

**An Investigation of the Nexus Between
Strategic Planning and Organizational Learning**

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(ABSTRACT)

This study considered the question: “What is the nature of the nexus between strategic planning and organizational learning, and how does it operate in a specific organization?” A single case study using the narrative inquiry approach was conducted at the National Aeronautics and Space Administration (NASA) Headquarters in Washington, DC. The research found a mature strategic planning process at NASA supported by a wide variety of active and ongoing organizational learning activities, of both an explicit and implicit nature. Based solely on the current research, the nexus between strategic planning and organizational learning is defined as a fluid, dynamic interplay and relationship within an organization that at times is an explicit, implicit, and sometimes even accidental process that uses an organization’s strategic plan to: develop an informed workforce; store, transfer, and retrieve knowledge and data; create an awareness and understanding of the external environment; initiate behavioral change based on past experience; support a culture of learning; maintain an active communications network; encourage continuous improvement; and involve and inform customers and stakeholders.

As a single case study, the research cannot explain all organization behavior and activity as it relates to strategic planning and organizational learning. However the study provided a first look at the nature and composition of the nexus between the two constructs in the context of a government agency. Research similar to the current study is suggested in organizations of various sizes as well as in non-government organizations, such as private industry, academia, and the non-profit sectors. Future research is suggested in areas such as the effect of organizational learning on competitive advantage, which was not addressed in the current study, but is suggested in the literature. Finally, research is suggested in organizations that do not have a strategic planning process that has achieved the level of maturity found at NASA.

Dedication

This product of my research study is dedicated to my family, with tremendous love, thanks, and gratitude. To my wife, Judy, who unselfishly and patiently allowed me to borrow years of our time together to pursue this lifelong dream...I eternally am grateful for the unending support and space you provided along the way. To our children and my mother, whose phrases of “you can do it” and “we’re so proud of you” resonated continuously through the duration of the doctoral program to keep my momentum going...thank you for believing in me. To my father, whose own life and education prompted, encouraged, and motivated me to be different from him...although you passed shortly before I began this journey, I can sense your pride within in my soul.

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An Investigation of the Nexus Between Strategic Planning and Organizational Learning

Chapter One: The Problem

Introduction and Background

Competition began with life itself, long before strategic planning became an established and recognized business process. In discussing the origins of strategy, Henderson (1989) presents Gause's Principle of Competitive Exclusion as a consideration of lessons in strategy among organizations today.

"In 1934, Professor G.F. Gause of Moscow University, known as 'the father of mathematical biology,' published the results of a set of experiments in which he put two very small animals (protozoans) of the same genus in a bottle with an adequate supply of food. If the animals were of different species, they could survive and persist together. If they were of the same species, they could not. This observation led to Gause's Principle of Competitive Exclusion: No two species can coexist that make their living in the identical way."

So it is the same among organizations today—compete to survive; sustain the advantage; adapt to changes in the environment; formulate a plan; set future goals; pursue new markets; measure performance. Participants in strategic planning activities and exercises in most business environments and organizations worldwide easily recognize these phrases as key elements of the strategic planning process.

For the past twenty years, the strategic planning process has become nearly as common a management tool as the budget process (Campbell & Alexander, 1997). Campbell and Alexander argue that few executives are satisfied with strategic planning as it commonly is known. Many strategic planning sessions result in no new actions, and the end product—that is, the actual document—ends up tucked away on an office bookshelf or in a bottom desk drawer.

Rather than cheer about strategic planning, most participants facing the task of strategic planning tend to greet the process with a groan. "For many people, the words or phrase 'strategic planning' conjures up various notions, concepts, memories, and frustrations. Strategic planning frequently is viewed as that

arduous, painful, and drawn out activity, which every organization is obliged to undertake (usually under duress) and which seems to take place too frequently” (Beerel, 1998, pg. 160).

Global considerations impact virtually all strategic decisions (David, 1995). The global competitive environment today is no less than complex, interconnected, and unpredictable (Picken & Dess, 1997). Pressures to change come from (1) the external world of business; (2) the increase in international competition; and (3) the nature of the workforce itself (Marsick, 1988). The world is changing quickly; therefore, in order to grow and survive, organizations must learn to adapt faster, or they will become an afterthought in the economic evolutionary process (Schein, 1993). Organizations no longer can wait until a crisis emerges before recognizing the need for change, for crisis management is a dangerous way to manage for change (De Geus, 1988). The challenge presented to organizations is to be able both to recognize and react to environmental change before the pain of a crisis is experienced (Bartlett & Ghoshal, 1998).

“There is currently a resurgence of interest in strategic planning. During the early 1990s strategic planning seemed to have lost its prominence as the highly skilled management technique devoted to out-thinking competitors and galvanizing the energies of internal resources” (Beerel, 1998, pg. 26).

Today, corporate management is changing its outlook on strategic planning (Bartlett & Ghoshal, 1998). “A revitalized interest in strategic planning makes sense in light of the rapidly changing, complex environment in which organizations have to compete. It also makes sense in view of the multiple nuances that affect every aspect of business today” (Beerel, 1998, pg. 63). Kiernan (1993) asserts that the essence of strategy now lies in creating the competitive advantages of tomorrow faster than competitors can mimic those advantages possessed today. The threat to survival has convinced organizations that the old ways of running the business just are not working; major change is demanded (Redding & Catalanello, 1994). The reality of the situation is that global competition thoroughly has scrambled organizational thinking and planning; and the more a company penetrates global

markets, the more its ability to respond quickly and effectively to a myriad of changes has a greater effect on its success (McGill, Slocum, & Lei, 1992).

Long-term survival and growth are the ultimate criteria of performance for an organization (Fiol & Lyles, 1985). To achieve such survival and growth, organizations must align with their environment, remain competitive and innovative, and survive over the long run. Strategic planning is essential for strategic changes and organizations must develop goals, plans, and direction for the future (Redding & Catalanello, 1994).

Strategic planning was and continues to be the most popular form of business planning, offering a powerful means for anticipating and adapting to dynamic business conditions. The process not only is rational; it also provides a systematic analysis and detailed plan and offers the promise of quick, concrete results (Redding & Catalanello, 1994). However, the basic framework of setting a strategic direction, developing a mission and vision statement, conducting analyses, and setting goals and measures no longer is sufficient. Therefore, given the unenthusiastic reaction to strategic planning presented above, the fundamental question then remains, how can the strategic planning process be improved?

An approach to improving the strategic planning process is founded in organizational learning. The process of strategic planning is evolving quickly into the era of organizational learning — the source of competitive advantage (Bartlett & Ghoshal, 1998). Ribbens (1997) suggests that because the development of strategy is influenced by the ability of an organization to learn, gaining an understanding of how and why organizations learn can enhance the effectiveness of strategy formulation. Fiol and Lyles (1985) reveal that a commonly expressed belief in the strategic management literature is that organizations do learn and adapt; and this enhances the ability of the organization to survive. Redding and Catalanello (1994) state that successful strategic change, in most cases, does not come from plans developed by leaders. Instead, organizational change most often results from setting out in a new direction, gaining new insights, making discoveries, and taking new actions—that is, from taking journeys of learning.

Figure 1: Strategic Organizational Learning



Stata (1989) argues that the benefits that accrue from planning are not just the strategies and objectives that emerge, but more importantly the learning that occurs during the planning process. As further support for the importance of learning to the strategic planning process, Mintzberg and Quinn (1991) state that some of the most effective strategies uncovered in research combined deliberation and control with flexibility and organizational learning. Kiernan (1993) asserts that the most fundamental and important element of strategic architecture is organizational learning. The literature suggests a nexus, or connection, between strategic planning and organizational learning that is illustrated in Figure 1. This nexus can be labeled strategic organizational learning.

Discussion and Statement of the Problem

Organizational learning is critical for the formulation of organizational strategies and broader organizational changes (Shrivastava, 1983). When an unexpected event occurs, an organization can learn; it can experiment in the hope of

capturing some basic messages and converging behaviors on them. After all, learning in an organization is recognized once it leads to a revision of organizational routines on which organizational behavior is based. The learning approach appears to be superior to planning as a means for creating strategy.

Organizational learning ability likely is to be a factor determining the type of strategic decision process an organization utilizes. Organizational learning both determines and is determined by strategy. And organizational learning is one of the core elements necessary to take high-performance firms successfully into the twenty-first century (Kiernan, 1993).

During the 1995 Planning Forum Conference, "Leading Strategic Change," Lester M. Alberthal, Jr., chairman and chief executive of EDS Corporation, emphasized that organizational learning is not just theory (Reimann, 1995). He posited that organizational learning is the blocking and tackling of creating an environment where people can keep pace with changing organization and customer needs.

Slocum, McGill, and Lei (1994), defined a set of strategies that promote learning strategies. Such strategies capitalize on an organization's capabilities and culture as well as its competitive strengths. These practices include:

1. Developing a strategic intent to learn capabilities, including teaching employees to view the company in terms of its capabilities and values.
2. Making a commitment to continuous experimentation, including embracing ideas from customers, employees, and other companies.
3. Having the ability to learn from past successes and failures, including discussing with employees the specifics of the business and what the competition is doing.

Strategies come alive through organizations that can be flexible, be responsive to change, gather and share information, and support ongoing learning. Strategists and management today must improve strategic planning by forming a relationship between that construct and organizational learning, and creating an environment where such learning can thrive, where knowledge and skills will grow,

where strategic behaviors will change, and where learning is a continuous activity. Fiol and Lyles (1985) argue that an organization's strategic posture partially determines learning capacity. Not only does strategy determine the goals and objectives and breadth of actions available for carrying out the strategy, it also influences learning by providing a boundary to decision making and creating a momentum toward organizational learning. Effective organizations are those in which members have a capacity to learn to predict changes in their environments, identify the influence of such changes, search for suitable strategies to cope with changes, and develop appropriate structures to implement those changes (Shrivastava, 1983). Organizations must accept and embrace the fundamental truth that most change occurs through journeys of learning (Redding & Catalanello, 1994).

In trying to understand how and why organizations learn, the literature suggests that basic elements or building blocks exist that are necessary to create and maintain an environment where organizational learning can occur. The ability to improve learning may represent the single-most important defining characteristic of a successful organization; foremost is to establish a climate or environment in which learning becomes natural (Redding & Catalanello, 1994).

Having a clear mission and vision in place that is supported by employees is a critical strategic building block of a learning environment (Goh, 1998). "The organization mission is the starting point of the strategic plan. It forms the foundation from which all other strategic plan elements emanate. A mission statement identifies the basic concept of the organization. It provides a focal point for identifying an organization's purpose, the reason for its existence" (Below, Morrisey, & Acomb, 1987, pg. 9). When the mission and vision are widely shared and understood by employees, actions will result that are aligned with the organization's goals and mission. Such information empowers employees and develops innovative organizations.

Employees should be encouraged to take risks, deal with uncertainty, and innovate (Goh, 1998). Such an environment requires a shared leadership style.

Good leaders establish direction, align people with that direction, and then motivate and inspire them. The role of leaders in organizations is to set the necessary conditions for the organization to develop an effective learning capability. Leaders should be seen as coaches who facilitate change and provide useful feedback to employees and teams to help identify problems and opportunities. Such leadership also means involving employees in decision making (Goh, 1998; Reimann, 1995).

Systems thinking is the ability to see connections and networks among issues, events, and data points; to see the whole rather than its parts (Stata, 1989). Organizations are like giant systems or networks of interconnected nodes, where changes intended to improve performance in one part of an organization can affect other parts of the organization with surprising consequences. Morgan (1997) argues, "...the systems approach builds on the principle that organizations, like organisms, are 'open' to their environment and must achieve an appropriate relation with that environment if they are to survive" (pg. 39).

Systems thinking is a powerful tool to facilitate both individual and organizational learning. And, the collective learning of an organization becomes the basis of future competitive advantage (McGill et al., 1992). Organizations build a heightened strategic readiness by developing among members a broad understanding of the organization as a complex, dynamic system, which continually is able to change shape based on continuous learning. Organizations make learning a way of life by developing systems that promote continuous individual learning, team learning, and broader organization-wide learning (Redding & Catalanello, 1994).

Redding and Catalanello (1994) state that employee communication is a basic element for the very survival of organizations. Information gathering in an effective organization occurs as an ongoing process. Information is distributed and shared widely. Both informal and formal sources of information are valued equally. An equal focus is placed on using information available within the firm and obtaining new information.

A primary reason for instituting strategic management is to build and support effective communication networks throughout the firm (David, 1995). An organization's system of communication determines whether strategies can be implemented successfully. By fostering communication and interaction among all hierarchical levels, strategic management helps an organization function as a competitive team. By working and communicating on teams, employees bring their collective skills and knowledge to solve problems and develop innovative ideas for the organization (Goh, 1998). Nonaka (1991) argues that teams play a central role in the knowledge-creating company because they provide a shared context where individuals interact with each other. Through dialogue and discussion, team members pool their information, create new points of view, and examine issues from various angles.

Organizational learning occurs best in organizational designs that are organic, flat, and decentralized (Goh, 1998). Goh argues that some research has supported the finding that organizations with a strong learning capability tend to have low scores on formalization in their organizational structure, and that research results clearly show a negative relationship between formalization and learning capability. Goh supports his argument by citing research findings that learning organizations generally have a flat organization structure that places work teams close to the ultimate decision makers, that is, a minimal hierarchical structure.

Behavioral change is evidence of learning. For learning to occur, organizations must be able to set aside or overcome bad habits, ingrained routines, and cultural roles and then expand their behavioral repertoire into uncharted areas (McGill et al., 1992; Schein, 1993). Organizational learning is about more than simply acquiring new knowledge and insights; it also is about unlearning. Hedberg (1981) states that unlearning is a process through which learners discard obsolete and misleading knowledge, and that unlearning is a crucial weakness of many organizations. He adds that for long-term survival, there needs to exist a balance between the abilities of an organization to learn and unlearn. Learning activities

are necessary to generate new knowledge and adjust or update existing knowledge. And unlearning activities are necessary to make room for more adequate responses in organizational memory. For example, organizations need to unlearn conventional approaches to strategy and think in ways that their competition does not (Slocum et al., 1994). Unlearning is emotionally difficult because the old way of doing things has worked for a while and has become embedded. Unlearning is one of the most important, yet overlooked, elements of organizational learning.

Goh (1998) argues that the acquisition of skill and knowledge is useless unless they can be transferred to the job by an individual employee, and are more useful if such knowledge can be transferred to other parts of the organization to solve problems and energize creative new ideas. He posits that learning from past failures and talking to other staff members about successful practices or experiences are all part of the transfer of knowledge. Successful organizations not only encourage such practices, but also have mechanisms or systems that allow them to happen.

Organizational culture is a system of shared values and beliefs that shape a company's people, organizational structures, and control systems, and produce behavioral norms (Picken & Dess, 1997). "Organizational culture is the set of collective meaning structures that organizational members use to interpret the nature of their world and themselves in relation to it. They are assumptions that are so fundamental that they are for the most part tacit" (Dixon, 1999, pg. 199).

Culture is within every organization, and its influence is pervasive. A culture is organic; it must be cultivated, encouraged, fertilized, reinforced, and passed on to others if it is to remain viable. Culture can change over time. Hewson (1997) argues that companies that are riding the wave of success often are the last to realize the need for cultural change, and that fixed cultures become outdated as the environment that created them changes over time.

Culture encourages individual identification with the organization and its objectives (Picken & Dess, 1997). Learning conforms to culture; the nature of learning and the way in which it occurs are determined by the organization's

culture (Nevis, DiBella, & Gould, 1995). The values and culture of an organization have a significant impact on the learning process and on how effectively a company can adapt and change (Stata, 1989). Learning must become part of the culture. Individuals need to experience a common set of values and beliefs that bond the members into shared commitment. They must share information and expertise and have a sense of collaboration, yet accept responsibility for issues over which they have only limited control. At the same time, management of an organization must provide employees with a sense of involvement and broad participation, such as open decision making (Bartlett & Ghoshal, 1998).

Culture must be reinforced with an effective program of training and indoctrination (Picken & Dess, 1997). Goh (1998) states that the literature frequently asserts emphasis on the training and skill development of employees; however, not in the traditional mode of job-focused skills. Training experiences should develop entire teams or whole work units. Fiol and Lyles (1985) state that an organization's choice of a strategic posture is tied closely to its culture, and that broad belief systems partially determine strategy and the direction of organizational change.

Simpson (1997) states that a company's cognitive processes can be influenced and organizational learning can be created by asking questions; however, not just questions, but good questions. Simpson also states that strategy is about figuring out what really is important and what can be done to influence it. He adds that when trying to create great strategies, questions are more important than answers. Simpson states that when good questions are asked, individuals will be stimulated into attempting to answer them. Examples of the types of questions Simpson suggests, and the basis for asking such questions, are:

1. What distinguishes winners from the losers in your market? What fundamental benefits are you providing to customers?

Although businesses are comprised of a network of issues, there are only a few things that really make a difference in the marketplace. It is important to have an opinion about what separates the winners from the losers. And to maintain the

marketplace advantage, it is important to know what core benefits the organization provides to customers.

2. What has been learned since a strategic plan was prepared five years ago?

One of the ways to improve learning is to determine where assumptions went wrong when the organization last prepared a strategic plan, not just the past year or two, but five or even ten years ago. Understanding how yesterday's assumptions about today were amiss dramatically improves thinking about tomorrow

3. What things that made the organization successful in the past does it need to forget in order to be successful now? What beliefs are held that need to be challenged?

This question is about future focus, sifting out what is important, and figuring out which pieces of information are important signals about future direction. An organization must work on ways to get early indicators of direction, identify which two or three really make a difference, and focus resources and attention on these.

4. If you were made CEO of your competitor's business tomorrow, what would you do to attack the business you worked on yesterday?

To answer this question, put yourself in your competitor's shoes to expose the soft underbelly of your own business. Understand not only your own liabilities, but also understand your competitor's business better than you do now.

In today's competitive and rapidly changing environment, organizations must remain ahead in the time and effort spent in attracting, developing, and retaining the best people. Organizations must not only commit resources, but also build a strong sense of trust for individual development; continuously upgrade the skills of employees; transfer, share and leverage information; and provide an environment for organizational learning to occur. Such actions will facilitate the rapid diffusion of strategic knowledge and expertise (Bartlett & Ghoshal, 1998). Stata (1989) argues that the rate at which individuals and organizations learn may become the only sustainable competitive advantage.

To ask "Who are we?" and "Where are we going in the future?" no longer are

adequate or appropriate. Organizations that have understood and nurtured the relationship between strategic planning and organizational learning ask questions such as:

1. Do our employees understand our mission and vision?
2. How well do we perform as a team or system?
3. How well do we communicate and share information and knowledge horizontally and vertically within and outside the organization?
4. To what extent does our culture focus on continuous learning? How is that culture reinforced?
5. What about our past must be challenged and unlearned?

Gary Hamel, London Business School professor, suggests that in the next ten years, strategy will be more about organizational learning than anything else (Reimann, 1995). Organizations that form a strategic relationship with organizational learning not only will be the survivors of the future, but also will be the most competitive, innovative, and difficult to beat in the market. The strategy making process is better characterized as a process of learning; that is, formation in the place of formulation (Mintzberg, 1994; Tsang, 1997).

Purpose of the Study

The significance of both strategic planning and organizational learning to the future success and survival of an organization, as discussed in the literature, therefore suggests there might exist more than a coincidental nexus between the two constructs. The purpose of this study is to initiate an investigation to uncover, identify, and define the common set of elements between the constructs.

Importance of the Study

Until recently—that is, through the 1990s—the organizational learning literature more often has made reference to strategic planning than the converse. Discussion concerning both constructs raises questions on the subject of how strategy can be made to come alive, or how learning can thrive in an organization.

Also mentioned in discussions about strategic planning and organizational learning are organizational considerations such as the need for aligning with the external environment in order to predict turmoil or perturbations in the marketplace and among competitors; maintaining competitiveness; developing goals and new direction; learning from unexpected events; keeping pace with changes; engaging in systems thinking; sharing and transferring information and knowledge; and learning and adapting faster.

Although the literature suggests an outcome of the competitive advantage that organizations might gain from the nexus between strategic planning and organizational learning, there does not exist a detailed nor precise definition of that nexus or the elements that comprise such a connection. Neither guidelines, a set of usable tools, nor an instrument are available should an organization be prompted to examine or conduct a diagnosis of its strategic planning process and determine (1) in what ways the organization can gain a competitive advantage by incorporating the best practices of both strategic planning and organizational learning; and (2) to what extent strategic planning and organizational learning might exist or operate in a relationship of interdependence. An important step, therefore, is to attempt to determine the composition of such a nexus—that is, the elements future researchers might use to develop such guidelines, tools, or instruments.

Research Questions

The primary research question to be investigated by conducting the research is: “What is the nature of the nexus between strategic planning and organizational learning, and how does it operate in a specific organization?” Supporting questions include:

1. In what ways are characteristics of organizational learning embedded—implicitly or explicitly—in a strategic planning process?
2. In what ways are characteristics of strategic planning embedded—implicitly or explicitly—in an organization learning process?
3. In what ways are failures in strategic planning explained by a lack of

incorporating organizational learning?

4. In what ways does organizational learning have a strategic component and how do the processes inform each other?

Scope and Delimitations

As stated previously, the purpose of the study is to investigate the nexus between strategic planning and organizational learning, and to identify the common elements between those constructs. Both strategic planning and organizational learning will be examined and discussed to the depth necessary to understand how each construct is applied in an organizational setting.

It is not the intention of this study to conduct an in-depth investigation of strategic planning or organizational learning as such studies previously were conducted. Should a historical perspective of either construct be provided, it will be done for the sole purpose of (1) providing appropriate background information; (2) providing clarification of or a definition of the construct; or (2) understanding to what extent organizational learning is referenced and discussed in the related strategic planning literature, or the converse. It also is not the intention of this study to identify, examine, or analyze any of the various strategic planning or organizational learning models, except where such a discussion clearly identifies a nexus between the constructs.

Definition of Terms

Listed below are various terms and their definitions used throughout the thesis. Unless otherwise indicated by reference, the definitions were developed as a result of the author's research.

Competitive advantage	The ability of an organization to provide customers with the desired perceived value, at the lowest delivered cost (Mintzberg & Quinn, 1991)
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Organizational culture	A system of shared values and beliefs that shape a company's people, organizational structures, and control systems, and produce behavioral norms (Picken & Dess, 1997)
Organizational learning	The activities that take place in an organization to acquire, create, and transfer knowledge that, over time, result in behavioral or procedural changes, as well as an increase in knowledge and understanding
Strategic planning	The process by which an organization evaluates its current position in the marketplace and against its competitors, sets goals, and determines the actions and resources necessary to capture and maintain a competitive advantage
Strategic organizational learning	The process by which an organization acquires, creates, and transfers knowledge about its environment and competitors in order to examine and revise its strategic position continuously and gain competitive advantage over time
Strategy	A deliberate search for a plan of action that will develop a business' competitive advantage and compound it (Henderson, 1991). The pattern of objectives, purposes, or goals and major policies and plans for achieving these goals stated in such a way as to define what business the company is or is to be in and the kind of company it is or is to be (Anthony, 1965).
Systems thinking	The ability to see connections and networks among issues, events, and data points; to see the whole rather than its parts (Stata, 1989)

Outline of the Remaining Thesis Chapters

Chapter two of the thesis provides a review of related literature. The purpose of the chapter is to acquaint and inform the reader with existing research and

studies relative to the subject under investigation. The chapter provides a brief historical background of strategic planning and organizational learning, as a means to clarify and define the constructs. In addition, the chapter provides a discussion, comparison, and analysis of the latest research studies in the field—recognizing, as appropriate, that differing positions might exist.

Chapter three of the thesis describes the research methodology and design. In addition to providing the basis for selecting the research methodology—in this case, a qualitative study—the chapter describes the pilot studies conducted before the actual research begins. The chapter also includes a narrative about how the subject organization was selected, and how data will be collected and analyzed.

Chapter four of the thesis presents the research findings as they relate to the research questions. Separate sections are provided that include a narrative summary based on the interviews conducted, and a discussion of findings from the subject organization.

Chapter five of the thesis summarizes the research and findings; presents the researcher's conclusions; and suggests recommendations for additional research.

Chapter Two: Review of Related Literature

Overview and Organization of the Chapter

The purpose of this chapter is to present a review of the literature related to the current research project. In order to provide background information and establish the basis for setting the framework for the research, the first sections of the chapter begin with an overview and discussion of organizations. “The Call for Organization” is addressed from a sociological perspective. Various definitions, types, and qualities of organizations are presented. A discussion of organizational theory is provided, that provides an insight of the principles developed by Frederick W. Taylor, Henri Fayol, and Max Weber. From the classical approach, the chapter then moves to a discussion of the human relations and systems approaches of thinking about organizations.

The chapter continues with a presentation, discussion, and analysis of the literature relative to the current research study. This section of the chapter will acquaint the reader with existing studies and research about both strategic planning and organizational learning, as well as any research conducted about the nexus between the two constructs. The chapter closes with a brief summary.

There exists a wealth of material and research in areas such as sociological and systems approaches to organizing and organizations, organization theory, and organizational behavior. Therefore, the challenge of developing this chapter lies in maintaining a focus on and staying within the boundaries of the current research project, particularly in providing sufficient background information to frame the research. It is the intention of the researcher to provide a sufficient and necessary level of background information about organizations and organizational theory, and to focus the literature review on those constructs applicable to the current research project—the nexus between strategic planning and organization. Because of the scope of the current research, it is not the intention of this chapter to identify, examine, or analyze any of the various existing strategic planning or organizational learning models.

The Call for Organization

“Primitive people learned very early on that individual self-sufficiency was nearly impossible; that there were many advantages to banding together, dividing up tasks and responsibilities, and coordinating these diverse efforts. How successfully the primitive group divided and coordinated its tasks often determined whether the group survived.” (Ford, Armandi, & Heaton, 1988, p. 3)

From the beginning of human existence on the planet, through the formation of families, tribes, and clans, to early settlements and the beginning of towns and cities, humans have worked together not only to meet the basic needs of survival, but also to satisfy the need for companionship and socialization. Basically, people are social animals, who like to interact and be with others in situations where they not only feel they belong, but also feel accepted (Hersey & Blanchard, 1982). Hersey and Blanchard argue that although this is a common need, it “tends to be stronger for some people than for others and stronger in certain situations” (p. 33). They are of the opinion that people who have similar beliefs both tend to seek others out and seek affiliation because they yearn to have their beliefs confirmed—to reach a common understanding.

The concept of organizing originates from the fact that “the individual alone is unable to fulfill all of his or her needs and wishes” (Schein, 1980, p. 12). Particularly with the demand of modern society, individuals do not have the ability, strength, time, or endurance to satisfy even their basic needs for food, clothing, shelter, and safety. “As several people coordinate their efforts, however, they find that together they can do more than any of them could have singly” (p. 12). Smither (1994) argues that the desire for organization seems to be a genetic predisposition, because like all primates, humans not only are born into, but also spend their entire lives in groups. Bolman and Deal (1997) take that argument one step further, adding the perspective of collective human activity: “The proliferation of complex organizations has made almost every human activity a collective one” (p. 7). Bolman and Deal identify a number of activities that rely on the fact that humans build organizations because of what they can do to support their activities—such as

being born, raised, educated; working; relying on the production and delivery of goods and services; learning in schools and universities; and playing sports in teams.

“Modern society is emerging as a web of formal organizations that appear, disappear, change, merge, and enter into countless relationships with one another. Although formal organizations [created deliberately for the achievement of specific objectives] have existed for thousands of years, dating back to ancient Mesopotamia, Egypt, and China, only in recent times has their scope become so pronounced.” (Vander Zanden, 1988, p. 120)

Definitions, Qualities, and Properties

The literature provides a number of definitions of an organization, as well as the qualities and properties of an organization. From a fundamental perspective, the common elements among the definitions are that an organization (1) is a group of people, such as a social group, coalition, or interest group, functioning or working together (2) to achieve a mission, goals, objectives, or purpose. Table 1 below provides a sample of definitions.

Table 1: Sample Definitions of Organization

Source	Definition
Argyris (1969)	A group people, divided up into parts, that engages in achieving objectives, maintaining the internal systems, and adapting to the external environment
Ford, Armandi, and Heaton (1988)	A group of people who join together to work toward achievement of a specific purpose or goal
Katz and Kahn (1983)	A social device for efficiently accomplishing through group means some stated purpose
Miles (1980)	A coalition of interest groups, sharing a common resource, paying homage to a common mission, and depending upon a larger context for its legitimacy and development

Robbins (1996)	A coordinated social unit, composed of two or more people, that functions on a relatively continuous basis to achieve a common goal or set of goals
Schein (1980)	The planned coordination of the activities of a number of people for the achievement of some common, explicit purpose or goals, through division of labor and function, and through a hierarchy of authority and responsibility

Vander Zanden (1988) identifies three types of formal organizations of which people might be a part: voluntary organizations; coercive organizations; and utilitarian organizations. A voluntary organization is an association that members may enter and leave freely. People join such organizations to fill their leisure time, enjoy the company of like-minded people, perform some social service, or advance some cause. Examples of a voluntary organization include charitable groups (Red Cross, Salvation Army), scouting, or church ministry. A coercive organization is an association someone joins against their will. In such organizations—for example, prison or the armed forces—each member’s behavior is tightly regimented, and their existing identity is replaced with a new one. A utilitarian organization is entered for practical reasons to accomplish the tasks of everyday life, and becoming a member of a utilitarian organization is neither entirely voluntary nor compulsory. As related to the current research project, a place of employment is a utilitarian organization.

As stated previously, organizations are formed to provide individuals with those things they cannot provide for themselves. In addition to that purpose for existence, Smither (1994) and Bolman and Deal (1997) argue that organizations have certain qualities or properties that define them further. First, organizations have a principle around which they are organized. In organizational terms, such a purpose is a mission statement—a statement of why the organization is in existence. Second, an organization has outputs—in the way of goods or services that are provided to outside consumers, customers, or stakeholders. Next, organizations

cannot exist with followers—those consumers or customers who purchase, consume, or benefit from the goods or services provided. If consumers or customers no longer find the goods or services favorable or of high quality, and no longer subscribe to the organization, it is likely to stop existing.

Organizations are complex; they are populated by people who can display unpredictable human behavior. The interactions among different individuals, groups, and organizations can become complicated. Organizations are surprising, in that what often should be expected as an outcome, possibly might not be the actual result. Just as with human behavior, solutions to problems or the outcomes of interactions are not always predictable. Because of their complexity and unpredictability, organizations also are ambiguous. As a result of incomplete or vague information, or the interpretation of information, it is sometimes difficult to understand or comprehend what really is happening. Events and processes are complex, scattered, and uncoordinated so that no one fully can understand or control what is happening.

Finally, organizations have an emphasis on survival. Organizations and their members attempt to manipulate their internal and external environments to maximize their chances of continuing to exist. “Organizations, like organisms in nature, depend for survival on their ability to acquire an adequate supply of the resources necessary to sustain existence. In this effort, they have to face competition from other organizations, and since there is usually a resource scarcity, only the fittest survive” (Morgan, 1997, p. 61).

Organization Theory

Based on their premise that an organization is a group of people who join together to work toward achievement of a specific purpose or goal, Ford, Armandi, and Heaton (1988) define organization theory as “simply the study of how people organize” (p. 3). They posit that the field of organization theory uses information and methods from other fields to understand how people work together toward

achieving their common purpose or goal. Such fields and their importance or contribution to organization theory are shown in Table 2 below:

Table 2: Fields Which Contribute to Organizational Theory

Field	Importance or Contribution
Sociology	Structure of organizations Relationships between organizations Relationships of organizations and society
Psychology	Behavior and motivation of groups
Economics	Organizational resources and their allocation
Political Science	Bureaucracies and organizational politics
Anthropology	Importance of culture, values, and norms
Business Areas	How profit oriented organizations operate within [a capitalistic] society

Historically, Ford, Armandi, and Heaton (1988) identify three schools of thought related to organization theory: the Classical School; the Human Relations School; and the Modern Perspective. Each school is overviewed briefly below, with an example or examples of writers or theory from the school.

The Classical School

Classical organizational theory is characterized by an emphasis on structure, the framework that governs the interdependent parts of an organization (Smither, 1994). The classical era covered the period from about 1900 to the mid-1930s. "It was during this time that the first general theories of management began to evolve" (Robbins, 1996, p. A-3), which laid the foundation for contemporary management practices. During the early 1900s, the writers on organizations were seeking to discover principles that could lead to organizational effectiveness. Their approach to uncovering such principles was to observe organizations and then discern the principles that distinguished successful from unsuccessful organizations. Ford,

Armandi, and Heaton (1988) identified a set of assumptions about the approach and outcomes of the “classical” writers (p. 9), as shown in Table 3:

Table 3: Assumptions About the Approach and Outcomes of the Classical Writers

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1. The effectiveness of a principle or procedure is to be measured solely in terms of productivity
 2. Most workers do not like to work. Work is contrary to human nature. Most workers lack intelligence, judgment, and motivation. Therefore, they need close, detailed supervision and firm direction that will encourage them to perform work activities contrary to their nature. Otherwise, they will not work at maximum effectiveness, and production will suffer.
 3. Workers must understand the limits of their jobs and must be forced to remain within those limits.
 4. If they must work, humans prefer to be assigned a definite task, and they prefer to be told just how to do it—rather than use any of their own discretion.
 5. Worker tasks should be made as simple as possible. Such tasks are easier to master and lead to greater productivity.
 6. Workers should be viewed objectively and impersonally, without regard to personal characteristics or problems.
 7. Workers work for money. Their incentives to work harder and better should be monetary.
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The basic principles of organization theory developed during the early decades of the 1990s were the result of the efforts of writers such as Frederick W. Taylor, Henri Fayol, Harrington Emerson, James D. Mooney, Alan C. Reiley, Luther Gulick, Max Weber, and Lyndall Urwick, among others. The work and principles of three of those writers is explored in greater detail below.

