplier involvement- The Board is searching for evidence that your organization is managing quality and productivity "totally," by involving suppliers (all upstream systems) as partners in your business and by being customer driven. The Board is also seeking assurance your organization is proactive and innovative in its approach to customers and suppliers. This category will be evaluated using the Approach/Deployment guidelines.

6. **Results over time-** This dimension assesses both qualitative and quantitative results. The Board is searching for evidence that your organization's quality and productivity efforts are achieving results over time. It is recommended that at least three years of data be presented from both quantitative and qualitative perspectives. This category will be evaluated utilizing the Results guidelines.

7. H. Scoring Guidelines (for 90-100% compliance)

Approach/Deployment guidelines- (90-100%) A sound, systematic approach exists which is not subject to turnover in leadership; organization is proactive throughout; quality is part of employee development plans; plans for continuous improvement build on lessons learned, and are comprehensive.

Results- Excellent improvement trends in most to all key areas of importance; strong evidence of industry and benchmark leadership demonstrated; current performance is excellent in most areas of importance to the applicant's key business requirements; the scoreboard of results is well balanced; and excellent performance has been sustained in many key performance dimensions over time. (1997 U.S. Senate Productivity and Quality Award for Virginia application brochure).

INTERVIEW CRITERIA

APPENDIX B

Air Combat Command (5 interviews, *all associated with implementor action role*):

- Past military leader called the Commander of the Quality and Management Innovation Squadron, in person (90 minutes)
- One civilian facilitator currently assigned to Action Workout teams who was involved in the early implementation of quality efforts at Air Combat Command. Interview conducted in person (2 hours).
- One military person who helped develop, train, and implement the Air Combat Command's Unit Self Assessment effort. Interview conducted in person, on two separate occasions, for a total 2 hours.
- One civilian person from the manpower section of the Quality and Management Innovation Squadron, in person (15 minutes), and by email
- Current military director for the Air Combat Command "Action Work Out" program, in person (2 hours)

Hanover County Public Schools (5 interviews):

- Assistant Superintendent for Human Resources, in person (30 minutes) and by email, *implementor*.
- Former Superintendent, Dr. Baker, by telephone (30 minutes), *strategist*
- Two elementary school principals, each by telephone (30 minutes each), *implementor*
One middle school principal, by telephone (30 minutes), *implementor*

Norfolk Naval Shipyard (4 interviews):

- Quality Control Officer, in person (30 minutes), *implementor*
- Former Assistant Public Affairs Officer, in person (30 minutes), *implementor*
- deputy comptroller, in person (with cassette recording- 60 minutes), *implementor*
- Former member of the training department, in person (with cassette recording- 60 minutes), *implementor*

APPENDIX C
INTERVIEW QUESTIONS

Kinds of movement in the environment. (Change When?)

1.a What was the outside environment like when your organization began to identify a need to change? (macro-evolutionary)

1.b What changes occurred in your internal organizational structure over the past several years? (teams started, statistics collected, training offered)? (micro-evolutionary)

1.c. What internal political changes occurred before, during, and after you won the quality awards? (revolutionary)

Forms of change (What needed to change organizationally and administratively?)

2.a What identity changes occurred in order to provide the customer your product or service during the period before, during and after winning the quality award? (identity)

2.b What coordination efforts changed internal to your organization? (coordination)

2.c What changes occurred in the control people felt they had in your organization? (control)

Action Roles in the change process (Who was involved and how?)

3.a Who were the initial drivers for change? (strategists?)

3b. Who was in charge of the projects and programs that led to innovations and change? (implementers)

3c. Who has been involved in sustaining the innovations in your organization and other quality efforts? (recipients)