Frederick W. Taylor, often called by some the father of scientific management, authored *The Principles of Scientific Management* in 1911. The changes he brought about to management paved the way for later development of

the field of organizational behavior (Dessler, 1980; Ford et al., 1988; Hersey & Blanchard, 1982; Morgan, 1997; Newstrom & Davis, 1993; Robbins, 1996; Schermerhorn, Hunt, & Osborn, 1988; Smither, 1994). Taylor was among the first to focus on the relationship between human behavior and productivity. He believed the best way to increase output was to improve the techniques or methods used by workers, and studied primarily the use of men as adjuncts to machines in the performance of routine productive tasks. Taylor conducted a time-and-motion study in which a worker's movements were analyzed to determine the most efficient way of accomplishing a task. As a result of the study, he broke jobs into basic components, and established exact time and motion requirements for each task to be done. His work led to the design of simple, repetitive tasks, and was the early forerunner of the industrial engineering approach to job design.

Taylor also held the belief that employees should not participate in making decisions about their work. He recommended the division of labor of industrial organizations between those who plan the work and those who do the work to result in more efficient operations. Even within management, he divided the work according to functions or subjects—such as personnel and transportation. Taylor formalized his principles into four categories (see Table4), and believed that following those principles would result in the prosperity of both management and workers:

Table 4: Taylor's Procedures for Solving Management and Organizational Problems

1. Study each job scientifically, to find the best way of doing it.
2. Find the best man for the job, then use the best methods to train him
3. Cooperate and interact with the workers, to be sure that they stick to the “best way” of doing the work. Give them financial incentives to follow the prescribed methods.

4. Workers should work, and managers should manage. Find and train the best workers and managers; such a division of labor should benefit both groups.

(Ford et al., 1988, p. 31)

Henri Fayol wrote the classic work, *General and Industrial Management*, in 1916, and provided the first important theories of organizations (Dessler, 1980; Ford et al., 1988; Gordon, 1991; Robbins, 1996; Schermerhorn et al., 1988). In his work, Fayol stressed the immediate gains in productivity resulting from scientifically investigating and prescribing a worker's task. He offered a logical, comprehensive method of dividing up and then reintegrating the work of an organization. Fayol posited that workers should become expert at particular jobs, and that organizational efficiency, productivity, and profitability would result. He believed that a worker should be assigned one task—and then perform only that task.

Fayol's longer-term approach was to focus on the tasks of a manager. He argued that management was an activity common to all human activities in business, government, and even in the home, and described the practice of management as something distinct from accounting, finance, and other typical business functions. Fayol defined the following managerial functions that led to the formulation of what now are known as the functions of management (see Table 5): planning; organizing; staffing; directing or leading; and controlling:

Table 5: Fayol's Functions of Management

1. Planning the organization's tasks
2. Organizing the people, money, and material necessary to perform these tasks
3. Commanding the people assigned to these tasks

4. Coordinating their activities to ensure proper direction
 5. Controlling the processes, procedures, and people involved
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Fayol also derived fourteen universal management principles (see Table 6), which provided the basis for organizing management knowledge.

Table 6: Fayol's Universal Management Principles

Division of work	Specialization could improve managerial efficiency.
Authority and responsibility	The manager has the power of authority, and the equal responsibility for the use made of that power.
Discipline	Effective managers produce or induce good discipline. They encourage obedience and diligence, and punish insubordination.
Unity of command	Each person has only one boss and reports only to that boss.
Unity of direction	A group of activities having the same objective must have only one boss and only one plan for achieving that objective. Plans must be coordinated, rather than overlapping.
Subordination of individual interest to the general interest	Managers must promote this principle by example and by counteracting violations.
Remuneration	Fair and reasonable payment plans are necessary—but they are not a substitute for good management.
Centralization	Centralization refers to the tendency of an organization to keep decision-making authority near the top. Under decentralization, the organization delegates decision-making authority down through the organization. The manager must determine how much centralization and decentralization the organization needs.

Scalar chain	All employees should be aware of the organizational hierarchy, the different levels in the chain of command. Communications generally should flow through the formal chain of command. Persons on the same level may communicate directly across the chain, to avoid the necessity of sending a message up through the chain of one person's superiors and then down through the chain of the other's superiors.
Order	All people and things have their place and should be in that place.
Equity	The manager must be fair and firm, but friendly.
Stability of personnel	For best results, organizations should encourage the long-term stability of both managers and workers. Rapid turnover is destructive of organizational goals.
Initiative	Managers must be able to originate projects and complete them.
Spirit	Managers must work together harmoniously and must encourage harmony and unity within their people.

(Ford et al., 1988, p. 32)

Max Weber, a German sociologist, also called by some the father of modern bureaucracy, described bureaucracy as what he believed to be a prototypical and ideal form of organization (Dessler, 1980; Ford et al., 1988; Gerth & Mills, 1946; Gordon, 1991; Vander Zanden, 1988). Weber was impressed by the ability of bureaucracies to rationalize and control the process by which people collectively pursue their goals, and saw bureaucracy as an essential feature of modern organizational life. Weber called for an orderly system of supervision and subordination—a rigid chain of command—where each subordinate has a single supervisor. He believed in specialized jobs—that is, each employee has a specified and official area of responsibility assigned on the basis of competence and expertise. Weber also professed centralized decision-making, and a system of impersonal rules

that tell each employee how to do her or his job...rules written by managers, that are consistent, clear, and can be learned. Weber's characteristics of the large-scale bureaucracies that developed during the late nineteenth and early twentieth centuries are identified in Table 7.

Table 7: Weber's Characteristics of Large Scale Bureaucracies

Rational job structure	Jobs are structured and labor is divided on rational principles.
Hierarchy	Personnel and bureaus are organized on a hierarchical basis.
Written formalization	The rules, decisions, and actions of the bureaucracy are formalized in writing.
Competence	Organizational managers and workers are selected on the basis of their competence, rather than family, wealth, or some other characteristic.
Owners and managers separated	In private bureaucracies, owners hire managers to run the organization. In public bureaucracies, the people elect representatives who hire managers to run the government.
Rules	The office is managed by following general rules. These rules are impersonal, uniformly applied, and can be learned.

(Ford et al., 1988, p. 28)

The Human Relations School

The human relations writers recognized that employees are people, too; and were interested in the people aspects of organizational communication. They did not agree that organizations should be built on bureaucratic, mechanistic, or formalized models. Rather, their believe was that in an effective organization, employees join, cooperate, and participate willingly...not because they are made to

follow a formal standard. Chester Barnard, author of *The Functions of the Executive* in 1938, saw organizations as social systems that require human cooperation, and believed organizations were made up of people have interacting social relationships (Barnard, 1968; Ford et al., 1988; Hersey & Blanchard, 1982; Robbins, 1996; Schein, 1980). Barnard's position was different from the classical notion that authority was traced from the top down through the organization; he traced it from the bottom up. He believed that authority comes from those over whom the manager exercises it; and if employees do not accept authority it does not exist. Therefore, whether direction given by a manager has authority is determined by the receiver, not the sender or person in authority. Barnard defined four preconditions that must be met before an employee will accept direction or an order meant to be authoritative. First, the employee must understand the direction; it must be clear. Second, the employee must believe the order is consistent with the organization's goals. Third, the employee also must believe the direction is consistent with the employee's own goals. Finally, the employee must be physically and mentally able to carry out the direction or order.

Barnard introduced the idea that managers had to examine the outside environment, and adjust the organization to a state of equilibrium. He saw the manager's role to communicate and stimulate their subordinates to a higher level of effort. And he believed that the success of an organization depends on maintaining good relationships with people and institutions outside the organization. Finally, and also in opposition to the classical view of one person as an expert for one job, Barnard realized that only some of the work activities of an employee were relevant to achieving a particular goal. He believed the same person could belong to many different sub-organizations, because in each one only some of her or his activities would be relevant. Much of the current interest in how the environment affects organizations and their employees can be traced to ideas initially suggested by Barnard.

The Modern Perspective

The most recent school of thought deals with systems theory. System theorists do not break organizations or work down into smaller elements. Instead, they view the organization as a system with its components interacting with one another.

“Modern thinking recognizes organizations as systems composed of interdependent parts. Systems theorists believe that changes in one area of an organization bring about changes in other areas. Consequently, each part of the organization must be considered in terms of its impact on other parts. From a systems point of view, all of these aspects influence the overall functioning of the organization” (Smither, 1994, p. 365).

Katz and Kahn (1983) view organizations as social systems. Their theoretical model for understanding organizations is “an energetic input-output system in which the energetic return from the output reactivates the system” (p. 98). As such, and because organizations are highly dependent on their external environment, Katz and Kahn identify organizations as open systems that maintain themselves “through constant commerce with their environment” (p. 100)—through a continuous inflow and outflow of energy. Katz and Kahn reject the prospect of thinking of organizations as closed systems, because doing so would result in the failure of developing the “feedback or intelligence function, the means by which the organization acquires information about changes in the environment” (p. 102). Morgan (1997) adds “the systems approach builds on the principle that organizations, like organisms, are ‘open’ to their environment and must achieve an appropriate relation with that environment if they are to survive” (p. 39).

Nadler and Tushman (1983) argue that at the most general level, it should be easy to envision an organization as a system—it is comprised of interrelated elements, where a change in one element could lead to changes in others, and it interacts with its environment. Table 8 identifies Nadler and Tushman’s characteristics of organizations as systems (p. 113):

Table 8: Characteristics of Organizations as Systems

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1. Organizations display degrees of internal interdependence—changes in one component or subpart of an organization frequently have repercussions for other parts; the pieces are interconnected.
 2. Organizations have the capacity for feedback—feedback is information about the output of a system that can be used to control the system; organizations can correct errors and indeed change themselves because of this characteristic.
 3. Organizations maintain equilibrium—they develop energy to move toward states of balance; when an event occurs that puts the system out of balance, it reacts and moves toward a balanced state.
 4. Open systems display equifinality—different system configurations can lead to the same end or lead to the same type of input-output conversion; this means there is not a universal way or one best way to organize.
 5. Open systems need to display adaptation—for a system to survive, it must maintain a favorable balance of input and output transactions with the environment or it will run down.
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Returning to the common elements among the definitions of an organization previously identified in this chapter, the addition of the modern or systems approach might redefine an organization as: a group of people functioning or working together through constant internal interaction and with its external environment to achieve a common purpose.

Strategic Planning

“Human nature insists on a definition for every concept. But the word strategy has long been used implicitly in different ways even if it has traditionally been defined in only one. To almost anyone you care to ask, strategy is a plan—some sort of consciously intended course of action, a guideline (or set of guidelines) to deal with a situation. A kid has a ‘strategy’ to get over a fence, a corporation has one to capture a market.” (Mintzberg & Quinn, 1991)

This section presents an overview of strategic planning from a historical perspective, and examines the strategic planning process and characteristics as well as the role of culture in strategy making.

Historical Evolution of Strategy

Ansoff (1965) compiled a historical evolution of strategy through the construction of a series of eras, starting in the 1820s and projecting through the 1970s. Ansoff offers that modern business history started roughly in the 1820s and 1830s, an era he labels as “The Industrial Revolution.” It was during this period that the country was unified through railroad and canal systems and the introduction of inventions “provided a technological base for a rapid industrial takeoff” (p. 31). It was during this period that the business firm was introduced, and those firms started the process of staking out market shares. Market competition evolved in the 1880s; prior to that, firms that dominated the market merely absorbed competitors. Aggressive firms established the pace of progress; each business claimed its own destiny.

The “Mass Production Era” occurred between 1900 and the 1930s. During that time the mechanism of mass production was perfected, and certain key markets surfaced—for example, the steel and automotive industries. However, such key markets did not afford or allow strategic challenges or diversification; business sectors were well protected against outside interference, including political and social influences. Ansoff offered that the “Mass Marketing Era” started around the 1930s. During that time the demand for basic consumer goods was approaching saturation, and there existed a shift to a marketing orientation. Examples of this shift include models changes in cars, the need for businesses to influence the consumer, and “the demand for incremental product improvements, better packaging, and cosmetic appeal” (p. 33). Organizations grew increasingly concerned with future profit potential.

The “Post Industrial Era” began in the mid-1950s, during which time there was a number of accelerating events and changes in the external environment. Increased customer affluence and demands—such as timely delivery, new

technologies, and increased buying power—created an increased intensity to capture the market share and retain customer loyalty. Organizations became more aware of the need for better planning to retain a competitive advantage in the market. Beck (1982) explains that business planning in the 1950s was relatively simple—there were obvious needs and shortages and “goods and services were in such demand that the planning of facilities to meet the situation virtually arranged itself in a natural order of priorities” (p. 13). He adds that all that was required for an organization to be a profitable operation was “a source of supply technological expertise and the ability to market” (p. 13).

Beck (1982) offers that in the 1960s—when the information explosion was beginning and when the computer was having an increasing impact—the pressure of competition brought with it the need for strategies to survive in such an environment. Henry (1981) adds that in the 1960s many large U.S. corporations felt a great need “to develop a more systematic, longer-term method of planning future business activities” because they had increased rapidly in “size, product variations, geographical dispersion, and technical complexity during the 1950s” (p. 64). He explains that in the late 1960s and early 1970s more companies introduced formal planning, but that they experienced problems in their efforts as a result of conflicts between planners and line managers, the preference of some managers for intuition over planning, and that some plans were projections of data with no underlying analysis and strategy.

Ansoff (1965) posits that it was during the period between 1950 and projecting forward to 1970 that “the problem of strategy was recognized and formulated by a number of business firms” (p. 35). He explains that the 1950s strategic planning solution essentially was optimistic, based on two assumptions. First was that a firm “was the master of its own destiny” (p. 36). The second assumption was that the external environment was in a level of stability that enabled the firm “to plan its response to change in advance of the event” (p. 36). Ansoff forecasted that the 1970s would bring intensified competition, the internationalization of business, and an increased awareness of global competitors.

Henry (1981) demonstrated that strategic planning efforts intensified in the 1970s by analyzing ten companies—nine of which were in the Fortune 100—and showing consistent use of a formal long-range strategic planning system in each and, in some instances, new or radically different planning systems. Henry points out that these renewed efforts were the result of “unsatisfactory financial performance, a new top executive, a threatening external environment, or advice from consultants” (p. 65).

Strategy and Strategic Planning

In his historical investigation of the changing strategy and structure of the large industrial enterprise in the United States, Chandler (1962) defines strategy as “the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals” (p. 13). Ansoff (1965) discusses that the concept of strategy is relatively new to management literature, and argues that its historical origin “lies in the military art, where it is a broad, rather vaguely defined ‘grand’ concept of a military campaign for application of large-scale forces against an enemy” (p. 118). Ansoff defines strategy as the rules and guidelines required for a firm to make decisions and “to have orderly and profitable growth” (p. 103).

Anthony (1965) defines strategic planning as the process of “deciding on objectives of the organization, on changes in these objectives, on the resources used to attain these objectives, and on the policies that are to govern the acquisition, use, and disposition of these resources” (p. 24). Anthony explains that strategic planning decisions affect “the physical, financial, and organizational framework within which the operations are carried on” (p. 25). Anthony also identifies various characteristics of strategic planning, including the points that a strategic plan is made within the context of an ongoing organization; that the plan sets precedent; and that the planning process often is complex and relies more heavily on external data—most of which are estimated made over a long period of time that are imprecise.

Mason (1969) comments that a strategy is “a statement in broad conceptual terms of what business the company is in or is to be in and the company it is or is to

be” (B-403). Mason adds that the purpose of a strategy is to set formal guidelines and constraints for the behavior of the firm, and that it involves a choice of goals and alternative behavior patterns for attaining them. Vancil (1976) explains that the strategy of an organization is “a conceptualization, expressed or implied by the organization’s leader of (1) the long-term objectives or purposes of the organization, (2) the broad constraints and policies, either self-imposed by the leader or accepted by him from his superiors, that current restrict the scope of the organization’s activities, and (3) the current set of plans and near-term goals that have been adopted in the expectation of contributing to the achievement of the organization’s objectives” (p. 1-2). Vancil adds that definition applies not only to the organization as a whole but to every major component of the organization, that the strategy is formed by an individual, and that the strategy is dynamic, as there exists the likelihood of change throughout the organization.

In defining strategic planning, Steiner (1979) approaches the concept of strategic planning from four perspectives. He first states that strategic planning “looks at the chain of cause and effect consequences over time of an actual or intended decision that a manager is going to make” (p. 13). Second, Steiner explains that “begins with the setting of organizational aims, defines strategies and policies to achieve them, and develops detailed plans to make sure that the strategies are implemented so as to achieve the ends sought” (p. 14). Third, strategic planning is seen more as a thought process or intellectual exercise. Finally, Steiner views strategic planning as “the systematic and more or less formalized effort of a company to establish basic company purposes, objectives, policies, and strategies and to develop detailed plans to implement policies and strategies to achieve objectives and basic company purposes” (p. 15).

Mintzberg (1991) defines strategy as “the pattern or plan that integrates an organization’s major goals, policies, and action sequences into a cohesive whole” (p. 5). Mintzberg’s discussion of strategy considers factors such as the internal competencies and shortcoming of an organization, anticipated changes in its environment, and “contingent moves by intelligent components”(p. 5). David (1995)

offers that strategies are the means by which long-term objectives will be achieved, and that strategies can include dimensions such as “geographic expansion, diversification, acquisition, product development, market penetration, retrenchment, divestiture, liquidation, and joint venture” (p. 11). In his discussion, David that strategic plans include a mission statement—that identifies the scope of a firm’s operations in product and market terms—and examines external opportunities and external threats to an organization (over which there is no control) as well as the organization’s internal strengths and internal weaknesses (that are controllable activities).

Probst and Büchel (1997) express that strategic planning is “a process of learning about where the future prospects of a company might lie” and “is a learning process undertaken by a group of people who get together to think about the future of the company” (p. 87). The authors argue that strategic planning is the opportunity for an organization to examine its potential in greater detail, should take customer needs and world markets and technology into account, and must involve numerous people.

Considering the 35-year period covered by the previous discussion in this section and absent of numerous additional definitions of strategy or strategy planning, certain themes emerge. Strategic planning is a decision-making process by one or more persons that sets the framework for operations of an organization, considering various external and internal factors. In doing so, the outcomes of the process are definition of the long-range goals and objectives of the organization, a course of action for implementing those goals and objectives, and identification of the resources and constraints that affect the ultimate success of the strategic plan. Clearly, no one strategic planning process is applicable nor appropriate for every organization; generally, however, the concept of setting an organization’s strategic direction and identifying how that direction will be accomplished are consistent.

Strategy and Culture

Mintzberg and Quinn (1991) profess that culture permeates many critical aspects of strategy making, and argue that the most crucial sphere of influence is

“the way people are chosen, developed, nurtured, interrelated, and rewarded in the organization” (p. 351). Thompson (1997) argues that “culture is at the heart of all strategy creation and implementation” and that strong cultures are an important strategic asset because “internalized beliefs can motivate people to exceptional levels of performance” (p. 103). Mintzberg (1983) argues that as a working system, an organization can entice more from its members working together than they would produce apart as a result of the strategic way various components are combined in the organization. He characterizes the underlying power of the system of values and beliefs about an organization that are shared by its members as a sense of mission—an integration of individual and organizational goals. Mintzberg defines the development of this integration through three stages. The first stage initiates when a single mover or leader identifies a product or service to be provided and collects a group around her or him to accomplish it, thereby rooting a sense of mission. Mintzberg posits that such individuals come together because they share some values associated with the beginning organization and what is to be accomplished. During the second stage, the organization develops its own behaviors, stories, myths, and history, thereby developing a distinctive identity. In the third stage, the organization is established as a living socialized system with its own culture, and new individuals enter the organization on their own or are selected to join because of their attraction to or alignment with the organization’s system of beliefs. In the third stage, new individuals share in the power of the organization and participate in decision-making.

Organizational Learning

Miner and Mezias (1996) present organizational learning theory as an “ugly duckling in the pond of organizational theory: interesting, but living on the fringes” (p. 88). Blankenhagen (1994) argues that an impetus for studying organizational learning is the “generally poor past showing by certain American industries during the turbulence and the increased global competition of the past decade” (p. 8). This section of the chapter explores the origin of organizational learning and follows its

chronology through the twentieth century to the present. In developing the chronology, primary contributors to organizational learning are identified. Such research supports the claim that there is no clearly accepted definition of organizational learning—although there are consistent themes across the definitions. The differences between organizational learning and a learning organization are discussed. The scope of this section is limited to the evolution of the definition and the elements of organizational learning; it does not attempt to discuss various methods used to measure the effectiveness of organizational learning nor whether learning actually occurs within an organization.

The review of organizational learning literature is difficult “because of the lack of an agreed upon definition of organizational learning (Blankenhagen, 1994, p. 58). Organizational learning is a concept used to describe certain types of activities that take place in an organization, and usually is associated with some type of improvement in performance (Tsang, 1997). However, despite the growing popularity of the term, the stumbling block is the lack of consensus on a definition, methodology, theories, models, processes, or procedures (Blankenhagen, 1994; Fiol & Lyles, 1985; Nicolini & Mezner, 1995; Tsang, 1997; Veilleux, 1995). There are almost as many definitions of organizational learning as there are writers on the subject.

Chronology of Definitions

Kleiner (1996) presents the story of Pelagius, described as a fat, self-possessed cleric who, around the year 390, preached about “the human capacity for redemption” (p. 27). In Rome, Pelagius facilitated small groups of would-be reformers of the church. They discussed such topics as doing away with baptism or encouraging good work; believing that people were perfectable; and aspiring to “a kind of echo of heaven and earth” (p. 28) that could be created by human actions and human will guided by God. The Pope and other church leaders branded Pelagius as a heretic. Pelagius’ greatest opponent in the church was Saint Augustine of Hippo, who succeeded in bringing Pelagius to trial. Pelagius was acquitted, but died shortly after the trial. Pelagians believed it was hopeless for

humans to deny their inner beauty and their capacity to help themselves. Kleiner brought these beliefs forward fifteen centuries to the years after World War II. He states that businessmen “were readier than anyone realized to be influenced by the Pelagian imperative” (p. 29), because it gave people a sense that not only could they come to work and perform to the standards set, but they also still had the chance to realize their aspirations. Kleiner states that promoters of this view first called it group dynamics, then later organizational development and organizational learning.

Organizational learning has been assumed in organizational theory since the 1950s (Daft & Huber, 1987). Kuchinke (1995) argues that Herbert Simon (Simon, 1976) formally introduced the concept in 1953. In the 1960s, Cyert and March (1963) argued that organizations do learn. They stated that organizations exhibit adaptive behavior over time just as individual beings do during the processes of learning, and that organizations use individual members of the organization as instruments of such behavior. Cangelosi and Dill (1965) viewed organizational learning as a piecemeal process ascribed to three main factors: environmental complexities; uncertainty about the future; and inadequate incentives. They stated that organizational learning must be viewed as “a series of interactions between adaptation at the individual and subgroup level and adaptation at the organizational level” (p. 200). In the 1970s, in a widely-cited text, *Organizational Learning: A Theory of Action Perspective*, Argyris and Schön (1978) discussed that organizations live in economically, politically, and technologically unstable environments. They stated that the requirement for organizational learning must be continuous and endemic to our society. Their text, which has its foundation in the works of Bateson (1952), presented two concepts. The first concept is single-loop learning: the ability to detect and correct errors in a relationship to a given set of operating norms. The second concept is double-loop learning: the ability to take a double look at a situation by questioning the relevance of operating norms.

In an interview with Peter Senge (1990), Ray Stata, CEO of Analog Devices, stated that the organizational learning concept started back in the late 1970s and

early 1980s, when it became clear that companies were under heavy pressure from Japan. Stata described that he saw an acceleration in organizational learning as an integrating concept for a broad range of improvement tools and methods. Jelinek (1979) asserted that for learning to be truly organizational, the learning or information must be accessible to all within the organization, and that the transmission of such information was evidence of organizational learning.

In the 1980s, discussions and publications about organizational learning became more diverse and sophisticated, yet at the beginning of that decade the current knowledge about organizational learning was weak, partial, and often generalized from individual learning Hedberg (1981). Hedberg stated that organizational learning included both the processes by which organizations (1) adjust themselves defensively to reality and (2) use knowledge to improve the fits between organizations and their environments. Ratliffe (1981) defined organizational learning as the conscious and deliberate extension of a consensually shared knowledge base by members of the dominant coalition. Shrivastava (1983) defined a set of concepts related to organizational learning in an attempt to develop a typology of organizational systems. His four distinct and contrasting perspectives include: (1) organizational learning as adaptation; (2) organizational learning as assumption sharing; (3) organizational learning as developing knowledge of action-outcome relationships; and (4) organizational learning as institutionalized experience. Daft and Weick (1987) included the third of Shrivastava's perspectives in their definition of organizational learning as the process by which knowledge about action-outcome relationships between the organization and the environment is developed. Fiol and Lyles (1985) defined organizational learning as the process of improving actions through better knowledge and understanding. Levitt and March (1988) built their definition of organizational learning on three classical observations drawn from behavioral studies in organizations. These observations are (1) behavior in an organization based on routines; (2) organizational actions are history-dependent; and (3) organizations are oriented to targets.

In the 1990s, organizational learning still was discussed as a process involving the transfer of knowledge. And although some who studied the subject began to develop models of organizational learning, others still maintained that it carried the baggage of being an emerging area in its early stages (Huber, 1991; Kuchinke, 1995). Ed Simon, President and COO of Herman Miller, shared with Peter Senge (1990) his definition of organizational learning as how “to accept, embrace, and seek change” (p. 348). Although Huber (1991) believed that a narrow definition of organizational learning might stifle the potential knowledge to be gained, he stated that an organization learns if any of its units acquires knowledge that it recognizes as potentially useful to the organization. Huber identified four constructs and processes of organizational learning: knowledge acquisition; information distribution; information interpretation; and organizational memory. Dixon (1992) developed a model of what organizational learning means for Human Resource Development practitioners. Her model consisted of five elements: information acquisition; information interpretation and distribution; making meaning of information; organizational memory; and information retrieval. Blankenhagen (1994) conducted a study in which he defined organizational learning as the creation, acquisition, and transfer of knowledge with an organizational context and the modification of behavior to reflect new knowledge and insights. Nevis (1995) stated that organizational learning is the capacity or processes within an organization to maintain or improve performance based on experience. In that same year, Vielleux (1995) defined organizational learning as an ongoing systematic process “operating formally and informally which enables the organization to transform environmental information into knowledge that will improve performance (p. 1). Kuchinke (1995) posited that in the mid-1990s organizational learning had begun to formulate reasoned and sound theories. He discussed the definition of organizational learning in light of a process that included concepts previously identified by others: knowledge acquisition; information distribution; information interpretation; and organizational memory.

Simon (1997) cautioned that too strict a definition of organizational learning not be adopted; otherwise the topic would be defined out of existence. He argued that organizational learning is a set of processes that lead to the acquisition of knowledge stored in the memories of its members together with the knowledge stored in its files and records. Confessore and Kops (1998) stated that the key concept in organizational learning is that there is a body of corporate knowledge, that is the essence of the organization. Senge (1999) argued that organizational learning involves developing tangible activities—new ideas, innovations, and management methods and tools—for challenging the way people conduct their work. Barnett (1999) compiled a table of unique definitions of organizational learning from various major works dating from 1963 through 1991. She observed agreement that “organizational learning is a change process that is influenced by past experience, focused on problem identification, and correction (or prevention) and coupled with organizational memory” (p. 8). (Barnett’s compilation is replicated in part in Table 9.)

Table 9: Major Theorists' Definitions of Organizational Learning (Barnett, 1999)

Date	Theorist(s)	Definitions
1963	Cyert and March	Organizational learning is an adaptive process through which firms respond to environmental changes by readjusting their goals, attention rules, and search rules
1965	Cangelosi and Dill	Organizational learning is a sporadic, stepwise, adaptive process that is the product of interactions among three kinds of stress, generating both individual and organizational level outcomes
1969	Simon	Organizational learning is the growing insights and successful restructurings of organizational problems by individuals reflected in the structural elements and outcomes of the organization itself

1974	Duncan	Organizational learning is a process by which subunits search for, collect, and use information about the environment to make and execute effective decisions
1976	March and Olsen	Organizational learning is a process through which organizations adapt their behavior in terms of their experience
1978	Argyris and Schon	Organizational learning is a process in which organizational members detect error or anomaly and correct it by restructuring organizational theory of action (the norms, assumptions, and strategies inherent in collective practices) and by encoding and embedding the results of their inquiry in organizational maps and images
1978	Duncan and Weiss	Organizational learning is the process within the organization by which knowledge about action-outcome relationships and the effects of the environment on them is developed

Barnett's analysis resulted in the formation of the following definition of organizational learning:

“Organizational learning is an experience-based process through which knowledge about action-outcome relationship develops, is encoded in routines, is embedded in organizational memory, and changes collective behavior” (p. 9).

There exists the suggestion of recurring themes within these definitions across the decades, that organizational learning is a process that is experience-based and action-based, and results in knowledge and understanding.

Blankenhagen (1994) states that it appears that most agree on the components of knowledge and some form of action “either actual or latent, based on the organization's understanding of the knowledge” (p. 12). And Fiol and Lyles (1985) identified the following three areas of consensus regarding organizational learning:

1. The relevance of organizational alignment
2. The distinction between individual learning and organizational learning

3. The presence of four key factors in the learning process: culture, strategy, structure, and environment

Organizational Learning Versus Learning Organization

Organizational learning and learning organization are terms that often are used interchangeably, yet have very specific and different meanings (Confessore & Kops, 1998). The learning organization is a term currently in vogue. It is less than obvious what it means, except that clearly it is a good thing to strive for (Handy, 1989). Peter Senge is heralded by some as introducing the concept of the learning organization as an answer to changing economic, social, and technical conditions (Kuchinke, 1995), although Handy (1989) discussed the term in *The Age of Unreason* one year earlier. Handy stated that the term learning organization can mean two things: it can mean an organization that learns or an organization which encourages learning in its people; it should mean both. Senge defines a learning organization as an organization that continually is expanding its capacity to create its future.

Goh (1998) and Tsang (1997) raise an important contrast in terms that always are not made clear in the literature, and that is the difference between organizational learning and a learning organization. As stated earlier, these terms frequently are used interchangeably; and confusion might arise as to which concept one is referring during a discussion. Organizational learning is a long-term activity that will build competitive advantage over time and requires sustained management attention, commitment, and effort—that is, certain types of activities that take place in an organization. A learning organization is an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights—that is, a particular type of organization in and of itself. Goh (1998) argues that the key to a learning organization is to empower employees to make decisions based on the relevant knowledge and skills they acquire and on information about organizational mission, strategy, and values. It is not the purpose of this section to differentiate further the

differences between these terms, but solely to recognize that a difference exists between the working definitions.

Organizational Learning Research Profile

Crossan and Guatto (1996) conducted a keyword search of three databases using the terms “organizational learning” and “learning organization” to uncover patterns or trends relating to the:

1. Amount of publishing activity by year
2. Influential authors
3. Journals publishing organizational learning research
4. Type of research published

Their search covered the period from 1969 to 1994. The analysis of the data shows a minimal number of publications in the 1960s and 1970s, some growth in the 1980s, and exponential growth in the 1990s, demonstrating increased interest in the field of organizational learning. Table 10 below provides a summary of the findings in the keyword search:

Table 10: Indicators of Growth in Interest in Organizational Learning

	1960s	1970s	1980s	1990s
Number of organizational learning articles written	3	19	50	184
Number of journals publishing organizational learning articles	3	18	35	80
Number of authors or groups of authors writing organizational learning articles	3	15	44	149

Individual and Organizational Learning

Weisbord (1987) states that the essence of an effective organization is learning, not coercing and controlling output. He adds that learning takes time, requires real problems to be solved, and involves trial and error, give and take, and

experimentation. Argyris (1991) states that success in the marketplace increasingly depends on learning; yet most people do not know how to learn. He argues that in trying to build organizations that learn, two mistakes are made. First, most people define learning narrowly as problem solving, thereby focusing on identifying and correcting errors in the external environment. Second, a common assumption is that getting people to learn is largely a matter of motivation. When people have the right attitudes and commitment, learning follows automatically.

Learning is a process in which individuals or groups acquire, interpret, reorganize, change, or assimilate clusters of information and skills (Mezirow, 1991; Marsick, 1988). It includes making a decision or association, revising a point of view, reframing or solving a problem, or producing a change in behavior. It is a process by which individuals gain new knowledge and insights, where an association is made among past actions, the effectiveness of those actions, and future actions; the result is a modification of behavior and actions (Stata, 1989; Fiol & Lyles, 1985). Although learning may take place in planned or informal, and often unintended ways, the process of learning has three identifiable stages (Nevis et al., 1995):

1. Knowledge acquisition is the development or creation of skills, insights, and relationships.
2. Knowledge sharing is the dissemination of what has been learned.
3. Knowledge utilization is the integration of learning so it is broadly available and can be generalized to new situations.

Learning requires the acquisition of two components (Kim, 1993). The first is the acquisition of skill or know-how that requires the necessity of some physical ability to produce an action. Second is the acquisition of know-how that implies an ability to articulate or express a conceptual understanding of an experience. Similar to the themes evident in the definitions of organizational learning, individual learning is based on experience, and results in knowledge, understanding, insight, and changes in behavior.

Hedberg (1981) presents the question of whether organizations actually learn, and states that many organization theorists feel uncomfortable about treating organizations as living systems. He posits that organizations are merely constructs; they cannot physically do anything, cannot have goals, and only have properties which channel through people. As a result, Hedberg states that organizations do not learn; members of organizations learn.

Organizations ultimately learn by way of their individual members; new knowledge in an organization always begins with the individual (Kim, 1993; Nonaka, 1991). Kim (1993) recognizes the importance of individual learning, the process through which individual learning advances organizational learning, and the transfer mechanism between individual and organizational learning. He states that an organization learns through its individual members, and therefore, is affected either directly or indirectly by individual learning. However, he adds that individuals constantly are taking actions and observing their experiences, but not all individual learning has organizational consequences. Hedberg (1981) argues that individuals' learning is doubtless important in organizational learning.

Hedberg (1981) and Shrivastava (1983) argue that although organizational learning occurs through individuals, organizational learning simply is not the cumulative results of learning among individuals; it is an organizational process. This statement does not minimize the importance of individual learning, for Kim (1993) adds that organizations can learn independent of any specific individual, but not independent of all individuals. Organizational learning occurs through the medium of individual members; each individual's personal knowledge is transformed into organizational knowledge that becomes valuable to the company as a whole (Nonaka, 1991; Fiol & Lyles, 1985; Shrivastava, 1983). Learning, therefore, occurs at individual, department, plant, corporation, and industry levels, and is important to strategic decisions and perceptions of the environment (Shrivastava, 1983).

Researchers have identified a number of theoretical categories of organizational learning which might be present in or adopted by an organization.

Such categories of learning — classifications, modes, or types — are summarized in Table 11, and are discussed briefly below.

Table 11: Categories of Learning

<u>Category</u>	Source	Classification, Type, or Mode of Learning
Classifications of Learning	Fulmer (1994)	Maintenance learning Shock learning Anticipatory learning
Modes of Learning	Fulmer (1994)	Because I Say So As You Like It Change Masters Inventing the Future
Types of Learning	Kuchinke (1995)	Experiential learning Vicarious learning Grafting
Types of Learning	Fiol and Lyles (1985)	Lower-level learning Higher-level learning

Fulmer (1994) presents three classifications of learning, any one of which might be the norm at a particular time in an organization. The first classification is maintenance learning, which tries to discover better ways of doing what an organization already knows how to do. The focus of maintenance learning is short-term. This type of learning encourages doing things the correct way rather than asking whether they are the right things to do. As a result of maintenance learning, important clues about a changing environment, emerging challenges, or business opportunities often are missed, and little challenge is offered to an organization's strategy and operations. The second classification, shock learning, occurs in the event of a crisis. This is reactive learning, which further aggravates the problems an organization might already be attempting to solve. Learning that occurs in this classification is unlikely to address the long-term consequences of

present actions. Anticipatory learning, the third classification, addresses both the long-term consequences of present actions and the best ways to deal with a future environment. To be effective, this type of learning is participatory, for example where everyone in an organization explores alternatives and permits a consensus to evolve. Anticipatory learning also considers the possible future consequences of actions taken today.

In the same article, Fulmer (1994) presents four modes of learning that organizations may adopt to cope with a period of learning. First is “Because I Say So.” In this mode, an authority figure orders that something is to be done or avoided, and everyone takes their cue from that dictate. A second mode is “As You Like It.” This is a type of learning that occurs when individuals and groups are left to their own devices and eventually do things better. As long as targets are met, the means by which they are met often are left to operating teams. The third mode is “Change Masters.” This mode is typified by executives who come into the organization and achieve renewal by articulating their vision of what needs to happen and communicating that vision effectively to people who are willing to learn how to make it happen. The fourth mode is “Inventing the Future.” In this approach, a group of motivated individuals works together, not to forecast, but to create a future to which they can commit themselves.

Kuchinke (1995) states there are three types of learning that occur in organizations. These are experiential learning, or learning from experience from experimenting and testing alternative courses of action, feedback, and self-appraisal; vicarious learning, or learning from the experience of others; and grafting, or acquiring new members or new technologies. Fiol and Lyles (1985) state that there are two levels of learning, referred to as lower- and higher-level learning, as shown in Tables 12 and Table 13.

Table 12: Characteristics of Lower-level Learning

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1. Occurs within a given organizational structure or a given set of rules
 2. Leads to the development of some fundamental associations of behavior and outcomes that are short in duration and impact only part of what the organization does
 3. Is the result of repetition and routine and involves association building
 4. Tends to take place in organizational contexts that are well-understood and in which management thinks it can control situations
 5. Focuses learning on the immediate effect on a particular activity or facet of the organization
-

Table 13: Characteristics of Higher-level Learning

-
1. Aims at adjusting overall rules and norms rather than specific activities and behaviors
 2. Results in long-term effects and impacts on the organization as a whole
 3. Is more of a cognitive process than lower-level learning
 4. Suggests that some type of crisis is necessary for changes in higher-level learning — such as a new strategy, new leader, or a dramatically altered market
 5. Focuses on higher-level learning as particularly relevant to strategic management because it is this level of learning that will impact a firm's long-term survival
-

Organizations have little control over whether learning takes place (Kuchinke, 1995). However, they do have a substantial amount of control over the kind of learning that occurs within their bounds. There are a variety of ways in which organizations create and maximize their learning. Following is a series of seven learning orientations, or dimensions of learning (Nevis et al., 1995). These

learning orientations are the values and practices that reflect where learning takes place in an organization and the nature of what is learned.

Knowledge Source

To what extent does the organization develop new knowledge internally or seek inspiration in external ideas? Both approaches have great merit, and can benefit the organization..

Product-Process Focus

Does the organization prefer to accumulate knowledge about product and service outcomes or about the basic processes underlying various products? The difference is between interest in getting product out the door and curiosity about the steps in the process; organizations must learn in both domains.

Documentation Mode

Do attitudes vary as to what constitutes knowledge and where knowledge resides? On one side, knowledge is seen as something an individual possesses and is lost when an employee leaves a company. On the other side, knowledge is shared and becomes organizational memory or a documented body of knowledge.

Dissemination Mode

Has the organization established an atmosphere in which learning evolves or in which a more structured and controlled approach induces learning? In the formal approach, a company decides that valuable insights or methods should be shared and used by others across the organization. In the informal approach, learning is spread through encounters of individuals who compellingly reinforce learning.

Learning Focus

Is learning concentrated on methods and tools to improve what already is being done or on testing the assumptions underlying what is being done? Both learning capabilities reinforce each other, and can benefit from good work in both areas.

Value-Chain Focus

Which core competencies and learning investments does the organization value and support? This dimension questions where an organization allocates its personnel and money to develop knowledge and skill over time, and where it places its substantial learning investments.

Skill Development Focus

Does the organization develop both individual and group skills? Organizations should integrate individual learning programs with team needs by taking a harder look at the value of group development.

Knowledge and Memory

The one sure source of lasting competitive advantage is knowledge (Kiernan, 1993). Nonaka (1991) argues that in an economy where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge. As demonstrated below, both knowledge and memory are important to an organization that strives to maintain a competitive advantage and to survive in the long-term.

Nonaka (1991) states that successful companies are those that consistently (1) create new knowledge; (2) disseminate it widely throughout the organization; and (3) embody it quickly in new technologies and products. Literally, to create knowledge means to recreate the company and everyone in it in a nonstop process of personal and organizational self-renewal. Making personal knowledge available to others is the central activity of a knowledge-creating company. Such activity should take place continuously at all levels of an organization. Nonaka cites two types of knowledge. The first is explicit knowledge, which is formal and systematic, and can be communicated and shared easily. The second is tacit knowledge, which is hard to formalize and difficult to communicate to others. Such knowledge is deeply rooted in action and in an individual's commitment to the context or activities of a work group or team. Figure 2 presents four basic patterns for creating knowledge in an organization, as suggested by Nonaka, and all four exist in dynamic interaction.

Figure 2: Patterns for Creating Knowledge

<p style="text-align: center;">Tacit to Tacit</p> <p>One individual shares tacit knowledge with another. Tacit skills are learned through observation, imitation, and practice. They become part of the individual's knowledge base.</p>	<p style="text-align: center;">Explicit to Explicit</p> <p>An individual can contribute discrete pieces of explicit knowledge into a new whole. Information is synthesized from many different sources. However, this combination really does not extend the existing knowledge base of a company.</p>
<p style="text-align: center;">Tacit to Explicit</p> <p>Individual skills are converted into explicit knowledge and shared with a project development team,</p>	<p style="text-align: center;">Explicit to Tacit</p> <p>As new explicit knowledge is shared throughout the organization, other employees begin to internalize it. They use the information to broaden, extend, and reframe their own tacit knowledge.</p>

Blackler (1995) presents a summary of a variety of approaches to knowledge within organization studies literature. The approach he outlines suggests that knowing is better regarded as something an organization does, rather than regarding knowledge as something they have. As shown in Table 14, Blackler identifies five images or categories of knowledge, as suggested by the literature: embrained, embodied, encultured, embedded, and encoded. The variety of images of knowledge identified here serves to emphasize the complexity of issues about knowledge which organizations address.

Table 14: Categories of Knowledge

<u>Category</u>	Description
Embrained Knowledge	Knowledge that is dependent on conceptual skills and cognitive abilities
Embodied Knowledge	Knowledge that is action-oriented and acquired by doing
Embedded Knowledge	Knowledge which resides in systemic routines or organizational routines
Encultured Knowledge	Knowledge gained through the process of achieving shared understandings
Encoded Knowledge	Information conveyed by signs and symbols, including books, manuals, codes of practice, and information transmitted electronically

In addition to the creation of knowledge, the development of organizational memory is a second important factor. In fact, the existence of organizational memory possibly could be considered a prerequisite to organizational learning. Organizational memory is defined as stored information for an organization's history that can be brought to bear on present decisions (Tsang, 1997; Walsh & Ungson, 1991). Kuchinke (1995) states that information is stored at various levels such as norms and codes of behavior; organizational routines and scripts; stories, histories, and myths; culture and organizational structure; procedures and rules; and in individual memories and computer data bases.

Finnie (1997) defines organizational memory as part of a learning system that retains what has been learned in the past and provides access to that learning in the future. Kim (1993) adds that organizational memory includes everything that is contained in an organization that is somehow retrievable. Those parts of an organization's memory that are relevant for organizational learning are those that constitute active memory — that is, those that define what an organization pays

attention to, how it chooses to act, and what it chooses to remember from its experiences.

Kuchinke (1995) argues that poor organizational memory results from personnel turnover, discarding of information that is identified as useless, and a lack of knowing where information can be located within the organization. He states that organizations that manage learning for performance recognize the strategic importance of organizational memory in all its forms. He adds that organizational memory is the key to successful learning, and that only organizations that manage it well will reap the benefits of learning at both the individual and organizational levels.

Connecting Strategic Planning with Organizational Learning

In an original study, Shrivastava (1981) conducted a study of organizational learning in the context of strategic decision-making, and identified various formal, informal, cultural, and historical processes or systems for managing the process of knowledge sharing and transmission within an organization, which he labeled as organizational learning systems. Shrivastava characterized the features of such learning systems as systems that are used to acquire, communicate, and interpret knowledge for use in decision-making; are relevant to a broad range of organizational activities; are rooted in organizational practices; and are known about by organizational members, regardless of whether they are verbalized or documented. In a subsequent study, Shrivastava (1983) attempted to develop a typology of organizational learning systems, and identified two critical dimensions that characterize these learning systems. The first dimension, the Individual-Organizational Dimension, is the process that “entails conversion of individual knowledge and insights into a systematic organizational knowledge base which informs decision-making” (p. 18). The second dimension, the Evolutionary-Design Dimension, is the process by which organizational learning systems come to exist in an organization—that is, “learning systems may develop purely as a result of socio-cultural norms, historical practices, or managerial traditions of the organization” (p.

19). Shrivastava remarks: “Organizational or company level learning involves development of capabilities in administrative and decision-making tasks. It draws upon and is meshed with learning occurring at the industry and societal levels. This is especially pertinent in strategic decision situations where knowledge of industry opportunities and threats and societal expectations invariably shape strategic decisions” (p. 16). Although Shrivastava provides descriptions and identifies the characteristics of six different types of learning systems, he suggests the need to explore the structure and content of organizational knowledge bases and the mechanisms by which learning occurs.

Ray Stata (1989), Chairman of Analog Devices, makes an argument that the most serious competitive problem for U.S. industry is the declining rate of innovation. In the article, Stata relates the consistent 25 percent growth rate of Analog Devices over a fifteen-year period, and then identifies a five-year period where Analog missed its five-year goals by a substantial margin. He shares that in the 1980s, Analog’s “plight was not uncommon in corporate America. Companies that for decades enjoyed world leadership in their markets were being brought to their knees” (p. 63). In his quest to change the way Analog was managed, Stata was invited to join what was called the New Management Style Project, the focus of which was using system dynamics to improve thinking about complex organizations. Also part of that group was Arie deGeus, director of planning for Shell International, who shared his experiences with the concept of organizational learning as a means to integrate a broader range of management tools and methods to facilitate organizational change and improvement. Stata quickly embraced organizational learning “as the principal process by which management innovation occurs” and argued that “the rate at which individuals and organizations learn may become the only sustainable competitive advantage” (p. 64). Stata explains that organizational learning occurs through shared insights, knowledge, and mental models, and builds on past knowledge and experience—or organizational memory. Stata shares how organizational learning serves as an umbrella to unify an “approach to systems thinking, planning, quality improvement, organizational

behavior, and information systems” (p. 64). In his conclusion, Stata argues that research universities must play a role in boosting management innovation, restoring competitiveness, develop better management tools and concepts, and help companies put these ideas into practice. “Better understanding of how to accelerate organizational learning and adapt to a changing world environment would be a good place to start” (p. 73).

Although the primary intention of Fiol and Lyles (1985) is to explore the distinction between organizational learning and organizational adaptation, they also make various inferences about the relationship among organizational learning, strategy, strategic management, and organizational performance. Based on previous research, they take the position that long term survival and growth are the ultimate criterion of organizational performance and that to achieve this, “organizations align with their environments to remain competitive and innovative” (p. 804). Fiol and Lyles posit that a strategy that allows flexibility is one of four contextual factors that affect the probability that learning will occur—that is, “the organization’s strategic posture partially determines its learning capacity” (p. 804), “strategy influences learning by providing a boundary to decision making and a context for the perception and interpretation of the environment,” and “strategic posture also creates a momentum to organizational learning” (p. 805). In the article, Fiol and Lyles conclude that “the area of research focusing on higher-level learning [aimed at adjusting overall rules and norms rather than specific activities or behaviors] is particularly relevant to strategic management because it is the level of learning that will impact a firm’s long term survival” (p. 811).

McGill et al. (1992) offer that “the more a company penetrates global markets, the more its success depends on the ability to quickly and effectively respond to a myriad of changes. Thus, there is a greater need for designing organizations that can learn” (p. 2 of 11). The authors compare two organizational learning styles to show why some companies are able to renew themselves in the face of rapid technological change, and identify five managerial behaviors that set a learning organization apart: openness, systemic thinking, creativity, self-efficacy,

and empathy. As related to the behavior of openness, “learning requires that organizations and managers be truly open to the widest possible range of perspectives in order to identify trends and generate choices” (p. 5 of 11). With systemic thinking, “the collective learning of an organization becomes the basis of future competitive advantage” (p. 6 of 11). McGill et al. argue that “of all the requisite skills and abilities for learning, creativity is the most widely and readily acknowledged” (p. 6 of 11)—with personal flexibility and a willingness to take risks as two aspects particularly important for learning. The authors add that it is essential that managers have a sense of personal efficacy—a firm sense of their own values and goals and an ability to see themselves accurately—and that they “must be sensitive to and concerned for human nature” (p. 8 of 11). In summary, the authors argue that given a learning orientation, organizations “are able to improve their sources of competitive advantage because mistakes are translated into valuable learning experiences” (p. 9 of 11).

Bruderer (1993) submits that “individuals learn strategies by developing a set of strategy moves which can be combined differently to respond to particular business situations. The process of learning can be described as a trial-and-error search of known strategy moves guided by feedback from experience”(p.3). In his study, Bruderer suggests that the theory of how strategies are learned has important organizational consequences. He describes a strategy as “a set of moves, which can be combined to form different sequences of moves, which are specific strategic instances” (p. 11), or elsewhere stated that “can be combined in different ways to form strategies for particular business situations” (p. 28). Bruderer argues “strategic management has recently focused its attention on organizational learning” (p. 35) and notes that the similarity between individual skills and organizational routines is crucial to such research because “it allows us to study how individuals, either singly or in groups, learn skills and transfer some of this knowledge to the organizational level” (p. 36). Using game theory and mathematical and computer modeling techniques, Bruderer proposes the use of an organization as an intelligent information processing system that “would not only

enhance its decision-making capabilities but would also distribute information processing among the individuals within an organization” (p. 107). Finally, Bruderer suggests the importance of examining the evolution of different hierarchical levels of an organization and how they interact to understand not only how hierarchies evolve when presented with strategic challenges in relation to organizational performance, but also to gain insight on how the interaction of various hierarchical levels influences learning capabilities at the organizational level. Bruderer posits “it is premature to directly apply the theory of strategy learning to business organizations” (p. 164), but suggests that future research on strategic learning would greatly enhance the strategic effectiveness of organizations.

Kiernan (1993) identifies organizational learning as one of the seven core elements that will take high-performance firms successfully into the twenty-first century. From the position that organizational learning is the most fundamental and important element of strategic architecture, Kiernan argues that “organizational learning will replace control as the dominant responsibility and test of senior management and leadership” and that “learning will become the only viable alternative to corporate extinction” (p. 3 of 13). To build and maintain a learning organization, Kiernan offers that an organization must have a culture that exalts continuous improvement; encourages cross-disciplinary teamwork, collaboration, and learning; measure performance; benchmarks best practices; embraces life-long learning for everyone; and reexamines assumptions about the firm and its business environment. Kiernan expresses that “what is critical here is that the overriding strategic objective of organizational learning be accepted and energetically internalized” (p. 4 of 13).

Slocum et al. (1994) take the position that successful companies are characterized by their strategic intent to learn, commitment to continuous experimentation, and willingness to learn from experiences—both successes and failures—and that such strategies result from a shift in the way managers think about strategy and the ways in which they pursue strategic action. Using examples

from companies such as Bally Engineering Structures, Inc., Wal-Mart, Johnson & Johnson, Emerson Electric, and Eastman Kodak, Slocum et al. explain that “using learning strategies to become an industry leader requires a company to adopt three management practices that capitalize on its capabilities and culture as well as its competitive strengths” (p. 4 of 12). The first practice is to develop a strategic intent to learn new capabilities; the second is a commitment to continuous experimentation; the third is the ability to learn from past successes and failures. The authors also state that a key to organizational learning is that managers “unlearn conventional approaches to strategy and think in ways that the competition’s managers do not. Competitive advantage becomes renewable and sustainable when people attempt to do things they previously have not thought of doing” (p. 10 of 12).

Redding and Catalanello (1994) argue that “just as everyday people learn from their experiences, so do organizations” and that “it is possible to understand strategic planning as a process of organizational learning” (pp. 20-21). The authors argue that strategic planning “is under attack” (p. 21), and propose three levels of organizational learning that occur as an organization “reflects upon its actions and modifies its original plans” (p. 32). Taking the lead of Argyris and Schön (1978), the three levels are as follows. Level One is Symptomatic Learning (single-loop learning) that provides simple resolutions to the problems and roadblocks encountered, resolving obvious symptoms. Level Two is Systemic Learning (double-loop learning) that provides deeper, systemic solutions to the problems and roadblocks encountered, often resulting in the need to modify norms, practices, procedures, and processes. Level Three is Learning to Learning (deutero-learning) that serves to evaluate and improve the learning process itself. Redding and Catalanello believe an organization learns “by retrieving information regarding past history from the firm’s collective memory” (p. 61)—information that was previously saved for future retrieval. They also discuss organizational learning concepts such as the need for open and ongoing employee communication; benchmarking best

practices against other organizations for comparison purposes; nurturing systems thinking; and enhancing team learning.

Moingeon and Edmondson (1996) collaborated on the publication of a set of ten chapters (articles) into a book organized in three parts: (1) learning processes and competitive advantage; (2) organizational learning and strategic capability; and (3) strategic change and organizational learning. The purpose of their collaboration was to demonstrate that organizational learning can be leveraged as a source of competitive advantage. The premise of their publication is that “strategic management is shifting to embrace a dynamic view that calls attention to issues of learning” (p. 8). Moingeon and Edmondson argue “the strategy literature stops short of examining actual learning processes” (p. 8), and that “strategy researchers have stopped short of focusing directly on learning processes and how to encourage them” (p. 11). They characterize organizational learning processes as learning how or learning why. Learning how is defined as “organizational members engaged in processes designed to transfer and/or improve existing skills and routines,” whereas learning why is defined as “organizational members inquiring into causality using diagnostic skills” (p. 27). From a strategic or competitive advantage both capabilities are important in different situations.

Ribbens (1997) provides a framework for investigating organizational learning styles and links organizational learning and strategy formulation based on a learning style framework. Following a review of the organizational learning literature, the author defines the interaction between learning and strategy as, “organizational learning both determines and is determined by strategy” and states that “organizational learning ability is likely to be a factor determining the type of strategic decision process an organization utilizes” (p. 2 of 9). Ribbens defines four archetype learning styles that “influence information acquisition and storage and thus determine what types of information are accessible within the organization for strategic decision makers; strategic planning cannot be based on information the decision-makers do not possess” (p. 6 of 9). Organizations with an abstract style focus on theoretical and model-based learning, and follow the newest strategic

trends and ideas in business literature. Organizations with a concrete style base their decisions on their own history and quantitative comparisons with competitors, and tend toward incremental strategic changes. In organizations with a random style, information may be quickly accessible, but there exists a risk of information getting lost or not getting to the relevant decision makers. Finally, in an organization with a sequential style, information might be stuck in a queue and not be accessible to decision-makers for some time. Ribbens explains how the dimensions of these styles might be matrixed against each other on a two-dimensional grid to assess an organization's learning style to the access to its organizational knowledge base. Ribbens posits that "organizational learning styles are vehicles for examining how, what, and why an organization learns" and "the organizational learning style determines the composition and richness of an organization's knowledge base, which is fundamental to strategy formulation.

Citing that the rapid pace of change in the business environment undermines the relevance of long-range planning, Bartlett and Ghoshal (1998) take the position that "the age of strategic planning is fast evolving into the era of organizational learning" (p. 2 of 7). Using examples from corporations such as Skandia, Microsoft, Cyprus Semiconductor, and IKEA, the authors define the attributes organization's need to succeed. The first attribute is that the organization must become a collector of people—that is, to increase their ability to compete by capturing, developing, and applying knowledge and expertise by recruiting, developing, and retaining key human assets. The second attribute is an organization's ability to transfer, share, and leverage knowledge and expertise to create "a rich horizontal flow of information and knowledge that can routinely diffuse critical expertise and transfer best practices organization-wide" (p. 4 of 7). Third, because "a learning organization requires a culture based on trust" (p. 5 of 7), organizations must create a culture in which individuals share information or expertise, and in which organizational members sense a shared commitment. Finally, organizations must operate in "a framework that can be described as an integrated network" (p. 6 of 7) and develop as "specialists in collaboration" (p. 7 of 7). Overall, Bartlett and Ghoshal take the

position that organizations that adopt the aforementioned attributes will be more focused on the future and sensitive to emerging changes in their environment.

Presenting that there are various levels at which we can pay attention to learning—that is, individual; group or team; organization; community; society; and the world—Cunningham (1999) makes the case for strategic learning by presenting cases of learning-based approaches at organizations such as the Wines and Spirits Division of Allied Domecq, the National Health Service in Britain, and the Birmingham Midshires Building Society. Cunningham's study primarily examines training activities, processes, and approaches and identifies factors in which each approach is different from others. Although Cunningham argues that “strategic learning is becoming a key part of an organization's competitive advantage” (p. 23), the model does not intimate a direct link to the strategic planning process, but rather maintains a focus developing a strategic approach to learning.

King (1999) conducted a study to address the problem: How can U.S. manufacturers attain competitive advantage in world markets? King investigated senior managers' past use, past payoff, and planned future use of four organizational capabilities related to how a company develops competitive advantage in the manufacturing sector. These organizational capabilities are: strategic management, systems and technologies, innovation, and collaborative alliances. Using organizational learning theory and the resource-based theory of competitive advantage as a theoretical framework, and the advice of a panel of industry experts to develop a questionnaire, data were collected from 57 senior managers in New England manufacturing companies. The study found that senior managers “did not perceive the four organizational capabilities to be a platform that could be used to achieve competitive advantage” (p. 249). “Past use” scores suggested at best a token level of commitment on the part of senior managers to using the four organizational capabilities in the past two years. The “past payoff” scores suggested that senior managers had reservations regarding the past payoff of the four organizational capabilities. The “planned future” scores suggest that senior managers were reluctant to commit strongly to the future use of the four

organizational capabilities. Overall, the data suggest that senior managers “perceive a need to increase their level of commitment to using the four organizational capabilities in the future, in terms of competitive advantage, although still not to a level that could be considered very extensive” (p. 219). Related to the current research, King identifies strategic planning—the formulation and dynamic maintenance of plans designed to select and achieve a company’s objectives—as a key skill area of strategic management that contributes to competitive advantage.

Hinchcliffe (1999) conducted a study of Gamma Company [a pseudonym] to assess its organizational culture and “to discern how organizational learning occurs, the factors that foster it, how it is perceived across the hierarchical levels of the company, and the effect it has, if any, on strategic decision making” (p. 74). Hinchcliffe describes Gamma as a company “which leases computer and other high technology equipment, provides equipment upgrades and peripherals, and re-leases or sells equipment at the end of lease” (p. 59). Similar to the current research, a single case study using the narrative inquiry method was used. Information was gathered from interviews, observations in the work setting, and the study of artifacts (documents, reports, etc.) provided by the organization. A total of fourteen interviews were conducted with employees of various levels throughout the organization who were members of Gamma’s Strategic Team as well as the mid-management and line-staff levels, using a series of nine questions. The interviews were taped, transcribed, and provided to the respondents to review for accuracy. Hinchcliffe’s study resulted in a rich and in-depth description of Gamma Company’s organizational culture—that is, artifacts, espoused, values, and basic assumptions. He also was able to determine the manner in which organizational learning occurs formally and informally, through “both products and behaviors, such as training course materials, attendance at training courses, and on-the-job applications of the knowledge and skills acquired through course attendance” (p. 91) and through storytelling. Hinchcliffe did find, however, that organizational learning is “reshaping the method by which the executive group engages in strategic decision

making, that is, from an instinctive approach, which had worked well historically, to a more systematic and systemic approach, one better suited to the current marketplace” (p. 204).

Summary and Stated Need for the Study

This chapter establishes the theoretical framework upon which the current research is based. “The Call for Organization” section is included because the current study is based in an organizational setting. As such, socialization, the group setting, and the synergistic coordination of efforts are underlying premises through which various processes and routines operate and collective action takes place. The organization under investigation, the National Aeronautics and Space Administration (NASA, and the Agency) is a complex governmental agency organized around certain principles—that is, the Agency’s mission statement—and provides products and services to its customers. Similar to other government agencies, NASA must be viewed as a successful and contributing Federal agency in today’s dynamic political environment and unpredictable budgeting resources. Although the Agency has a set purpose, as well as goals and objectives, its outcomes are not always as expected; both external and internal factors might alter the political, technical, business, or economic climate at any time. NASA’s hierarchical structure and operating principles align with and operating within the dimensions of Fayol’s universal management principles (Ford et al., 1988, p. 31) and Weber’s characteristics of large-scale bureaucracies (Ford et al., 1988, p. 32). And as will be demonstrated in subsequent chapters of the current research, NASA operates as an open social system.

By providing somewhat parallel historical perspectives, the sections on Strategic Planning and Organizational Learning define both constructs as processes. Strategic planning is a decision-making process that sets the framework for operations of an organization; organizational learning is an experience-based and action-based process that results in knowledge and understanding at both the individual and organizational levels. Both processes result artifacts that are stored

in organizational memory—a repository and retrieval information system that Kuchinke (1995) argues is the key to successful learning, and adds that organizations that manage it well will reap the benefits of learning at both the individual and organizational levels.

Finally, a review of the literature is included in which both strategic learning and organizational learning are connected in some context. Shrivastava (1981) studies organizational learning in the strategic decision-making context and identifies various formal, informal, cultural, and historical processes or systems for managing the process of knowledge sharing and transmission within an organization. In a subsequent study, Shrivastava (1983) develops a typology of organizational learning systems that were “especially pertinent in strategic decision situations where knowledge of industry opportunities and threats and societal expectations invariably shape strategic decisions” (p. 10). Stata (1989) characterizes the connection between strategic planning and organizational learning by embracing organizational learning “as the principal process by which management innovation occurs” and argues that “the rate at which individuals and organizations learn may become the only sustainable competitive advantage” (p. 64). Fiol and Lyles (1985) make inferences about the relationship among organizational learning, strategy, strategic management, and organizational performance, and argue that “it is the level of learning that will impact a firm’s long term survival” (p. 811).

McGill et al. (1992) argues that given a learning orientation, organizations “are able to improve their sources of competitive advantage because mistakes are translated into valuable learning experiences” (p. 9 of 11). Bruderer (1993) suggests that the theory of how strategies are learned has important organizational consequences. Kiernan (1993) identifies organizational learning as one of the seven core elements that will take high-performance firms successfully into the twenty-first century. Slocum et al. (1994) take the position that successful companies are characterized by their strategic intent to learn, commitment to continuous experimentation, and willingness to learn from experiences. Redding and

Catalanello (1994) argue that “just as everyday people learn from their experiences, so do organizations” and that “it is possible to understand strategic planning as a process of organizational learning” (pp. 20-21).

Moingeon and Edmondson (1996) demonstrate that organizational learning can be leveraged as a source of competitive advantage. Ribbens (1997) provides a framework for investigating organizational learning styles and links organizational learning and strategy formulation based on a learning style framework. Bartlett and Ghoshal (1998) define three attributes that when adopted by organizations will result in more focus on the future and sensitivity to emerging changes in the environment. Cunningham (1999) argues that “strategic learning is becoming a key part of an organization’s advantage” (p. 23), but does not intimate a direct link to the strategic planning process. King (1999) studies the problem of how U.S. manufacturers attain competitive advantage in world markets, and identifies strategic planning as a key skill area of strategic management that contributes to competitive advantage.

Hinchcliffe’s (1999) study of how organizations attain competitive advantage in world markets is the most comparable and similar to the current research study of all those found in the literature. Hinchcliffe investigates the link between organizational learning and strategic decision-making. The greatest similarity between the studies is in the process—that is, Hinchcliffe uses a single case study using the narrative inquiry method. Information for his study was gathered using interviews, observations in the work setting, and the examination of artifacts. The difference between the studies is the focus; Hinchcliffe used organizational culture as the primary element with a secondary element of storytelling.

Moingeon and Edmondson (1996) state it best with their argument that “the strategy literature stops short of examining actual learning processes” (p. 8), and that “strategy researchers have stopped short of focusing directly on learning processes and how to encourage them” (p. 11). What was not uncovered in the review of the literature is an in-depth examination of the nexus between strategic planning and organizational learning and how that nexus operates in a specific

organization...and that is the primary research question investigated in the current research project. Subsequent chapters provide the methodology followed to conduct the investigation and the findings that resulted from that investigation.

Chapter III: Methodology

Overview

The purpose of this chapter is to present the methodology and design used in investigating the primary research question: “What is the nature of the nexus between strategic planning and organizational learning, and how does it operate in a specific organization?”

A qualitative research method was selected for this study, using a case study design. Strauss and Corbin (1990) define qualitative research as the kind of research “that produces findings not arrived at by means of statistical procedures or other means of quantification” (p.17). Using a case study design, quantified findings were not expected as a result of this study. Yin (1994) posits that “organizational and management studies” (p. 1) are a situation in which the case study is an applicable research strategy.

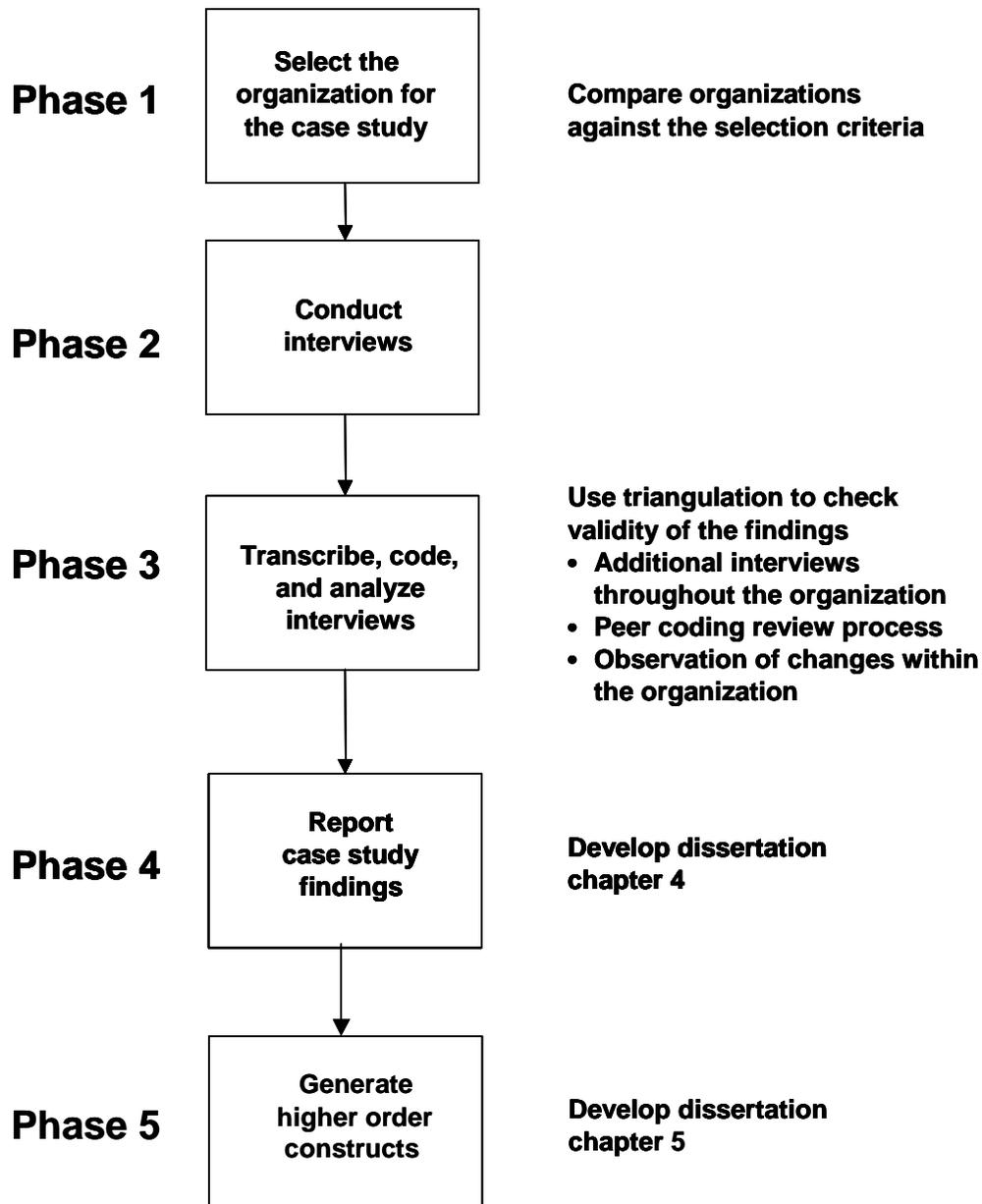
Research Design

There were five phases to the research design for this study: (1) select the organization for the case study; (2) conduct interviews; (3) transcribe, code, and analyze the interviews; (4) report the case study findings; and (5) generate higher order constructs. Each phase is discussed in greater detail below. Figure 3 presents a graphic representation of the research design.