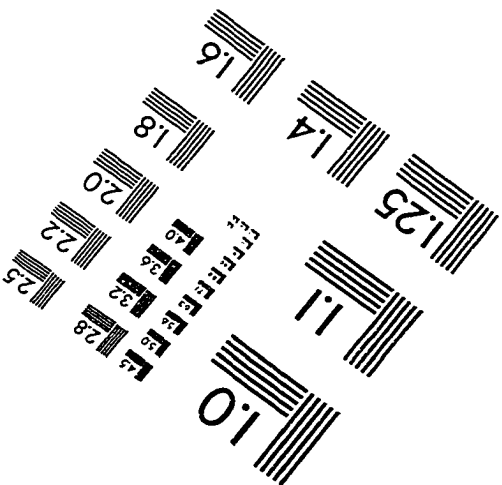
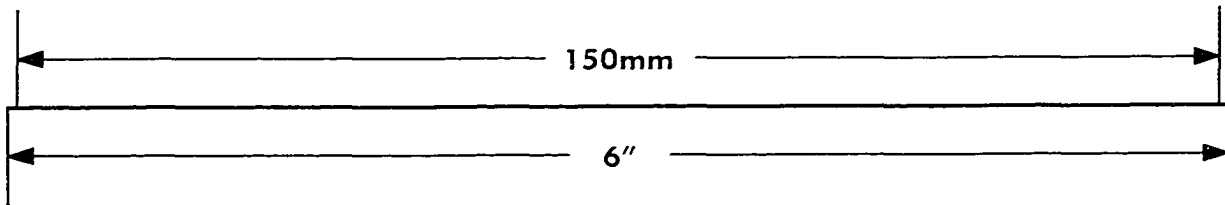
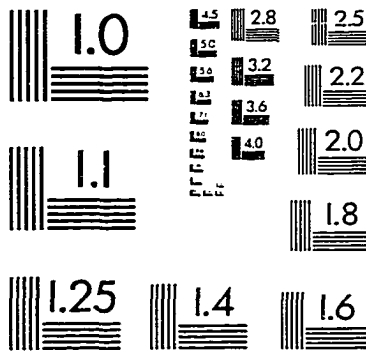
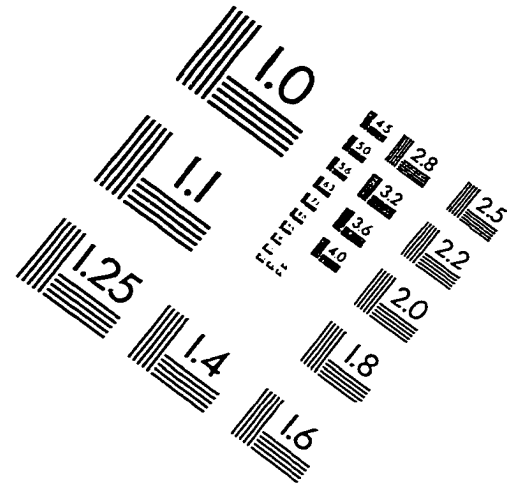
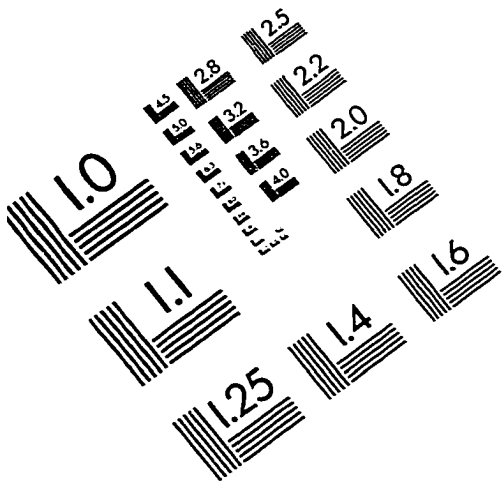
VITA

Mary Redd-Clary began her career as a government employee in 1973. Her first assignment was as an Education Specialist Intern with the Navy's Chief of Naval Education and Training headquarters. In 1976, she was assigned as the Training Program Coordinator for Electronics basics training on the staff of the Chief of Naval Technical Training, Memphis, Tennessee. She accepted an assignment as an Army Education Counselor for the Army Military Community in Giessen, "West" Germany in 1981, returning to her position as a Training Program Coordinator in 1984. Later in 1985, she became the Army Apprentice Program Coordinator and Counselor for the Army Transportation Command, Fort Eustis, Virginia. Subsequent to this position and beginning in 1986, she worked on the staff of Commander, Training Command, U.S. Atlantic Fleet as a Navy Training Assessment analyst, Deputy Equal Employment Opportunity advisor, and Special Assistant for Total Quality Leadership and Management Control Program. Since 1998, she has worked on the staff of the Commander in Chief, U.S. Atlantic Fleet as an Instruction Systems Specialist for Training Vision and Policy.

Mary Redd-Clary attended Tuskegee University, Tuskegee, Alabama, completing a Bachelors degree in Education in 1973. She received her Master of Science in Personnel Services and Counseling in 1980 from the University of Memphis, Tennessee. In 1989 she received a diploma from the Naval War College, College of Continuing Education.

She is the daughter of LTCOL Butler Redd Jr. USAF (Ret.) and Elizabeth Taylor Redd, also retired as an Assistant Professor in the Business Department at North Carolina Central University. Her husband is Ronnie Clary, a teacher with the Chesapeake School System and she remains the proud parent of two sons, Ronald, Jr. and David.

IMAGE EVALUATION TEST TARGET (QA-3)



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