Phase 1

The purpose of Phase 1 was to select the organization at which to conduct the current research. Various criteria were used in selecting the final organization. The researcher determined that the organization must have an ongoing strategic planning activity. The researcher assumed a medium- to large-sized organization would be selected, because within a greater population of employees there exists an increased probability an organization of such size will have a strategic planner or staff which engages in the activity of strategic planning. For ease of access, the preference of the researcher was that the selected organization should be located within geographic proximity of the Baltimore and Washington metropolitan areas.

Figure 3: Research Design



Phases 2 and 3

In phases 2 and 3 the interviews were conducted, transcribed, coded, and analyzed. Various support activities in phases 2 and 3 were designed to ensure the validity of the research through triangulation. Triangulation is a strategy that uses “multiple perspectives to confirm data, thereby ensuring that all aspects of a

phenomenon have been investigated” (Krefting, 1991, p. 177; Yin, 1994). In triangulation, various data sources are evaluated against each other as a cross check to “minimize distortion from a single data source” (Krefting, 1991, p. 177). For this research project, such cross checks included conducting interviews with employees at various levels of the organization involved in the strategic planning process or the implementation of the strategic plan; using a peer coding review process; reviewing documentation produced within the organization; and observing changes in behavior, attitudes, procedures, and routines in the organization as a result of the strategic planning process.

Phase 4

During this phase the narrative analytic story for the organization was developed in the form of a case study, using the concepts that resulted from analyzing and reducing the data. The narrative provides a summary of the essence of the interviews as they relate to the research questions. The case study narrative “explain[s], in a general sense, what is going on” (Strauss & Corbin, 1990, pg. 145) by describing the manner in which strategic planning is implemented and managed in the organization, including any strategic planning models that currently might be in place, if including a discussion of such models adds value to the narrative. The case study narrative also describes what types of learning—formal or informal—are ongoing or planned, and how the processes of strategic planning and organizational learning are connected

Phase 5

During this phase, the researcher generated and defined higher order constructs based on the research findings. The products of this phase constituted a portion of chapter five of the research project.

Selection of the Organization

The organization selected for the investigation is the National Aeronautics and Space Administration (NASA) Headquarters located in Washington, DC. NASA was selected primarily because of its match with the criteria for selection—

that is, having a mature strategic planning process, being a large-sized organization, having a strategic planner on the staff, and being geographically located in the Washington, DC, area—as well as the willingness of the Director of Strategic Planning to participate in the research.

The researcher made use of various associations and personal networks as a means to identify, meet with, and select an organization for the current research—such as, local consulting firms; the Consulting Trade Association; the Center for Quality and Planning at Penn State University; the Center for Strategic Planning in Alexandria, Virginia; the Center for Simplified Strategic Planning in Southport, Connecticut; the Society for College and University Planners in Charlottesville, Virginia; the Strategic Leadership Forum Chapter in Washington, DC; and the Society for Organizational Learning. To reemphasize, the researcher did not intend to conduct the research at any of the aforementioned firms and associations, but rather contacted them to solicit suggestions for organizations at which the research potentially might be conducted. Approximately seventy such contacts were made, primarily by electronic mail and telephone; twenty-four responses were received, most of which did not result in a recommended organization at which to conduct the research.

The net result of the process was recommendations for four organizations: the United States Military Academy in New York; the National Credit Union Association in Alexandria, Virginia; the U.S. Department of Education Office of Special Education Programs in Washington, DC; and U.S. Airways Headquarters in Crystal City, Virginia. The researcher contacted each of the recommended organizations by telephone to determine (1) whether the organization had an ongoing strategic planning activity, and (2) whether the organization would agree to participate in the study. Three organizations opted not to participate in the research project; the fourth, the U.S. Department of Education Office of Special Programs, agreed to participate in a pilot interview.

Finally, based on a work-related experience of searching for information, the researcher's spouse recommended that the researcher explore the website for NASA

Headquarters in Washington, DC (NASA, 2001a). A exploration of and search through that website uncovered a link to NASA's Office of Policy and Plans, a description of NASA's strategic planning process, a copy of the Agency's strategic plan, and electronic mail contact information for the Director of Strategic Planning. Similar to contacts made up to this point, the researcher sent an electronic mail message to the Director of Strategic Planning introducing the researcher and the research topic; stating the proposed parameters; explaining the level of interest for the researcher piqued by exploring the website; and requesting consideration of the possibility of conducting research at NASA. The following response was received:

“As a general policy we don't object to academic research on our programs and processes. Our ability to provide direct support, however, is often limited by our very tight staff resources. I would want a better sense of the scope of your research and how much time would be required on the part of Agency personnel before agreeing to actively support your project. However, the first concern that I would like to raise is relevant to your topic, and how good a model we might or might not be for your research. I believe that one of the areas that is weakest in our strategic management efforts to date has been educating employees. This is an area that we plan on focusing some attention in the next year. As a result to the degree that your project focuses on that question the product could actually be useful to us. But to the degree that your project requires an organization that has done a good job of employee education flowing from strategic planning we might pose some problems for the success of your research project. I would be happy to discuss this further with you” (Crouch, 2000).

As a result of a series of subsequent telephone calls and exchanges of electronic mail to provide additional information about the research project and the credentials of the researcher, agreement was reached between NASA's Director of Strategic Planning and the researcher that the current research project could take place at NASA Headquarters.

A Brief Overview of NASA

“An Act to provide for research into the problems of flight within and outside the Earth's atmosphere, and for other purposes.’ With this simple preamble, the Congress and the President of the United States created the National Aeronautics and Space Administration (NASA) on October 1, 1958 (Garber & Launius, 1999).

Garber and Launius (1999) explain that NASA's inception was directly related to a series of pressures of national defense following World War II and the contest between the United States and the Soviet Union that became known as the space race. Most notably, however, NASA's beginning is most closely linked with the launching of *Sputnik I*, the world's first artificial satellite, by the Soviet Union on October 4, 1957, that created an illusion of a technological gap and sparked a "Pearl Harbor" effect on the American public. The civil servants who comprised the newly-formed agency came from the National Advisory Committee for Aeronautics (NACA), the Army Ballistic Missile Agency, the Naval Research Laboratory, and the Air Force Ballistic Missile Program, who together "adopted an organizational philosophy suited to the scientific and technological missions they were asked to perform. NASA acquired a reputation as a high-performance organization" (McCurdy, 1993, p.1).

Throughout its 40-plus year history, NASA has maintained its position as a leading force in scientific space and aeronautics research and public interest with programs such as: Project Mercury, during which Alan Shepard became the first American to fly into space (1961) and John Glenn became the first astronaut to orbit the Earth (1962); Project Gemini, during which Edward White became the first U.S. astronaut to conduct a spacewalk (1965); and Project Apollo, during which Neil Armstrong and Edwin Aldrin landed on the Moon (1969). LANDSAT (1972), the first Space Shuttle mission (1981), Hubble Space Telescope (1990), Mars Observer spacecraft (1993), Mars Global Surveyor (1996), and participation with Russia's *Mir* space station are other programs of varying levels of success and failure that have sustained NASA in the foresight of Congress and the American public.

With its customers including the President, Congress, and the American public, NASA is different from other government agencies, in that its focus is not regulatory, nor is NASA a provider of services. NASA very much promotes a "can

do” and problem-solving culture of program management, with a workforce comprised mostly of scientists and engineers.

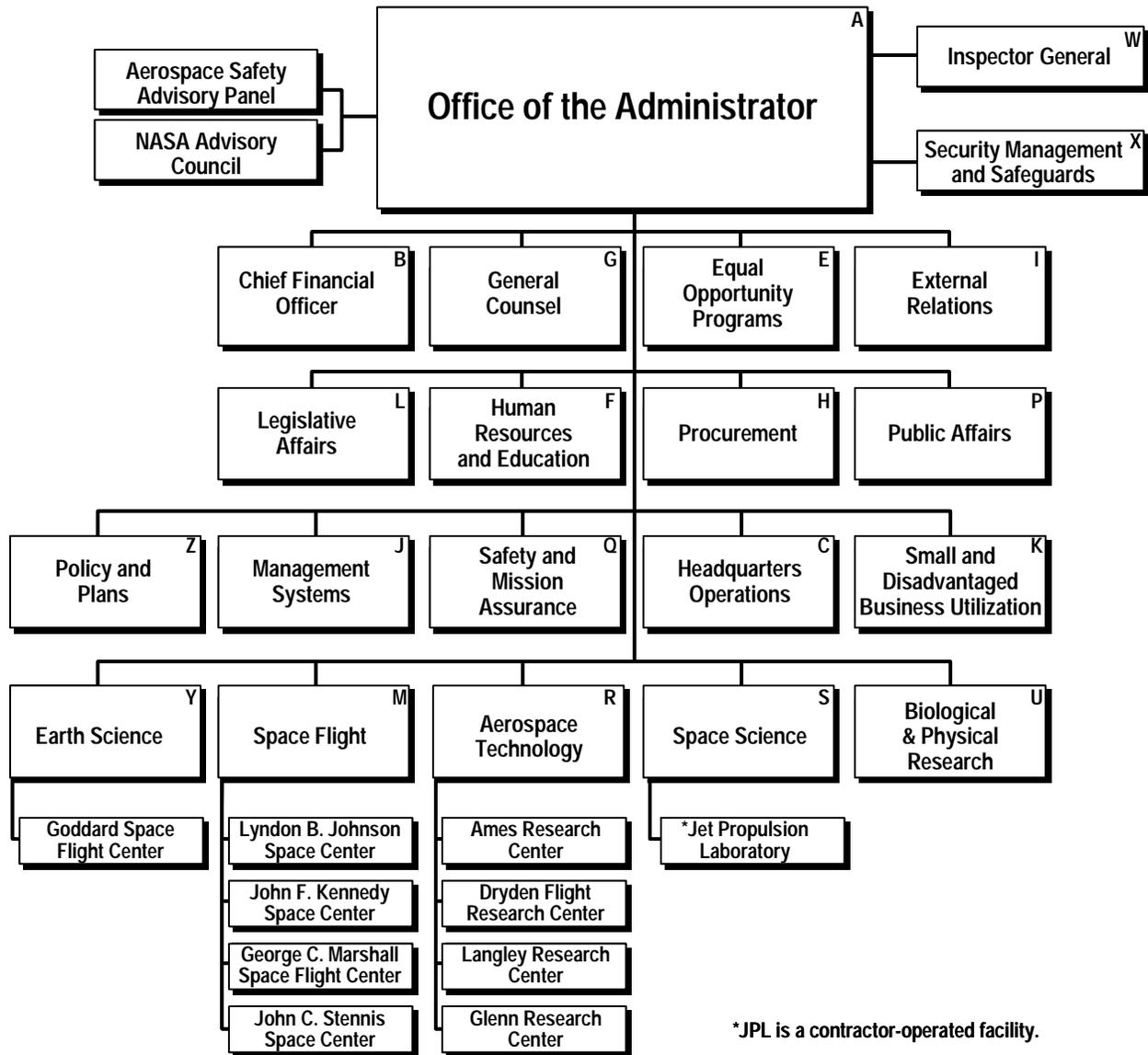
Operating at an annual budget of approximately 14 billion dollars, NASA employees today number nearly 20,000, with 1,000 located at NASA Headquarters in Washington, DC, and others at various NASA Centers nationwide. NASA experienced cutbacks and downsizing over the past seven years—a 5 billion dollar reduction in budget (or one quarter of its resources), and a 60% reduction in staffing. Similar to the practice of other government agencies, NASA leverages a network of contractors, currently numbering approximately 180,000. The current NASA Administrator, Daniel S. Goldin, was appointed on March 31, 1992, following confirmation hearings with Congress.

The Organization of NASA Headquarters

“As the nexus of NASA's major aeronautical and space programs, NASA Headquarters is the voice of the Agency” (NASA, 2001a). The organizational structure at NASA Headquarters (see Figure 4) essentially is a four-level hierarchy consisting of the Office of the Administrator, the Functional Offices, the five Strategic Enterprises, and the NASA Centers. (Figure 4 was provided electronically by NASA Headquarters.) Each component of the Headquarters structure is assigned a single-letter designation, known more informally as a Code. A more detailed organizational overview of the roles and responsibilities with NASA Headquarters and the interrelationship various Agency councils and boards is provided in the NASA Strategic Management Handbook (NASA, 2000c).

The NASA Administrator serves as the Agency's chief executive officer, and is accountable to the President for the leadership necessary to achieve the Agency's mission. The activities of the Functional Offices fall into any or all of three major categories: functional leadership, staff to the Administrator, and central services across the Agency. The Administrators of the Functional Offices are the NASA Administrator's principal advisors for their areas of responsibility. Examples of Functional Offices include the Chief Financial Officer (Code B), Human Resources and Education (Code F), Public Affairs (Code P), and Policy and Plans (Code Z).

Figure 4: NASA Headquarters Organization Chart



NASA conducts its programs through Strategic Enterprises that constitute NASA's primary mission areas and focus on serving customers. Each Enterprise has its own unique set of goals, objectives, and implementation strategies that address the requirements of the Agency's primary customers. As articulated in the Agency's strategic plan (NASA, 2000d, p. 12):

The Space Science Enterprise (Code M) seeks to chart the evolution of the universe, from origins to destiny, and understand its galaxies, stars, planetary bodies, and life.

The Earth Science Enterprise (Code Y) aims to understand the Earth and its response to natural- and human-induced change in order to improve prediction of climate, weather, and natural hazards, and help us to be responsible stewards of our planet for future generations.

The Biological and Physical Research Enterprise (Code U) conducts basic and applied research to support human exploration of space and to take advantage of the space environment as a laboratory.

The Human Exploration and Development of Space Enterprise (Code M) seeks to expand the frontiers of space and knowledge by exploring, using, and enabling the development of space.

The Aerospace Technology Enterprise (Code R) works to maintain U.S. preeminence in aerospace research and technology.

NASA's nine centers plus the Jet Propulsion Laboratory (JPL) are responsible for the implementation of the Agency's plans, programs, and activities. (JPL is a contractor-operated facility.) Although each Center is shown on the organizational chart as a direct report to a specific Enterprise, some Centers collaborate with and execute programs for various Enterprises, depending on the Center's area of concentration or capabilities.

Although not illustrated in Figure 4, there exists within NASA an additional management framework: the Crosscutting Processes. These processes are based on NASA's broad application of operating principles and activities that "can enhance the return on its work toward diverse programmatic and functional objectives" (NASA, 2000c, p. 22). The NASA Administrator assigns stewardship responsibilities for the Crosscutting Processes, which are identified in Table 15 below:

Table 15: Stewardship Responsibilities for NASA's Crosscutting Processes

Process	Purpose	Responsibility
Manage Strategically	Describe critical management functions	Associate Administrator for Policy and Plans
Provide Aerospace Products and Capabilities	Describe NASA's Agency-wide technology and program management strategies	Chief Engineer
Generate Knowledge	Explain shared research strategies	Chief Scientist
Communicate Knowledge	Define NASA's communication strategies	Chief Scientist

Selection of Subjects

In order to study an organization, it is necessary to study the people who work in that organization and the manner by which they carry out various organizational activities, demonstrate changes in behaviors, or to what extent information and knowledge flows or is transferred from one person to the next. The intent of conducting interviews for the current research project was to explore the strategic planning process at NASA with those who manage, participate in, or implement the planning process. Generally a researcher conducts interviews until reaching the point of saturation—that is, until each additional interviewee adds little to what is learned (Rubin & Rubin, 1995) or where collecting additional information proves counterproductive (Strauss & Corbin, 1990). “A category is saturated when no new information seems to emerge during coding, that is, when no new properties, dimensions, conditions, actions/interactions, or consequences are seen in the data” (Strauss & Corbin, 1990, pg. 136).

The first interview within NASA was conducted with the Director of Strategic Planning. Upon completion of the first interview, the researcher asked the strategic planner to identify additional persons within the organization (snowball sampling

technique) who are involved either directly or tangentially in the strategic planning process. Those identified for the subsequent interviews were selected based solely on the experience of and data provided by the strategic planner. In developing a pool of interviewees, the Director identified a list of Agency personnel from the following Functional Offices, Strategic Enterprises, and Centers:

Code FT	Training and Development
Code MP	Human Space Flight
Code RG	Aerospace Technology
Code S	Space Science
Code U	Biological and Physical Research
Code Y	Earth Sciences
Code Z	Policy and Plans

Goddard Space Flight Center
Langley Research Center

The strategy for the composition of the interviewee pool was to ensure representation from the offices responsible for directing and carrying out the strategic planning process and training and development, each of the Strategic Enterprises, and a sample of geographically local NASA Centers. The Director of Strategic Planning distributed an electronic mail message (Crouch, 2001) to each of the potential interviewees introducing the researcher and research topic, citing the applicability of the research in the NASA context, verifying NASA's agreement to participate in the research project, describing an interviewee's expected level of involvement, stating that each interview would be recorded, and expressing appreciation for each interviewee's assistance.

Instrumentation

Interviewing was the method used to obtain in-depth knowledge of the interviewees' organizational world, and to collect data for the current research study. Kvale (1996) characterizes the research interview as a specific form of conversation that focuses on the dynamics of the interaction between the interviewer and interviewee with critical attention to what is said. He states that

the purpose of the qualitative research interview is “to obtain descriptions of the lived world [life world] of the interviewees with respect to interpretations of the meaning of the described phenomena” (p. 30). Table 16 replicates Kvale’s effort to describe the structures or aspects of qualitative research interviews, which he labels the “mode of understanding” in the qualitative research interview.

Table 16: Kvale's Aspects of Qualitative Research Interviews (p. 30)

Life World	The topic of qualitative interviews is the everyday world of the interviewee and his or her relation to it.
Meaning	The interview seeks to interpret the meaning of central themes in the life world of the subject. The interviewer registers and interprets the meaning of what is said as well as how it is said.
Qualitative	The interview seeks qualitative knowledge expressed in normal language, it does not aim at quantification.
Descriptive	The interview attempts to obtain open nuanced descriptions of different aspects of the subjects’ life worlds.
Specificity	Descriptions of specific situations and action sequences are elicited, not general opinions.
Deliberate Naivete	The interviewer exhibits an openness to new and unexpected phenomena, rather than having ready-made categories and schemes of interpretation.
Focused	The interview is focused on particular themes; it is neither strictly structured with standardized questions, nor entirely “non-directive.”
Ambiguity	Interviewee statements can sometimes be ambiguous, reflecting contradictions in the world the subject lives in.
Change	The process of being interviewed may produce new insights and awareness, and the subject may in the course of the interview come to change his or her descriptions and meanings about a theme.
Sensitivity	Different interviewers can produce different statements on the same themes, depending on their sensitivity to and knowledge of the interview topic.

Interpersonal Situation	The knowledge obtained is produced through the interpersonal interaction in the interview.
Positive Experience	A well carried out research interview can be a rare and enriching experience for the interviewee, who may obtain new insights into his or her life situation.

Kvale (1996) argues that the structure of a research interview comes close to everyday conversation; he asserts that, “as a professional interview it involves a specific approach and technique of questioning” (p. 27). The qualitative research interview is semi-structured—that is, it is neither an open conversation nor follows a highly structured questionnaire. Rather, “it is conducted according to an interview guide that focuses on certain themes and that may include suggested questions” (p. 27). Rather than using specific questions, a list of suggested topics to be covered during the interview process was developed for this research study to address the research question:

What is the nature of the nexus between strategic planning and organizational learning, and how does it operate in a specific organization?

The list of topics suggested by the researcher to be covered during the interviews, and the strategic planning or organizational learning dimension considered through discussion of each topic, are presented below. During the data collection phase of the research, this list served solely as a basis for the interview guide; it does not represent the topics addressed at every individual interview. Table 17 presents a matrix of the suggested interview topics against each of the research questions. The purpose of this matrix was to propose a relationship between the suggested interview topics and each of the supporting research questions.

Table 17: Relationship Between Suggested Interview Topics and the Supporting Research Questions

Suggested Interview Topic	Supporting Question 1	Supporting Question 2	Supporting Question 3	Supporting Question 4
(1) Overview of the organization and structure	Not Applicable: used for background information			
(2) Evolution of the organization and its future directions				X
(3) Respondent's position description and responsibilities	X			
(4) Role of the respondent during the most recent strategic planning process	X			
(5) Role of others in the organization during the most recent strategic planning process	X	X		
(6) Teamwork used in the most recent strategic planning process	X	X		
(7) Success of the strategic planning process within the organization			X	
(8) Communication of the strategic plan throughout the organization	X	X	X	
(9) Key elements of successful implementation of a strategic plan in the organization	X	X		
(10) Observation of behavior changes in leadership, management, and the workforce during and after the strategic planning process			X	X
(11) Observation of changes in attitudes during the after the strategic planning process			X	X
(12) Examples of other changes resulting from the strategic planning process			X	
(13) Examples and indicators of changes in individual and organizational performance resulting from the strategic planning process			X	X
(14) Reaction to the following statement in relation to your organization: "Learning is a fundamental requirement for the sustained existence of an organization."				X

Suggested Interview Topic	Supporting Question 1	Supporting Question 2	Supporting Question 3	Supporting Question 4
(15) The capability of an organization to learn				X
(16) Examples of whether the respondent's organization learned from the strategic planning process			X	X
(17) Examples of whether the respondent learned from the strategic planning process			X	X

The researcher realized that because of the conversation format used in a qualitative interview, that the topics are not necessarily covered in a sequence, and that it is desirable to allow the respondent full opportunity to discuss and explain a point beyond the topic introduced by the researcher, and to probe each response made by a respondent to the greatest depth possible. The researcher also realized that every topic listed in the interview guide is not necessarily covered with every respondent. As such interview guides varied slightly for each interviewee. (Examples of interview guides are included in Appendix B.) The estimated time period for an interview was approximately 60 to 90 minutes. The relationship of interview topics to strategic planning or organizational dimensions is shown below in Table 18.

Table 18: The Relationship of Interview Topics to Strategic Planning or Organizational Learning Dimensions

Suggested Interview Topic	Strategic Planning or Organizational Learning Dimension Considered
1. Overview of the organization and structure...not discussed necessarily for coding, but for background information (Anthony, 1965; Chandler, 1962; Mason, 1969; Steiner, 1979; Vancil, 1976; Vancil & Lorange, 1975)	<ul style="list-style-type: none"> • An understanding of the products or services provided by the organization • The relationship between levels of hierarchy and learning capability

2. Evolution of the organization and its future direction (David, 1995; Mintzberg, 1991; Mintzberg, 1994; Mintzberg, Ahlstrand, & Lampel, 1998; Mintzberg & Quinn, 1991)
 - Challenges the organization might have encountered and changes the organization might have made during its history
 - Challenges the organization have made based on its experiences in the marketplace and among competitors
 - Whether such challenges or changes were affected by either the strategic planning or learning processes
3. Respondent's position description and responsibilities (Mintzberg & Quinn, 1991)
 - Understanding and definition of the role and responsibilities of the strategic planner
4. Role of the respondent during the most recent strategic planning process (Mintzberg & Quinn, 1991)
 - Further clarification and verification of the role and responsibilities of the strategic planner in this organizational setting
 - The way in which the organization prepares for and initiates the strategic planning process
5. Role of others in the organization during the most recent strategic planning process (Mintzberg & Quinn, 1991; Pace & Faules, 1989; Thompson, 1997)
 - The role of other individuals and teams throughout the organization in the strategic planning process
 - Lines of communication within the organization
6. Teamwork used in the most recent strategic planning process (Probst & Buchel, 1997; Tsang, 1997)
 - The use of collective skills and knowledge during the strategic planning and organizational learning processes
 - Verification of the benefits of using teams
7. Success of the strategic planning process within the organization (Kim, 1993; Nevis et al., 1995)
 - The opportunity to propose changes in the strategic planning process, based on experience and learning

8. Communication of the strategic plan throughout the organization (Mintzberg & Quinn, 1991; Pace & Faules, 1989)
 - Definition of lines of communication
 - To what extent communication is effective within the organization; how well communication is working
 - Whether the strategic plan was shared beyond the upper management or executive levels, and to what extent doing so benefited the organization

9. Key elements of successful implementation of a strategic plan in the organization (David, 1995; Mintzberg, 1991; Mintzberg & Quinn, 1991)
 - Components of an effective strategic planning process
 - What an organization “does” during the strategic planning process

10. Observation of behavior changes in leadership, management, and the workforce during and after the strategic planning process (Cangelosi & Dill, 1965; Cyert & March, 1963; Daft & Huber, 1987; Fiol & Lyles, 1985; March, 1991; Marsick, 1988; Mezirow, 1991; Nonaka, 1991; Shrivastava, 1981)
 - Learning is recognized as a change in behavior
 - Components of organizational learning

11. Observation of changes in attitudes during and after the strategic planning process (Cangelosi & Dill, 1965; Cyert & March, 1963; Daft & Huber, 1987; Fiol & Lyles, 1985; March, 1991; Marsick, 1988; Mezirow, 1991; Nonaka, 1991; Shrivastava, 1981)
 - Learning is recognized as a change in attitudes
 - Components of organizational learning

12. Examples of other changes resulting from the strategic planning process (Fiol & Lyles, 1985; Hedberg, 1981; Nevis et al., 1995; Ratliffe, 1981)
 - Evidence of changes in policies, procedures, or routines that resulted from learning

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>13. Examples and indicators of changes in individual and organizational performance resulting from the strategic planning process [Hedberg, 1981 #53; Fiol, 1985 #1; Nevis, 1995 #20; Ratliffe, 1981 #94]</p> | <ul style="list-style-type: none"> • Evidence of changes in policies, procedures, or routines that resulted from learning |
| <p>14. Reaction to the following statement: “Learning is a fundamental requirement for the sustained existence of an organization.” (Bruderer, 1993; McGill et al., 1992)</p> | <ul style="list-style-type: none"> • Reaction about the effects of learning in an organization based on the perspective and views of the strategic planning expert • Components of the nexus between strategic planning and organizational learning |
| <p>15. The capability of an organization to learn (Hedberg, 1981; Nevis et al., 1995; Slocum et al., 1994; Stata, 1989; Veilleux, 1995)</p> | <ul style="list-style-type: none"> • Whether an organization can learn and how that might be accomplished |
| <p>16. Examples of whether the respondent’s organization learned from the strategic planning process (Confessore & Kops, 1998; Kiernan, 1993; Kuchinke, 1995; Moingeon & Edmondson, 1996; Redding & Catalanello, 1994)</p> | <ul style="list-style-type: none"> • To what extent learning took place organization-wide • Components of the nexus between strategic planning and organizational learning |
| <p>17. Examples of whether the respondent learned from the strategic planning process (Bartlett & Ghoshal, 1998; Bruderer, 1993; Goh, 1998; Huber, 1991; Kim, 1993; Kuchinke, 1995; Stata, 1989)</p> | <ul style="list-style-type: none"> • To what extent learning took place for the strategic planner and whether and how she or he will apply or transfer such knowledge in the organizational setting |

Pilot Studies

Two pilot case studies were conducted prior to the commencement of the interviews and data collection at NASA Headquarters. The purpose of the pilot studies was to preview the methodology used, to assist in developing relevant lines of questions about the subjects and issues to be addressed, and to affirm the

research design. The intent of the pilot studies was for the researcher to discuss with a strategic planner the goal and design of the research, to test the types of questions to be asked, and to solicit feedback on the methodology and design. The first pilot study was conducted with the individual primarily responsible for strategic planning at the National Oceanographic and Atmospheric Administration (NOAA) Environmental Compliance Division. The second pilot study was conducted with a strategic planner at the U.S. Department of Education Office of Special Education Programs. Both pilot studies were conducted with employees of U.S. Government agencies, thereby further preparing the researcher for the actual research process in such a context and setting. In both cases, a similar methodology was used—that is, an interview guide was developed; the interviews were tape recorded, transcribed, and coded.

Data Collection and Recording

All interviews were recorded using a cassette tape recorder. Backup tapes, and batteries were on hand at each interview. Prior to the interviews, each interviewee was provided with Virginia Tech's informed consent form, which was pre-approved by the Institutional Review Board (IRB) of the University. Interviewees were informed of the strict level of confidentiality that would be maintained during the data collection and reporting phases of the study. Every interviewee agreed to sign the consent form; most interviewees made and kept a duplicate copy of the form for their records.

A total of thirteen interviews with eleven NASA employees were conducted over a period of four months. All interviews were conducted at NASA Headquarters or a specific NASA Center. Because of resource restraints identified by NASA at the start of the research project, only one interview was conducted with each participant. One participant requested a second interview. And as agreed at the onset of the research, a second (wrap-up) interview was conducted with the Director of Strategic Planning following the completion of all other interviews. The length of

the interviews ranged from forty-five minutes to two and one-half hours, with an average length of approximate one hour per interview.

During each interview, every effort was made by the researcher to gain the trust of each interviewee, and to make each person feel comfortable and at ease. The offer was made that if at any time during the interview, should an interviewee specifically request that information be kept “off the record,” such requests would be honored and the tape recorder will be turned off. No interviewees made such a request during the interviews. One interviewee requested that the interview not be tape-recorded; only field notes were maintained for that interview.

At the close of each interview, the researcher conducted a short debrief with the interviewee. The purpose of the interview debrief was to solicit from the interviewee her or his reactions to the interview process, and to gain information that might assist the researcher in improving or revising subsequent interviews.

As the interviews progressed at NASA Headquarters, the researcher sensed an increasing level of trust with NASA employees, particularly with those in the Office of Policy and Plans. For example, the researcher was entrusted with participating in informal conversations between the Director of Strategic Planner and the Associate Administrator for Code Z. As a means of reporting progress, the researcher continued an exchange of electronic mail messages with the Director; the context of such messages grew increasingly informal and relaxed, and even included gentle bantering and humor.

Each interview was transcribed into a word processor (Microsoft Word 2000) for transfer into Ethnograph software, that is used for analysis of qualitative data. A copy of each transcribed interview was sent to the interviewee for verification that the interview was transcribed correctly, and that his or her statements and opinions were portrayed accurately.

In addition to field notes made during each interview, the researcher maintained a journal to record and track various activities, experiences, reactions, and feedback during the data collection and analysis phases of the study. Ives (1995) suggests the practice of maintaining a diary or journal to keep information

that will assist the researcher in appreciating what occurred before, during, and after each interview. Ives suggests that information that might be included in such a journal are dates, persons, places, reactions of the researcher or interviewee during the interview, observations about the organizational environment, and other factors that might provide clarification or understanding when the interview tapes are transcribed and analyzed.

Data Analysis and Reporting

Data were analyzed (coded) using the Ethnograph software package. Open coding was conducted in order to develop the various categories (in terms of their properties and dimensions). Levels of analysis—axial and selective coding—were continued in order to determine relationships among categories; to develop “a picture of reality that is conceptual, comprehensible, and above all grounded” (Strauss & Corbin, 1990, p. 117)); and to provide an answer(s) to the research questions. Various coded interviews underwent a peer review process within a class group structure at the University.

Initially, open coding was conducted on five of the transcribed interviews: NASA1; NASA3; NASA4; NASA8; and NASA12 (see the interviewee identification process described below). This process resulted in the identification of 87 codes, and the saturation of codes. (See Appendix C for a copy of the code book.) At the time each code was identified, it was entered into the Ethnograph codebook and defined immediately. Using the functions of the Ethnograph software, the 87 codes then were examined to determine to what extent they might be grouped or combined into higher-level “families.” For example:

The codes A-EMPINPUT, A-LAYOUT, A-PLCONTNT, A-PLNCOMMS, A-READABLE, A-SPFUTURE, A-WRITING, DOC REVIEW, MGTFORUMS, and SIGNPROCSS were grouped together in the higher-level code AGENCYPLAN.

The codes DR-ADMINIS, DR-BUDGET, DR-CONGRESS, DR-GPRA, DR-ISO9000, and DR-PUBLIC were grouped together in the higher-level code EXTDRIVER, while the codes DR-GOLDIN, GOLDINROLE,

CHNGEAGENT, and LEADERSHIP were grouped together in the higher-level code INTDRIVER. Together EXTDRIVER and INTDRIVER were combined into the single code DRIVERS.

This grouping and combining process continued until a detailed code family tree was developed. (See Appendix D for a copy of the family tree.) Using the structure suggested by that family tree, the researcher then developed a draft outline for the narrative story for the case study. The outline was developed in a standard outline format, showing the codes associated with each major section and subsection of the outline. Following that process, the researcher proceeded with writing the first draft of the narrative story. Selective coding was conducted on the remaining transcripts and compared against the draft narrative story to determine whether revisions or modifications were appropriate.

A single narrative (Yin, 1994) was used to describe and analyze the case study. In every instance, individual names were changed in the narrative to ensure confidentiality and anonymity of the interviewees. The source of the interviewee associated with each transcript was identified through a series of sequential numbering—such as NASA1, NASA2, NASA3, etc.—in the order each interview was completed. The researcher maintained a separate log of code names versus the actual names of the interviewees. Each interview transcription was submitted to the interviewee who participated to ensure an accurate depiction of the findings. The draft narrative story was presented to NASA's Director of Strategic Planning for review and comment to ensure an accurate interpretation and portrayal of the findings.

The researcher used the development of a process map (see Figure 5) to illustrate graphically and to lead the narrative in Chapter 4 about the nexus between strategic planning and organizational learning at NASA. The strategic planning segment of the process map was developed first to identify the set of external and internal drivers of and influences on the mission, vision, goals, and objectives of the Agency's strategic plan at the developmental and review stages. Each external and internal driver is identified by a single-letter code. The graphic

shows the completed (final) strategic plan as a key connecting point between the two processes. The organizational learning segment of the process map was then developed to illustrate the various activities that occur once the strategic plan is approved—that include distribution, communication, learning activities, implementation, and the next three-year strategic plan update cycle. Each of those activities results in a product or outcome that is stored in NASA’s organizational memory. The organizational memory segment is presented in tabular format and designed such that next to each product or outcome in organizational memory is listed the single-letter code(s) of the external and internal drivers that are influenced by the specific product or outcome. By using various connection points and links, the researcher illustrated the nexus between strategic planning and organizational learning at NASA as a continuous process with no specifically identified starting and ending points. Using a process map methodology simplified the challenge of illustrating and describing the nexus between strategic planning and organizational learning at NASA, showing the nexus as a continuous flow in activities, products, and outcomes that explicitly and implicitly inform each other.

Practitioner Experience of the Researcher

Strauss and Corbin (1998) argue that “having sensitivity means having insight into, and being able to give meaning to, the events and happenings in the data” (p.46). Sensitivity can be gained through the experience of collecting and analyzing the data, as well as professional and personal experience and knowledge. To that end, the researcher had at least five years of experience in strategic planning from the perspective of a practitioner. Such experience and expertise served as a critical factor in overcoming bias during data collection and analysis. It also served to enable the respondents to articulate their perceptions—that is, to build a trust level with the respondents that encouraged honesty and the freedom to “say what they really mean” during an interview.

Starting in 1998, the researcher worked closely as a consultant with the Environmental Compliance Division of the National Oceanic and Atmospheric

Administration (NOAA) to develop its strategic plan. Working closely with the primary strategic planner, the researcher investigated various strategic planning and meeting facilitation models to decide on the appropriate approach for that division. The researcher facilitated a sequence of nationwide meetings, during which data were collected for the strategic plan. The researcher used the data to develop not only the structure and content of the plan, but also designed and published the final strategic plan after conducting a NOAA peer review of the draft product. Subsequent to that experience, the researcher has served in a consulting advisory role in providing a similar service to NOAA's Safety Division, which recently merged with the Environmental Compliance Division; at present, steps are being undertaken to merge both strategic plans into a single document. Other strategic planning and development experiences have included the Office of the Undersecretary of Defense Environmental Division and the Army Materiel Command.

Generalizability

The scope of the current research project was to study one organization in depth (a representation of $N=1$). The interest of the researcher was in how a particular organization approaches and manages events, situations, experiences, and conditions related to strategic planning and organizational learning. However, the interest of the researcher was not in how various other organizations approach and manage the same thing, nor the differences between or among organizations. Although the research project uncovered ways in which the organization was unique (unlike others), and ways in which its experiences were general (in a normative sense, the same as other organizations), the intent of the current research was not to explain all organization behavior and activity as it relates to strategic planning and organizational learning. Nachmias and Nachmias (1987) label such a study a One-Shot Case Study, that involves "a single group or event at a single point of time, usually subsequent to some phenomena that allegedly produced change" (p. 150). They argue that a One-Shot Case Study "may lead to insights that, in turn, could be studied as research hypotheses" (p. 151). Therefore,

using a sample of N=1, the results of the current research did not allow generalization in a statistical sense to other organizations, but rather to the broader body of knowledge.

Summary

The research design described above provided a sound methodology for preparing, collecting and analyzing data, and reporting the findings for the research study. The phases of the research design were identified clearly, as were the necessary resources and assumptions. Efforts were taken to achieve triangulation—to ensure the various data sources will be evaluated against each other—and to ensure the credibility, accuracy, comprehension, clarity, and soundness of the findings. The interview process ensured full and guaranteed confidentiality for the organization and the interviewees. And the research design allowed for an adequate and appropriate level of flexibility in the methodology for the researcher.

Chapter Four: Findings

“In 1915, Congress created an organization that would ‘supervise and direct the scientific study of the problems of flight, with a view to their practical solutions.’ That organization, the National Advisory Committee for Aeronautics, evolved into NASA four decades later when Congress formed a civilian agency to lead ‘the expansion of human knowledge of phenomena in the atmosphere and space.’ The journey begun in 1915 has taken American aviators, astronauts, and robotic spacecraft from the dunes of Kitty Hawk to the edge of the atmosphere and to the surface of the Moon and Mars. American spacecraft have explored more than 60 worlds in our solar system, while methodically peering back in space and time to reveal many of the secrets of the universe.” (NASA, 2000e, p. 1)

Strategic Planning at NASA

NASA has in place a system and framework that define—through policies, directives, and guidance—the manner in which strategic planning should be performed formally within the Agency, and the organizational interfaces necessary for successful implementation of the strategic plan. Investigating strategic planning solely from this plane, however, results in not much more than a static, inert paperwork exercise. The reality of strategic planning comes alive and develops in the day-to-day activities, relationships, and dynamics of the organization as well as the experiences and interrelationships of employees throughout the organization as they strive to implement the formal system.

The following sections describe strategic planning at NASA from both formal and informal perspectives. Excerpts from interviews conducted at NASA Headquarters are interspersed throughout the text in this chapter. Appendix E contains a collection of all interview excerpts in the order they are presented.

The Formal Strategic Planning Process and System

“Not long after [NASA] was established, the Agency undertook the first in a series of long-range plans to ensure that it used [the national resources entrusted to it by the American people] effectively, not only to meet current expectations, but also in anticipation of future needs” (NASA, 2001e, p. 25). Published in September

2000, NASA's most current strategic plan is a 69-page, glossy, color-and-graphic-enhanced description of NASA's plans to pursue its vision, implement its mission, and "seek answers to fundamental questions of science and technology that provide the foundation for [its] goals and objectives" (NASA, 2000d, p. 5). In addition to presenting NASA's vision, mission, core values, and goals and objectives, the plan includes detailed roadmaps of NASA's contribution to America's national priorities and the implementation of its mission for a 25-year period. Also included in the plan are the identification of NASA's customers as well as narrative descriptions of the Agency's efforts to form partnerships with the science community and industry and interagency cooperation and cooperation with international agencies.

NASA formally documents its strategic management system—that is, a set of ongoing and interlinked activities that include strategic planning, implementation and performance planning, and performance evaluation—in its Strategic Management Handbook, known more informally as "The Red Book" (NASA, 2000c). The Red Book "describes the strategic management roles and relationships of NASA's various organizational elements, from the Administrator to all NASA employees" (NASA, 2000c, p. 3). The Handbook also defines the requirement that strategic plans developed for the Agency and the Enterprises will contain:

1. "A comprehensive mission statement covering NASA's major functions and operations
2. General goals and objectives, including outcome-related goals and objectives, for major functions and operations
3. A description of how the goals and objectives are to be achieved
4. An identification of those key factors, external to the Agency and beyond its control, that could significantly affect the achievement of the general goals and objectives
5. The program evaluations used in establishing or revising general goals and objectives" (NASA, 2000c, p. 25).

Within the framework of the NASA Strategic Management System, NASA develops more detailed plans at each level of the organization that complement and supplement the Agency strategic plan:

Enterprises	Enterprise Strategic Plans
Headquarters Functional Offices	Functional Leadership Plans
Centers	Center Implementation Plans
Programs and Projects	Program and Project Plans
Employees	Employee Performance Plans

The relationship and family lineage among the various documents in NASA's strategic management system is shown in Figure 6—that portrays and positions the central prominence of the strategic plan in all NASA operations. (Figure 6 was provided electronically by NASA Headquarters.) All formal NASA strategic, implementation, program, project, budget, and performance planning and reporting documents have a direct link or lineage to and must be consistent with the Agency's strategic plan.

Strategic planning at NASA is a continuous process. NASA's strategic plan is reviewed and updated at least every three years. Within the Agency, responsibility for organizing and leading the strategic management process, including the coordination, preparation, and update of the Agency's strategic plan, is assigned to the Office of Policy and Plans—also identified as Code Z (NASA, 2000f; NASA, 2001e, section 4.26(d)). NPG 1000.3 documents the NASA organization, defines terms, and sets forth the standards for establishing, modifying, and documenting the NASA organizational structure and for assigning organizational responsibilities. HOWI-7020-Z001, Rev. A, documents the procedure to produce the NASA Strategic Plan in accordance with the strategic planning requirements of the Government Performance and Results Act of 1993.

Procedurally, Code Z (1) develops Agency-wide guidance and direction for development of Agency and Enterprise strategic plans; (2) reviews materials received from the Enterprises to ensure consistency; (3) develops the content for the Agency plan; (4) provides drafts of the Agency plan for comment; (5) incorporates appropriate changes based on various comments received; (6) prepares the formal approval package; (7) prepares the approved document for publication and distribution; and (8) ensures that the strategic plan is distributed by both hardcopy and electronic copy on the NASA website.

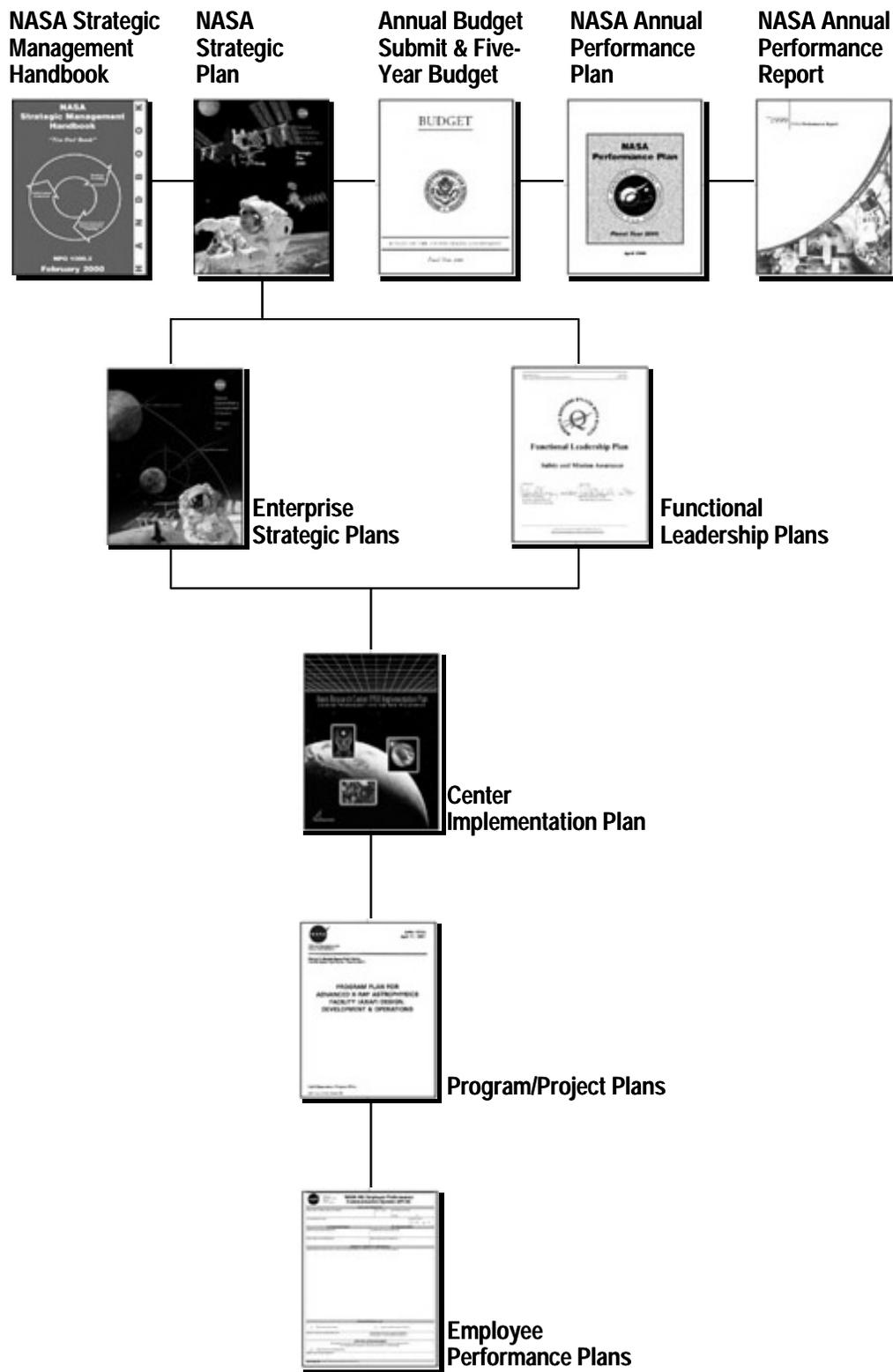
The Administrator's Strategic Outlook

“This Strategic Plan charts our trajectory into the frontiers of flight, space, and knowledge.”

Daniel S. Goldin
NASA Administrator

NASA's Strategic Plan embodies the vision and direction for the Agency as expressed by the NASA Administrator, Daniel S. Goldin. In his “Strategic Outlook,” Goldin sets the stage for the reader to explore the strategic plan by tying together the historic and the future; placing the United States in the role as the leader of an intellectual expedition; and positioning NASA in the forefront of the quest to expand both geographical and intellectual horizons. “We have progressed farther in this effort than our ancestors could have dreamed possible” (NASA, 2000d, p. 2). Goldin presents the core values that guide NASA's work and the fundamental questions that are the reasons the Agency undertakes its mission, thereby defining the tenets under which the Agency operates. He establishes the scope of the strategic plan by stating the Plan includes both near-term priorities and longer-term investments. Goldin notes NASA's strengths in engineering and science, and recognizes the dedicated efforts of the Agency's civil service and contractor workforce. Finally, Goldin cites recognizable programs, such as the Space Shuttle and the International Space Station, along with NASA's role in serving the U.S. Government and America, and improving life on Earth. “We at NASA work to serve you, the public” (NASA, 2000d, p. 3).

Figure 6: NASA Strategic Management System Documentation



In what ways does the reality of strategic planning come alive at NASA? Through what process does such a major Government agency capture the vision and direction from its Administrator and in turn bring into being a document that represents global goals and objectives, serves as an advocacy tool for the Agency, and yet provides a level of understanding and readability for the American public? What external and internal forces influence the strategic planning process? What are the roles and responsibilities of the Agency's workforce in the strategic planning process? What are the reactions of and feedback from the workforce about the strategic planning process? The following sections discuss the answers to such questions by presenting a summary of the findings from interviews conducted with employees (identified as participants) at NASA Headquarters—to include Functional Offices and Enterprises—and at NASA Centers.

NASA's Strategic Planning Philosophy

The philosophy of strategic planning at NASA is a focus on strategic planning as a process, not as the production of a document. Participants in the study did not view strategic planning at NASA as a linear and very structured process, but rather as an organic, dynamic, living process that breathes and changes. They believed NASA involves itself in the strategic planning process not simply because of the requirement by law to do so, but because of the opportunity that is provided within the process to design a direction for the Agency as a whole and to get everyone together in an environment of collaborative decision-making to agree on that direction.

“...and if it's done well, it helps the Agency make the right decisions about what our priorities should be and about what our objectives should be...”

(NASA1: 1350-1353)

Participants articulated various uses for NASA's strategic plan as a multi-purpose resource. At the highest level nationally, the Plan must convince Congress and the American Public that the Agency is a good steward of the resources being

provided—that is, the Agency is using its resources effectively and efficiently in working toward the accomplishment of national goals and priorities. In addition to fulfilling a fiduciary responsibility, the Plan should provide an understanding of the kind of work NASA does, the technology it uses, and the information it generates and shares with the scientific and academic communities. As an advocacy tool, the Plan should make connections with and have meaning for the employees involved in its implementation. On a day-to-day level, NASA's Strategic Plan needs to show how its efforts are contributing to changes in everyday life.

“And they don't necessarily on first blush see that this Agency is making a contribution to improving their life. And I think if we can spend much, you know, do a better job about having people understand that while we do research in and from space, that the research that we do in and from space is gonna change their life on Earth every single day, and that's what we've gotta tell people. And then people will not just be excited because we're sending another shuttle up, they're gonna be excited that we're going to the International Space Station to bring back a bunch of experiments that we just did, and that maybe embedded in that set of experiments we just brought back could be the cure for cancer. That's what we want to make them understand.”

(NASA4: 1384-1405)

Making the Connection with Other Agencies

The NASA Strategic Plan contains a section dedicated to a discussion of NASA's cooperative activities with other U.S. Government agencies. In the narrative, examples are provided of various collaborative interagency activities in each of the Enterprises: Earth Science, Space Science, Biological and Physical Research, Human Exploration and Development of Space, and Aerospace Technology. A two-page table illustrates NASA's partnering relationship with thirteen Government agencies, and the extent to which such partnerships align with NASA's goals.

Participants discussed NASA's relationship with other Government agencies from a strategic planning perspective, stating that a great deal of the work done by NASA is in common with what others are doing. Commenting on the section of the Plan identified above, one participant stated that including a chart particularly

related to interagency cooperation aligned with strategic goals and objectives was a tremendous addition to the Plan. That same participant shared that this section of the Plan has received a great deal of attention outside the Agency, and professed that other agencies have not yet addressed the subject of interagency cooperation with such rigor.

Participants shared that because there are policy and programmatic interfaces among Government agencies, Congress would like agencies to use their strategic planning processes to focus more and more on shared mission areas. Participants explained that what is envisioned over the next few years is a process where as various agencies improve on producing strategic plans there will exist greater opportunities to demonstrate links among those plans.

“So, to the degree that strategic plans can be used as a way to demonstrate to the Congress that, yes we are working with other agencies, and that we know about these kinds of things, that’s a good thing. And that obviously requires coordination. Congress would ultimately just be tickled pink if that turned into joint planning processes, which makes some sense.”

(NASA1: 629-638)

Making the Connection with NASA Employees

A strategic plan must proselytize its vision, mission, and goals and objectives successfully to the outside world and to its customers and stakeholders. Furthermore, an effective organization uses its strategic plan to communicate with employees and to drive the efforts of its workforce. Participants agreed that one goal of NASA’s strategic planning process is to create an understanding that every employee is connected to the strategic plan and is in some way connected to fulfilling the NASA mission—that is, employees should identify with the extent to which their job fits into the bigger context. (The current research was unable to determine the extent to which such employee identification of jobs within the bigger context exists at NASA.) One participant expressed the impact of an employee’s understanding such a connection in terms of whether an employee is helping the Agency row in the right direction instead of backwards. Other participants

mentioned a sense of pride, responsibility, and accountability among employees that NASA was doing tremendous things as an agency.

“And if they don’t pick it up, can’t read it, find it offensive, or in any other way find it difficult to absorb the message, then you’re not achieving one of your criteria.”

(NASA1: 1483-1488)

At NASA Headquarters, every employee has at least one performance item in her or his performance plan linked to the strategic plan. Agency-wide every employee has at least one item linked to some other NASA planning document. Section I of the employee performance assessment form (NASA, 2000b), provides space to enumerate an employee’s critical performance elements (see Figure 7). The form states: “All elements are critical elements. At least one element must be linked to the NASA Strategic Plan, or the organization’s operating plan or goals. Check blocks at the left to indicate those that relate to the Strategic Plan.” As expressed by one supervisory participant:

“It is pretty powerful. And yet at the same time, it’s not an easy thing to do. And I can tell you that as I’ve come up here and only been in this organization not quite a year, this was not done with a lot of rigor when I first came up here. It was really easy for me to do down my...in a program office...because my scientists felt a direct linkage, because they could easily go into the NASA Strategic Plan and find a section that says, ‘I work on this,’ and point right to it. A little harder when you’re here in a key functional office that I am, that people say, ‘Well, I’m not sure that I support that.’ So it’s been an interesting exercise here working with these people, and particularly the idea that I’m working with my senior staff all the way down to secretaries to say I’ve got to do this, and I’ve got to do this for every employee. And so it’s been kind of interesting. But, I don’t think it’s hard, because as soon as you talk about the idea that again we have to...we work with key external stakeholders—be them the Congress, the White House, the general public—everybody can have a linkage to one of those; that’s not hard to do.”

(NASA12: 869-900)

External and Internal Factors

A key requirement of good strategic planning is to have an awareness of those factors in the external and internal environment that might influence the

Figure 7: NASA HQ Employee Performance Communication System (1 of 2)

Use this form to complete July 1, 2000 through June 30, 2001 Performance Evaluation.

 National Aeronautics and Space Administration		<h2>NASA HQ Employee Performance Communication System (EPCS)</h2>		
EMPLOYEE INFORMATION				
EMPLOYEE'S NAME <i>(Last, First, Middle)</i>		ORG. CODE	APPRAISAL PERIOD	
			FROM:	TO:
TITLE/SERIES/GRADE			SUPERVISORY	
			<input type="checkbox"/> YES <input type="checkbox"/> NO	
PLANNING DISCUSSION		MID-TERM DISCUSSION		
SUPERVISOR SIGNATURE/DATE		SUPERVISOR SIGNATURE/DATE		
EMPLOYEE SIGNATURE/DATE		EMPLOYEE SIGNATURE/DATE		
SECTION I - PERFORMANCE ELEMENTS				
All elements are critical elements. Indicate level of performance by checking one of the element rating levels; any element rated "Fails to Meet Expectations" will result in an overall rating of "Fails to Meet Expectation." "Not Rated" may be selected only if the employee did not have sufficient opportunity to perform the element for reasons beyond his or her control.				
		RATING LEVELS		
Strategic Plan	At least one element must be linked to the NASA Strategic Plan, or the organization's operating plan or goals. Check blocks at left to indicate those that relate to the "Strategic Plan."	Meets Expectations	Fails to Meet Expectations	Not Rated
TRAINING AND DEVELOPMENT				
Identify individual needs to accomplish organizational goals, develop competencies and advance career management. Formal Individual Development Plan (IDP) may be prepared.				
ACTIVITY/TRAINING		ESTIMATED TIME FRAME FOR COMPLETION		

Figure 7: NASA HQ Employee Performance Communication System (2 of 2)

Use this form to complete July 1, 2000 through June 30, 2001 Performance Evaluation.

EMPLOYEE'S NAME		FROM:	TO:
SECTIONS II - GENERAL APPROACH TO WORK			
Supervisors should be rated on all elements relative to their supervisory responsibilities and the organization's overall performance standards for the job elements listed, no additional standards need to be written. However, you must indicate by number(s) and/or letter(s) which item(s) are appropriate. Supervisors should consider and provide feedback to the employee relative to the employee's demonstration of the item(s) listed below in the overall performance of his or her duties.			
FOR ALL POSITIONS		SUPERVISORY POSITIONS ONLY	
1. Quality of Work Produces work that is complete and complies with established policies and procedures.		A. Human Resources Management Develops, rewards, motivates, and maintains a highly skilled, effective and diverse workforce.	
2. Timeliness Produces work within required time frames.		B. Program/Project Management Develops and implements program/project plans that are realistic and responsive to organizational needs. Meets organizational objectives on time and within budget allocations.	
3. Customer Service Produces professional responsive service to internal and external customers.		C. Continual Improvement Continues to improve organizational processes through innovation resulting in more effective ways of doing work.	
4. Communication Communicates job information effectively, orally and in writing.		D. Financial Responsibility Makes prudent, effective, and accountable use of the organization's financial resources.	
5. Team Work Cooperates with and assists co-workers. Treats others with respect and works cooperatively to find solutions to problems.		E. Information Dissemination Clearly provides organizational goals, tasks, performance expectations, and constructive feedback to staff.	
6. Problem Solving Anticipates and resolves normal problems. Develops, evaluates, and advocates alternatives.			
NARRATIVE SUMMARY OF PERFORMANCE			
SUMMARIZE THE EMPLOYEE'S SIGNIFICANT ACHIEVEMENTS AND RESULTS FOR THE RATING PERIOD			
FINAL RATING (Check one)			
<input type="checkbox"/> MEETS EXPECTATIONS		<input type="checkbox"/> FAILS TO MEET EXPECTATIONS	
RATING OFFICIAL SIGNATURE/DATE		REVIEWING OFFICIAL SIGNATURE/DATE* <i>(*Required for "Fails to Meet Expectations")</i>	
EMPLOYEE ACKNOWLEDGMENT			
<i>My signature on this form does not imply agreement or disagreement with the rating received. I may request reconsideration of the final rating within 15 calendar days.</i>			
<input type="checkbox"/> I REQUEST RECONSIDERATION			
EMPLOYEE SIGNATURE/DATE			

development or implementation of the strategic plan (Mintzberg & Quinn, 1991). In a classic strategic planning analysis, such factors might be identified as opportunities for or threats to the organization's ability to accomplish its goals and objectives. NASA recognizes such factors in its strategic planning process, and addresses such factors in its strategic plan.

Within the Agency's strategic plan is "an analysis of factors beyond NASA's control that could influence [our] ability to achieve the goals and objectives" of the plan (NASA, 2000d, p. 56). Because of the long-range nature of NASA's missions and programs, the Agency works within a planning horizon of 25 years. As such, the Agency recognizes its responsibility to be "flexible enough to evolve plans and programs as external realities change" (NASA, 2000d, p. 56). NASA identifies external factors in nine arenas. NASA explains that its mission and goals are derived from legislation and Presidential policy, and understands that changes in law or policy—considering such events as the inauguration of a new President or congressional budget decisions—might reinforce or invalidate current goals and necessitate changes to keep pace with a new direction. NASA understands the influences of the economy and the need for continued public support to meet its goals and objectives. When working with other agencies and nations, NASA recognizes the need for such partners to meet their commitments, and acknowledges the extent to which changes in U.S. relations with other nations could delay or enhance the achievement of goals. NASA also is aware of the potential effects of changes in market demands, business opportunities and technology advances, and innovation in research and development on its goals. Demographics and the need for an expert and competitive workforce in the science and engineering fields generates a concern within NASA about its ability to attract a sufficient number of science and technology workers. Finally, NASA acknowledges the possibility that "discoveries of unexpected phenomena could result in new goals drawing resources away from" current programs (NASA, 2000d, p. 59).

"You know, even if we never produced another strategic plan, NASA is a better institution to the degree that it learns how to look outside at

those things that it doesn't control, think about them, and predict the future, and understand the degree at which they'll impact us."

(NASA1: 825-833)

Participants explained that NASA looks outside the Agency when it does strategic planning by conducting an external assessment, thereby demonstrating that NASA is not working alone. One participant shared that conducting an external assessment allows NASA to take advantage of the things it should do from a partnership perspective—domestic and international partners, as well as partnerships with academia and industry—and provides a better sense of with whom NASA should be working. Another participant expressed that in its strategic plan, NASA can do a better job talking about the environment in which it works, and ensure the Agency is focusing on the activities that NASA should be doing and contributing to broader national efforts as an important player.

"And we try to look at our annual assessments as well to look at everything that's going on as best we can. It's hard and it's a lot to do, but to look at everything that's going on and try to just...to show where it links, and so forth. And I think that helps as well."

(NASA3: 1221-1228)

The Government Performance and Results Act (GPRA)

In 1993, the Office of Management and Budget enacted the Government Performance and Results Act (OMB, 1993) to improve the confidence of the American people in the capability of the Federal Government; initiate program performance reform; improve Federal program effectiveness and public accountability; help Federal managers improve service delivery; improve congressional decision making; and improve internal management of the Federal Government. Section Three (3) of the Act states that by no later than September 30, 1997, the head of each agency will submit a strategic plan, covering a period of not less than five years, to the Office of Management and Budget and to Congress. The Act provides fairly specific direction about the content of a strategic plan to include such items as an agency's mission, goals and objectives, a description of how such goals and objectives were to be achieved; factors that might affect achievement

of the general goals; and performance goals. The Act also requires annual performance plans and reports.

An accompanying document, OMB Circular A-11 (OMB, 2000), provides instructions for preparing and submitting an agency's strategic plan and outlines the relationship between strategic plans and performance plans. The Circular states that an updated and revised strategic plan must be submitted at least once every three years; clarifies that strategic plans guide the formulation and execution of an agency's budget; and extends the time period covered by strategic plans to a minimum of six years. In response to the law, NASA's Strategic Plan is reviewed and updated fully at least every three years.

External Factors

Participants identified a wide variety of external factors that influence the strategic planning process at NASA, in both developing and implementing the strategic plan. One participant placed the influence of such external factors in perspective by stating that this is the nature of Washington, and that is something with which no corporation has to work. And from the perspective of another participant, NASA needs to capture the national needs in its strategic plan independent of political party or anything else.

“What NASA does tends to be less political...less partisan, I mean, the difference between what the Democrats and Republicans may think about what NASA should be doing is pretty minimal. In fact the, you know, the big policy questions for NASA don't tend to fall out according to partisan lines...which is nice, because one of the things that means is that we've got a new president, but he probably isn't going to radically change our direction. And so it probably won't require changes to our strategic plan.”

(NASA1: 490-506)

As a government agency, NASA is subservient to all legislation and Executive Orders. Therefore, as noted by participants, various laws and policy—such as the National Space Policy; the National Space Transportation Policy; the National LANDSAT Policy; the Government Performance and Results Act—must be considered during the strategic planning process. As expressed by one participant,

anywhere there exists external guidance, such guidance has to be reflected in the strategic plan.

Most participants posited the necessity for NASA to position itself with various government entities who influence and develop policy and legislation, review the Agency's strategic plan for approval, and control the budget that funds the Agency's programs. Because NASA is an independent agency and not a cabinet level agency, it is important to ensure the White House is cognizant of NASA's programs and activities. Participants agreed with the need to work closely with the Executive Office to ensure programs and activities are executed consistently with Administration policy. NASA must interface with the Office of Science and Technology Policy, a key research and development agency for the Executive Branch that studies and discusses the focus of the Administration related to investments in science and technology, and proposes the kinds of policies related to science and technology the Administration should have in place. Some participants voiced concern about the potential for policy shifts and new instructions following the inauguration of the George W. Bush Administration. One participant noted that instructions already were received from the new President, and NASA is working to figure out how to implement those instructions and deal with the resource issues that will result.

NASA must report to Congress and the public about how effectively the Agency is being managed. Congress exerts a high level of influence over government agencies with legislation, program reviews and investigations, and control over appropriations and budget spending. Congress monitors agency performance and reporting under authority of the Government Performance and Results Act (previously discussed in greater detail). One participant provided information that within the appropriations process in Congress, NASA is categorized within an unusual group of agencies together, those known as the Veteran Affairs Housing and Urban Development and Other Independent Agencies.

“Our budget hasn't increased, but then looking at the budget for the agencies for fiscal 2000 and 2002, our budget is hanging in there,

where a lot of other agencies have actually declined. So we should feel really good about that. But there's been pressure put on us to say, you know, 'Explain to us how what you're doing is the things that NASA ought to be doing.' You know, what we ought to be doing with the NASA civil servants. 'Why can't you be relying on industry to do this? Why can't you be relying on foreign partners to do this? Why can't you be relying on other government agencies?'"

(NASA4: 731-747)

Another participant argued that space and space exploration often are viewed as being very discretionary. As such, and because Congress must ensure the Federal Government is spending money appropriately, NASA needs to make connections back to Earth-based problems and be effective in advocating funding for its programs—particularly since the Agency is competing for funding against key priorities such as environmental issues, the homeless, and addressing the needs of veterans from the Gulf War.

"Because, I mean, ultimately, regardless of whatever our strategic plan says, if Congress sends us a budget this year that says, you know, screw all that human space stuff, you know, stop and desist, and you know, go invest in ant farms, that's what we have to do."

(NASA1: 438-445)

Despite having a completed strategic plan in place, participants stated that the budget actually could drive the implementation of that plan. In effect, the government operates on a one-year budget horizon, making it difficult to put together a long-term strategic plan that reflects what one participant identified as the honest facts of life that the government operates on an annual budget cycle. As one participant describes the process, although NASA's strategic picture is in place, the budget process comes through on an annual basis and fills in the details.

External factors and entities also are an influence during the process of reviewing NASA's draft strategic plan for approval. Participants noted review of the draft plan on a variety of levels. At the highest government levels, the plan must be approved by the White House, in the body of the Office of Management and Budget (OMB), and by Congress. At other levels, participants identified reviewers of the plan as industry partners, education partners, and John Q. Public.

Internal Factors

Two factors were identified by participants as having the most significant influence on the strategic planning process: the NASA Administrator, Daniel S. Goldin, and the NASA culture. Following confirmation hearings, Goldin was named the ninth Administrator of NASA on March 31, 1992. Identified as “an obscure middle manager at the TRW aerospace conglomerate in Southern California” (Burroughs, 1998, p. 244), Goldin now has a solid track record with NASA and has served in three Presidential Administrations—an impressive accomplishment in itself. One participant sees Goldin as a model of the concept that what leaders say helps drive the success of understanding strategic direction. Participants see Goldin as very much a change agent, and shared their belief that Goldin has been instrumental in putting his stamp on the current architecture and culture of the Agency and many aspects of the Agency’s strategic plan.

“Well, the content is driven by...by the Administrator, number one. I mean, he has a vision for what he wants this Agency to do. And I think you’ll see that reflected in the strategic plan.”

(NASA3: 480-485)

Participants agree that Goldin feels very strongly about wanting employees to read the strategic plan in order to understand NASA’s big picture, and at every opportunity asks employees whether they have read the plan. One participant shared the thought that no employee should find herself or himself in a situation where the Administrator knows more about the strategic plan than the employee.

“And I will also say that the current Administrator provides a lot of leadership in that respect, and, I mean, to this day there’s no training class that he speaks to where he doesn’t ask them, ‘Raise your hand if you’ve read the NASA strategic plan.’ And if there are hands that don’t go up, he is not kind.”

(NASA1: 1935-1944)

NASA has done some extraordinary things that have left a lasting impression on the American public, and as a result participants agreed that the NASA culture is pretty powerful.

“And obviously the...some of the most visible stuff that we do as NASA, obviously, is the astronauts. I mean again, when people think about NASA, they often don't think about what we do necessarily in health research...they might think about Mars, but I think the first thing usually on the tip of everybody's tongue is, 'Oh, that's right, they run that shuttle and they send that shuttle into space.'

(NASA4: 611-622)

Participants described the NASA culture in a variety of ways, and agreed that Administrator Goldin has been highly effective in changing the culture. One participant stated clearly that the culture was comprised of a bunch of engineers and scientists. Another stated that a can-do attitude pervades the Agency, such that whatever the problem is, NASA can fix it. A third participant expressed the belief that each Center has its own culture and was concerned about how to get these various cultures to work together. Finally, one participant communicated that the culture is highly success oriented, thereby making it difficult to capture in writing the things NASA is doing.

“I think to a certain extent, the NASA culture can be very...somewhat insular, in that because it is a science and engineering type of organization that, you know, the value of communication isn't necessarily seen as being as important as it is. And I think there's a lot of folks who think that, you know, they're the best in the world, and so why do I need to talk to anybody about that? I mean, it's sort of an assumed right to do what we do kind of thing.”

(NASA3: 1129-1142)

ISO 9000

ISO 9000, the International Standard on Quality, was launched in 1987. The Standard is considered to be a set of good business practices, which have been agreed upon by nearly 100 different countries. Very simply, to become ISO 9000 certified an independent examiner who has been approved through the International Organization for Standardization will audit a company who wants to become "registered." If the company follows the practices outlined in the Standard, it will be given a certificate as evidence of being a well-run company.

Although more generally thought of in relation to a commercial environment, NASA pursued and achieved ISO 9000 certification both at the Headquarters level and at each of its Centers as a commitment to good management. As expressed by one participant, the feeling for NASA was that rather than impose ISO 9000 as a requirement on its contractors, the Agency decided it should “practice what it preached.” A number of NASA’s contractors already are ISO certified.

Not only does the ISO 9000 Standard force attention to quality, certification introduces a discipline to NASA processes and procedures. In response to the process of certification, the Office of Policy and Plans developed an office work instruction that documents the procedure used to produce the NASA Strategic Plan (NASA, 2000f). As expressed by another participant, the documentation process required under ISO 9000 results in excellent communication and learning tools.

“...the question of why we actually did it may be a little bit different than the question of what we’re doing with it. And what we’re doing with it is trying to make sure that our processes and procedures are consistent and sensible, and also to improve knowledge capture. I mean, because that is something I think that a lot of organizations are really bad at. You’ve got all these great people, but, you know, a huge amount of the assets of the organization are resident in those employees’ brains, and, you know, unfortunately they don’t last forever. People leave, and so on. So, we’ve also tried to use ISO as a disciplining tool to help make sure that we’ve, you know, documented more stuff.”

(NASA13: 123-142)

The Office of Policy and Plans

The Office of Policy and Plans is located at NASA Headquarters in Washington, DC, and is a functional office reporting directly to the NASA Administrator. As documented in its Functional Leadership Plan (NASA, 2000a), and under the leadership of the current Acting Associate Administrator, the Office of Policy and Plans is responsible for seven major collaborative functions that work together to coordinate NASA’s future direction. The Policy function ensures NASA’s policies are sound, consistent with external policies, and supportive of NASA’s mission, and that pertinent external policy development takes into account NASA’s

interests and concerns. The Planning function coordinates the overall development of NASA's future activities in light of establishing and evolving policy direction and ensures that Agency plans cooperate to implement NASA's mission. The Office coordinates management of all NASA advisory committees and oversees NASA's implementation of the Federal Advisory Committee Act (FACA). The Office also organizes, schedules, facilitates, and communicates information about NASA Advisory Committee (NAC) activities. The History function preserves and celebrates the record of NASA's achievement and provides a source of policy and planning guidance based on experience. The Outreach function articulates NASA's goals, policies, and plans to NASA employees, partners, stakeholders, and the general public. Finally, through the Manage Strategically Crosscutting Process, the Office serves as the instrument by which NASA Headquarters Functional Offices will achieve strategic management throughout the Agency.

When asked about the role of The Office of Policy and Plans (also known at Headquarters as Code Z), participants identified a number of what they termed as substantial functions. Such functions included serving as the primary liaison to ensure the White House is cognizant of what NASA is doing—that is, providing leadership for interfacing with the Executive Office of the President, particularly the Office of Science and Technology Policy; providing oversight of Federal advisory committees; reviewing policy areas that ultimately might change national space policy and what the government states will be its direction in the area of space; participating on various interagency working groups; and conducting outreach with key stakeholders in industry and academia.

Participants agreed that a key function within Code Z is long-range strategic planning. The current Director of Strategic Planning has been in that position for approximately two years, and has been with the Agency since 1990. The Director is the person with Agency-wide responsibility for strategic planning and production of the Agency's strategic plan, and for ensuring the strategic plan: meets the requirements of the law; meets the needs of the Agency; and meets the needs of Congress. The Director further characterized the role as coordinating, stewarding,

shepherding, managing, and providing oversight for strategic planning throughout the Agency, as well as designing, managing, and running a process that will produce the final outcome. Other duties of the role include ensuring the external assessment process takes place; issuing guidance for development of the strategic plan; providing outreach to the various Enterprises and Centers; spending one-on-one time as necessary with those providing input to the strategic plan; facilitating decision-making concerning the strategic plan; and speaking to training classes about the strategic management system.

“I’ve reached out to the Center folks, and we had a...we convened the first conference we’ve ever had with all the folks last year. And they’ve all...first I went out and visited them all, and ...there’s been a change there in that I think they’re all a lot happier, because I was real clear about...where we had the flexibility, I didn’t want to just have people here at Headquarters go into a smoky room, make up the answer and shove it down the Center’s throats. And that’s always a tendency in an organization like this. And the diligent effort to reach out to them, to listen to them, to include them, to provide facilitation opportunities for them, maybe they’ve all been rosy-cheeked and glowing from that.”

(NASA1: 2777-2797)

The Manage Strategically Crosscutting Process

NASA established a framework for organizing or grouping its major activities into four crosscutting processes in order to carry out its mission: Manage Strategically; Provide Aerospace Products and Capabilities; Generate Knowledge; and Communicate Knowledge. By considering each crosscutting process as a broad operating principle, NASA believes that such an organization of activities “can enhance the returns on its work toward diverse programmatic and functional objectives” (NASA, 2000c, p. 22). The NASA Administrator assigned stewardship responsibility for these processes primarily to the Chief Engineer and Chief Scientists. Responsibility for the Manage Strategically Crosscutting Process was assigned to the Associate Administrator for Policy and Plans.

“Managing Strategically goes beyond ordinary good management. Good management responds to constituencies and customers, minimizes costs, invests for maximum returns, and shares common, complementary resources. Through strategic management, NASA

aspires to manage so that all of its organizations proceed together coherently, comprehensively, and expeditiously toward the achievement of a single set of strategic goals. This requires that we leverage each others' resources, standardize processes where it makes sense to do so; streamline processes for timely results; and maintain rapid and open exchanges of information for responsible decision-making."

(NASA, 2000a)

One participant described the Manage Strategically Crosscutting Process as sort of all the functional responsibilities that go into being a good government agency, and making sure that NASA is effectively utilizing fiscal human and physical resources effectively—that is, the management needed to accomplish the variety of key functions to make sure that NASA is an effective agency. Under that crosscutting process, Code Z and ten other functional offices at NASA Headquarters report on a variety of activities that fall under that category of activities.

"And it's very important, because when you take a look at not only the direction that's coming from the new Administration to us, but also members of Congress and the General Accounting Office, greater emphasis is being placed on government reform and ensuring that government agencies address management challenges."

(NASA4: 249-257)

Participants in Code Z believe they play a key role as stewards of that process as the office that's responsible not only for long-range strategic planning, but really for guidance related to how NASA manages internally.

Development of the NASA Strategic Plan

"NASA's strategic plan articulates the Agency's vision, mission, goals, and objectives, as well as Agency-wide strategies for achieving them. In so doing, it gives direction to the work of all NASA organizations and employees" (NASA, 2000c, p. 26). Upon examining the plan, the initial sections available to the reader are NASA's Vision, Mission, Core Values, the Administrator's Strategic Outlook, and the Fundamental Questions. The Agency's vision was a collaborative effort undertaken a few years ago to ensure understanding and buy-in from the NASA workforce.

“He stated that all of NASA put in suggestions to the Agency’s vision. Employees were solicited for information, thereby using a ground-up approach to develop a vision that included the interests of all employee stakeholders.”

(NASA8: 21-27)

Following that introductory material, the next six pages of the Plan present, mostly in tabular and bullet format, NASA’s goals and objectives (grouped by Enterprise); the Crosscutting Processes framework for enhancing returns on work toward diverse programmatic and objectives; and NASA’s High Level Roadmap, showing a summary of 25-year plans toward achievement of Enterprise goals and objectives, how those goals and objectives relate to the Agency mission, how they contribute to national priorities, and which of NASA’s Fundamental Questions are addressed. The details of the High Level Roadmap are called out and described in a series of sections devoted to the individual Enterprises—each of which includes a narrative discussing the goals of the Enterprise and a roadmap that links the goals and objectives of the Enterprise to specific plans and activities over a 25-year period. The remaining sections of the Plan include narratives that describe each of the Crosscutting Processes; the synergy generated through cross-Enterprise collaboration; partnerships with universities, other U.S. government agencies; industry; international cooperation; NASA’s customers; NASA’s team; and the strategic management system. A glossary, list of acronyms, and contact information also are provided. Interspersed throughout the Plan are colorful icons and graphics that add a high level of eye appeal for the reader.

“Well...yeah, I guess at one level it doesn’t necessarily add anything to the content or to the...what’s contained in the plan. I think the...well, in fact I know, the intent behind it is a couple fold. One is, since the plan is an opportunity to communicate to the American public, and so forth...that is, this is what the Agency’s going to do, adding some production value to it, making it more accessible, more visually interesting, hopefully, creates more of a desire to read the plan, to actually see what’s in it, and so forth. So, that’s part of the value, is just to make it something that’s just more interesting to pick up, to look at, to, you know, to see what’s in there.”

(NASA3: 182-201)

The development of such a complex document obviously is not a simple, straightforward, or effortless task. A section of the Plan addresses this issue to some degree and is dedicated to describing the level of consultation necessary with customers and stakeholders to develop its content (NASA, 2000d, p. 60). Examples of such consultation include outreach and input activities; industry and science workshops; advisory committees; interagency coordination with Government partners; data collected from focus groups and polls; comments received from employees and members of the public; and briefings to and input from Administration and congressional stakeholders.

It is the various activities within Code Z and other NASA offices that support and facilitate the development of the NASA Strategic Plan and result in the final product. These activities are described in the following sections.

Writing the Draft Strategic Plan

Previous versions of the Strategic Plan—that is, prior to the 2000 version—were mostly in a black and white format, including any pictures or graphics. Participants stated that decisions were made early on in planning the 2000 version that changes needed to be made to create a document that would have instant appeal, focus on good language, and be a document the average person could read and work through. The use of colorful visuals was one resolution.

“He gave us a requirement that said we need to include in there our Enterprise mission and goals. He said that we needed to include some examples of expected Enterprise accomplishments for the period in question, and that he wanted us to provide some illustrative graphics that communicate the value of what we do in a pictorial sense and that he wanted us to include information on the roles that the several NASA Centers that are involved in the Enterprise would play in implementing our goals.”

(NASA6: 64-76)

A second resolution was vigilance to writing in plain language. Participants stated the need to make the Plan a document that was user-friendly to the public—a serious challenge for an agency such as NASA to discuss technological goals and

accomplishments that can be understood by a broad audience that includes a portion of the NASA workforce that is not necessarily technical.

“So one criteria is the degree to which people do read it, and the degree to which they can read it. As a result of that for this last cycle, I mean, that was something that we just spent a huge amount of time and energy focusing on, and that was how readable is it—and particularly because that’s such a struggle for a research and development organization...techno-speak.”

(NASA1: 1494-1504)

It was the decision and preference of the Director of Strategic Planning not to write the Plan by committee. Instead a few principal authors were selected who wrote entire sections using inputs from the Enterprises and other offices—thereby wherever possible the text was authored by someone else not close to what was being written about to ensure a higher level of readability. A great deal of the writing was completed in Code Z. The Enterprises provided secondary sources of information; the primary authors read what was given, listened to conclusions from the provider, and put the information into their own words. The purpose of following such a process was to force the writing into the same translation effort the reader would experience. One participant shared that sometimes various paragraphs or terms were shared with outside sources, such as friends, to test the user-friendliness level of the text—for example, “If I say the following to you, what does that mean?”

Reviewing the Draft Strategic Plan

The draft of the strategic plan was reviewed by “Administration and congressional stakeholders represented by the Office of Management and Budget, the Office of Science and Technology Policy, the General Accounting Office, and congressional staff and Members of Congress” (NASA, 2000d, p. 60) among others. One participant explained that many of the comments from key functional offices and Enterprises required significant interaction with those who prepared major portions of the Plan.

An early draft of the Plan had close to 600 comments from various external reviewers. One concern expressed by participants in Code Z was handling the disposition of such a magnitude of comments. It is NASA policy, administered by the Office of Management Systems, that all Agency policies, procedures, and directives are available on-line, and as such must undergo coordination of comments by way of an established electronic system. Finding the on-line system too cumbersome for handling such a significant number of comments from external and internal stakeholder, Code Z made a case and received approval for not handling the comments using the on-line system, with the stipulation that whatever disposition system used must become part of the official records at NASA in electronic format.

“I was a pretty hard driver on making sure that we had clear objective evidence that we had considered these comments from all these Codes, that we had dispositioned them, we had effectively dealt with conflicting comments, ‘cause you can imagine when you’re getting comments of that magnitude, one person’s going to say, ‘Put this in,’ and the other person’s going to say, ‘Take it out.’ So we really had to work through that.”

(NASA4: 921-933)

One participant expressed that in effect Code Z facilitated a deliberative decision-making version control process, working as a “sort of intellectual traffic cop” to sort out and find a balance among the comments made to the draft Plan.

Approving the Final Strategic Plan

In order to gain concurrence with and approval of the strategic plan, Code Z chose to work with the Administrator’s Correspondence Unit, which is responsible for the concurrence process. That process has its own set of protocols and rules. For example, any document to be signed by the NASA Administrator must go forward to the Administrator in a very specific format. The document must be in a folder that is purple and that folder must have a specific form on the cover. The folder must be passed among any functional offices that might be affected. In the case where an office proposes a change to the document, the effected offices must negotiate among themselves and come to an agreement about whether to implement

such a change. One participant referred to the concurrence process as a “very lovely bureaucratic thing.”

For any document submitted through the concurrence process, the desired outcome is that every direct report to the Administrator as well as the Administrator himself signs on a concurrence sheet. By establishing the signature requirement at such a high level, the entire Agency is covered. In the case of the strategic plan, concurrence equates with commitment to the Plan and its implementation.

Participants stated that as a result of following the concurrence process, the NASA functional offices were very serious about reviewing documents. Participants agreed that the process forces decision making to occur, prevents miscommunication, and prevents people or organizations from being left out. As one participant communicated, by the time a document completes the concurrence process and reaches the Administrator, there is agreement within the Agency...and bureaucracy has done its job well.

“So, that is the process that we use toward the end to ensure that, you know, we haven’t missed things, that everybody agrees down to the word and the comma and the period. And while it’s a little burdensome and it’s certainly a pain in the butt, I’ve become a big fan of that process, because what I’ve found is, you know, I can work with the planning leads, or I can work with staff people in the offices, and we can all sort of think we know, but until the day comes that the official in charge knows that he’s going to sign this, and once he’s signed this, that’s it. He can’t come back and complain and say, ‘Oh, but that isn’t the way I wanted it to be.’ You know, it’s ‘speak now or forever hold your peace.’”

(NASA1: 1158-1178)

Feedback on the Strategic Plan

Participants were asked for their reactions in the way of feedback on the strategic plan, as well as what might be indicators that the strategic planning process is successful. Responses to these subjects were received from both external and internal perspectives.

From the practical document development perspective, one participant immediately shared indicators of success in the process as: “Did we meet the deadline?” and “Did it kill us getting there?” At the national level, one participant explained that everything in the plan folds back to some bigger national purpose; therefore, for NASA success manifests itself in achievement of national objectives and public support. A second participant shared that one measure of success is that people on the outside are requesting additional copies of the plan. At the Agency level, a participant stated that although it is difficult to measure, that one indicator of success is whether the plan helps the Agency make the right decisions about its priorities and objectives, in light of the fact the strategic planning is a management decision-making process.

Participants agreed that a measure of success is how effectively the plan communicates both outside and inside the Agency, and the degree to which people do read the plan and the degree to which they can read the plan. One participant stated that if the plan is not even an approachable document for NASA employees, the Agency therefore cannot expect the plan to be approachable for anyone outside the Agency.

“And so, therefore, I think people are starting to say, ‘Wow, this is a really good document.’ And there’s people out there who said, ‘Oh, wow, I never really understood what NASA did. This is amazing. I mean, I had this view that you all...OK, well we know you send that shuttle up, and now you’re building this international space station thing, and that thing’s in trouble, by the way (and that’s what they know),’ so as opposed to the idea that, ‘Oh, gosh, I had no idea that you guys are this involved in global climate change. That you guys are this involved in health research. This is, you know, this is great.’ So, I really feel that people are starting to think more that way.”

(NASA4: 1317-1336)

One participant expressed negative feedback on the content of the strategic plan itself, stating that although there is a great deal of information in the plan, at one level the plan hinders communication because its structure is relatively complex. That participant voiced a concern that employees don’t necessarily see that plan as a guide to their life on a day-to-day basis. (Note: Considering the

number of such responses within the sample size, there is not sufficient information to settle the issue.) This single response is in contrast to another who stated:

“So, I have heard comments from NASA employees here in the building, and at a variety of levels...you know, secretaries and scientists and engineers...saying, ‘You know, this is a phenomenal document. And this is a document feeling...not only have I read, but I feel others could read and finally understand what it is that we are about.’ That’s good feedback.”

“It’s a better measure than any other one I could think of. If people who normally might not have read it might have been turned off by it are saying, ‘I read this and I got excited about it,’ that’s really all we need to say.”

(NASA4: 1054-1064, 1068-1074)

Organizational Learning at NASA

The following sections describe various perspectives on and activities related to learning at NASA as related to strategic planning. This narrative is based on discussions with the participants who shared their thoughts about organizational learning, ideas about what has been learned about strategic planning throughout the Agency, and examples of learning activities. Also included in this section are additional examples of learning resources available Agency-wide in the way of suggested reading materials, training courses, and electronic media.

Perspectives on Organizational Learning

Being previously informed about the subject area of the current research—learned from introductory communications about the research from NASA’s Director of Strategic Planning—a number of participants engaged in a discussion about to what extent or whether they believed an organization actually could learn—however, not necessarily related to strategic planning. One participant expressed the certainty that people learn, but it is difficult for an organization to learn independent of that. An example was provided using a four-year time horizon. The situation was posed as to when a person who had “learned” left an organization, did the organization itself still learn. The participant argued that the vast majority of

organizational learning is contained in the brains of the people in the organization, and that given the situation posed previously, that nine times out of ten the organization would go back to where it was at the beginning of the four-year period. The participant added that a good way to overcome that reversion from happening is teaching—that is, to the degree that the people who leave the organization have taught those who stay behind—and stated that is true organizational learning.

Appropriate staffing, structured career advancement systems, and succession planning were shared as additional examples of how organizational learning can be effective.

“You know, if you’ve an orderly intake and hiring and promotion and succession planning system in place as an organization, then I would argue that an organization’s capacity to learn is much greater, ‘cause you’ve got that whole order, you know.”

(NASA1: 2942-2949)

Another participant expressed the belief that organizations can learn through their culture, stating that culture is another way of saying “teaching,” although it has a more informal, tenuous quality to it. This participant argued that culture actually is one of the strongest influences in organizational learning, and that organizations absolutely can learn from that standpoint. That same participant discussed Administrator Goldin’s influence on the NASA culture, stating that Goldin has spent his nine years focusing very heavily on trying to get the culture to change in a whole set of arenas.

“You know, a lot of kind of cultural aspects there...and I will say I think he’s been pretty effective in changing the culture. So, you know, and nine years is a long time, and, you know, I’d say it took at least four of those years to get across some of those kinds of changes. And, you know, that may also tell us something about organizational learning, ‘cause I’d argue that what happened was really through force of leadership and personality from the top.”

(NASA1: 3108-3120)

A participant at the Enterprise level stated that training employees—through courses, policies, and procedures—was important in an organizational learning environment. This participant stated that the nature of a research and

development (R&D) organization, especially of a research organization such as NASA, is one of learning, and that the whole premise is to build on the research and to push the research further. Therefore, the building of knowledge is what NASA is all about. The participant added that one of the things NASA needs to do is tie their body of knowledge more dynamically and more quickly to the problems and opportunities that the nation is facing, and for which NASA has some mission responsibility. The participant continued by stating the need for NASA to make an investment in training in order to be successful—that is, to find a way to get folks together, build communities around goals and objectives, and develop a sense of purpose and importance.

“And that’s the one comment I have gotten from external folks that have attended, is that it is unique in terms of really being a reinforcing function on the organization’s strategy. It really...it does that, and...in a refreshing way. I mean, it actually...not as just lip service, but folks are spending a couple days working really hard to think about how we’re doing. And so I’ve gotten a lot of positive feedback, you know, based on that. So I think...so, yes, it does; it definitely takes resources to pull it off, but I think it’s worth it.”

(NASA3: 1442-1458)

Artifacts, Documentation, and Institutional History

One participant offered the concept that organizations learn when they create artifacts—items or articles that remain with the organization, such as historical documents—that capture not only processes, but also what was learned by the organization. One such artifact is an Office Work Instruction (NASA, 2000f) developed by the Office of Policy and Plans (Code Z) as part of the Agency’s ISO 9000 certification process. The purpose of this instruction is to document the procedure used to produce the NASA strategic plan in compliance with the strategic planning requirements of the Government Performance and Results Act of 1993. The instruction includes a flow chart showing the start of the planning process from developing guidance and a schedule for producing the strategic plan, through the draft and review process to final publication. Also included in the instruction is a step-by-step description of the actions taken by the Code Z planning team to carry

out their role in the strategic planning process. The instruction not only documents the process in terms of how NASA actually produces the Plan, but also serves as valuable documentation that someone new to the organization or newly assigned to a position within Code Z could follow.

“It is so good now that, you know, if Matt won the lottery tomorrow and called me on Monday and said he’s not coming back, I could turn that process over to somebody else, and they could probably start with that documentation.”

(NASA4: 899-905)

A second form of historical documentation is the videotape about strategic planning (NASA, 1996) produced by NASA at the request of the Office of Management and Budget (OMB). As required by the Government Performance and Results Act of 1993, all Government agencies are required to produce a strategic plan. Because NASA had been conducting strategic planning for a number of years, OMB decided to use NASA’s strategic planning process as an example for other agencies—not just for describing the strategic planning process at NASA, but as a teaching tool for strategic planning for other government agencies. Narrated by Walter Cronkite and vividly enhanced by NASA images, the videotape conveys NASA’s strategic planning story and provides a historical look at the roots of NASA’s strategic planning process, starting with President Kennedy’s goal in 1961 for the Agency to land a man on the moon through the early 1990s to a time when there existed an erosion in the confidence of the American public—when NASA was an Agency in search of itself following the Challenger accident, problems with the Hubble Space Telescope, and the loss of a key spacecraft on its way to explore Mars. Tied into the story are external forces such as the shift in government during the first Bush Administration that “business as usual will not work anymore,” the scarcity of government resources in the 1990s, the priorities on government reinvention and customer service established during the Clinton Administration, and passage of the Government Performance and Results Act of 1993. In addition to providing other agencies with a definition of strategic planning, the steps

involved in the process, the commitment of time required for the process, the necessity of external assessment, the involvement of external and internal stakeholders, the benefits and dividends of strategic planning, and the mandate to ensure that a strategic plan does not become “a historical document that sits on the shelf,” the videotape provides the viewer with an insight to Administrator Goldin’s philosophy that is prevalent throughout the Agency today:

“[The strategic plan] makes you very aware of what every American corporation knows. The only reason they exist is for their customers and their shareholders. And the plan is the contract that binds a government agency with their stakeholders, the American public, who pays very precious tax dollars for value-added services.”

Daniel S. Goldin
NASA Administrator

The third form of documentation is the Strategic Management Handbook (NASA, 2000c), discussed in greater detail previously in this chapter, which documents NASA’s strategic management system of activities that includes strategic planning, implementation and performance planning, and performance evaluation. The February 2000 version is the second iteration of this document, first published in October 1996. One participant argued that revising the Handbook is an indicator of learning on the part of NASA.

“You know, and I would also argue, you know, similarly, you know, NASA learned a lot between the two iterations of this process document, the Strategic Management Handbook. And, I would argue...you could make a credible argument that the organization itself learned because we changed the rules and re-documented, and documented the new rules, you know.”

(NASA1: 2898-2908)

Communicating the NASA Strategic Plan

Participants agreed that NASA’s top priority is getting the strategic plan into everyone’s hands. A firm commitment was made on the part of the Administrator to distribute a copy of the plan to every NASA employee, key contractors, and key contractor personnel on-site. Code Z posted the strategic plan on its web page (NASA, 2001b), along with the various Enterprise strategic plans, Center

implementation plans, performance plans and reports, and the Strategic Management Handbook. The strategic plan is available in both PDF (Portable Document Format) and as a walk-through version. Archived strategic planning documents also can be accessed on the Code Z web page. Interested parties submit a request to obtain a hardcopy of the strategic either by electronic mail or in writing to the Office of Policy and Plans. At present, Code Z is exploring other options for communicating the strategic plan in other formats, such as a pamphlet version for the general public and a poster-sized version for distribution within the Agency that summarizes the Agency's goals and objectives by Enterprise.

As previously mentioned, Administrator Goldin frequently takes the opportunity to speak at management-related training classes about the strategic plan, and asks whether employees have read the plan. Similarly, the Director of Strategic Planning speaks with such training classes and at NASA Centers about the strategic management system, the strategic planning process, and the content of the strategic plan. A number of such speaking opportunities are planned for the current year. On the downside, training classes limit the Director's exposure to only 30 people at a time; and with a workforce of nearly 20,000 employees, even speaking at the Center level raises concerns about the efficacy of such options.

“And in most cases it's not like you can get the whole Center workforce in the auditorium, anyway. So, you're still just reaching a subset, you know, so I don't know. And it automatically becomes an officious dog-and-pony, 'cause you don't have the intimacy of a training classroom, and the freedom to necessarily to, you know, have heart-to-hearts or anything. So, that' one of the options we're looking at.”

(NASA1: 1919-1931)

Conversely, however, the Director shared that he works very hard to establish up-front a certain level of credibility in that, “I'm not just another suit from Headquarters there to give them a bunch of bullshit.” The Director posits that he works hard to be honest, allow his natural cynicism to come through and call a spade a spade.

“And I do just enough of that, that it does then seem to buy enough credibility, then they can listen to the stuff that I do have to say that is

real. And that's pretty important in a workforce, you know, which is probably any government workforce, you know, where they've had TQM jammed down their throats, and you know, wave after wave..."
 (NASA1: 1816-1826)

Learning Activities and Experiences at NASA

Participants were asked to discuss what they believe the Agency learned from the strategic planning process, and to share their experiences with learning activities at the Agency. Participants expressed a variety of insights about what the Agency learned from the process. First, strategic planning is both an evolving process and a continuous battle. Strategic planning also is the foundation for all performance metrics. Participants agreed that directions and suggestions for revising the plan come from many areas, including feedback and criticism from various stakeholders. One participant expressed that a government agency such as NASA is a difficult environment in which to develop a long-term strategic plan, given the instability of an annual budget cycle. Another participant remarked that there exists significant value in trying to maintain a level of stability in the strategic planning process—for example, NASA has not changed the concept and framework of setting goals over distinct time periods.

In the area of program management, one participant commented that there is no question that NASA knows how manage large technical engineering programs...that no one would have stood on the moon if that wasn't the case. However, that participant also argued that the challenge of retaining such a level of knowledge accumulation is daunting. In further expanding on the program management example, the participant stated that employees who worked on the Apollo mission have retired; others have left the Agency since the time of that mission. Because there is no active transfer of knowledge from employee to employee about that mission, the realization is, as expressed by that participant, that NASA cannot replicate the lessons learned from the Apollo mission simply by hiring employees fresh out of college and sending them to a few classes.

"And I guess the link I make to the strategic plan is obviously anything we do in NASA, no matter which Enterprise it is, has some, you know,

some long-term goal that we're trying to achieve in a particular project. So how we conduct those projects obviously has an impact on how successful we are in the end. So one of the things that occurred in the Agency over the last year or so, was an actual task team was put together under the purview of the Chief Engineer, and took a look at those failures and kind of what went into those failures...not for purposes of examining those failures for failure-sake, but what lessons are in those failures that we can then apply to any other management of a program or project that takes place.”

(NASA5: 1168-1188)

Another participant expressed the importance of using the strategic plan as a communication process—that is, getting people involved in talking about the strategic plan—and challenged NASA to explore new ways to create such engagement, that would result in higher sense of commitment to the strategic plan Agency-wide.

“I've been less concerned with the strategic planning process as a formal process, and more engaged in it as a communication process.”

(NASA3: 1577-1581)

Only one participant offered an opinion about whether Administrator Goldin has learned from the strategic planning process. That participant suggested that Goldin has learned from a content perspective, by demonstrating a greater level of sensitivity to the issue of “our biting off more than we can chew” as an Agency. The participant stated that this question would be interesting to ask of the Administrator directly.

The Director of Strategic Planning stated that he undervalued the importance of his role in the organization when he first assumed the position of Director, and that his perspective has migrated away from perceiving his role solely as a facilitator of the process. The Director's first assumption was that the workforce—that is, those participating in the strategic planning process—already had a good notion of what was involved in planning as they are closer to the programs. Now having experienced the process during development of the 2000 strategic plan, he was impressed by the degree to which the rest of the organization required assistance, thereby demonstrating the need for leadership and clear guidance. The

Director now views his role as one of integration in which a balance must be maintained between empowering people who are closest to the end product (respecting those closest to “the line”) with the need to meet Agency objectives while still ensuring consistency in the plan. He expressed that one side of the balance cannot be achieved without sacrificing the other.

“I have really struggled to reach out to other folks in that they’re involved in making those kinds of decisions...but I will also tell you in a number of circumstances, you know, when I’ve called people together, and have presented the struggle and the decision that had to be made, you know, frankly they just wanted to be told what to do. They just wanted to be given the guidance.”

(NASA1: 2294-2305)

At various levels Agency-wide, NASA sponsors and conducts workshops and off-site retreats to discuss strategy and determine goals and objectives for the Agency and its Enterprises. (Various participants commented on NASA’s being a “culture of retreats.”) Although, as expressed by one participant, workshops can be a difficult management challenge to make productive and get everyone organized, such workshops are designed to increase the number of people involved in the planning process, and can include representative leaders from Enterprises and Centers as well as customers, partners, and stakeholders. One example of a workshop that was discussed during an interview was conducted for an aviation safety program at the Enterprise level. The goal of the workshop was to lay out a strategy in aviation safety for “a factor of 5 and a factor of 10 reduction in the accident rate.” The participant who shared the example stated that the workshop involved a large number of customers and partners; was the most successful example of going from a goal and objective all the way down to NASA’s investments; and that a program was built from the strategy developed during that workshop.

“Now...I mean, what I’ve observed is that, and I think that’s why these workshops work very well, because if you can get people out of their Centers and out of that ‘can do’ attitude, overcomes all that other stuff, and you end up with, you know, some really good product. So that’s I think a really positive thing.”

(NASA3: 1118-1127)

The participant remarked that workshops reach an audience of a few hundred attendees, but that by using information technology tools the number of people engaged in strategy development might extend to a thousand or more. Clearly, NASA's method of strategic planning (mass participation, continuous workshops to update and inform) has two purposes: first, to improve the planning process; and second to establish and maintain continuity over time. Looking ahead, NASA is considering the use of web-based tools to enable the Agency to develop more products and put them out to a greater audience to let more people reflect and have input.

Finally, one participant offered an example of developing a strategic framework and architecture through use of a process called scenario planning. The participant explained that being a technology organization, NASA looks fairly far out into the future and forecasts its goals and objectives...and that the further out NASA forecasts, such forecasts tend to be inaccurate. The intention of scenario-based planning is that instead of looking at a single future, NASA would explore multiple futures or scenarios. This process was used at the Enterprise level, where attendees at a workshop were presented with problems and opportunities over which they would have no control in the future, and were challenged to create viable strategies to overcome those problems and opportunities. Then by examining the common elements across the proposed strategies, workshop attendees gained insight into the systemic issues that might present a challenge to NASA in the future. The participant explained that, at least at the Enterprise level, such processes are being considered as part of strategy development in the future.

The NASA Academy of Program and Project Leadership

The goal of the NASA Academy of Program and Project Leadership (APPL) website (NASA, 2001c) is to meet the needs and wants of NASA project practitioners. APPL is intended to be a meeting place for leaders interested in efficient and meaningful information on topics such as the latest research in program and project management, training offerings, stories from experts in the field, and a place to share knowledge. Various menu items at the site link users to

topics designed to create a knowledge community where ideas, skills, and experiences are exchanged to increase capacity for strong leadership. Under the menu item “Leadership Place,” the “Schoolhouse” link is the location where users can peruse a full curriculum and schedule of programs from various NASA Centers, and can develop a path of study most appropriate to the individual’s stage of management training: Level 1, Team Member; Level 2, Subsystem Manager; Level 3, System Manager; and Level 4, Program Manager. The NASA Strategic Plan, strategic issues, and strategic planning are integrated as topics of study in the Advanced Project Management (APM) and Program Management (PGM) Level 3 and Level 4 courses. Under that same menu item, the “Knowledge Sharing” link is intended as a tool for training and knowledge sharing—providing resources such as *Ask Magazine*, which provides articles, book reviews, real stories, problems, and successes from team leaders, project managers, and management consultants.

NASA Agency-wide Training and Development Program

The Office of Human Resources and Education (Code F) maintains responsibility for the Agency-wide Training and Development Program. The website for that office (NASA, 2001d) provides links to the Agency’s training policies, master schedule, and facilities, as well as the APPL, the NASA Site for On-line Learning and Resources, and the site for Leadership and Management Development. NASA’s programs on leadership provide a number of courses and activities directly related to NASA’s Strategic Plan and the strategic planning process.

“OK. Well, typically what we have done is embed training about this in the activities related to the leadership model and business acumen. In fact, one of the things that's going on right now, is as a result of the development of the leadership model, there were a few areas where we identified, well maybe there does need to be more development or more opportunities for development in specific areas. One of those was working internationally; the other was in business acumen, or what we're ultimately going to probably call another development activity that we're developing is business education. In fact, Matt has been fairly closely involved with the development of that new program that we're going to be providing. We're working with one of the business schools. A component of that is strategic planning, and Matt sort of being the director of the activities up there in addition to Beth, is

really working closely with us in the kind of content that should be provided in that kind of program. So that's one of the major activities we have ongoing right now.

(NASA5: 664-694)

NASA Leadership Model

The NASA Leadership Model was developed to ensure that NASA's leadership and management development is aligned to the requirements of the NASA Strategic Plan and Strategic Management System. The cornerstone of the Model is comprised of six performance dimensions—that is, families of leadership competencies, skills, knowledge, or personal characteristics—that cut across all NASA installations, leadership levels, and functional roles. The Model provides career development for NASA leaders and contributors, and can be used to assist in the design of appropriate training and development programs; recommended courses are linked to each skill. In order to ensure that processes are put in place to achieve what is outlined in the NASA Strategic Plan, Organizational Strategy and Strategic Planning were embedded within the Business Acumen performance dimension. Various readings, courses, and on-the-job experiences are suggested for developing this competency.

“Certainly it was determined that, you know, a knowledge of business skill and ability is required, working internationally is required, managing information is required, personal effectiveness, and then some discipline in your technical or functional role kind of thing. And certainly under 'business acumen' is where knowledge of thinking strategically and strategic planning is required as well.”

(NASA5: 488-499)

Strategy is Back

The position that “strategy is not a document that sits on a shelf between updates” and that strategy “is an ongoing and living process that engages every member of the organization” is stated in an article posted under the Leadership and Management Development link, *Hot Topics in Leadership: Strategy is Back!* The purpose of the article is to advocate that the role of leaders at NASA is to engage NASA's strategy and make it real for their employees. The article suggests that

teams read the following references and discuss how they apply to NASA and to the team. (Text descriptions are adapted from the Code F website.)

Berthon, Hulbert, and Pitt (1999) recast customer orientation into an innovation orientation as a primary strategy. Innovation is seen as a prerequisite for creating customers, not just attracting customers that already exist. The article examines the strategy of not just serving the customer but actually creating customer wants and needs.

Eisenhardt (1999) sees successful strategy as emerging from a decision making process where people develop collective intuition, accelerate constructive conflict (conflict that allows one to see both sides and costs and benefits quickly), maintain the proper pace of decisions (not too fast or slow for the business), and avoid politics that can destroy good decisions.

Ghosal, Bartlett, and Moran (1999) show how strategy has moved beyond mere alignment of strategy, structure, and systems to creating value for society. The authors explore how organizations create value for their employees, stockholders, and society even when their needs may be at odds. The authors see leadership as establishing a sense of purpose and setting the stage for innovation. The new model of creating value for society is examined as a more effective basis for protecting and growing organizations.

Hamel (2000) looks at strategy as the quest for variety in innovation. Hamel takes a biological analogy, genetics, and applies it to the concept of creating variety in an organization that forms the basis for innovation. Hamel explores what is good variety and bad variety in the context of innovation using a number of examples from industry.

Mintzberg, Ahlstrand, and Lampel (1998) examine the different conceptualizations of strategy, from planning to cognitive to entrepreneurial, and how each approach is more or less appropriate for different organizations and their business models. The authors make the point that strategy is not one concept, but many and one approach never will fit all.

The Nexus Between Strategic Planning and Organizational Learning

As stated previously in this chapter, the reality of strategic planning at NASA comes alive and develops in the day-to-day activities, relationships, and dynamics of the organization as well as the experiences and interrelationships of

employees throughout the organization as they strive to implement the formal strategic planning process and system. Similarly, various organizational learning activities and experiences at NASA were cited and described in this chapter that also unfold in the activities, relationships, and dynamics of the organization and its employees. The purpose of this section is to explore and discuss the connection between the strategic planning and organizational learning processes at NASA to address the question.

This section discusses the various activities that take place at NASA to acquire, store, retrieve, create, and transfer knowledge about the strategic plan that, over time, result in behavioral or procedural changes, as well as an increase in knowledge and understanding. This section examines ways that characteristics of organizational learning are embedded—implicitly or explicitly—in strategic planning and vice versa; how failures in strategic planning might be explained by a lack of incorporating organizational learning; ways in which effective organizational learning has a strategic component; and how strategic planning and organizational learning processes inform each other.

The primary research question guiding the current research study is: “What is the nature of the nexus between strategic planning and organizational learning, and how does it operate in a specific organization?” Considering the nexus as the place of interaction between the processes, one therefore must identify the characteristics or qualities of the nexus as it exists at NASA. First, there exists at NASA an emphasis on survival and continuation—that is, NASA intends to continue as a successful and thriving agency for many years forward. Second, NASA’s strategic plan is institutionalized as it is implemented; it stands as a part of the everyday activities through which the strategic planning process comes alive. Third, NASA has mechanisms in place to store its memory and history and then retrieve such memory and history to bear on present decisions. Next, inherent and as demonstrated in the kinds of programs and missions NASA undertakes, there exists a willingness to take strategic risks based on institutional knowledge and memory. Also, through the efforts of the Office of Policy and Planning (Code Z),

NASA continuously evaluates and improves the strategic planning process. Then, as a scientific- and engineering-based Agency, NASA has the ability to recognize and solve problems and turns mistakes into learning—and empowers others in the Agency to do so during the planning process. Finally, in addition to taking a systems approach to both the planning and learning processes, NASA operates in a participatory nature externally and internally by involving heavily its employees, stakeholders, customers, and other government, private, scientific, and industry agencies in the strategic planning process.

Essentially thirteen factors make this nexus work at NASA:

1. A focus on the strategic plan as a central theme for the Agency
2. The integration of internal and external factors, employees, customers, and stakeholders
3. The realization of communication and feedback as having significant value
4. Participatory decision-making
5. Attention to processes rather than simply producing a document
6. Leadership, starting at the top of the Agency with the NASA Administrator
7. Attention to problem solving and process improvement
8. No fear that as a government agency that strategic planning could not be handled in such a manner
9. Flexibility within a bureaucracy to change plans and processes
10. The “can do” NASA culture
11. The learning culture of a research and development organization—focusing on learning as a strategic intent
12. The desire to be the best over all government agencies; staying in the forefront; being first
13. The realization and implementation of a connection between the Agency’s strategic plan and what employees do on a daily basis

The supporting research questions are answered throughout the following sections and discussion. The third supporting question—In what ways are failures in strategic planning explained by a lack of incorporating organizational learning—

was not answered from the current research, as significant failures in NASA's strategic planning process were not observed.

The NASA Strategic Organizational Learning System

In order to examine the nexus of the two processes more closely in the NASA context, a graphic representation of NASA's Strategic Organizational Learning System is included (see Figure 5) to portray the various interrelationships and the nexus of the processes. Visually there are two distinct activity phases of the system: activities that occur prior to and subsequent to the completion of the Agency's strategic plan. Although the design of such a system flow generally intimates a process flow with clearly identified starting and ending points, examination of the NASA Strategic Organizational Learning System graphic reveals the purposeful elimination of starting and ending points. Instead, connections and links are shown in the graphic that illustrate the nexus between the strategic planning and organizational learning processes and the cyclic nature of the learning system, as discussed in greater detail below.

Page 1 of Figure 5 shows that the NASA Strategic Plan is an obvious outcome or product of the strategic planning process—that is, those activities that occur prior to the completion and distribution of the Agency's strategic plan. Throughout the development of the Agency's strategic plan, the mission, vision, goals, objectives, and content of the Plan are influenced by a set of external and internal inputs, drivers, and guidance. Examples of external influences include the Executive Administration Branch, Congress, OMB, partnerships, environmental factors, documented guidance, and public support. Examples of internal influences include the NASA Administrator, Enterprises, functional offices, employees, culture, and documented strategic planning guidance. Similarly, during the approval cycle the draft strategic plan is reviewed, scrutinized, and commented on by external government branches and offices along with internal leadership and offices. NASA's strategic plan is the single-most influential and visible document produced by and for the Agency—clearly not a document that sits unused on a shelf. Page 2 of Figure 5 shows that once the strategic plan is completed, various activities take

place to distribute, communicate, transfer knowledge and learn about, and implement that plan—all of which to some extent contribute to NASA's organizational memory. The Agency's strategic plan is distributed to a wide external and internal audience of customers, stakeholders, employees, contractors, and the American public using both hardcopy and electronic formats. In effect, by posting the plan in an electronic format on the World Wide Web, the distribution of the NASA strategic plan virtually is unlimited. In addition to the ongoing social basic of the planning process, the content of the strategic plan is communicated in various ways. External and internal presentations to discuss the strategic plan are made by the NASA Administrator, the Office of Policy and Plans (Code Z), and the Enterprises. Awareness of and knowledge about the strategic plan are transferred as experienced employees work with, mentor, and assist junior-level employees in understanding and adapting the NASA culture. Code Z participates in an exchange of strategic plans among various government agencies.

As discussed previously, various learning activities take place Agency-wide that focus on the strategic plan and identify resources to inform employees about strategic planning. Successful implementation of the NASA strategic plan through mission success and as good stewards of resources results in a positive image of the Agency and support from the American public and Congress—all of which are external forces that influence the strategic planning process.

Figure 5: NASA Strategic Organizational Learning System (page 1 of 2)

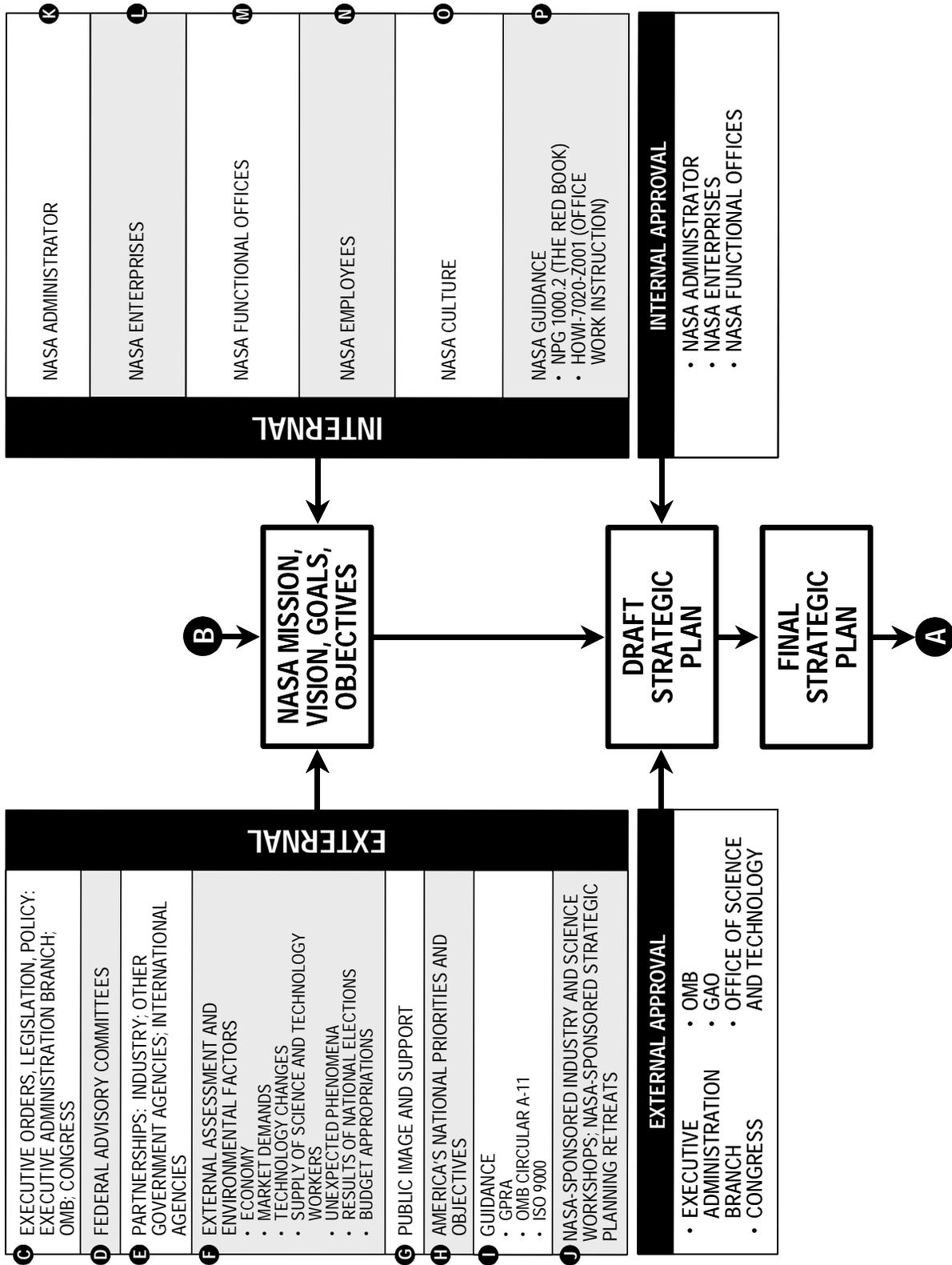
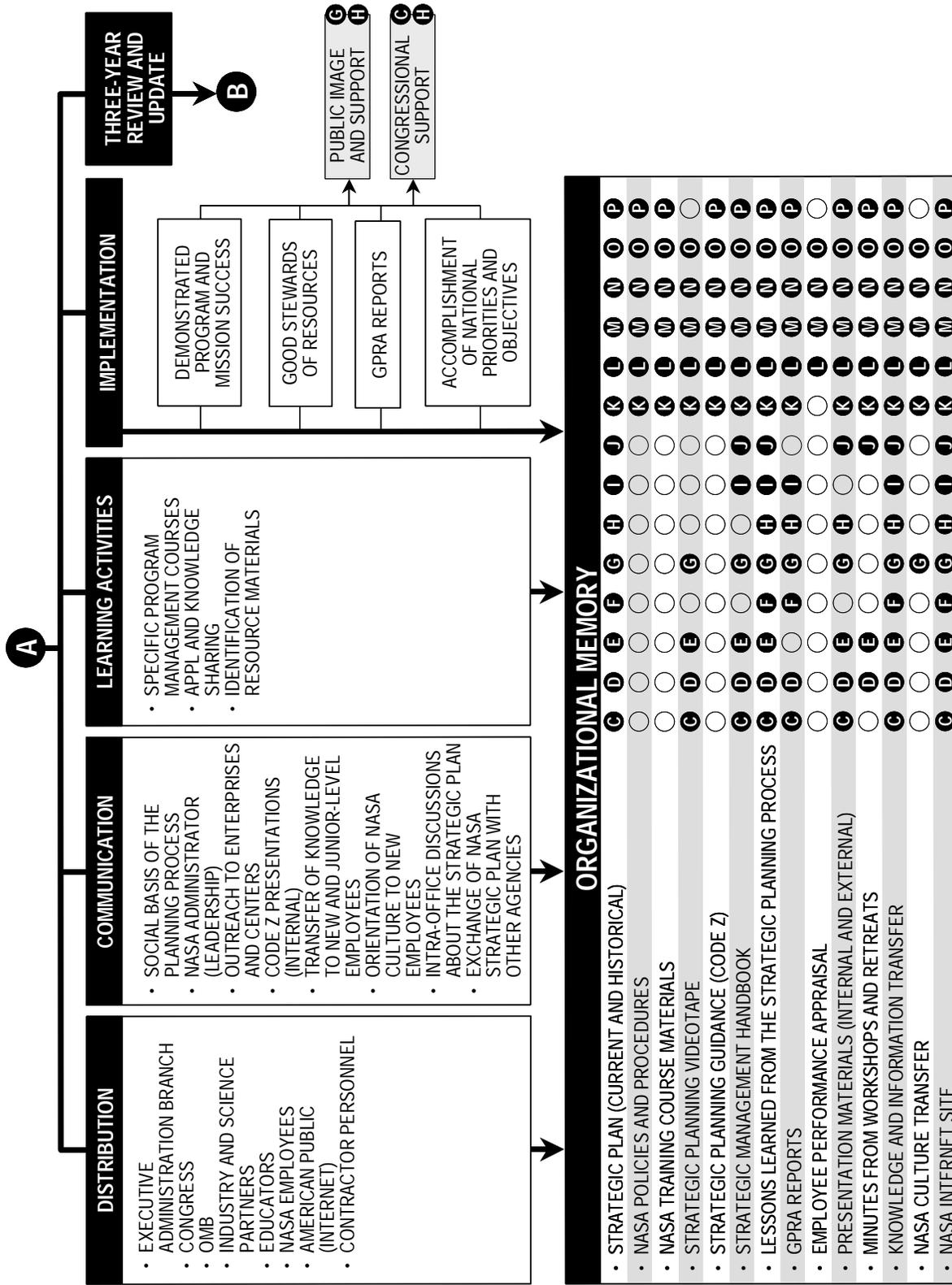


Figure 5: NASA Strategic Organizational Learning System (page 2 of 2)



The outcomes of the NASA strategic planning process and related distribution, communication, learning, and implementation activities are substantial and ongoing contributions to and retrieval from the Agency's organizational memory—a repository of information, data, institutional history, and artifacts that inform, influence, and guide the strategic planning process, as well as those who participate in and shape the content of the NASA strategic plan. The organizational memory segment of Figure 5 is designed to illustrate a table of connections and links—both explicit and implicit—from those items stored in NASA's organizational memory to the various external and internal influences on the Agency's strategic plan—thereby completing the connection between the strategic planning and organizational learning processes, and defining the NASA Strategic Organizational Learning System.

The NASA Strategic Organizational Learning Process

In what ways does strategic organizational learning system unfold and occur as a process at NASA? As previously cited in the current thesis, the development of a strategy is influenced by the ability of an organization to learn (Ribbens, 1997)—that is, to take a learning approach to planning. Whether explicitly or implicitly, throughout its history NASA created an environment where learning is a strategic intent and thrives naturally, where knowledge and skills will continue to grow in the future, and where its strategic plan is the core of the learning process.

From the strategic planning process, NASA established and still maintains a clear mission, vision, and set of core values that are stated in the Agency's strategic plan and are shared and understood widely by its employees. In fact, over one-half of NASA's employees participated in and contributed to the process of developing the Agency's vision statement.

Strategic planning is a systematic analysis of an organization, its strengths and weaknesses and external opportunities and threats. NASA must keep pace with its customers needs and learn about and adapt to changes in its environment as well as potentially changing factors that influence the strategic planning process. NASA does so by conducting external assessments and sharing the results of such

assessments internally. Explicitly, NASA seeks counsel and input from advisory committees and through external partnerships and outreach activities. Implicitly, such committees propose appropriate and informed strategic decisions about NASA's future and direction as a result of influences such as demonstrated program and mission success, a positive public image, results published in annual GPRA performance reports, and demonstrated progress toward accomplishment of national priorities and objectives.

NASA has systems in place to provide feedback to individuals (performance assessments), teams (meetings and presentations), and organization-wide (meetings, presentations, and use of the Internet). Through performance assessments, links are made between each employee and her or his contribution to the Agency's strategic plan. Meetings and presentations are held to discuss the strategic plan; results of environmental assessments; and influences of external factors such as Congressional decisions, Executive Orders, and the impact of budget fluctuations and appropriations. Training systems are in place to build and strengthen individual program and project management skills (with links to performance assessment), to understand and implement the strategic planning process, to build and enhance leadership skills, and to transfer knowledge and skills. Planning systems and guidance are in place and documented to conduct the strategic planning process Agency-wide.

NASA places significant value and importance on employee communication about the Agency's strategic plan and the strategic planning process. Such value and importance clearly are evident by the Agency's commitment to provide a copy of the strategic plan to every NASA employee. NASA distributes information horizontally and vertically throughout the Agency about external assessments and forces, lessons learned from past successes and failures, and changes in strategic planning policies, procedures, and guidance using verbal, written, and electronic formats of communication.

NASA's culture espouses the Agency's values, as enumerated in its strategic plan. It is through the culture that NASA employees interpret their world and

themselves in relation to the external and internal influences. The NASA “can do” culture is passed on to other employees explicitly through one-on-one communication and team interactions, and implicitly through the social basis of the strategic planning process.

NASA upholds a strong sense of trust for individual development by providing training courses to upgrade the skills of its employees, sharing and leveraging information, and creating an environment for learning to occur. Individual development also is encouraged and promoted through the performance assessment process, which addresses individual training needs and the link between the Agency’s strategic plan and an employee’s goals and objectives for each performance period.

Leadership is key both to successful development and implementation of the Agency’s strategic plan. The NASA Administrator, Dan Goldin, is the embodiment of the strategic plan. Goldin provides overall direction for the Agency, works to align employees with the direction of the Agency, provides feedback to employees about the Agency’s successes and failures, and views learning as an important and critical element to the success of the Agency.

In addition to the various behavior changes described above, NASA revises procedures and routines as a result of its strategic planning process, thereby demonstrating the Agency’s capacity for unlearning its conventional approaches to planning. An examination of historical strategic plans reveals various revisions to the format and content of the Agency’s plan to provide an improved mechanism for sharing its goals and objectives for the next twenty-five years. Staff members in the Office of Policy and Plans proposed revisions to strategic planning guidance as a result of what was learned during and since development of the 2000 strategic plan. The 1996 version of the “Red Book” (NASA, 2000c) was revised in February 2000 as a result of lessons learned from the strategic planning process.

Finally, NASA maintains a healthy and valuable organizational memory to which it contributes to and from which it retrieves information, data, institutional history, and artifacts related to and resulting from the strategic planning process on

a continual basis. Included in that organizational memory are documents, presentations, training materials, policies and procedures, guidance, memos, reports, electronic mail, employee performance appraisals, minutes from workshops and retreats, and information on the NASA Internet site.

In order for NASA to compete and survive as a successful government agency, adapt to changes in its environment, formulate a plan, set future goals, and measure performance, it must learn from and respond and adapt to its environment, and embrace ideas and feedback from customers and stakeholders. NASA continually must encode new and revised findings and understanding so that those new to the organization can pick up and continue from where the old left off. The Agency must make a commitment to learn from past successes and failures and learn to predict changes, rather than react when in a crisis management mode. The Agency also must continue to work toward further understanding of the nature of the connection—that is, the nexus—between the strategic planning and organizational learning processes and how that connection operates explicitly and implicitly in the NASA context. Uninformed customers, stakeholders, and other participants in the strategic planning process; an inadequate or incomplete external assessment; inappropriately or inaccurately documented policies and procedures; and an inadequate transfer of knowledge and skills might in fact result in a less than superior, unusable, and undesirable strategic plan that misrepresents the goals, objectives, and future direction of the Agency. The subsequent chapter of the thesis presents recommendations for NASA to move forward toward an improved understanding.

Discussion

Key elements of the strategic planning process for organizations—that is, competing to survive; sustaining the advantage; adapting to changes in the environment; formulating a plan; setting future goals; pursuing new markets; and measuring performance—were presented in Chapter One. Offered in that same chapter is the consideration that many strategic planning sessions result in no new

actions, and that the actual document ends up tucked away on an office bookshelf or in a bottom desk drawer. The current research uncovered that such is not the case at the National Space and Aeronautics Administration (NASA), a U.S. government agency with a 40-year plus history that employs a workforce of nearly 20,000 persons. In a global and political environment that changes rapidly, and under the leadership of the current NASA Administrator, Daniel Goldin, NASA continuously embarks on a journey of learning that is intricately linked to its strategic planning process and that demonstrates organizations do learn and adapt.

The literature identifies the building blocks necessary to create and maintain an environment where organizational learning can occur (Goh, 1998; Morgan, 1997; Nonaka, 1991; Redding & Catalanello, 1994; Reimann, 1995; Schein, 1993; Stata, 1992). First, an organization has a mission and vision related to its current environment and supported by its employees. Those employees are encouraged to take risks, deal with uncertainty, and innovate. There exists a leader or leaders who establish the direction for the organization, and not only align employees with that direction, but concurrently motivate and inspire them. The organization offers a climate or environment in which learning becomes natural. A systems approach should be evident in daily operations. Effective communication networks are in place, and employees are seen working in teams wherein there is an ongoing transfer of skills and knowledge. Finally, there exists evidence of changes in behaviors, processes, routines, and plans as a result of the sharing of information and knowledge organization-wide. Such building blocks are evident at NASA, and are linked intricately to the Agency's strategic plan and the strategic planning process. As presented in Chapter One, organizations that have understood and nurtured the relationship between strategic planning and organizational learning ask questions such as:

1. Do our employees understand our mission and vision?

At NASA, the answer to this question is a resounding "yes." Both the mission and vision of the Agency are presented and articulated clearly in NASA's strategic plan. Not only is the Agency's strategic plan distributed to every

employee, but employees had the opportunity to contribute development to the Agency's vision.

2. How well do we perform as a team or system?

Throughout its 40-year history, NASA has epitomized both the team concept and systems approach and maintained its position as a leading force in scientific space and aeronautics research and public interest with programs such as Project Mercury, Project Gemini, Project Apollo, and the Hubble Space Telescope.

3. How well do we communicate and share information and knowledge horizontally and vertically within and outside the organization?

NASA maintains a vast electronic, verbal, and non-verbal communications network that operates efficiently in all directions both internally and externally. Data and knowledge—for example, plans, policies, handbooks, course and presentation materials, guidance, and lessons learned—are distributed freely throughout the Agency in hardcopy and electronic format during meetings, presentations, training courses, developmental activities, and over the Internet. Reports, plans, videotapes, meeting minutes, and handbooks are distributed to and shared with external customers, the Executive and Legislative branches of the government, stakeholders, and the American public in hardcopy and electronic format during meetings, presentations, workshops, retreats, and Congressional sessions.

4. To what extent does our culture focus on continuous learning? How is that culture reinforced?

NASA provides a wide array of learning activities, experiences, lessons learned, and training and developmental activities that promote leadership and nurture the program- and project management-focused culture of the Agency. Continuous learning is key at the Agency, is encouraged and promoted at all levels throughout NASA, and is validated as part of the employee performance appraisal and development process. NASA's

Leadership Model further reinforces the Agency's culture and includes the strategic plan and the strategic planning process as its key elements.

5. What about our past must be challenged and unlearned?

Although its culture and the high visibility of its programs have remained unchanged throughout its history, NASA had made corrections in its program operations and approaches. Although infrequent, program failures are catalysts for the Agency's unlearning and refocusing its processes and resources. NASA currently operates under the mantra of "faster, better, cheaper," as introduced by the NASA Administrator. During the past few years, revisions were made to the strategic planning process and the accompanying documentation. Changes in legislation, such as implementation of the Government Performance and Results Act, have caused NASA to review, rethink, and retool measurements and reporting procedures. Finally, dependent on its political environment and other factors over which it has no control, NASA always must be prepared to respond to changes in the economy, technology, budget appropriations, unexpected phenomena, or changes in the Executive and Legislative branches that might result from a national election.

Even as a government agency, NASA's approaches to the strategic planning and organizational learning processes also align with the strategies that promote learning strategies and capitalize on an organization's capabilities and culture as well as its competitive strengths, as defined by Slocum, McGill, and Lei (1994). These strategies include developing a strategic intent to learn capabilities, including teaching employees to view the company [the Agency] in terms of its capabilities and values; making a commitment to continuous experimentation, including embracing ideas from customers, employees, and other companies [agencies]; and having the ability to learn from past successes and failures, including discussing with employees the specifics of the business and what the competition is doing [competition in this sense defined as the influence and breadth of the space science market captured or held by similar international agencies].

The NASA Strategic Plan is of central prominence in all Agency operations and outlines the purpose, objectives, and future direction of the Agency; strategic planning at NASA is a continuous process linked closely with the various learning activities and experiences available throughout the Agency. To the greatest extent possible, Agency activities, interactions with customers and stakeholders, employee performance and development, learning activities, and reporting required by legislation are directed by and linked with that plan.

Learning takes time. It requires the process of identifying a problem to be solved; acquiring knowledge; experimenting and making decisions to solve the problem; creating structures and functions to implement the solution; documenting and recording the lessons learned; and sharing the knowledge with others. In organizations such a process occurs both at the individual and organizational level as the organization learns and adapts. In the NASA context, the nexus of strategic planning and organizational learning is the place of interaction between the two processes. The nexus is a function of documenting routines and processes; encountering issues or concerns or lessons learned during the strategic planning process; reacting to and making decisions about such issues, concerns, or lessons learned; revising routines and processes; sharing knowledge; changing behavior; storing artifacts and data; making appropriate resources available; and providing a wide variety of learning and training opportunities.

As a result of legislation and external guidance that directs government-level strategic planning (OMB, 1993; OMB, 2000), the strategic planning process at NASA is documented and standardized in substantial detail (NASA, 1996; NASA, 2000c; NASA, 2000f). Based on the current research, it is that doubtful that the strategic planning process will be modified in the near future.

Organizational learning in action is best demonstrated as the Agency encounters and reacts to issues and concerns. As shown on page 1 of Figure 5, various external factors and influences, such as Congress, the Executive Administration, and unexpected environmental factors and mission failures can affect the Agency. NASA has become skilled at anticipatory learning (Fulmer,

1994) by ensuring ongoing communication with its customers and stakeholders and by forming partnerships, participating in Federal advisory committees, and sponsoring strategic planning workshops through which the Agency can “get a pulse” on the external environment, engage in participatory decision-making, and explore various alternatives through which the objectives of the strategic plan can be implemented successfully. Internally, NASA revises strategic planning routines and guidance to enhance the strategic planning process and implement lessons learned from that process; for example, the *NASA Strategic Planning Handbook* (NASA, 2000c) was revised in February 2000. By distributing such guidance and conducting inter-department and one-on-one meetings, the probability exists that those involved in the strategic planning process have a greater level of understanding about the process and are more empowered to embark upon a successful and productive strategic planning exercise.

Realizing the central magnitude of and influence of its strategic plan on the Agency, NASA understands the strategic importance of capitalizing on its capability to control the kind of learning that occurs and makes an effort to share knowledge and create and maximize learning. Not only is the strategic plan distributed to every employee and the Agency’s customers and stakeholders, knowledge and lessons learned are shared by using the NASA website and through external and internal meetings and retreats. As shown on page 2 of Figure 5, NASA creates and stores a wealth of artifacts and data in its organizational memory that are readily retrievable and can be brought to bear on current decisions. Finally, to optimize the transfer of knowledge and information, NASA provides a wide variety of learning and training opportunities for individual employee who in turn will effect the greater organization as such learning is integrated into daily routines, processes, actions, and decision-making.

What happens if any one element in the strategic planning or organizational learning process changes or disappears? Does the system still work? The assumption in a sophisticated and mature agency such as NASA is yes...or rather the effect of any such change would not be observed in the near-term. A redirection

of budget appropriations might cause the cancellation of a program; however, other major programs will continue and the Agency will adjust accordingly. The inauguration of a new president or the political redistribution of Congress after a national election might result in refocusing various NASA programs or its priorities; however, the general purpose and direction of the Agency will remain the same, and because of the complexity of the government as a system and of the legislation process such refocusing would not be near-term. A change in the workforce, including the strategic planning staff, would not have a detrimental effect, as the strategic planning processes already are well documented. One factor that might result in the greatest impact is a reappointment of the NASA Administrator. Daniel Goldin has been in his current position as Administrator for approximately nine years. Goldin continues as a significant influence over the direction of the Agency. It is assumed that the appointment of a new administrator with a different leadership style or focus for the Agency would, in fact, present the greatest internal challenge to the Agency; however, the dimensions of that challenge cannot yet be predicted.

As suggested by Shrivastava (1983), it appears, to some extent, that for NASA the learning approach is superior to planning as a means for creating strategy. And as offered by Kiernan (1993), organizational learning is a core element necessary to take high performance firms successfully into the twenty-first century—and such is the case at NASA.

In the greater picture, the question might be asked whether the NASA model should be adopted or followed by other agencies or non-government organizations. NASA has shared its plan with other government agencies, and documented its strategic planning process on videotape (at the request of the Office of Management and Budget) as a model and process to share with other agencies and non-government organizations. The question of whether the NASA model should be adopted by others cannot be answered definitively from the current research and suggests one area of future research. What can be gained from the current study, however, is a first look at the nature and composition of the nexus between strategic

planning and organizational learning. Simply stated, and based solely on the current research, the nexus between strategic planning and organizational learning is a fluid, dynamic interplay and relationship within an organization that at times is an explicit, implicit, and sometimes even accidental process that uses an organization's strategic plan to: develop an informed workforce; store, transfer, and retrieve knowledge and data; create an awareness and understanding of the external environment; initiate behavioral change based on past experience; support a culture of learning; maintain an active communications network; encourage continuous improvement; and involve and inform customers and stakeholders.

Chapter 5: Summary, Conclusions, and Recommendations

Introduction

For the past twenty years, the strategic planning process has become nearly as common a management tool as the budget process (Campbell & Alexander, 1997). Campbell and Alexander argue that few executives are satisfied with strategic planning as it commonly is known. Many strategic planning sessions result in no new actions, and the end product—that is, the actual document—ends up tucked away on an office bookshelf or in a bottom desk drawer.

Today, corporate management is changing its outlook on strategic planning (Bartlett & Ghoshal, 1998). “A revitalized interest in strategic planning makes sense in light of the rapidly changing, complex environment in which organizations have to compete. It also makes sense in view of the multiple nuances that affect every aspect of business today” (Beerel, 1998, pg. 63). Kiernan (1993) asserts that the essence of strategy now lies in creating the competitive advantages of tomorrow faster than competitors can mimic those advantages possessed today. The threat to survival has convinced organizations that the old ways of running the business just are not working; major change is demanded (Redding & Catalanello, 1994). The reality of the situation is that global competition thoroughly has scrambled organizational thinking and planning; and the more a company penetrates global markets, the more its ability to respond quickly and effectively to a myriad of changes has a greater effect on its success (McGill et al., 1992).

Long-term survival and growth are the ultimate criteria of performance for an organization (Fiol & Lyles, 1985). To achieve such survival and growth, organizations must align with their environment, remain competitive and innovative, and survive over the long run. Strategic planning is essential for strategic changes and organizations must develop goals, plans, and direction for the future (Redding & Catalanello, 1994).

An approach to improving the strategic planning process is founded in organizational learning. The process of strategic planning is evolving quickly into

the era of organizational learning—the source of competitive advantage (Bartlett & Ghoshal, 1998). Ribbens (1997) suggests that because the development of strategy is influenced by the ability of an organization to learn, gaining an understanding of how and why organizations learn can enhance the effectiveness of strategy formulation. Fiol and Lyles (1985) reveal that a commonly expressed belief in the strategic management literature is that organizations do learn and adapt; and this enhances the ability of the organization to survive. Redding and Catalanello (1994) state that successful strategic change, in most cases, does not come from plans developed by leaders. Instead, organizational change most often results from setting out in a new direction, gaining new insights, making discoveries, and taking new actions—that is, from taking journeys of learning. Stata (1989) argues that the benefits that accrue from planning are not just the strategies and objectives that emerge, but more importantly the learning that occurs during the planning process. As further support for the importance of learning to the strategic planning process, Mintzberg and Quinn (1991) state that some of the most effective strategies uncovered in research combined deliberation and control with flexibility and organizational learning. Kiernan (1993) asserts that the most fundamental and important element of strategic architecture is organizational learning.

Organizational learning is critical for the formulation of organizational strategies and broader organizational changes (Shrivastava, 1983). When an unexpected event occurs, an organization can learn; it can experiment in the hope of capturing some basic messages and converging behaviors on them. After all, learning in an organization is recognized once it leads to a revision of organizational routines on which organizational behavior is based. The learning approach appears to be superior to planning as a means for creating strategy.

Organizational learning ability likely is to be a factor determining the type of strategic decision process an organization utilizes. Organizational learning both determines and is determined by strategy. And organizational learning is one of the core elements necessary to take high-performance firms successfully into the twenty-first century (Kiernan, 1993).

The ability to improve learning may represent the single-most important defining characteristic of a successful organization; foremost is to establish a climate or environment in which learning becomes natural (Redding & Catalanello, 1994). In trying to understand how and why organizations learn, the literature suggests that basic elements or building blocks exist that are necessary to create and maintain an environment where organizational learning can occur.

Having a clear mission and vision in place that is supported by employees is a critical strategic building block of a learning environment (Goh, 1998). Employees should be encouraged to take risks, deal with uncertainty, and innovate. Such an environment requires a shared leadership style. Good leaders establish direction, align people with that direction, and then motivate and inspire them. The role of leaders in organizations is to set the necessary conditions for the organization to develop an effective learning capability. Leaders should be seen as coaches who facilitate change and provide useful feedback to employees and teams to help identify problems and opportunities. Such leadership also means involving employees in decision-making (Goh, 1998; Reimann, 1995).

Systems thinking is a powerful tool to facilitate both individual and organizational learning. And, the collective learning of an organization becomes the basis of future competitive advantage (McGill et al., 1992). Organizations build a heightened strategic readiness by developing among members a broad understanding of the organization as a complex, dynamic system, which continually is able to change shape based on continuous learning. Organizations make learning a way of life by developing systems that promote continuous individual learning, team learning, and broader organization-wide learning (Redding & Catalanello, 1994).

A primary reason for instituting strategic management is to build and support effective communication networks throughout the firm (David, 1995). An organization's system of communication determines whether strategies can be implemented successfully. By fostering communication and interaction among all hierarchical levels, strategic management helps an organization function as a

competitive team. By working and communicating on teams, employees bring their collective skills and knowledge to solve problems and develop innovative ideas for the organization (Goh, 1998). Nonaka (1991) argues that teams play a central role in the knowledge-creating company because they provide a shared context where individuals interact with each other. Through dialogue and discussion, team members pool their information, create new points of view, and examine issues from various angles.

Behavioral change is evidence of learning. For learning to occur, organizations must be able to set aside or overcome bad habits, ingrained routines, and cultural roles and then expand their behavioral repertoire into uncharted areas (McGill et al., 1992; Schein, 1993). Goh (1998) argues that the acquisition of skill and knowledge is useless unless they can be transferred to the job by an individual employee, and are more useful if such knowledge can be transferred to other parts of the organization to solve problems and energize creative new ideas. He posits that learning from past failures and talking to other staff members about successful practices or experiences are all part of the transfer of knowledge. Successful organizations not only encourage such practices, but also have mechanisms or systems that allow them to happen.

Organizational culture is a system of shared values and beliefs that shape a company's people, organizational structures, and control systems, and produce behavioral norms (Picken & Dess, 1997). "Organizational culture is the set of collective meaning structures that organizational members use to interpret the nature of their world and themselves in relation to it. They are assumptions that are so fundamental that they are for the most part tacit" (Dixon, 1999, pg. 199). Culture is within every organization, and its influence is pervasive. A culture is organic; it must be cultivated, encouraged, fertilized, reinforced, and passed on to others if it is to remain viable. Hewson (1997) argues that companies that are riding the wave of success often are the last to realize the need for cultural change, and that fixed cultures become outdated as the environment that created them changes over time.

Organizations that form a strategic relationship with organizational learning not only will be the survivors of the future, but also will be the most competitive, innovative, and difficult to beat in the market. The strategy making process is better characterized as a process of learning; that is, formation in the place of formulation (Mintzberg, 1994; Tsang, 1997). Until recently—that is, through the 1990s—the organizational learning literature more often has made reference to strategic planning than the converse. Discussion concerning both constructs raises questions on the subject of how strategy can be made to come alive, or how learning can thrive in an organization. Also mentioned in discussions about strategic planning and organizational learning are organizational considerations such as the need for aligning with the external environment in order to predict turmoil or perturbations in the marketplace and among competitors; maintaining competitiveness; developing goals and new direction; learning from unexpected events; keeping pace with changes; engaging in systems thinking; sharing and transferring information and knowledge; and learning and adapting faster.

The significance of both strategic planning and organizational learning to the future success and survival of an organization, as discussed in the literature, therefore suggests there might exist more than a coincidental nexus between the two constructs. Although the literature suggests an outcome of the competitive advantage that organizations might gain from the nexus between strategic planning and organizational learning, there does not exist a detailed nor precise definition of that nexus or the elements that comprise such a connection. Neither guidelines, a set of usable tools, nor an instrument are available should an organization be prompted to examine or conduct a diagnosis of its strategic planning process and determine (1) in what ways the organization can gain a competitive advantage by incorporating the best practices of both strategic planning and organizational learning; and (2) to what extent strategic planning and organizational learning might exist or operate in a relationship of interdependence. An important step, therefore, is to attempt to determine the composition of such a nexus—that is, the elements future researchers might use to develop such guidelines, tools, or

instruments.

Background for the Study

Compete to survive. Sustain the advantage. Adapt to changes in the environment. Set future goals. Formulate a plan. Pursue new markets. Measure performance. Those phrases introduced the results of a literature review (Endlich, 1998) that initiated an exploration of the partnership (or connection) between strategic planning and organizational learning that resulted in the completion of the current research project. The outcome of that 1998 review was the suggestion of a Strategic Organizational Learning System model (see Figure 8) designed as an open system consisting of four clusters that operate interactively and seamlessly within the system.

The Communications Cluster

Communication is a basic element of survival; therefore, the communications cluster is situated at the core of the system. All data must at some point pass through this cluster. At the left side of the model, data from external factors and the environment as well as data from internal sources—such as information, experiences, insights, and discoveries originating from individuals and teams within the organization—are shared by way of various communication networks throughout the organization. It is through such communication networks that internal and external events and trends are monitored continuously. All parts of the organization thereby are interconnected through a continuous flow of information, allowing members of the organization to recognize and react to environmental change, thwart crisis management, and improve performance based on experience.

At the right side of the model, the strategy (or strategic plan) is shared across those same networks to members of the organization. Both incoming data and the strategy of the organization are shared in various oral, written, and pictorial methods (Pace & Faules, 1989), such as meetings, interviews, telephone, briefings, interpersonal contacts, memos, reports, bulletin boards, and presentations.

The Foundation Cluster

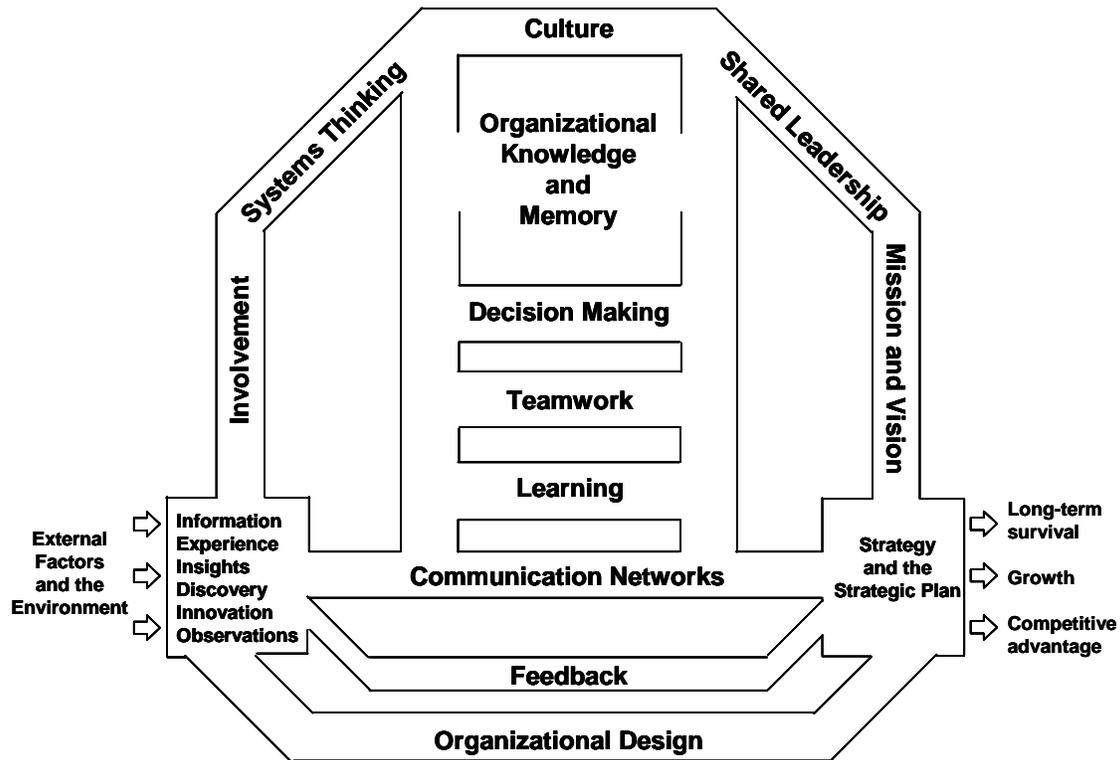
At the base of the model is the foundation cluster. This cluster is comprised of two elements: feedback and organizational design. Hedberg (1981) offers that learning in open systems takes the form of positive feedback, and that organizational learning occurs best in organizational designs that are organic, flat, and decentralized. Such organizational designs eliminate levels of hierarchy which might either hinder or diminish effective communication and internal and external feedback.

The Learning Cluster

The learning cluster is illustrated as a hierarchy of four levels. Learning (shown as the first level of the hierarchy) is a process that is based on an interpretation of experience, and results in knowledge, understanding, insight, and changes in behavior, both for individuals and organizations. Learning is placed at this level in the hierarchy because it is the fundamental and most important benefit of the strategic planning process and is necessary for a sustained existence. Nonaka (1991) identifies the central role that teams play in an organization, by professing that teams provide a shared context where individuals can interact with each other and engage in the constant dialogue on which effective reflection depends. Team members create new points of view through dialogue and discussion, and pool their information and examine it from various angles.

A team of strategic decision makers takes actions, monitors the activities of their organization and environment, and then makes future decisions concerning future strategic organizational activities (Lant & Montgomery, 1987). It can be argued that these individuals have the capability of learning from experience. The fourth hierarchical level of this cluster is where organizational knowledge and memory continuously are stored, exchanged, shared, accessed, and retrieved. At this level organizational routines, processes, practices, codes of behavior, and history reside and are updated and transferred. And is it here where the seeds of culture and structure are maintained.

Figure 8: The Strategic Organizational Learning System



The Environment Cluster

The environment cluster forms the upper perimeter of the model. The five elements chosen for this cluster provide the direction and energy to maintain the system. Culture, the topmost element, is organic; it contains the shared values and beliefs of the people within the organization, and bonds the members of the organization into shared commitment. Redding and Catalanello (1994) argue that members of organizations should understand that organizations are complex, dynamic systems, and should be provided the capability to see the connections and networks of the whole rather than of the parts. Within such systems, employees should be encouraged to participate in or contribute to decision-making and should participate actively and contribute to a variety of experiences in the organization. Out of such collaborative experiences, employees gain insights, make discoveries,

and can provide information that can be shared across various communication networks.

The shared leadership element of this cluster provides employees at all levels of the organization the opportunities to coach, provide feedback, identify problems, suggest solutions, work together to create a future they can commit to, and facilitate change. Finally, the mission and vision, which are an output of developing an organization's strategy, must be shared and understood by employees at all levels of the organization.

The review concluded:

“Strategic planning was and continues to be the most popular form of business planning, offering a powerful means for anticipating and adapting to dynamic business conditions. The process not only is rational, but also provides a systematic analysis and detailed plan, and offers the promise of quick, concrete results (Redding & Catalanello, 1994). However, the framework of setting a strategic direction, developing a mission statement and vision statement, conducting analyses, and setting goals and measures no longer is sufficient.

Strategies come alive through organizations that can be flexible, be responsive to change, gather and share information, and support ongoing learning. Strategists and management today must improve strategic planning by developing a partnership with organizational learning, and creating an environment where such learning can thrive, where knowledge and skills will grow, where strategic behaviors will change, and where learning is a continuous activity. Fiol and Lyles (1985) argue that an organization's strategic posture partially determines learning capacity. Not only does strategy determine the goals and objectives and breadth of actions available for carrying out the strategy, it also influences learning by providing a boundary to decision-making and creating a momentum toward organizational learning. Effective organizations are those in which members have a capacity to learn to predict changes in their environments, identify the influence of such changes, search for suitable strategies to cope with changes, and develop appropriate structures to implement those changes (Shrivastava, 1983). Organizations must accept and embrace the fundamental truth that most change occurs through journeys of learning (Redding & Catalanello, 1994).

In today's competitive and rapidly changing environment, organizations must be ahead in the time and effort spent in attracting,

developing, and retaining the best people. Organizations must not only commit resources, but also build a strong sense of trust for individual development; continuously upgrade the skills of employees; transfer, share, and leverage information; and provide an environment for organizational learning to occur.”

(Endlich, 1998, pp. 33-35)

The strategic organizational learning model suggested in the 1998 review was hypothetical and not validated, thereby leading the way to future investigation and research. The soundness and validity of the model and to what extent the interaction of the clusters results in long-term survival, growth, and competitive advantage still remained to be tested, particularly within various types of organizations.

The current study discusses and relates to the same strategic planning and organizational learning processes as already exist in the literature. The purpose of this study was to initiate an investigation to uncover, identify, and define the common set of elements between the constructs of strategic planning and organizational learning, and to investigate the question: “What is the nature of the nexus between strategic planning and organizational learning, and how does it operate in a specific organization?”

Overview of the Methodology

The organization selected for the investigation is the National Aeronautics and Space Administration (NASA) Headquarters located in Washington, DC. NASA was selected primarily because of its having a mature strategic planning process, being a large-sized organization, having a strategic planner on the staff, and being geographically located in the Washington, DC, area, as well as the willingness of the Director of Strategic Planning to participate in the research. Throughout its 40-plus year history, NASA has maintained its position as a leading force in scientific space and aeronautics research and public interest with programs such as: Project Mercury, during which Alan Shepard became the first American to fly into space (1961) and John Glenn became the first astronaut to orbit the Earth

(1962); Project Gemini, during which Edward White became the first U.S. astronaut to conduct a spacewalk (1965); and Project Apollo, during which Neil Armstrong and Edwin Aldrin landed on the Moon (1969). LANDSAT (1972), the first Space Shuttle mission (1981), Hubble Space Telescope (1990), Mars Observer spacecraft (1993), Mars Global Surveyor (1996), and participation with Russia's *Mir* space station are other programs of varying levels of success and failure that have sustained NASA in the foresight of Congress and the American public.

With its customers including the President, Congress, and the American public, NASA is different from other government agencies, in that its focus is not regulatory, nor is NASA a provider of services. NASA very much promotes a "can do" and problem-solving culture of program management, with a workforce comprised mostly of scientists and engineers.

Operating at an annual budget of approximately 14 billion dollars, NASA employees today number nearly 20,000, with 1,000 located at NASA Headquarters in Washington, DC, and others at various NASA Centers nationwide. NASA experienced cutbacks and downsizing over the past seven years—a 5 billion dollar reduction in budget (or one quarter of its resources), and a 60% reduction in staffing. Similar to the practice of other government agencies, NASA leverages a network of contractors, currently numbering approximately 180,000.

A qualitative research method was selected for this study, using a case study design. A total of thirteen interviews with eleven NASA employees were conducted over a period of four months. All interviews were conducted at NASA Headquarters or a specific NASA Center. Because of resource restraints identified by NASA at the start of the research project, only one interview was conducted with each participant. One participant requested a second interview. And as agreed at the onset of the research, a second (wrap-up) interview was conducted with the Director of Strategic Planning following the completion of all other interviews. The length of the interviews ranged from forty-five minutes to two and one-half hours, with an average length of approximate one hour per interview.

The first interview within NASA was conducted with the Director of Strategic Planning. Upon completion of the first interview, the researcher asked the strategic planner to identify additional persons within the organization (snowball sampling technique) who are involved either directly or tangentially in the strategic planning process. Those identified for the subsequent interviews were selected based solely on the experience of and data provided by the strategic planner. In developing a pool of interviewees, the Director identified a list of Agency personnel from the following Functional Offices, Strategic Enterprises, and Centers. Each interview was transcribed into a word processor (Microsoft Word 2000) for transfer into Ethnograph software, that is used for analysis of qualitative data. A copy of each transcribed interview was sent to the interviewee for verification that the interview was transcribed correctly, and that his or her statements and opinions were portrayed accurately.

Various activities in the methodology were designed to ensure the validity of the research through triangulation—that is, various data sources were evaluated against each other as a cross check to “minimize distortion from a single data source” (Krefting, 1991, p. 177). For this research project, such cross checks included conducting interviews with employees at various levels of the organization involved in the strategic planning process or the implementation of the strategic plan; using a peer coding review process; reviewing documentation produced within the organization; and observing changes in behavior, attitudes, procedures, and routines in the organization as a result of the strategic planning process.

Data were analyzed (coded) using the Ethnograph software package. Open coding was conducted in order to develop the various categories (in terms of their properties and dimensions). Levels of analysis—axial and selective coding—were continued in order to determine relationships among categories; to develop “a picture of reality that is conceptual, comprehensible, and above all grounded” (Strauss & Corbin, 1990, p. 117)); and to provide an answer(s) to the research question. A narrative analytic story for the organization was developed in the form of a case study, using the concepts that resulted from analyzing and reducing the

data. The narrative provides a summary of the essence of the interviews as they relate to the research questions. The case study narrative also describes what types of learning—formal or informal—are ongoing or planned, and how the processes of strategic planning and organizational learning are connected.

Research Findings

The primary research question guiding the current research study is: “What is the nature of the nexus between strategic planning and organizational learning, and how does it operate in a specific organization?” Considering the nexus as the place of interaction between the processes, one therefore must identify the characteristics or qualities of the nexus as it exists at NASA. First, there exists at NASA an emphasis on survival and continuation—that is, NASA intends to continue as a successful and thriving agency for many years forward. Second, NASA’s strategic plan is institutionalized as it is implemented; it stands as a part of the everyday activities through which the strategic planning process comes alive. Third, NASA has mechanisms in place to store its memory and history and then retrieve such memory and history to bear on present decisions. Next, inherent and as demonstrated in the kinds of programs and missions NASA undertakes, there exists a willingness to take strategic risks based on institutional knowledge and memory. Also, through the efforts of the Office of Policy and Planning (Code Z), NASA continuously evaluates and improves the strategic planning process. Then, as a scientific- and engineering-based Agency, NASA has the ability to recognize and solve problems and turns mistakes into learning—and empowers others in the Agency to do so during the planning process. Finally, in addition to taking a systems approach to both the planning and learning processes, NASA operates in a participatory nature externally and internally by involving heavily its employees, stakeholders, customers, and other government, private, scientific, and industry agencies in the strategic planning process.

Essentially thirteen factors make this nexus work at NASA:

1. A focus on the strategic plan as a central theme for the Agency

2. The integration of internal and external factors, employees, customers, and stakeholders
3. The realization of communication and feedback as having significant value
4. Participatory decision-making
5. Attention to processes rather than simply producing a document
6. Leadership, starting at the top of the Agency with the NASA Administrator
7. Attention to problem solving and process improvement
8. No fear that as a government agency that strategic planning could not be handled in such a manner
9. Flexibility within a bureaucracy to change plans and processes
10. The “can do” NASA culture
11. The learning culture of a research and development organization—focusing on learning as a strategic intent
12. The desire to be the best over all government agencies; staying in the forefront; being first
13. The realization and implementation of a connection between the Agency’s strategic plan and what employees do on a daily basis

In a global and political environment that changes rapidly, and under the leadership of the current NASA Administrator, NASA continuously embarks on a journey of learning that is intricately linked to its strategic planning process and that demonstrates organizations do learn and adapt. NASA has in place a system and framework that define—through policies, directives, and guidance—the manner in which strategic planning should be performed formally within the Agency, and the organizational interfaces necessary for successful implementation of the strategic plan.

The NASA Strategic Plan is of central prominence in all Agency operations and outlines the purpose, objectives, and future direction of the Agency; strategic planning at NASA is a continuous process linked closely with the various learning activities and experiences available throughout the Agency. To the greatest extent

possible, Agency activities, interactions with customers and stakeholders, employee performance and development, learning activities, and reporting required by legislation are directed by and linked with that plan. The reality of strategic planning at NASA comes alive and develops in the day-to-day activities, relationships, and dynamics of the organization as well as the experiences and interrelationships of employees throughout the organization as they strive to implement the formal system. Similarly, various organizational learning activities and experiences at NASA unfold in the activities, relationships, and dynamics of the organization and its employees. Whether explicitly or implicitly, throughout its history NASA created an environment where learning is a strategic intent and thrives naturally, where knowledge and skills will continue to grow in the future, and where its strategic plan is the core of the learning process.

At NASA, both the mission and vision of the Agency are presented and articulated clearly in NASA's strategic plan. Not only is the Agency's strategic plan distributed to every employee, but employees had the opportunity to contribute development to the Agency's vision. Throughout its 40-year history, NASA has epitomized both the team concept and systems approach and maintained its position as a leading force in scientific space and aeronautics research and public interest with programs such as Project Mercury, Project Gemini, Project Apollo, and the Hubble Space Telescope.

NASA maintains a vast electronic, verbal, and non-verbal communications network that operates efficiently in all directions both internally and externally. Data and knowledge—for example, plans, policies, handbooks, course and presentation materials, guidance, and lessons learned—are distributed freely throughout the Agency in hardcopy and electronic format during meetings, presentations, training courses, developmental activities, and over the Internet. Reports, plans, videotapes, meeting minutes, and handbooks are distributed to and shared with external customers, the Executive and Legislative branches of the government, stakeholders, and the American public in hardcopy and electronic

format during meetings, presentations, workshops, retreats, and Congressional sessions.

NASA provides a wide array of learning activities, experiences, lessons learned, and training and developmental activities that promote leadership and nurture the program- and project management-focused culture of the Agency. Continuous learning is key at the Agency, is encouraged and promoted at all levels throughout NASA, and is validated as part of the employee performance appraisal and development process. NASA's Leadership Model further reinforces the Agency's culture and includes the strategic plan and the strategic planning process as its key elements.

Although its culture and the high visibility of its programs have remained unchanged throughout its history, NASA had made corrections in its program operations and approaches. Although infrequent, program failures are catalysts for the Agency's unlearning and refocusing its processes and resources. NASA currently operates under the mantra of "faster, better, cheaper," as introduced by the NASA Administrator. During the past few years, revisions were made to the strategic planning process and the accompanying documentation. Changes in legislation, such as implementation of the Government Performance and Results Act, have caused NASA to review, rethink, and retool measurements and reporting procedures. Finally, dependent on its political environment and other factors over which it has no control, NASA always must be prepared to respond to changes in the economy, technology, budget appropriations, unexpected phenomena, or changes in the Executive and Legislative branches that might result from a national election.

Organizational learning in action at NASA is best demonstrated as the Agency encounters and reacts to issues and concerns. Various external factors and influences, such as Congress, the Executive Administration, and unexpected environmental factors and mission failures can affect the Agency. NASA has become skilled at anticipatory learning (Fulmer, 1994) by ensuring ongoing communication with its customers and stakeholders and by forming partnerships,

participating in Federal advisory committees, and sponsoring strategic planning workshops through which the Agency can “get a pulse” on the external environment, engage in participatory decision-making, and explore various alternatives through which the objectives of the strategic plan can be implemented successfully. Internally, NASA revises strategic planning routines and guidance to enhance the strategic planning process and implement lessons learned from that process; for example, the *NASA Strategic Planning Handbook* (NASA, 2000c) was revised in February 2000. By distributing such guidance and conducting inter-department and one-on-one meetings, the probability exists that those involved in the strategic planning process have a greater level of understanding about the process and are more empowered to embark upon a successful and productive strategic planning exercise.

Realizing the central magnitude of and influence of its strategic plan on the Agency, NASA understands the strategic importance of capitalizing on its capability to control the kind of learning that occurs and makes an effort to share knowledge and create and maximize learning. Not only is the strategic plan distributed to every employee and the Agency’s customers and stakeholders, knowledge and lessons learned are shared by using the NASA website and through external and internal meetings and retreats. NASA creates and stores a wealth of artifacts and data in its organizational memory that are readily retrievable and can be brought to bear on current decisions. Finally, to optimize the transfer of knowledge and information, NASA provides a wide variety of learning and training opportunities for individual employee who in turn will effect the greater organization as such learning is integrated into daily routines, processes, actions, and decision-making.

In the NASA context, the nexus of strategic planning and organizational learning is the place of interaction between the two processes. The nexus is a function of documenting routines and processes; encountering issues or concerns or lessons learned during the strategic planning process; reacting to and making decisions about such issues, concerns, or lessons learned; revising routines and processes; sharing knowledge; changing behavior; storing artifacts and data;

making appropriate resources available; and providing a wide variety of learning and training opportunities.

Specific to improving the strategic planning process, NASA learned various important lessons. Lessons include such concepts as documenting the process formally, including the means to procure various levels of approval for signoff; centralizing internal and external review comments on the plan for concurrence; providing guidance and communications on the process Agency-wide; meeting one-on-one with internal and external contributors; and educating the Agency about the process. Additional lessons are to solicit advice from outside the Agency and to conduct an external assessment. NASA also learned about ways to organize the content of the plan, to determine who actually should be responsible for writing the plan—not by committee—and the importance of appearance, graphics, and readability. Also learned was the need for widespread communication and distribution of the final strategic plan in various formats to employees, stakeholders, customers, and the American public. Finally, and considered most important by the researcher, NASA learned the importance of ensuring that the Agency's strategic planning process is participatory by involving heavily internal and external employees, stakeholders, scientific and private industry advisors, and customers.

Conclusions

In the greater picture, the question might be asked whether the NASA model should be adopted or followed by other agencies or non-government organizations. NASA has shared its plan with other government agencies, and documented its strategic planning process on videotape (at the request of the Office of Management and Budget) as a model and process to share with other agencies and non-government organizations. The question of whether the NASA model should be adopted by others cannot be answered definitively from the current research and suggests one area of future research. What can be gained from the current study, however, is a first look at the nature and composition of the nexus between strategic

planning and organizational learning. Simply stated, and based solely on the current research, the nexus between strategic planning and organizational learning is a fluid, dynamic interplay and relationship within an organization that at times is an explicit, implicit, and sometimes even accidental process that uses an organization's strategic plan to: develop an informed workforce; store, transfer, and retrieve knowledge and data; create an awareness and understanding of the external environment; initiate behavioral change based on past experience; support a culture of learning; maintain an active communications network; encourage continuous improvement; and involve and inform customers and stakeholders.

Recommendations for NASA

In order for NASA to compete and survive as a successful government agency, adapt to changes in its environment, formulate a plan, set future goals, and measure performance, it must learn from and respond and adapt to its environment, and embrace ideas and feedback from customers and stakeholders. NASA continually must encode new and revised findings and understanding so that those new to the organization can pick up and continue from where the old left off. The Agency must make a commitment to learn from past successes and failures and learn to predict changes, rather than react when in a crisis management mode. The Agency also must continue to work toward further understanding of the nature of the connection—that is, the nexus—between the strategic planning and organizational learning processes and how that connection operates explicitly and implicitly in the NASA context. Uninformed customers, stakeholders, and other participants in the strategic planning process; an inadequate or incomplete external assessment; inappropriately or inaccurately documented policies and procedures; and an inadequate transfer of knowledge and skills might in fact result in a less than superior, unusable, and undesirable strategic plan that misrepresents the goals, objectives, and future direction of the Agency.

Given the maturity, formality, and level of documentation found in the existing strategic planning process and communications at NASA, the current

research suggests that NASA works toward further understanding of the nature of the nexus between strategic planning and organizational learning in the NASA context by:

- Distributing and discussing in depth the NASA Strategic Organizational Learning System (Figure 5) with those employees involved in strategic planning at the NASA Headquarters level
- Using the findings from the current research to discuss the details of informal strategic planning process and system as compared to the formal process and system with those involved in strategic planning at the NASA Headquarters level, thereby providing greater understanding of such processes to those employees
- Walking through both the formal and informal strategic planning processes to identify any changes that might be necessary to prepare for the revision of the Agency's strategic plan, as required by GPRA—noting routines, processes, interactions, communication, and roles that need to be revised or might require additional documentation
- Establishing a process to share across all Enterprises: workshop agendas and procedures, best practices, and lessons learned from NASA-sponsored industry and science workshops—that is, from interactions and transfer of knowledge among NASA, its customers, and stakeholders
- Continuing the development and presentation of internal learning activities that focus on the Agency's strategic plan and process
- Continuing the population of NASA websites with lessons learned and training materials to enhance the transfer of knowledge and information
- Initiating discussions focused on lessons learned about the current strategic planning process within the Office of Policy and Plans (Code Z) to prepare for the potential impact on that Office and the Agency when a new NASA Administrator is appointed
- Maintaining ISO 9000 certification to ensure the documentation of NASA's strategic planning processes is maintained and revised, as appropriate

Recommendations for Future Research

The scope of the current research project was to study one organization in depth (a representation of N=1). The interest of the researcher was in how a particular organization approaches and manages events, situations, experiences, and conditions related to strategic planning and organizational learning. However, the interest of the researcher was not in how various other organizations approach and manage similar events, situations, experiences, and conditions, nor the differences between or among organizations. Although the research project uncovered ways in which NASA was unique (unlike others), and ways in which its experiences were general (in a normative sense, the same as other organizations), the intent of the current research was not to explain all organization behavior and activity as it relates to strategic planning and organizational learning. The question of whether the NASA model should be adopted by others cannot be answered definitively from the current research and suggests one area of future research.

Although the findings of this single case study do contribute to the body of knowledge relating to the nexus of strategic planning and organizational learning, additional research is required to test, validate, revise, or even negate the clusters and elements of the model proposed in the 1998 review. The NASA Strategic Organizational Learning System (see Figure 5) demonstrates the importance of various communications networks within the Agency and how such networks operationalize the Agency's strategic plan; the NASA system also includes feedback as part of such networks.

The current research project was unable to provide insight to whether organizational learning occurs best in organizational designs that are organic, flat, and decentralized and whether such organizational designs eliminate levels of hierarchy which might either hinder or diminish effective communication and internal and external feedback (Hedberg, 1981). Clearly, NASA is a highly

structured and hierarchical organization. Further research is suggested in this area.

The NASA system supports the incorporation of learning activities, the importance of teamwork, the impact on strategic decision-making, and the establishment of an organizational memory where routines, processes, practices, knowledge, and history reside. The NASA system also addresses the importance and influence of culture, systems thinking, leadership, organization-wide knowledge and understanding of the Agency's mission and vision, and the influence of external factors and the environment.

Additional questions then can be raised about how or to what extent NASA as a scientific research organization is different from a for-profit organization. Are the findings of the current study constrained to hierarchical organizations such as NASA? What about organizations that operate in a more collegial structure? How do various types of organizations make mid-course corrections or adjustments in their strategic plans, goals, and methods of implementation? To what extent can or should organizations be restructured to have a greater stakeholder voice? And specifically, to what extent does a bureaucratic structure affect the nexus between the two processes?

Research similar to the current study is suggested in organizations of various sizes as well as in non-government organizations, such as private industry, academia, and the non-profit sectors. Are the findings transportable? Future research is suggested in areas such as the effect of organizational learning on competitive advantage, which was not addressed in the current study, but is suggested in the literature. Finally, research is suggested in organizations that do not have a strategic planning process that has achieved the level of maturity found at NASA.

Postscript

During the interview process, a number of respondents commented on the leadership of Daniel Goldin, the NASA Administrator as key in driving, supporting, and shaping the Agency's strategic planning process during his nine-year tenure. Respondents expressed concerns about the future of strategic planning at NASA when the time came that Goldin left the Agency. The researcher stated a similar challenge to NASA in Chapter Four of the research project, citing Goldin's significant influence over the direction of the Agency.

Goldin's resignation was announced shortly before the completion and defense of the current research:

"NASA Administrator Daniel S. Goldin, who was brought in nine years ago to streamline management and reduce costs, announced his resignation yesterday in the wake of a projected space station cost overrun that threatens the program's future" (Harwood, 2001, p. A2)

The article stated Goldin's resignation takes place on November 17, 2001, and that the September 11 terrorist attack on the World Trade Center contributed to his decision "in that it prompted a strong desire to spend more time with his family" (p. A2). Marked by many successes, Goldin's tenure was cited as the longest in the history of the Agency.

A subsequent article (Achenbach, 2001) announced President George W. Bush's decision that Sean O'Keefe, deputy director of the Office of Management and Budget, will be nominated to replace Daniel Goldin as the NASA Administrator. O'Keefe is described as "a veteran management expert and troubleshooter who recently told Congress that the space agency needs a cultural change" (p. A2). Achenbach further stated, "O'Keefe's appointment indicates that the White House wants someone to restore discipline to NASA's operation rather than dream up exotic new projects for exploring the universe" (p. A2). Initial reaction to O'Keefe's nomination by space enthusiasts is described as "cool," as O'Keefe is neither technical nor has no prior involvement in space. Considering the extreme polar perspectives on the space program and management styles of the two

administrators, it will be interesting to observe in the long run to what extent the newly appointed NASA Administrator will impact the Agency's strategic planning process and learning programs.

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